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Catalog of Courses Fall 2010

Degree and Certificate List

JCCC offers a wide variety of degrees and certificates that provide students the opportunity to prepare for specific careers and enter the job market directly. Several of the career programs allow students to gain valuable work experience in the field while taking the career program courses.

The college also offers a Liberal Arts transfer degree that prepares students to transfer to a four-year college or university. Specific information on course and degree transferability can be found in the Success Center on campus or on the transfer information Web site.

A General Studies degree is also available. This degree does not require an academic major or an emphasis in a specific career program.

Students interested in any degree or certificate should contact a JCCC counselor or a career department office for more information and assistance with entrance requirements, course selection and sequence, and job or transfer possibilities.

Credit Course Descriptions

Graduation Requirements

JCCC General Education Statement and Requirements

Degree and Certificate List

Programs, degrees and certificates are listed in alphabetical order (by 1st letter of title). Additionally, degrees and certificates are included under their program area.

To change your degree intent submit the Degree Intent Change form to the Student Success Center.

Academic Bridges to Learning Effectiveness (ABLE)

ABLE

Accounting

Accounting, A.A.S.

Bookkeeping Entrepreneurship Certificate

Tax Preparation Entrepreneurship Certificate

Administration of Justice/Law Enforcement

Administration of Justice, A.A.

Police Academy Certificate

Agriculture (see Horticulture)**Animation**

Animation, A.A.S.

Area Vocational Schools and Technical Colleges Completion

Kansas AVS/TC Articulated, A.A.S.

Administrative Assistant (see Business Office Technology)**Admin Asst-Legal Emphasis (see Business Office Technology)****Admin Asst-Medical Emphasis (see Business Office Technology)****Admin Support Specialist Certificate (see Bus Office Tech)****American Sign Language Studies Cert (see Interpreter Train)****Automotive Technology**

Automotive Technology, A.A.S.

Automotive Technology Certificate

Automotive Technology Entrepreneurship Certificate

Bed and Breakfast Entrepreneur Cert (see Hospitality Mgmt)**Biotechnology**

Biotechnology, A.A.S.

Biotechnology, A.S.

Biotechnology Certificate

Bookkeeping Entrepreneurship Cert (see Accounting)**Business Administration**

Business Administration, A.A.S.

Supervision Management Certificate

Business Logistics Management

Business-Logistics Mgt, A.A.S.

Business Office Technology

Administrative Assistant, A.A.S.

Administrative Assistant with Legal Emphasis, A.A.S.

Administrative Assistant with Medical Emphasis, A.A.S.

Administrative Support Specialist Certificate

Business Administrative Assistant Entrep Certificate

Legal Administrative Assistant Certificate

Medical Administrative Assistant Entrepreneurship Cert

Medical Office Assistant Certificate

Medical Transcription Certificate

Office Careers Certificate

Catering Entrepreneurship Certificate (see Hospitality Mgmt)**Certified Medication Aide (see Health Occupations)****Certified Nurse Aide (see Health Occupations)****Chef Apprenticeship (see Hospitality Management)****Civil Engineering Technology**

Civil Engineering Technology, A.A.S.

Construction Management Certificate

Commercial Electrical Design Cert(see Electrical Technology)**Commercial Wiring (see Electrical Technology)****Computer-aided Drafting-Design Tech (see Drafting Tech)****Computer Information Systems**

Computer Information Systems, A.A.S.

Database Certificate

Desktop Publishing Applications Specialist Certificate

Microcomputer Programmer Analyst Certificate

Personal Computer Applications Specialist Certificate

Web Applications Specialist Certificate

Web Developer Advanced Certificate

Construction Management (see Civil Engineering Technology)

Cosmetology

Advanced Esthetics Certificate

Cosmetology, A.A.S.

Cosmetology Certificate

Cosmetology Instructor Training Certificate

Esthetics Certificate

Nail Technology Certificate

Database Certificate (see Computer Information Systems)

Dental Assisting (see Health Occupations)

Dental Hygiene

Dental Hygiene, A.A.S.

Desktop Publishing App Cert (see Computer Information Syst.)

Drafting Technology

Computer-aided Drafting and Design Technology, A.A.S.

Computer-aided Drafting Certificate

Early Childhood Education

Early Childhood Education, A.S.

Early Childhood Education Certificate

Electrical Technology

Commercial Electrical Design Certificate

Commercial Wiring Certificate

Electrical Technology, A.A.S.

Electrical Technology Certificate

Industrial Electrical Wiring Certificate

Residential Electrical Design Certificate

Residential Wiring Certificate

Electronics Technology

Electronics Technology, A.A.S.

Industrial Controls Certificate

Microcomputer Technical Support Certificate

Smart House Technology Integrator Certificate

Emergency Medical Science (EMS)

Emergency Medical Science, A.A.S.

Mobile Intensive Care Technician Certificate

Emergency Medical Technician Certificate

Energy Performance & Resource Management

Energy Perform. & Resource Mgmt-Residential Auditing, A.A.S.

Energy Auditing Technician-Residential Certificate

Entrepreneurship

Entrepreneurship, A.A.S.

Entrepreneurship Certificate

Business Plan Certificate

Automotive Technology Entrepreneurship Cert(see Automotive)

Bed and Breakfast Entrepreneurship Certificate (see Hospitality Mgmt)

Bookkeeping Entrepreneurship Cert (see Accounting)

Business Admin Asst Entrepren Cert (see Busin Office Tech)

Catering Entrepreneurship Certificate (see Hospitality Mgmt)

Fashion Alteration Entrepreneur Cert (see Fash Merch-Design)

Fashion Design Entrepreneurship Cert (see Fash Merch-Design)

Fashion Merchandising Entrepren Cert (see Fash Merch-Design)

Floral Design Entrepreneurship Certificate (see Horticulture)

Game Entrepreneurship Advanced Certificate (see Game)

Health Care Interpreting Entrepreneurship Certificate (see Interpreter Training)

Horticulture Entrepreneurship Certificate (see Horticulture)
Hospitality Entrepreneurship Cert (see Hospitality Manage)
Interior Design and Merch Entrepren (see Interior Design)
Landscape Technician Entrepreneurship (see Horticulture)
Legal Nurse Consultant Entrepreneur. Cert(see Legal Studies)
Marketing Specialist Entrepren Cert (see Marketing)
Medical Admin Asst Entrepren Cert (see Business Office Tech)
Pastry/Baking Entrepreneur Cert.(see Hospitality Management)
Sustainable Agriculture Entrepreneur Cert (see Horticulture)
Tax Preparation Entrepreneurship Cert (see Accounting)
Visual Merchandising Entre. Cert.(see Fashion Merchandising)

Esthetics Certificate (see Cosmetology)

Fashion Merchandising and Design

Fashion Merchandising, A.A.S.
Fashion Alteration Entrepreneurship Certificate
Fashion Design Entrepreneurship Certificate
Fashion Design, A.A.S.
Fashion Merchandising Entrep Certificate
Visual Merchandising Certificate
Visual Merchandising Entrepreneurship Certificate

Fire Services Administration

Fire Services Administration, A.A.

Floral Design Entrepreneurship (see Horticulture)

Floriculture Certificate (see Horticulture)

Food and Beverage Management (see Hospitality Management)

Game

Game Business Advanced Certificate
Game Development, A.A.S.
Game Entrepreneurship Advanced Certificate

Game Narrative Advanced Certificate
Game Programming Advanced Certificate

General Studies

General Studies, A.G.S.

Geographic Information Systems

Geographic Info Systems Cert

Graphic Design

Graphic Design, A.A.S.

Health Care Interpreting

Health Care Interpreting Certificate
Health Care Interpreting Entrepreneurship Certificate

Health Information Technology

Health Information Tech, A.A.S

Health Occupations

Certified Medication Aide Certificate
Certified Medication Aide Update Certificate
Certified Nurse Aide Certificate
Certified Nurse Aide Refresher Certificate
Dental Assisting, A.A.S.
Dental Assisting Certificate
Dental Hygiene (see listing for Dental Hygiene)
Emergency Medical Science (see listing Emerg Medical Sci)
Home Health Aide Certificate
IV Therapy for LPN's Certificate
Nursing (see listing for Nursing)
Occupational Therapy Asst, AAS
Physical Therapist Asst, A.A.S
Polysomnography/Sleep Technology (see Polysomnography)
Radiologic Technology, A.A.S.

Rehabilitative Aide Certificate

Respiratory Care (see listing for Respiratory Care)

Surgical Technology Cert

Heating, Ventilation and Air Conditioning Technology

General Basic HVAC Certificate

General Basic HVAC Installation and Duct Fabrication Cert.

General Basic HVAC Maintenance Certificate

General Basic HVAC Sales, Design and Estimating Cert.

HVAC Commercial Service Technician, A.A.S.

HVAC Commercial Service Technician Certificate

HVAC Installation Technician Certificate

HVAC Residential Service Technician, A.A.S.

HVAC Residential Service Technician Certificate

Home Health Aide Certificate (see Health Occupations)

Horticulture

Floral Design Entrepreneurship Certificate

Floriculture Certificate

Horticulture, A.A.S.

Horticulture Certificate

Horticulture Entrepreneurship Certificate

Landscape Technician Certificate

Landscape Technician Entrepreneurship Certificate

Sustainable Agriculture Entrepreneurship Certificate

Hospitality Management

Bed & Breakfast Entrepreneurship Certificate

Catering Entrepreneurship Certificate

Chef Apprenticeship, A.A.S.

Food and Beverage Management, A.A.S.

Food and Beverage Management Certificate

Hospitality Entrepreneurship Certificate

Hotel & Lodging Management, A.A.S.

Pastry/Baking Certificate

Pastry/Baking Entrepreneurship Certificate

Sustainable Agriculture Entrepreneur Cert (see Horticulture)

Industrial Controls Certificate (see Electronics Technology)

Industrial Electrical Wiring Cert(see Electrical Technology)

Industrial Maintenance

Industrial Maintenance, A.A.S.

Industrial Maintenance Certificate

Information Systems (see Computer Information Systems)

Information Technology

Information Technology, A.A.S.

Interactive Media

Interactive Media, A.A.S.

Interactive Media Certificate

Interior Design

Floral Design Entrepreneurship Certificate (see Horticulture)

Interior Design, A.A.S.

Interior Design Advanced Certificate

Interior Design Retail Sales/Manufacturing Rep Certificate

Interior Design & Merchandising Entrep Certificate

Interior Entrepreneurship, A.A.S.

Interior Merchandising, A.A.S.

Interior Products Sales Representative Certificate

Interpreter Training

Interpreter Training, A.A.S.

American Sign Language Studies Certificate

IV Therapy for LPN Certificate (see Health Occupations)

Land Surveying

Land Surveying, A.A.S.

Land Surveying Certificate

Landscape Technician (see Horticulture)**Legal Administrative Assistant Cert(see Business Office Tec)****Legal Studies**

Paralegal, A.A.

Legal Nurse Consultant Certificate

Legal Nurse Consultant Entrepreneurship Certificate

Paralegal Certificate

Liberal Arts Degree

Liberal Arts, A.A.

Locomotive Electrical and Mechanical Cert(see Railroad Oper)**Introduction to Manufacturing Cert (see Metal Fab/Welding)****Marketing and Management**

Marketing and Management, A.A.S.

Marketing Specialist Entrepreneurship Certificate

Retail Sales Representative Certificate

Sales and Customer Relations Certificate

Medical Office Assistant Certif (see Business Office Tech)**Medical Transcription Certificate (see Business Office Tech)****Metal Fabrication/Welding**

Metal Fabrication Technology, A.A.S.

Metal Fabrication Technology Certificate

Combination Welder I Certificate

Combination Welder II Certificate

Combination Welder/Machinist I Certificate

General Basic Welding Certificate

Introduction to Manufacturing Certificate

Welder Fabricator Advanced Certificate

Microcomputer Programmer Analyst Cert(see Computer Info Sys)**Microcomputer Technical Support Certif (see Electronics Tech)****Mobile Intensive Care Technician Certificate (see EMS)****Nail Technology Certificate (see Cosmetology)****Nursing**

Nursing - Registered Nurse, A.A.S.

PN to RN Transition, A.A.S

Practical Nursing Certificate

Occupational Therapy Assistant (see Health Occupations)**Office Careers Certificate (see Business Office Technology)****Paralegal (see Legal Studies)****Pastry/Baking Certificate (see Hospitality Management)****Personal Computer Applications Cert (see Computer Infor Sys)****Physical Therapy Assistant (see Health Occupations)****PN to RN Transition (see Nursing)****Polysomnography/Sleep Technology**

Polysomnography/Sleep Technology, A.A.S.

Practical Nursing (see Nursing)**Professional Paraeducator**

Professional Paraeducator Program, A.A.

Radiologic Technology (see Health Occupations)**Railroad Electronics**

Railroad Electronics, A.A.S.

Railroad Electronics Certificate

Railroad Industrial Technology

Railroad Carman Welding Certificate

Railroad Machinist Welding Certificate

Railroad Structural Welding Certificate

Railroad Track Welding Certificate

Railroad Operations

Railroad Operations - Conductor Option, A.A.S.
 Locomotive Electrical Certificate
 Locomotive Mechanical Certificate
 Railroad Freight Car Certificate
 Railroad Conductor Certificate
 Railroad Operations - General Option, A.A.S.
 Railroad Operations - Mechanical Option, A.A.S.
 Railroad Operations - Welding Option, A.A.S.

disabilities (learning disabilities, traumatic brain injuries, autism spectrum disorders, ADHD, etc.) how to become independent learners.

Students take courses with supplemental workshops as well as attend weekly support group meetings to build skills and confidence for college and vocational programs.

An educational specialist works with each student to design an individualized course plan. For more information, call Metropolitan Community College-Longview ABLE program, 816-604-2053.

Note: Johnson County Community College students should seek specific counsel from the MCC program personnel for the appropriate course plan and numbers.

Johnson County Community College students should refer to Cooperative Program Information.

Rehabilitative Aide Cert (see Health Occupations)

Residential Electrical Cert (see Electrical Technology)

Residential Wiring Certificate (see Electrical Technology)

Respiratory Care

Respiratory Care, A.A.S.

Retail Sales Representative Cert (see Marketing and Manage)

Sales and Customer Service Cert (see Marketing and Manage)

Science Technology (see Biotechnology)

Smart House Technology Integrator (see Electronics)

Supervision Management Cert (see Business Administration)

Surgical Technology (see Health Occupations)

Tax Preparation Entrepreneurship Cert (see Accounting)

Veterinary Technology

Veterinary Technology, A.A.S.

Visual Merchandising Cert (see Fashion Merch and Design)

Web Applications Certificate (see Computer Infor Sys)

Web Developer Advanced Certificate (see Computer Info Sys)

Welding (see Metal Fabrication or Railroad)

Accounting, A.A.S.

Accounting is a crucial part of every business operation and the language that businesses speak. The associate of applied science degree program focuses on practical skills often required for entry-level paraprofessional positions. The internship course gives the graduate on-the-job experience working in an approved business. Two-year graduates may find positions as accounting assistants, accounting clerks and general bookkeepers.

The accounting career program (see: www.jccc.net/home/depts/1202) is accredited by the Association of Collegiate Business Schools and Programs (ACBSP). For students wishing to transfer to a four-year college accounting or business program, this accreditation makes the transfer a smoother process. For more information, please contact the department chair (skleiner@jccc.edu) or a JCCC counselor.

(Major Code 2400; CIP Code 52.0302)

Accounting Careers

Associate of Applied Science Degree

First Semester

	Business Electives.....	3
	Social Science and/or Economics Electives.....	3
ENGL 121	Composition I*.....	3
	Prerequisite: ENGL 106 or appropriate placement test score or EAP 113 and EAP 117	
ACCT 121	Accounting I.....	3
MATH 120	Business Mathematics*.....	3
	Prerequisite: MATH 111 with a grade of "C" or higher or appropriate score on the math assessment test or	
MATH 171	College Algebra or higher*.....	3
	Prerequisite: MATH 116 with a grade of "C" or higher or MATH 131 with a grade of "C" or higher or MATH 134 with a grade of "C" or higher or appropriate score on the math assessment test	
BOT 101	Computerized Keyboarding.....	1
	Total Semester Credit Hours.....	16

Second Semester

	Business Electives.....	6
ACCT 122	Accounting II*.....	3
	Prerequisite: ACCT 121	
BUS 150	Business Communications*.....	3
	Prerequisite: ENGL 121	
BUS 261	Business Law I.....	3
BOT 115	Electronic Calculators.....	1
	Total Semester Credit Hours.....	16

Third Semester

	Business Electives.....	2
ACCT 222	Managerial Accounting*.....	3
	Prerequisite: ACCT 122 or	
ACCT 231	Intermediate Accounting I**.....	3
	Prerequisite: ACCT 122	
ACCT 278	Accounting Internship*.....	1
	Prerequisites: ACCT 121 plus 12 additional ACCT	

ABLE

Academic Bridges to Learning Effectiveness (ABLE)

The Academic Bridges to Learning Effectiveness (ABLE) program is granted by Metropolitan Community College, but coordinated at JCCC.

This nationally recognized program teaches students with neurological

	hours beyond ACCT 121 and department approval	
ACCT 140	Computerized Accounting Problems*.....3	
	Prerequisite or corequisite: ACCT 122	
BUS 225	Human Relations.....3	
PHIL 138	Business Ethics.....1	
HIST 141	U.S. History Since 1877.....3	
	Total Semester Credit Hours.....16	

Fourth Semester

	Business Electives.....3	
	Health and/or Physical Education Elective.....1	
ACCT 215	Accounting for Nonprofit Organizations*^.....3	
	Prerequisite: ACCT 121	
	or	
ACCT 221	Cost Accounting*^.....3	
	Prerequisite: ACCT 122	
	or	
ACCT 232	Intermediate Accounting II*^.....3	
	Prerequisite: ACCT 122	
	or	
ACCT 240	Fraud Examination*^.....3	
	Prerequisite: ACCT 121 and ACCT 122 and ACCT 222	
ACCT 131	Federal Income Taxes I.....3	
ACCT 135	Computerized Accounting Applications*.....3	
	Prerequisite: ACCT 121 or ACCT 111	
ACCT 285	Accounting Capstone*.....3	
	Prerequisites: ACCT 121 and ACCT 122	
	plus 15 hours of accounting courses	
	and department approval	
	Total Semester Credit Hours.....16	
	TOTAL PROGRAM CREDIT HOURS.....64	

*Prerequisite/Corequisite required

NOTE: Business electives are any courses with the BUS, ENTR or ECON prefix.

NOTE: ^The student is required to complete two of the six following accounting courses: ACCT 215, 221, 222, 231, 232 or 240.

Bookkeeping Entrepreneurship Certificate

The bookkeeping entrepreneurship certificate prepares students to open their own service business providing bookkeeping assistance to small businesses. This certificate is designed to provide the student with basic accounting skills and the basic skills in small business development and management.

(Major Code 4050; CIP Code 52.0302)

Accounting Careers

Career Certificate

Suggested/Sample Course Sequence

The sequence taken by the student may vary depending on prerequisites, course availability, and personal/professional responsibilities.

First Semester

ENGL 121	Composition I*.....3	
	Prerequisite: ENGL 106 or appropriate placement test score or EAP 113 and EAP 117	
ACCT 121	Accounting I.....3	
ENTR 120	Introduction to Entrepreneurship.....2	
ENTR 180	Opportunity Analysis.....2	
	Total Semester Credit Hours.....10	

Second Semester

BUS 150	Business Communications*.....3	
	Prerequisite: ENGL 121	
ACCT 135	Computerized Accounting Applications*.....3	
	Prerequisite: ACCT 121 or ACCT 111	
ACCT 122	Accounting II*.....3	
	Prerequisite: ACCT 121	
ACCT 140	Computerized Accounting Problems*.....3	
	Prerequisite or corequisite: ACCT 122	

Total Semester Credit Hours.....12

Third Semester

ENTR 142	Fast Trac Business Plan.....3	
ACCT 222	Managerial Accounting*.....3	
	Prerequisite: ACCT 122	
	or	
ACCT 215	Accounting for Nonprofit Organizations*.....3	
	Prerequisite: ACCT 121	
	or	
ACCT 231	Intermediate Accounting I*.....3	
	Prerequisite: ACCT 122	
ACCT 285	Accounting Capstone*.....3	
	Prerequisites: ACCT 121 and ACCT 122	
	plus 15 hours of accounting courses	
	and department approval	
	Total Semester Credit Hours.....9	
	TOTAL PROGRAM CREDIT HOURS.....31	

*Prerequisite/Corequisite required

Students may be interested in taking additional courses, as noted below, to complement their certificate study. These courses are NOT part of the certificate requirements.

ENTR 160	Legal Issues for Small Business.....2	
ENTR 195	Franchising*.....3	
	Prerequisite: BUS 230	
ENTR 220	Entrepreneurial Marketing*.....2	
	Prerequisite: BUS 230	

Tax Preparation Entrepreneurship Certificate

The tax preparation entrepreneurship certificate prepares students to open their own service business providing tax preparation services for simple individual tax returns. This certificate is designed to provide the student with basic accounting skills and small business development and management. Further academic coursework and/or certifications would be necessary to prepare more advanced tax forms.

(Major Code 4310; CIP Code 52.1601)

Accounting Careers

Career Certificate

Suggested/Sample Course Sequence

The sequence taken by the student may vary depending on prerequisites, course availability, and personal/professional responsibilities.

First Semester

BUS 230	Marketing.....3	
ACCT 121	Accounting I.....3	
ACCT 131	Federal Income Taxes I.....3	
ENTR 120	Introduction to Entrepreneurship.....2	
ENTR 180	Opportunity Analysis.....2	
ENTR 160	Legal Issues for Small Business.....2	
	Total Semester Credit Hours.....15	

Second Semester

ACCT 122	Accounting II*.....3	
	Prerequisite: ACCT 121	
ACCT 135	Computerized Accounting Applications*.....3	
	Prerequisite: ACCT 121 or ACCT 111	
ACCT 140	Computerized Accounting Problems*.....3	
	Prerequisite or corequisite: ACCT 122	
ENTR 142	Fast Trac Business Plan.....3	
ENTR 220	Entrepreneurial Marketing*.....2	
	Prerequisite: BUS 230	
	Total Semester Credit Hours.....14	

Third Semester

ACCT 285	Accounting Capstone*.....3	
	Prerequisites: ACCT 121 and ACCT 122	

	plus 15 hours of accounting courses and department approval	
ACCT 278	Accounting Internship*.....1	
	Prerequisites: ACCT 121 plus 12 additional ACCT hours beyond ACCT 121 and department approval	
	Total Semester Credit Hours.....4	
	TOTAL PROGRAM CREDIT HOURS.....33	
	*Prerequisite/Corequisite required	
Students may be interested in taking an additional course, as noted below, to complement their certificate study. This course is NOT part of the certificate requirements.		
ENTR 195	Franchising*.....3	
	Prerequisite: BUS 230	

	Humanities Course.....3	
	(cannot be a philosophy course)	
	Social Science Course**.....3	
	Science and/or Math Elective***.....3	
	Health and/or Physical Education Elective.....1	
ADMJ 280	Criminal Justice and the Public*.....3	
	Prerequisites: ADMJ 121 and ADMJ 124 and ADMJ 127 and ADMJ 220 and at least five (5) additional credit hours of Administration of Justice course work	
	Total Semester Credit Hours.....16	
	TOTAL PROGRAM CREDIT HOURS.....64	
	*Prerequisite/Corequisite required	

Administration of Justice, A.A.

More than 1 million people are employed in the administration of justice/law enforcement fields in the United States. Employment opportunities are expected to grow as fast as or slightly faster than average for all occupations in the field.

JCCC's administration of justice/law enforcement program provides you the opportunity to study various aspects of the criminal justice fields. Successful completion of 64 hours of credit in this two-year program leads to an associate of arts degree. You should contact a counselor when developing a program plan.

The list of approved cultural diversity courses can be found at <http://www.jccc.net/home/catalog.php/current/tocdegrees/AA-ASDIVERS>

(Major Code 2120; CIP Code 43.0107)

Administration of Justice

Associate of Arts Degree

IMPORTANT - Students graduating with an Administration of Justice degree must complete an approved cultural diversity course. Some of the approved courses are able to meet both the cultural diversity requirement and a general education requirement. To see a complete list of courses, click on the link provided below.

[Cultural Diversity Course Requirement at JCCC.....](#)

First Semester

	Social Science Course**.....3
ENGL 121	Composition I*.....3
	Prerequisite: ENGL 106 or appropriate placement test score or EAP 113 and EAP 117
ADMJ 121	Introduction to Administration of Justice+.....3
ADMJ 124	Criminal Justice and Corrections.....3
ADMJ 127	Criminology.....3
	Total Semester Credit Hours.....15

Second Semester

	ADMJ Program Elective.....3
SPD 120	Interpersonal Communication.....3
ENGL 122	Composition II*.....3
	Prerequisite: ENGL 121
PHIL 143	Ethics.....3
ADMJ 140	Constitutional Case Law+.....3
ADMJ 230	Criminal Behavior*.....3
	Prerequisite: PSYC 130
	Total Semester Credit Hours.....18

Third Semester

	ADMJ Program Elective.....3
	Science and/or Math Elective***.....6
FL 130	Elementary Spanish I.....5
ADMJ 220	Writing for Criminal Justice*.....1
	Prerequisites: ENGL 121 and ENGL 122
	Total Semester Credit Hours.....15

Fourth Semester

	ADMJ Program Elective.....3
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ADMJ Program Electives

9 hours - any three courses	
ADMJ 130	Crime Prevention.....3
ADMJ 133	Juvenile Delinquency.....3
ADMJ 141	Criminal Law*+.....3
	Prerequisite: ADMJ 121 or LAW 121
ADMJ 143	Crime Analysis.....3
ADMJ 145	Fundamentals Private Security.....3
ADMJ 146	Retail Security.....3
ADMJ 148	Family Violence/Sexual Abuse.....3
ADMJ 154	Fundamentals of Criminal Investigation*+.....3
	Prerequisite: ADMJ 124 or attain waiver from program chair
ADMJ 170	Introduction to Substance Use and Abuse.....3
ADMJ 180	Correctional Casework.....3
ADMJ 201	Police Interrogation.....3
	Prerequisite: Suggested course: ENGL 121
ADMJ 221	Introduction to Forensics.....3
ADMJ 224	Introduction to Terrorism.....3
ADMJ 235	Community Based Corrections.....3
ADMJ 281	Readings in Police Science*.....3
	Prerequisite: 15 credit hours in ADMJ courses
ADMJ 285	Administration of Justice Internship*.....3
	Prerequisites: Fifteen credit hours in ADMJ courses or department approval and a grade point average of 2.0 or higher

** You must take two courses from the following list, but not more than one course from each group may count toward the required 6 hours.

Group 1:

POLS 124	American National Government.....3
POLS 126	State and Local Government.....3

Group 2:

PSYC 130	Introduction to Psychology*.....3
	Prerequisite: Appropriate score on the COMPASS reading test OR appropriate score on the ACT reading test OR RDG 126 with a grade of "C" or higher
Note: This is a prerequisite for ADMJ 230.	

Group 3:

SOC 122	Introduction to Sociology^.....3
SOC 125	Social Problems^.....3
^Meets Cultural Diversity requirement	

NOTE:*** The 9 hours required must include at least one course from a lab science and one from mathematics.

NOTE: + If you are certified under the Kansas Law Enforcement Training Act, you are eligible to receive assessment of prior learning credit for some or all of these courses.

Police Academy Certificate

This course consists of 60 clock hours of law enforcement training provided in addition to the 540 hours required by the Kansas Minimum Standards Training Act for recruits attending the Police Academy. While the required 600-hour curriculum is provided without fee, enrollment in advanced training is required of all those attending the academy. The curriculum covers law, criminal investigations, patrol procedures, defensive tactics, report writing and specialized training required by local law enforcement agencies.

Prerequisite: Selective Admissions - open only to currently employed full-time police officers attending the Police Academy under sponsorship of a law enforcement agency

(Major Code 4880; CIP Code 43.0103)

Certificate of Completion

Required Course

ADMJ 265	Advanced Police Training*	12
	Prerequisite: Selective Admissions - open only to currently employed full-time police officers attending the Police Academy under sponsorship of a law enforcement agency	
	TOTAL PROGRAM CREDIT HOURS	12

*Prerequisite/Corequisite required

Animation, A.A.S.

The Associate of Applied Science Degree Animation program provides instruction for creating animation, 3D modeling and special effects for applications such as animated shorts, movies and games, and rendering 3D environments. Fundamental drawing skills, interactive concepts, and the development of assets will be covered. Depending on individual choices and talents, students who complete the Animation program should be prepared for employment as an animator, a game art creator, a 3D visual artist, and/or a special effects artist.

(Major Code 2630; CIP Code 10.0304)

Animation

Associate of Applied Science Degree

Prerequisite for Required Courses

Note: Prior to the beginning of the program, the student must take the following prerequisite, or have taken the equivalent transfer course, or have passed the waiver test (where applicable), or have obtained a waiver from the department.

CDTP 135	Desktop Photo Manipulation I: Photoshop	1
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First Semester

CIM 130	Interactive Media Concepts*	2
	Prerequisite or corequisite: ENGL 121	
CIM 140	Interactive Media Assets*	4
	Prerequisites: CDTP 135 AND prerequisite or corequisite CIM 130	
ANI 123	Concept Art for Animation	3
ANI 145	Introduction to 3D Animation*	3
	Prerequisite or corequisite: ANI 123	
ENGL 121	Composition I*	3
	Prerequisite: ENGL 106 or appropriate placement test score or EAP 113 and EAP 117	
	Total Semester Credit Hours	15

Second Semester

	Animation Elective	3
	Humanities Electives	3
ANI 245	Character Animation*	3
	Prerequisite: ANI 145	
ENGL 140	Writing for Interactive Media*	3
	Prerequisite: ENGL 121	
ANI 125	Introduction to 2D Animation*	3
	Prerequisite: ANI 123	
ART 130	Drawing I	3
	Total Semester Credit Hours	18

Third Semester

	Health and/or Physical Education Elective	1
ANI 255	Advanced Animation and Effects*	3
	Prerequisite: ANI 245	

ART 231	Life Drawing I*	3
	Prerequisite: ART 130	
MUS 156	MIDI Music Composition	3
BUS 141	Principles of Management	3
ANI 270	Visual Effects and Compositing*	3
	Prerequisite: ANI 145	
	Total Semester Credit Hours	16

Fourth Semester

	Animation Elective	3
	Science and/or Math Elective*	3
	Social Science and/or Economics Elective	3
ANI 260	Animation Capstone*	3
	Prerequisite: ANI 255	
ANI 273	Career Preparation*	4
	Prerequisite or corequisite: ANI 260	
	Total Semester Credit Hours	16
	TOTAL PROGRAM CREDIT HOURS	65

Animation Electives

ENGL 150	Digital Narratives*	3
	Prerequisite: ENGL 121	
ANI 250	Game Art Assets*	3
	Prerequisite: ANI 145	
ANI 258	Game Level Design*	3
	Prerequisite: ANI 145	
GAME 101	Computer Game Creation	4
GAME 110	Flash Gaming	4
GAME 200	Game Design	3
CIM 133	Screen Design*	4
	Prerequisite: CDTP 135	
CIM 135	Digital Imaging and Video*	3
	Prerequisite: CDTP 135	
	Recommended: PHOT 121	
CIM 156	Interactive Authoring I*	4
	Prerequisite: CIM 130 and prerequisite or corequisite: CIM 140	
CIM 235	Advanced Digital Video*	3
	Prerequisite: CIM 135	
CIM 254	Interact Authoring II*	4
	Prerequisite: CIM 156	
ART 131	Drawing II*	3
	Prerequisite: ART 130	
ART 232	Life Drawing II*	3
	Prerequisite: ART 231	

*Prerequisite/Corequisite required

Kansas AVS/TC Articulated, A.A.S.

This degree is designed to facilitate student transfer of technical education programs under the provisions outlined in the Transfer Agreement and Articulation Guide for Kansas Community Colleges, Area Technical Schools and Colleges for the Associate in Applied Science, dated September 1999.

Beginning Fall 1999, this degree may be earned by a student wishing to transfer from a Kansas Area Vocational Technical School or Kansas Technical College with the following criteria:

- Completion of an eligible technical program of 1080 hours or more from a Kansas Vocational Technical School or Kansas Technical College.
- Official transcript from the technical institution documenting the number of hours and certificate or degree awarded.
- The student must have 15 credits from JCCC in order to receive this degree from JCCC.
- The 1080 documented hours will be transferred to JCCC as 45 transfer credit hours and will be placed on the student's JCCC transcript when the student applies for graduation from JCCC.
- Students must also meet general JCCC admissions, residency and graduation requirements.
- Interested students should contact a JCCC counselor for further information prior to transfer and enrollment.

Kansas AVS/TC Articulated

Associate of Applied Science Degree

Sequence of Courses	
Transferred AVS/TC Program	45
Communication Elective	3
Humanities Elective	3
Social Science and/or Economics Electives	3
Science and/or Math Elective*	3
Electives	3
Health and/or Physical Education Elective	3
ENGL 121 Composition I*	3
Prerequisite: ENGL 106 or appropriate placement test score or EAP 113 and EAP 117	
TOTAL PROGRAM CREDIT HOURS	64

*Prerequisite/Corequisite required

Automotive Technology, A.A.S.

Automotive technicians generally begin their careers in service repair shops, with continually expanding industrial and service career advancement opportunities. Technicians work with experienced professionals and have frequent contact with the public. This field requires good mechanical aptitude and manual dexterity skills.

The two-year associate of applied science degree, which is certified by the ASE, covers all major areas, including diagnosis and tune-up, chassis, electrical/electronic and hydraulic systems, automatic transmissions, engines, and emissions. Students work on developing the skills needed to advance to a supervisory position, such as customer relations, estimating materials and labor costs, and managing the work of others.

In the Kansas City area, the anticipated job growth is 32 percent by 2008. About 239 annual openings are expected to occur each year. The average hourly wage in 2002 was \$16.22.

(Major Code 2420; CIP Code 47.0604)

Automotive Technology

Associate of Applied Science Degree

Prior to beginning the automotive technology associate of applied science degree program, the student must have:

AUTO 125 Introduction to Automotive Shop Practices	3
or Department approval	

First Semester

AUTO 163 Automotive Steering and Suspension*	3
Prerequisite or corequisite: AUTO 125 or department approval	
AUTO 234 Automotive Electrical Systems*	4
Prerequisite or corequisite: AUTO 125 or department approval	
INDT 125 Industrial Safety	3
MATH 120 Business Mathematics*	3
Prerequisite: MATH 111 with a grade of "C" or higher or appropriate score on the math assessment test	
ENGL 121 Composition I*	3
Prerequisite: ENGL 106 or appropriate placement test score or EAP 113 and EAP 117	
Total Semester Credit Hours	16

Second Semester

Technical/Related Electives	3
Health and/or Physical Education Elective	1
AUTO 165 Automotive Engine Repair*	4
Prerequisite or corequisite: AUTO 125 or department approval	
AUTO 167 Automotive Brake Systems*	2
Prerequisite or corequisite: AUTO 125 or department approval	
AUTO 168 Automotive Manual Drivetrain and Axles*	3
Prerequisite or corequisite: AUTO 125 or department approval	
ENGL 123 Technical Writing I*	3
Prerequisite: ENGL 121	
Total Semester Credit Hours	16

Third Semester

Humanities Elective	3
Social Science and/or Economics Elective	3

AUTO 250 Automatic Transmissions and Transaxles*	4
Prerequisite or corequisite: AUTO 125 or department approval	
AUTO 254 Automotive Engine Performance*	5
Prerequisites or corequisites: AUTO 165 and AUTO 234	
MFAB 127 Welding Processes	2
Total Semester Credit Hours	17

Fourth Semester

Technical/Related Electives	3
AUTO 230 Automotive Heating and Air Conditioning*	3
Prerequisite or corequisite: AUTO 125 or department approval	
AUTO 260 Automotive Service Management*	3
Prerequisite: AUTO 254	
AUTO 261 Automotive Service Techniques*	3
Prerequisite: AUTO 254	
BUS 140 Principles of Supervision	3
Total Semester Credit Hours	15
TOTAL PROGRAM CREDIT HOURS	64

Technical/Related Electives

AUTO 120 Basic Automobile Operation and Maintenance	3
AUTO 121 Small Engine Service	3
AUTO 122 Introduction to Automotive Glass	3
AUTO 123 Motorcycle Maintenance and Repair	2
AUTO 128 Automotive Parts Specialist	2
AUTO 130 Diesel Fundamentals*	2
Prerequisite or corequisite: AUTO 125	
AUTO 201 ASE Certification Seminar	1
AUTO 210 Advanced Engine Repair*	3
Prerequisite: AUTO 165	
AUTO 271 Automotive Technology Internship*	3
Prerequisite: Department approval required	
AUTO 291 Independent Study	1-7
MATH 130 Technical Mathematics I*	3
Prerequisite: MATH 111 with a grade of "C" or higher or an appropriate score on the math assessment test	
PHYS 133 Applied Physics*	5
Prerequisite: MATH 135 or higher	
ENTR 142 Fast Trac Business Plan	3
CIS 124 Introduction to Computer Concepts and Applications	3
CPCA 105 Introduction to Personal Computers: Windows	1
ELEC 120 Introduction to Electronics	3
RRT 165 Railroad Safety, Quality and Environment	3
INDT 155 Workplace Skills	1

*Prerequisite/Corequisite required

Automotive Technology Certificate

The automotive technology certificate program is designed to meet the needs of today's beginning and experienced auto technicians. With the completion of the certificate program, the student will have a well-rounded background in the repair required for dealership and independent service personnel. Completion of courses should assist students in preparing for ASE certification tests. Most automotive trades expect applicants to pass one or more of the ASE tests, which will enable them to qualify for technical positions in service repair.

(Major Code 4710; CIP Code 47.0604)

Automotive Technology

Career Certificate

Prior to beginning the automotive technology career certificate program, the student must have:

AUTO 125 Introduction to Automotive Shop Practices	3
or department approval	

Fall Semester

INDT 155 Workplace Skills	1
AUTO 163 Automotive Steering and Suspension*	3
Prerequisite or corequisite: AUTO 125 or department approval	
AUTO 165 Automotive Engine Repair*	4
Prerequisite or corequisite: AUTO 125 or department approval	
AUTO 234 Automotive Electrical Systems*	4
Prerequisite or corequisite: AUTO 125 or department approval	

MFAB 127	Welding Processes.....	2
	Total Semester Credit Hours.....	14

Spring Semester

INDT 125	Industrial Safety.....	3
AUTO 167	Automotive Brake Systems*.....	2
	Prerequisite or corequisite: AUTO 125 or department approval	
AUTO 168	Automotive Manual Drivetrain and Axles*.....	3
	Prerequisite or corequisite: AUTO 125 or department approval	
AUTO 230	Automotive Heating and Air Conditioning*.....	3
	Prerequisite or corequisite: AUTO 125 or department approval	
	Total Semester Credit Hours.....	11

Fall Semester

AUTO 250	Automatic Transmissions and Transaxles*.....	4
	Prerequisite or corequisite: AUTO 125 or department approval	
AUTO 254	Automotive Engine Performance*.....	5
	Prerequisites or corequisites: AUTO 165 and AUTO 234	
	Total Semester Credit Hours.....	9
	TOTAL CREDIT HOURS.....	34

*Prerequisite/Corequisite required

Second Option

Summer Prerequisite Semester

AUTO 125	Introduction to Automotive Shop Practices.....	3
	or department approval	

Summer Semester

AUTO 165	Automotive Engine Repair*.....	4
	Prerequisite or corequisite: AUTO 125 or department approval	
	Total Semester Credit Hours.....	4

Fall Semester

AUTO 163	Automotive Steering and Suspension*.....	3
	Prerequisite or corequisite: AUTO 125 or department approval	
AUTO 234	Automotive Electrical Systems*.....	4
	Prerequisite or corequisite: AUTO 125 or department approval	
AUTO 250	Automatic Transmissions and Transaxles*.....	4
	Prerequisite or corequisite: AUTO 125 or department approval	
AUTO 254	Automotive Engine Performance*.....	5
	Prerequisites or corequisites: AUTO 165 and AUTO 234	
	Total Semester Credit Hours.....	16

Spring Semester

INDT 125	Industrial Safety.....	3
INDT 155	Workplace Skills.....	1
AUTO 167	Automotive Brake Systems*.....	2
	Prerequisite or corequisite: AUTO 125 or department approval	
AUTO 168	Automotive Manual Drivetrain and Axles*.....	3
	Prerequisite or corequisite: AUTO 125 or department approval	
AUTO 230	Automotive Heating and Air Conditioning*.....	3
	Prerequisite or corequisite: AUTO 125 or department approval	
MFAB 127	Welding Processes.....	2
	Total Semester Credit Hours.....	14
	TOTAL PROGRAM CREDIT HOURS.....	34

*Prerequisite/Corequisite required

student with basic skills in automotive technology and small business development and management.

(Major Code 4180; CIP Code 47.0604)

Automotive Technology

Career Certificate

Suggested/Sample Course Sequence

The sequence taken by the student may vary depending on prerequisites, course availability, and personal/professional responsibilities.

Prerequisites for Required Courses

Fall Prerequisite Semester

AUTO 125	Introduction to Automotive Shop Practices.....	3
AUTO 165	Automotive Engine Repair*.....	4
	Prerequisite or corequisite: AUTO 125 or department approval	
AUTO 234	Automotive Electrical Systems*.....	4
	Prerequisite or corequisite: AUTO 125 or department approval	

Spring Semester

INDT 125	Industrial Safety.....	3
AUTO 167	Automotive Brake Systems*.....	2
	Prerequisite or corequisite: AUTO 125 or department approval	
AUTO 168	Automotive Manual Drivetrain and Axles*.....	3
	Prerequisite or corequisite: AUTO 125 or department approval	
AUTO 230	Automotive Heating and Air Conditioning*.....	3
	Prerequisite or corequisite: AUTO 125 or department approval	
ENTR 120	Introduction to Entrepreneurship.....	2
ENTR 180	Opportunity Analysis.....	2
	Total Semester Credit Hours.....	15

Fall Semester

AUTO 163	Automotive Steering and Suspension*.....	3
	Prerequisite or corequisite: AUTO 125 or department approval	
AUTO 250	Automatic Transmissions and Transaxles*.....	4
	Prerequisite or corequisite: AUTO 125 or department approval	
AUTO 254	Automotive Engine Performance*.....	5
	Prerequisites or corequisites: AUTO 165 and AUTO 234	
INDT 155	Workplace Skills.....	1
ENTR 142	Fast Trac Business Plan.....	3
	Total Semester Credit Hours.....	16
	TOTAL PROGRAM CREDIT HOURS.....	31

*Prerequisite/Corequisite required

Students may be interested in taking additional courses, as noted below, to complement their certificate study. These courses are NOT part of the certificate requirements.

ENTR 131	Financial Management for Small Business*.....	2
	Prerequisite: ACCT 111 or ACCT 121	
ENTR 160	Legal Issues for Small Business.....	2
ENTR 195	Franchising*.....	3
	Prerequisite: BUS 230	
ENTR 220	Entrepreneurial Marketing*.....	2
	Prerequisite: BUS 230	

Biotechnology, A.A.S.

The greater Kansas City area and specifically Johnson County have numerous biological-, pharmaceutical- and chemical-related formulating, manufacturing, research and testing companies. Many of these facilities employ scientific technicians to support the endeavors of their professional scientists and engineers.

JCCC's science technology program is designed to develop scientific support

Automotive Technology Entrepreneurship Certificate

This 31 credit-hour certificate is designed to prepare students to open their own automotive service business. This certificate is designed to provide the

personnel for the metropolitan area.

This program offers specific knowledge and training designed to provide you with entry-level skills for employment as a technician. It also provides the breadth of background sufficient to encourage change and flexibility.

The biotechnology associate of applied science degree program will prepare students to work in biotechnology laboratories associated with universities, medical centers, private research institutions, and a variety of industrial applications. Upon completion of this 65-67 hour degree, students will be able to find entry-level or higher positions in diverse fields of biotechnology. Along with basic and more advanced science courses, students will take specialized courses such as laboratory safety and biotechnology methods.

Note: Metropolitan Community College students should seek specific counsel from the JCCC program personnel for the appropriate course plan and numbers.

Metropolitan Community College students should refer to Cooperative Program Information.

(Major Code 2110; CIP Code 41.0101)

Science Division

Associate of Applied Science Degree

First Semester

ENGL 121	Composition I*	3
	Prerequisite: ENGL 106 or appropriate placement test score or EAP 113 and EAP 117	
MATH 130	Technical Mathematics I or higher*	3-5
	Prerequisite: MATH 111 with a grade of "C" or higher or an appropriate score on the math assessment test	
BIOL 135	Principles of Cell and Molecular Biology	4
CHEM 122	Principles of Chemistry	5
	Total Semester Credit Hours	15-17

Second Semester

BIOT 160	Physical Education Elective	1
	Introduction to Biotechnology*	2
	Prerequisites: CHEM 122 and prerequisite or corequisite BIOL 135 or CHEM 124 and CHEM 125 and prerequisite or corequisite: BIOL 135	
	All prerequisites and corequisites require a grade of "C" or higher	
BIOT 165	Laboratory Safety*	1
	Prerequisite: CHEM 122 and prerequisite or corequisite BIOL 135 or CHEM 124 and CHEM 125 and prerequisite or corequisite BIOL 135	
	All prerequisites and corequisites require a grade of "C" or higher	
BIOL 144	Human Anatomy and Physiology	5
PHYS 133	Applied Physics*	5
	Prerequisite: MATH 135 or higher	
ENGL 123	Technical Writing I*	3
	Prerequisite: ENGL 121	
	Total Semester Credit Hours	17

Third Semester

BIOT 230	Social Science/Economics Elective	3
	Microbiology for Biotechnology*	5
	Prerequisites: BIOL 135 and BIOT 160 and BIOT 165 All prerequisites require a grade of "C" or higher	
BIOL 145	Human Anatomy and Physiology Dissection*	1
	Prerequisites: BIOL 144 and department approval	
BIOL 205	General Genetics*	4
	Prerequisite: BIOL 135 or BIOL 122 or the equivalent introductory college-level course. All prerequisites require a grade of "C" or higher	
CHEM 140	Principles of Organic & Biological Chemistry*	5
	Prerequisites: BIOL 135 and either CHEM 122 or (CHEM 124 and CHEM 125) or department approval	
	Total Semester Credit Hours	18

Fourth Semester

BIOT 260	Humanities Elective	3
	Biotechnology Methods*	5
	Prerequisites: Either BIOT 160 or BIOL 160 and either BIOT 165 or BIOL 165 and	

	Prerequisite or corequisite: BIOL 230 or BIOT 230	
	All prerequisites and corequisites require a grade of "C" or higher	
CIS 124	Introduction to Computer Concepts and Applications	3
BIOT 265	Biotechnology Internship*	4
	Prerequisites: BIOT 260 and either BIOT 160 or BIOL 160 and either BIOT 165 or BIOL 165 and department approval	
	Total Semester Credit Hours	15
	TOTAL PROGRAM CREDIT HOURS	65-67

*Prerequisite/Corequisite required

Biotechnology, A.S.

The greater Kansas City area and specifically Johnson County have numerous biological-, pharmaceutical- and chemical-related formulating, manufacturing, research and testing companies. Many of these facilities employ scientific technicians to support the endeavors of their professional scientists and engineers.

JCCC's science technology program is designed to develop scientific support personnel for the metropolitan area.

This program offers specific knowledge and training designed to provide you with entry-level skills for employment as a technician. It also provides the breadth of background sufficient to encourage change and flexibility.

The biotechnology associate of science degree program will prepare students who wish to pursue a baccalaureate degree in the biological sciences. Upon completion of this 76-hour degree, students will be able to find entry-level or higher positions in the diverse field of biotechnology. Along with basic and more advanced science courses, students will take specialized courses in subjects such as laboratory safety and biotechnology methods.

Note: Metropolitan Community College students should seek specific counsel from the JCCC program personnel for the appropriate course plan and numbers.

Metropolitan Community College students should refer to Cooperative Program Information.

(Major Code 2130; CIP Code 41.0101)

Science Division

Associate of Science Degree

IMPORTANT - Students planning to graduate with a Biotechnology degree must complete one of the approved cultural diversity courses. Some of the approved courses are able to meet both the cultural diversity requirement and a general education requirement. To see a complete list of approved courses, click on the link provided below.

[Cultural Diversity Course Requirement at JCCC](#)

First Semester

MATH 181	Statistics*	3
	Prerequisite: MATH 171 or MATH 173 or an equivalent course with a grade of "C" or higher or appropriate score on the math assessment test	
BIOL 135	Principles of Cell and Molecular Biology	4
CHEM 124	General Chemistry I Lecture*	4
	Prerequisite or corequisite: MATH 171 or assessment test and Corequisite: CHEM 125	
CHEM 125	General Chemistry I Lab*	1
	Corequisite: CHEM 124	
	Students who withdraw from GENERAL CHEMISTRY I LECTURE must also withdraw from the corresponding laboratory GENERAL CHEMISTRY I LABORATORY	
	Students may not withdraw from the laboratory course GENERAL CHEMISTRY I LABORATORY without withdrawing from CHEMISTRY I LECTURE.	
SPD 121	Public Speaking	3
ENGL 121	Composition I*	3
	Prerequisite: ENGL 106 or appropriate placement test score or EAP 113 and EAP 117	
	Total Semester Credit Hours	18

Second Semester

BIOT 160	Introduction to Biotechnology*	2
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Prerequisites: CHEM 122 and prerequisite or corequisite BIOL 135 or CHEM 124 and CHEM 125 and prerequisite or corequisite: BIOL 135
All prerequisites and corequisites require a grade of "C" or higher

BIOL 150	Biology of Organisms*	5
	Prerequisite: BIOL 135 or department approval	
CHEM 131	General Chemistry II Lecture*	4
	Prerequisites: CHEM 124 and CHEM 125 and Corequisite: CHEM 132	
CHEM 132	General Chemistry II Lab*	1
	Prerequisites: CHEM 124 and CHEM 125 and Corequisite: CHEM 131 Students who withdraw from GENERAL CHEMISTRY II LECTURE must also withdraw from the corresponding laboratory GENERAL CHEMISTRY II LABORATORY. Students may not withdraw from the laboratory course GENERAL CHEMISTRY II LABORATORY without withdrawing from CHEMISTRY II LECTURE.	
ENGL 123	Technical Writing I*	3
	Prerequisite: ENGL 121	
HIST 125	Western Civilization: Readings and Discussion I	3
	Total Semester Credit Hours	18

Summer

	Social Science/Economics Elective	3
BIOT 165	Laboratory Safety*	1
	Prerequisite: CHEM 122 and prerequisite or corequisite BIOL 135 or CHEM 124 and CHEM 125 and prerequisite or corequisite BIOL 135 All prerequisites and corequisites require a grade of "C" or higher	
	Total Semester Credit Hours	4

Third Semester

	Social Science/Economics Elective	3
	Physical Education Elective	1
BIOT 230	Microbiology for Biotechnology*	5
	Prerequisites: BIOL 135 and BIOT 160 and BIOT 165 All prerequisites require a grade of "C" or higher	
BIOL 205	General Genetics*	4
	Prerequisite: BIOL 135 or BIOL 122 or the equivalent introductory college-level course. All prerequisites require a grade of "C" or higher	
PHYS 130	General Physics I*	5
	Prerequisite: MATH 171 or assessment scores	
	Total Semester Credit Hours	18

Fourth Semester

	Humanities Elective	3
BIOT 260	Biotechnology Methods*	5
	Prerequisites: Either BIOT 160 or BIOL 160 and either BIOT 165 or BIOL 165 and Prerequisite or corequisite: BIOL 230 or BIOT 230 All prerequisites and corequisites require a grade of "C" or higher	
CHEM 220	Organic Chemistry I*	5
	Prerequisites: CHEM 131 and CHEM 132	
PHYS 131	General Physics II*	5
	Prerequisite: PHYS 130	
	Total Semester Credit Hours	18
	TOTAL PROGRAM CREDIT HOURS	76

Optional Course

BIOT 265	Biotechnology Internship-Optional*	4
	Prerequisites: BIOT 260 and either BIOT 160 or BIOL 160 and either BIOT 165 or BIOL 165 and department approval	

With the OPTIONAL course:

	TOTAL PROGRAM CREDIT HOURS	80
	*Prerequisite/Corequisite required	

Biotechnology Certificate

Greater Kansas City and specifically Johnson County have numerous biological-, pharmaceutical- and chemical-related formulating, manufacturing, research and testing companies. Many of these facilities employ scientific technicians to support the endeavors of their professional scientists and engineers.

JCCC's science technology program is designed to develop scientific support personnel for the metropolitan area.

This program offers specific knowledge and training designed to provide you with entry-level skills for employment as a technician. It also provides the breadth of background sufficient to encourage change and flexibility.

The biotechnology vocational certificate is for students seeking employment in the biotechnology industry either in private or academic research laboratories. This certificate will demonstrate to potential employers that the student has experience in performing a variety of techniques necessary for the day-to-day operation.

Note: Metropolitan Community College students should seek specific counsel from the JCCC program personnel for the appropriate course plan and numbers.

Metropolitan Community College students should refer to Cooperative Program Information.

(Major Code 6150; CIP Code 41.0101)

Science Division

Career Certificate

First Semester

CHEM 122	Principles of Chemistry	5
	Total Semester Credit Hours	5

Second Semester

BIOL 135	Principles of Cell and Molecular Biology	4
BIOT 160	Introduction to Biotechnology*	2
	Prerequisites: CHEM 122 and prerequisite or corequisite BIOL 135 or CHEM 124 and CHEM 125 and prerequisite or corequisite: BIOL 135 All prerequisites and corequisites require a grade of "C" or higher	
MATH 130	Technical Mathematics I or higher*	3-5
	Prerequisite: MATH 111 with a grade of "C" or higher or an appropriate score on the math assessment test	
PHYS 133	Applied Physics*	5
	Prerequisite: MATH 135 or higher	
	Total Semester Credit Hours	14-16

Third Semester

BIOT 165	Laboratory Safety*	1
	Prerequisite: CHEM 122 and prerequisite or corequisite BIOL 135 or CHEM 124 and CHEM 125 and prerequisite or corequisite BIOL 135 All prerequisites and corequisites require a grade of "C" or higher	
BIOT 230	Microbiology for Biotechnology*	5
	Prerequisites: BIOL 135 and BIOT 160 and BIOT 165 All prerequisites require a grade of "C" or higher	
BIOT 260	Biotechnology Methods*	5
	Prerequisites: Either BIOT 160 or BIOL 160 and either BIOT 165 or BIOL 165 and Prerequisite or corequisite: BIOL 230 or BIOT 230 All prerequisites and corequisites require a grade of "C" or higher	
CHEM 140	Principles of Organic & Biological Chemistry*	5
	Prerequisites: BIOL 135 and either CHEM 122 or (CHEM 124 and CHEM 125) or department approval	
	Total Semester Credit Hours	16

Fourth Semester (optional)

BIOT 265	Biotechnology Internship*	4
	Prerequisites: BIOT 260 and either BIOT 160 or BIOL 160 and either BIOT 165 or BIOL 165 and department approval	
	TOTAL PROGRAM CREDIT HOURS	35-41
	*Prerequisite/Corequisite required	

Business Administration, A.A.S.

Business is more competitive than ever before. People running businesses will be judged by how well they manage change, stay ahead of trends and learn the latest theories. JCCC's business administration career program can train you in the many skills required to manage a variety of businesses.

Focusing on the development of decision-making, organizational and supervisory skills, the program offers professional courses in management, marketing, economics, accounting, finance, communications, business law and data processing. These are combined with a core of general education courses to ensure that students receive a well-rounded curriculum.

Graduates have opportunities in entry-level management and supervisory positions in a variety of businesses. Johnson County's continued growth as the business center for the area means enhanced job opportunities.

(Major Code 2430; CIP Code 52.0201)

Business Administration

Associate of Applied Science Degree

First Semester

ENGL 121	Composition I*	3
	Prerequisite: ENGL 106 or appropriate placement test score or EAP 113 and EAP 117	
MATH 120	Business Math or higher*	3
	Prerequisite: MATH 111 with a grade of "C" or higher or appropriate score on the math assessment test	
BUS 121	Introduction to Business	3
BUS 225	Human Relations	3
CIS 124	Introduction to Computer Concepts and Applications	3
	and CPCA/CDTP elective	1
Note: CPCA 105/106 will not meet this one hour requirement.		
	or CPCA/CDTP electives	4
	or	
CIS 134	Programming Fundamentals	4
	Total Semester Credit Hours	16

Second Semester

	Health and/or Physical Education Elective	1
ACCT 121	Accounting I	3
BUS 141	Principles of Management	3
	or	
BUS 145	Small Business Management	3
BUS 150	Business Communications*	3
	Prerequisite: ENGL 121	
ECON 230	Economics I	3
HIST 141	U.S. History Since 1877	3
	Total Semester Credit Hours	16

Third Semester

ACCT 122	Accounting II*	3
	Prerequisite: ACCT 121	
PHIL 138	Business Ethics	1
ECON 231	Economics II	3
BUS 230	Marketing	3
BUS 261	Business Law I	3
HUM 122	Introduction to Humanities	3
	Total Semester Credit Hours	16

Fourth Semester

	Elective	1
ACCT 222	Managerial Accounting*	3
	Prerequisite: ACCT 122	
BUS 123	Personal Finance	3
	or	
BUS 215	Savings and Investments	3
BUS 263	Business Law II*	3
	Prerequisite: BUS 261	
BUS 243	Human Resource Management	3
	or	
BUS 235	Introduction to International Business	3
BIOL 130	Environmental Science	3
	Total Semester Credit Hours	16
	TOTAL PROGRAM CREDIT HOURS	64

Recommended Electives

BUS 120	Management Attitudes and Motivation	3
BUS 140	Principles of Supervision	3
	*Prerequisite/Corequisite required	

Supervision Management Certificate

The supervision management certificate is a 25-credit-hour program designed for students who desire to be or have been designated as managers. The certificate meets the basic core competencies of being a manager or a supervisor.

(Major Code 5280; CIP Code 52.1401)

Marketing and Management

Career Certificate

Suggested/Sample Course Sequence

The sequence taken by the student may vary depending on prerequisites, course availability, and personal/professional responsibilities.

First Semester

ENGL 121	Composition I*	3
	Prerequisite: ENGL 106 or appropriate placement test score or EAP 113 and EAP 117	
BUS 121	Introduction to Business	3
BUS 140	Principles of Supervision	3
BUS 141	Principles of Management	3
BUS 120	Management Attitudes and Motivation	3
	or	
BUS 225	Human Relations	3
	Total Semester Credit Hours	15

Second Semester

BUS 230	Marketing	3
BUS 150	Business Communications*	3
	Prerequisite: ENGL 121	
MKT 202	Consumer Behavior	3
MKT 234	Services Marketing*	3
	Corequisite: BUS 230	
MKT 284	Marketing and Management Internship I	1
	Total Semester Credit Hours	13
	TOTAL PROGRAM CREDIT HOURS	28
	*Prerequisite/Corequisite required	

Business-Logistics Mgt, A.A.S.

The Business-Logistics Management, AAS degree program is granted by Metropolitan Community College, but coordinated at JCCC.

This program focuses not only on those who currently work in a logistics career but also those who wish to test their interest and want more knowledge about that field. The program stretches all employees, including management personnel, professionally. Students receive information and training that can lead them to one of hundreds of careers tied to logistics. In addition to classroom knowledge, students receive current insights from professionals in the field.

The JCCC business logistics management program is offered to Johnson County residents in cooperation with Metropolitan Community Colleges of Kansas City. Related courses are taken at JCCC. You must be accepted as a student to JCCC and accepted into the program by MCC. Students must be residents of Johnson County in order to receive in-state tuition rates. Consult with a JCCC counselor for more information.

Program courses and credit hours are subject to change because of requirement changes at the degree-granting institution. Contact MCC-Blue River at 816-

220-6532 or visit www.mcckc.edu

Note: Johnson County Community College students should seek specific counsel from the MCC program personnel for the appropriate course plan and numbers.

Johnson County Community College students should refer to Cooperative Program Information.

Associate of Applied Science

Degree Granted by Metropolitan Community College

General Education Requirements-can be taken at JCCC

ENGL 121	Composition I*	3
	Prerequisite: ENGL 106 or appropriate placement test score or EAP 113 and EAP 117	
ECON 230	Economics I	3
MATH 120	Business Mathematics*	3
	Prerequisite: MATH 111 with a grade of "C" or higher or appropriate score on the math assessment test or	
MATH 116	Intermediate Algebra or higher*	3
	Prerequisite: MATH 115 with a grade of "C" or higher or appropriate score on the math assessment test	
PSYC 130	Introduction to Psychology*	3
	Prerequisite: Appropriate score on the COMPASS reading test OR appropriate score on the ACT reading test OR RDG 126 with a grade of "C" or higher or	
SOC 122	Introduction to Sociology	3
SPD 121	Public Speaking	3
	or	
SPD 125	Personal Communication	3

American Institutions

HIST 140	U.S. History to 1877	3
	or	
HIST 141	U.S. History Since 1877	3
	or	
POLS 122	Political Science	3
	or	
POLS 124	American National Government	3
	or	
POLS 126	State and Local Government	3

Specific Program Requirements taken at JCCC

	Specific Program Electives	9
ACCT 121	Accounting I	3
BUS 141	Principles of Management	3
BUS 230	Marketing	3
BUS 150	Business Communications*	3
	Prerequisite: ENGL 121	
BUS 261	Business Law I	3
CIS 124	Introduction to Computer Concepts and Applications	3
	or	
CPCA 128	PC Applications: MS Office	3
	Electives	6
	Note: Electives may be any non-developmental courses.	

Specific Program Requirements-taken at MCC

KSS 153	The Missouri Constitution	1
KSCL 210	Logistics Management	3
KSCL 211	Operations Management	3
KSCL 212	Transportation Operations and Management	3
KSCL 213	Warehousing and Distribution Centers	3
	TOTAL PROGRAM CREDIT HOURS	64

Specific Program Electives

ACCT 111	Small Business Accounting	3
ACCT 122	Accounting II*	3
	Prerequisite: ACCT 121	
ACCT 135	Computerized Accounting Applications*	3
	Prerequisite: ACCT 121 or ACCT 111	
ACCT 221	Cost Accounting*	3
	Prerequisite: ACCT 122	
ACCT 222	Managerial Accounting*	3
	Prerequisite: ACCT 122	
ACCT 231	Intermediate Accounting I*	3
	Prerequisite: ACCT 122	
BOT 103	Business English	3
BUS 121	Introduction to Business	3
BUS 123	Personal Finance	3
BUS 140	Principles of Supervision	3
BUS 145	Small Business Management	3
BUS 225	Human Relations	3

BUS 243	Human Resource Management	3
BUS 263	Business Law II*	3
	Prerequisite: BUS 261	
ENTR 120	Introduction to Entrepreneurship	2
FASH 121	Fashion Fundamentals	3
JOUR 125	Fundamentals of Advertising	3
MKT 121	Retail Management	3
MKT 133	Salesmanship	3
SPD 128	Business and Professional Speech	3
	*Prerequisite/Corequisite required	

Administrative Assistant, A.A.S.

This degree program prepares students for administrative professional positions as supervisors and managers in office environments. Emphasis is on the development of communications, decision-making, organizational and management skills and knowledge of software options, applications, and concepts. This program is designed to prepare students to function in the business office by using a combination of technical and academic training.

(Major Code 2680; CIP Code 52.0401)

Business Office Technology

Associate of Applied Science Degree

Prerequisite for Required Courses

Note: Prior to beginning the program, the student must take the following prerequisite, or have taken the equivalent transfer course, or have passed the waiver test (if applicable), or have obtained a waiver from the department.

BOT 105	Keyboarding and Formatting I	3
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First Semester

BOT 103	Business English	3
BOT 106	Intro to Business Computer Applications*	3
	Prerequisite or corequisite: BOT 105	
BOT 110	Skillbuilding I*	1
	Prerequisite: BOT 105	
BOT 130	Office Systems Concepts	3
MATH 120	Business Mathematics*	3
	Prerequisite: MATH 111 with a grade of "C" or higher or appropriate score on the math assessment test	
ENGL 121	Composition I*	3
	Prerequisite: ENGL 106 or appropriate placement test score or EAP 113 and EAP 117	
	Health and/or Physical Education Elective	1
	Total Semester Credit Hours	17

Second Semester

BOT 155	Word Processing Application I*	2
	Prerequisites: BOT 105 and BOT 106	
BUS 225	Human Relations	3
ACCT 121	Accounting I	3
BUS 121	Introduction to Business	3
BOT 150	Records Management*	3
	Prerequisite: BOT 106 or experience using Microsoft Access	
BOT 180	Business Spreadsheet Applications*	1
	Prerequisite: BOT 106	
BOT 185	Business Database Applications*	1
	Prerequisite: BOT 106	
	Total Semester Credit Hours	15

Third Semester

	Humanities Elective	3
LAW 121	Introduction to Law	3
BOT 125	Document Formatting*	1
	Prerequisite: BOT 155	
BUS 140	Principles of Supervision	3
	or	
BUS 141	Principles of Management	3
BOT 255	Word Processing Applications II*	2
	Prerequisite: BOT 155	
BUS 150	Business Communications*	3
	Prerequisite: ENGL 121	
	Total Semester Credit Hours	15

Fourth Semester

	BOT Electives.....	4
ECON 132	Survey of Economics.....	3
	or	
ECON 230	Economics I.....	3
BOT 275	Office Internship I*.....	1
	Prerequisite: Admission to the business office technology program. This course should be taken near the end of the BOT degree or certificate program.	
BUS 243	Human Resource Management.....	3
BOT 265	Computerized Office Applications*.....	3
	Prerequisites: BOT 106 and BOT 130 and BOT 255 (This capstone course should be taken near the end of the degree or certificate program)	
BOT 260	Desktop Publishing for the Office*.....	3
	Prerequisite: BOT 155	
	Total Semester Credit Hours.....	17
	TOTAL PROGRAM CREDIT HOURS.....	64

BOT Electives

BOT 115	Electronic Calculators.....	1
BOT 118	Skillbuilding II*.....	1
	Prerequisite: BOT 110	
BOT 180	Business Spreadsheet Applications*.....	1
	Prerequisite: BOT 106	
BOT 185	Business Database Applications*.....	1
	Prerequisite: BOT 106	
BOT 205	Professional Image Development.....	1
BOT 280	Office Internship II*.....	1
	Prerequisite: BOT 275	

*Prerequisite/Corequisite required

Administrative Assistant with Legal Emphasis, A.A.S.

This degree program prepares students for administrative duties in the law office and other legal settings. The program combines training in current office and technical skills with specialized course work unique to the legal profession, including exposure to legal practices, preparation, and practical application of documents and terminology used in the legal office.

(Major Code 2780; CIP Code 22.0301)

Business Office Technology

Associate of Applied Science Degree

Prerequisite for Required Courses

Note: Prior to the beginning of the program, the student must take the following prerequisite, or have taken the equivalent transfer course, or have passed the waiver test, or have obtained a waiver from the program administrator.

BOT 105	Keyboarding and Formatting I.....	3
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First Semester

	Health and/or Physical Education Elective.....	1
BOT 103	Business English.....	3
BOT 106	Intro to Business Computer Applications*.....	3
	Prerequisite or corequisite: BOT 105	
BOT 115	Electronic Calculators.....	1
BOT 130	Office Systems Concepts.....	3
LAW 121	Introduction to Law.....	3
ENGL 121	Composition I*.....	3
	Prerequisite: ENGL 106 or appropriate placement test score or EAP 113 and EAP 117	
	Total Semester Credit Hours.....	17

Second Semester

BOT 155	Word Processing Application I*.....	2
	Prerequisites: BOT 105 and BOT 106	
BOT 110	Skillbuilding I*.....	1
	Prerequisite: BOT 105	
BOT 150	Records Management.....	3
	Prerequisite: BOT 106 or experience using Microsoft Access	

MATH 120	Business Mathematics*.....	3
	Prerequisite: MATH 111 with a grade of "C" or higher or appropriate score on the math assessment test	
BUS 150	Business Communications*.....	3
	Prerequisite: ENGL 121	
ACCT 111	Small Business Accounting.....	3
	or	
ACCT 121	Accounting I.....	3
BOT 180	Business Spreadsheet Applications*.....	1
	Prerequisite: BOT 106	
	Total Semester Credit Hours.....	16

Third Semester

	BOT Electives.....	3
LAW 201	Advanced Legal Technology*.....	3
	Prerequisite: Admission to the paralegal program and completion of LAW 134 or department chair approval	
BOT 160	Legal Transcription*.....	3
	Prerequisite: BOT 155	
BUS 225	Human Relations.....	3
BOT 255	Word Processing Applications II*.....	2
	Prerequisite: BOT 155	
BOT 125	Document Formatting*.....	1
	Prerequisite: BOT 155	
	Total Semester Credit Hours.....	15

Fourth Semester

	Humanities Elective.....	3
	General Electives.....	3
ECON 132	Survey of Economics.....	3
	or	
ECON 230	Economics I.....	3
BOT 265	Computerized Office Applications*.....	3
	Prerequisites: BOT 106 and BOT 130 and BOT 255 (This capstone course should be taken near the end of the degree or certificate program)	
BOT 275	Office Internship I*.....	1
	Prerequisite: Admission to the business office technology program. This course should be taken near the end of the BOT degree or certificate program.	
BUS 140	Principles of Supervision.....	3
	or	
BUS 141	Principles of Management.....	3
	Total Semester Credit Hours.....	16
	TOTAL PROGRAM CREDIT HOURS.....	64

BOT Electives

BOT 118	Skillbuilding II*.....	1
	Prerequisite: BOT 110	
BOT 180	Business Spreadsheet Applications*.....	1
	Prerequisite: BOT 106	
BOT 185	Business Database Applications*.....	1
	Prerequisite: BOT 106	
BOT 205	Professional Image Development.....	1
BOT 280	Office Internship II*.....	1
	Prerequisite: BOT 275	

*Prerequisite/Corequisite required

Administrative Assistant with Medical Emphasis, A.A.S.

This degree program prepares students to pursue an administrative career in the medical profession. The program combines training in the business office and computer skills with specialized course work unique to the medical profession. Both beginning students and employed medical personnel will find this program invaluable for careers in a medical office environment.

(Major Code 2790; CIP Code 51.0710)

Business Office Technology

Associate of Applied Science Degree

Prerequisite for Required Courses

Note: Prior to beginning the program, the student must take the following prerequisite, or have taken the equivalent transfer course, or have passed the waiver test, or have obtained a waiver from the program administrator.

BOT 105 Keyboarding and Formatting I.....3

First Semester

Health and/or Physical Education Elective.....1
 BOT 103 Business English.....3
 BOT 106 Intro to Business Computer Applications*.....3
 Prerequisite or corequisite: BOT 105
 AAC 130 Medical Terminology.....3
 BOT 130 Office Systems Concepts.....3
 ENGL 121 Composition I*.....3
 Prerequisite: ENGL 106 or appropriate placement
 test score or EAP 113 and EAP 117
 Total Semester Credit Hours.....16

Second Semester

BOT 155 Word Processing Application I*.....2
 Prerequisites: BOT 105 and BOT 106
 BOT 110 Skillbuilding I*.....1
 Prerequisite: BOT 105
 BOT 170 Medical Coding and Billing*.....3
 Prerequisite: AAC 130
 BOT 150 Records Management*.....3
 Prerequisite: BOT 106 or experience using Microsoft
 Access
 BOT 115 Electronic Calculators.....1
 MATH 120 Business Mathematics*.....3
 Prerequisite: MATH 111 with a grade of "C" or higher
 or appropriate score on the math assessment test
 BUS 225 Human Relations.....3
 BOT 180 Business Spreadsheet Applications*.....1
 Prerequisite: BOT 106
 or
 BOT 185 Business Database Applications*.....1
 Prerequisite: BOT 106
 Total Semester Credit Hours.....17

Third Semester

Humanities Elective.....3
 BOT 122 Medical Keyboarding*.....1
 Prerequisite: BOT 105
 LAW 121 Introduction to Law.....3
 BOT 125 Document Formatting*.....1
 Prerequisite: BOT 155
 ACCT 111 Small Business Accounting.....3
 or
 ACCT 121 Accounting I.....3
 BOT 255 Word Processing Applications II*.....2
 Prerequisite: BOT 155
 BUS 150 Business Communications*.....3
 Prerequisite: ENGL 121
 Total Semester Credit Hours.....16

Fourth Semester

BOT Electives.....2
 ECON 132 Survey of Economics.....3
 or
 ECON 230 Economics I.....3
 BOT 165 Medical Transcription*.....3
 Prerequisites: AAC 130 and BOT 155
 BOT 265 Computerized Office Applications*.....3
 Prerequisites: BOT 106 and BOT 130 and BOT 255
 (This capstone course should be taken near the end
 of the degree or certificate program)
 BOT 275 Office Internship I*.....1
 Prerequisite: Admission to the business office
 technology program. This course should be taken
 near the end of the BOT degree or certificate
 program.
 BUS 140 Principles of Supervision.....3
 or
 BUS 141 Principles of Management.....3
 Total Semester Credit Hours.....15
 TOTAL PROGRAM CREDIT HOURS.....64

BOT Electives

BOT 118 Skillbuilding II*.....1
 Prerequisite: BOT 110
 BOT 180 Business Spreadsheet Applications*.....1
 Prerequisite: BOT 106
 BOT 185 Business Database Applications*.....1
 Prerequisite: BOT 106
 BOT 205 Professional Image Development.....1
 BOT 280 Office Internship II*.....1
 Prerequisite: BOT 275
 *Prerequisite/Corequisite required

Administrative Support Specialist Certificate

This certificate program prepares students for executive and/or administrative assistant duties in the office. The program provides training in the latest technical and software skills.

(Major Code 4690; CIP Code 52.0401)

Business Office Technology

Career Certificate

Suggested/Sample Course Sequence

The sequence taken by the student may vary depending on prerequisites, course availability, and personal/professional responsibilities.

First Semester

BOT 103 Business English.....3
 BOT 105 Keyboarding and Formatting I.....3
 BOT 106 Intro to Business Computer Applications*.....3
 Prerequisite or corequisite: BOT 105
 BOT 130 Office Systems Concepts.....3
 Total Semester Credit Hours.....12

Second Semester

BOT 110 Skillbuilding I*.....1
 Prerequisite: BOT 105
 BOT 115 Electronic Calculators.....1
 BOT 150 Records Management*.....3
 Prerequisite: BOT 106 or experience using Microsoft
 Access
 BOT 155 Word Processing Application I*.....2
 Prerequisites: BOT 105 and BOT 106
 BOT 125 Document Formatting*.....1
 Prerequisite: BOT 155

Note: Students attempting to take BOT 155 and BOT 125 in the same semester should contact the department chair.

BOT 180 Business Spreadsheet Applications*.....1
 Prerequisite: BOT 106
 or
 BOT 185 Business Database Applications*.....1
 Prerequisite: BOT 106
 BUS 225 Human Relations.....3
 Total Semester Credit Hours.....12

Third Semester

BOT 255 Word Processing Applications II*.....2
 Prerequisite: BOT 155
 BOT 260 Desktop Publishing for the Office*.....3
 Prerequisite: BOT 155
 Total Semester Credit Hours.....5

Fourth Semester

BOT 265 Computerized Office Applications*.....3
 Prerequisites: BOT 106 and BOT 130 and BOT 255
 (This capstone course should be taken near the end
 of the degree or certificate program)
 BOT 275 Office Internship I*.....1
 Prerequisite: Admission to the business office
 technology program. This course should be taken
 near the end of the BOT degree or certificate
 program.
 Total Semester Credit Hours.....4
 TOTAL PROGRAM CREDIT HOURS.....33

*Prerequisite/Corequisite required

Business Administrative Assistant Entrep Certificate

The business administrative assistant entrepreneurship certificate will prepare

students to open their own service business providing administrative assistance to businesses. This certificate is designed to provide the student with basic skills in business office technology and administration as well as basic skills in small business development and management.

(Major Code 4090; CIP Code 52.0401)

Business Office Technology

Career Certificate

Suggested/Sample Course Sequence

The sequence taken by the student may vary depending on prerequisites, course availability, and personal/professional responsibilities.

First Semester

BOT 105	Keyboarding and Formatting I.....	3
BOT 106	Intro to Business Computer Applications*.....	3
	Prerequisite or corequisite: BOT 105	
BOT 130	Office Systems Concepts.....	3
ENTR 120	Introduction to Entrepreneurship.....	2
	Total Semester Credit Hours.....	11

Second Semester

BOT 110	Skillbuilding I*.....	1
	Prerequisite: BOT 105	
BOT 155	Word Processing Application I*.....	2
	Prerequisites: BOT 105 and BOT 106	
BOT 125	Document Formatting*.....	1
	Prerequisite: BOT 155	
Note: Students attempting to take BOT 155 and BOT 125 in the same semester should contact the department chair.		
BUS 230	Marketing.....	3
BOT 180	Business Spreadsheet Applications*.....	1
	Prerequisite: BOT 106	
ENTR 180	Opportunity Analysis.....	2
	Total Semester Credit Hours.....	10

Third Semester

BOT 255	Word Processing Applications II*.....	2
	Prerequisite: BOT 155	
BOT 260	Desktop Publishing for the Office*.....	3
	Prerequisite: BOT 155	
BOT 185	Business Database Applications*.....	1
	Prerequisite: BOT 106	
ENTR 142	Fast Trac Business Plan.....	3
	Total Semester Credit Hours.....	9

Fourth Semester

BOT 265	Computerized Office Applications*.....	3
	Prerequisites: BOT 106 and BOT 130 and BOT 255 (This capstone course should be taken near the end of the degree or certificate program)	
	NOTE: BOT 265 is offered Spring term only	
BOT 275	Office Internship I*.....	1
	Prerequisite: Admission to the business office technology program. This course should be taken near the end of the BOT degree or certificate program.	
	Total Semester Credit Hours.....	4
	TOTAL PROGRAM CREDIT HOURS.....	34

*Prerequisite/Corequisite required

Legal Administrative Assistant Certificate

This certificate program prepares students to work as a legal administrative assistant. The curriculum provides training for students in entry-level positions as well as for those who are upgrading existing skills.

(Major Code 5050; CIP Code 23.0301)

Business Office Technology

Career Certificate

Suggested/Sample Course Sequence

The sequence taken by the student may vary depending on prerequisites, course availability, and personal/professional responsibilities.

First Semester

BOT 103	Business English.....	3
BOT 105	Keyboarding and Formatting I.....	3
BOT 106	Intro to Business Computer Applications*.....	3
	Prerequisite or corequisite: BOT 105	
BOT 130	Office Systems Concepts.....	3
	Total Semester Credit Hours.....	12

Second Semester

BOT 110	Skillbuilding I*.....	1
	Prerequisite: BOT 105	
BOT 150	Records Management.....	3
	Prerequisite: BOT 106 or experience using Microsoft Access	
BOT 155	Word Processing Application I*.....	2
	Prerequisites: BOT 105 and BOT 106	
LAW 121	Introduction to Law.....	3
	Total Semester Credit Hours.....	9

Third Semester

BOT 125	Document Formatting*.....	1
	Prerequisite: BOT 155	
BOT 160	Legal Transcription*.....	3
	Prerequisite: BOT 155	
BOT 255	Word Processing Applications II*.....	2
	Prerequisite: BOT 155	
LAW 201	Advanced Legal Technology*.....	3
	Prerequisite: Admission to the paralegal program and completion of LAW 134 or department chair approval	
	Total Semester Credit Hours.....	9

Fourth Semester

BOT 265	Computerized Office Applications*.....	3
	Prerequisites: BOT 106 and BOT 130 and BOT 255 (This capstone course should be taken near the end of the degree or certificate program)	
BOT 275	Office Internship I*.....	1
	Prerequisite: Admission to the business office technology program. This course should be taken near the end of the BOT degree or certificate program.	
	Total Semester Credit Hours.....	4
	TOTAL PROGRAM CREDIT HOURS.....	34

*Prerequisite/Corequisite required

Medical Administrative Assistant Entrepreneurship Cert

The medical administrative assistant entrepreneurship certificate prepares students to open their own service business providing administrative assistance to the medical profession. This certificate is designed to provide the student with basic skills in medical office administration and the basic skills in small business development and management.

(Major Code 4290; CIP Code 52.0710)

Business Office Technology

Career Certificate

Suggested/Sample Course Sequence

The sequence taken by the student may vary depending on prerequisites, course availability, and personal/professional responsibilities.

professional responsibilities.

First Semester

AAC 130	Medical Terminology.....	3
BOT 105	Keyboarding and Formatting I.....	3
BOT 106	Intro to Business Computer Applications*.....	3
	Prerequisite or corequisite: BOT 105	
BOT 130	Office Systems Concepts.....	3
ENTR 120	Introduction to Entrepreneurship.....	2
	Total Semester Credit Hours.....	14

Second Semester

BOT 110	Skillbuilding I*.....	1
	Prerequisite: BOT 105	
BOT 155	Word Processing Application I*.....	2
	Prerequisites: BOT 105 and BOT 106	
BOT 170	Medical Coding and Billing*.....	3
	Prerequisite: AAC 130	
BOT 180	Business Spreadsheet Applications*.....	1
	Prerequisite: BOT 106	
ENTR 180	Opportunity Analysis.....	2
	Total Semester Credit Hours.....	9

Third Semester

BOT 122	Medical Keyboarding*.....	1
	Prerequisite: BOT 105	
BOT 255	Word Processing Applications II*.....	2
	Prerequisite: BOT 155	
BOT 185	Business Database Applications*.....	1
	Prerequisite: BOT 106	
ENTR 142	Fast Trac Business Plan.....	3
	Total Semester Credit Hours.....	7

Fourth Semester

BOT 265	Computerized Office Applications*.....	3
	Prerequisites: BOT 106 and BOT 130 and BOT 255 (This capstone course should be taken near the end of the degree or certificate program) Note: BOT 265 is offered Spring term only	
BOT 275	Office Internship I*.....	1
	Prerequisite: Admission to the business office technology program. This course should be taken near the end of the BOT degree or certificate program.	
	Total Semester Credit Hours.....	4
	TOTAL PROGRAM CREDIT HOURS.....	34
	*Prerequisite/Corequisite required	

Students may be interested in taking additional courses, as noted below, to complement their certificate study. These courses are NOT part of the certificate requirements.

BUS 230	Marketing.....	3
ENTR 160	Legal Issues for Small Business.....	2
ENTR 220	Entrepreneurial Marketing*.....	2
	Prerequisite: BUS 230	
ENTR 195	Franchising*.....	3
	Prerequisite: BUS 230	
ENTR 131	Financial Management for Small Business*.....	2
	Prerequisite: ACCT 111 or ACCT 121	

Medical Office Assistant Certificate

This certificate program prepares students for work in doctors' offices and hospital offices. The curriculum provides training for students in entry-level positions as well as for those who are upgrading existing skills.

(Major Code 5400; CIP Code 51.0710)

Business Office Technology

Career Certificate

Suggested/Sample Course Sequence

The sequence taken by the student may vary depending on prerequisites, course availability, and personal/professional responsibilities.

First Semester

BOT 103	Business English.....	3
BOT 105	Keyboarding and Formatting I.....	3
BOT 106	Intro to Business Computer Applications*.....	3
	Prerequisite or corequisite: BOT 105	
AAC 130	Medical Terminology.....	3
	Total Semester Credit Hours.....	12

Second Semester

BOT 110	Skillbuilding I*.....	1
	Prerequisite: BOT 105	
BOT 155	Word Processing Application I*.....	2
	Prerequisites: BOT 105 and BOT 106	
BOT 122	Medical Keyboarding*.....	1
	Prerequisite: BOT 105	
BOT 125	Document Formatting*.....	1
	Prerequisite: BOT 155	

Note: Students attempting to take BOT 155 and BOT 125 in the same semester should contact the department chair.

BOT 130	Office Systems Concepts.....	3
BOT 170	Medical Coding and Billing*.....	3
	Prerequisite: AAC 130	
	Total Semester Credit Hours.....	11

Third Semester

BOT 165	Medical Transcription*.....	3
	Prerequisites: AAC 130 and BOT 155	
	Total Semester Credit Hours.....	3
	TOTAL PROGRAM CREDIT HOURS.....	26

*Prerequisite/Corequisite required

Medical Transcription Certificate

This certificate program prepares students for entry-level employment as a medical transcriptionist by providing the basic knowledge and skills required to transcribe medical dictation with accuracy and clarity, meet timelines, and apply the principles of professional and ethical conduct.

(Major Code 5410; CIP Code 51.0708)

Business Office Technology

Career Certificate

Suggested/Sample Course Sequence

The sequence taken by the student may vary depending on prerequisites, course availability, and personal/professional responsibilities.

First Semester

BOT 103	Business English.....	3
BOT 105	Keyboarding and Formatting I.....	3
BOT 106	Intro to Business Computer Applications*.....	3
	Prerequisite or corequisite: BOT 105	
AAC 130	Medical Terminology.....	3
	Total Semester Credit Hours.....	12

Second Semester

BOT 122	Medical Keyboarding*.....	1
	Prerequisite: BOT 105	
BOT 155	Word Processing Application I*.....	2
	Prerequisites: BOT 105 and BOT 106	
BOT 170	Medical Coding and Billing*.....	3
	Prerequisite: AAC 130	
BOT 220	Pharmacology Terminology*.....	2
	Prerequisite: AAC 130	
BIOL 140	Human Anatomy.....	4
	Total Semester Credit Hours.....	12

Third Semester

BOT 165	Medical Transcription*.....	3
	Prerequisites: AAC 130 and BOT 155	
BOT 255	Word Processing Applications II*.....	2

Prerequisite: BOT 155
 Total Semester Credit Hours.....5

Fourth Semester

BOT 270 Advanced Medical Transcription*.....3
 Prerequisite: BOT 165
 BOT 275 Office Internship I*.....1
 Prerequisite: Admission to the business office
 technology program. This course should be taken
 near the end of the BOT degree or certificate
 program.
 Total Semester Credit Hours.....4
 TOTAL PROGRAM CREDIT HOURS.....33
 *Prerequisite/Corequisite required

Office Careers Certificate

At the completion of this 18-credit-hour certificate, students will be able to demonstrate proficiency in office skills, including computer and word processing knowledge. This certificate program prepares students to enter an office career in a minimal time period.

(Major Code 4900; CIP Code 52.0401)

Business Office Technology

Career Certificate

Suggested/Sample Course Sequence

The sequence taken by the student may vary depending on prerequisites, course availability, and personal/professional responsibilities.

First Semester

BOT 103 Business English.....3
 BOT 105 Keyboarding and Formatting I.....3
 BOT 106 Intro to Business Computer Applications*.....3
 Prerequisite or corequisite: BOT 105
 BOT 130 Office Systems Concepts.....3
 Total Semester Credit Hours.....12

Second Semester

BOT 110 Skillbuilding I*.....1
 Prerequisite: BOT 105
 BOT 115 Electronic Calculators.....1
 BOT 155 Word Processing Application I*.....2
 Prerequisites: BOT 105 and BOT 106
 BOT 180 Business Spreadsheet Applications*.....1
 Prerequisite: BOT 106
 or
 BOT 185 Business Database Applications*.....1
 Prerequisite: BOT 106
 BOT 125 Document Formatting*.....1
 Prerequisite: BOT 155

Note: Students attempting to take BOT 155 and BOT 125 in the same semester should contact the department chair.

Total Semester Credit Hours.....6
 TOTAL PROGRAM CREDIT HOURS.....18
 *Prerequisite/Corequisites required

Civil Engineering Technology, A.A.S.

Civil engineering technicians use theory and practical application in planning, designing, constructing, inspecting and maintaining civil engineering projects. Job duties can include performing land surveys, creating civil engineering drawings using computer aided drafting, assisting engineers with design, and project management.

JCCC's civil engineering technology program offers a broad base of instruction in mathematics, engineering design, drawing interpretation, computer-aided

drafting, construction methods and communication skills. The program will qualify graduates for a variety of entry-level positions in design firms, construction companies or public agencies. Successful completion of 66 hours from the civil engineering technology curriculum will lead to an associate of applied science degree.

(Major Code 2210; CIP Code 15.0201)

Civil Engineering Technology

Associate of Applied Science Degree

First Semester

Humanities Elective.....3
 DRAF 129 Interpreting Architectural Drawings.....2
 ENGR 131 Engineering Graphics I:AutoCAD*.....4
 Prerequisite or corequisite: MATH 133 or MATH 130
 or MATH 171 or MATH 172 or MATH 173 or
 MATH 241
 MATH 130 Technical Mathematics I*.....3
 Prerequisite: MATH 111 with a grade of "C" or higher
 or an appropriate score on the math assessment test
 CET 105 Construction Methods.....3
 CET 125 Construction Specifications*.....2
 Prerequisite or corequisite: CET 105 or equivalent
 Total Semester Credit Hours.....17

Second Semester

CET 129 Construction Management.....3
 DRAF 225 Civil Drafting*.....3
 Prerequisite: DRAF 230 or ENGR 131 and
 Prerequisite or corequisite: MATH 134
 DRAF 244 Land Development Desktop/CIVIL 3D*.....2
 Prerequisite: DRAF 230 or ENGR 131
 or department approval
 ENGL 121 Composition I*.....3
 Prerequisite: ENGL 106 or appropriate placement
 test score or EAP 113 and EAP 117
 MATH 131 Technical Mathematics II*.....3
 Prerequisites: MATH 130 or MATH 133 with a grade
 of "C" or higher or an equivalent course with
 a grade of "C" or higher
 CET 140 Civil Engineering Materials*.....3
 Prerequisite or corequisite: MATH 133
 Total Semester Credit Hours.....17

Third Semester

Health/Physical Education Elective.....1
 ENGL 123 Technical Writing I*.....3
 Prerequisite: ENGL 121
 CET 211 Technical Statics and Design*.....3
 Prerequisite: MATH 134 or MATH 172 or MATH 173 or
 MATH 241
 CET 160 Green Building Fundamentals.....3
 ENGR 180 Engineering Land Surveying I*.....3
 Corequisite: MATH 134 or MATH 172
 DRAF 143 Introduction to BIM Building Information Modeling*...2
 Prerequisite or corequisite: DRAF 129
 INDT 155 Workplace Skills.....1
 Total Semester Credit Hours.....16

Fourth Semester

Social Science/Economics Elective.....3
 CET 270 Fluid Mechanics*.....3
 Prerequisites: MATH 172 or MATH 134
 DRAF 252 Structural Drafting*.....3
 Prerequisite: DRAF 230 or ENGR 131and
 Prerequisite or corequisite: MATH 134
 CET 150 Construction Safety.....3
 CET 227 Construction Cost Estimating*.....3
 Prerequisites: CET 105 and CET 125 or
 department approval
 Prerequisite or corequisite: DRAF 129 or department
 approval
 PHIL 138 Business Ethics.....1
 Total Semester Credit Hours.....16
 TOTAL PROGRAM CREDIT HOURS.....66
 *Prerequisite/Corequisite required

Construction Management Certificate

The construction management certificate is designed to address the management training needs of supervisors in the construction industry. Necessary management skills include construction methods, safety, estimating and management; personnel supervision; business management; and financial and data management. Construction management practices are directed toward those encountered by small- to medium-sized contractors.

(Major Code 4750; CIP Code 52.2001)

Civil Engineering Technology

Career Certificate

Suggested/Sample Course Sequence

The sequence taken by the student may vary depending on prerequisites, course availability, and personal/professional responsibilities.

First Semester

CET 105	Construction Methods.....	3
CET 125	Construction Specifications*.....	2
	Prerequisite or corequisite: CET 105 or equivalent	
DRAF 129	Interpreting Architectural Drawings.....	2
MATH 120	Business Math or higher*.....	3
	Prerequisite: MATH 111 with a grade of "C" or higher or appropriate score on the math assessment test	
BUS 140	Principles of Supervision.....	3
	Total Semester Credit Hours.....	13

Second Semester

ACCT 111	Small Business Accounting.....	3
	or	
ACCT 121	Accounting I.....	3
CET 129	Construction Management.....	3
CET 227	Construction Cost Estimating*.....	3
	Prerequisites: CET 105 and CET 125 or department approval	
	Prerequisite or corequisite: DRAF 129 or department approval	
CET 150	Construction Safety.....	3
	Management Electives.....	2
INDT 155	Workplace Skills.....	1
	Total Semester Credit Hours.....	15
	TOTAL PROGRAM CREDIT HOURS.....	28

*Prerequisite/Corequisite required

Management Electives

BUS 141	Principles of Management.....	3
BUS 145	Small Business Management.....	3
BUS 243	Human Resource Management.....	3
BUS 261	Business Law I.....	3
ENTR 131	Financial Management for Small Business.....	2
	Prerequisite: ACCT 111 or ACCT 121	
ENTR 160	Legal Issues for Small Business.....	2

*Prerequisite/Corequisite required

Computer Information Systems, A.A.S.

Employment opportunities for programmer analysts continue to grow as the need for sophisticated information systems increases in the business environment. Increased demand will focus on the areas of object-oriented programming, database management and client-server applications.

JCCC's information systems program focuses on developing the skills needed for entry-level programmer analysts and related positions. The associate of applied science degree in information systems offers an integrated program of study designed to prepare professionals with skills that are applicable to different hardware systems. With its emphasis on practical experience and on

currency in the areas of software and curriculum, the program has much to offer the information systems professional who wishes to upgrade or broaden his or her knowledge of the field.

The associate of applied science degree is awarded for successful completion of 69 credit hours.

(Major Code 2930; CIP Code 11.0201)

Information Systems

Associate of Applied Science Degree

Prerequisite for Required Courses

Prior to beginning the information systems program, the student must take the following prerequisite, or have taken an equivalent transfer course, or have passed the waiver test, or have obtained a waiver from the department:

CIS 134	Programming Fundamentals.....	4
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First Semester

CS 200	Concepts of Programming Algorithms Using C++*.....	4
	Prerequisite: CIS 134 or ENGR 171 or equivalent experience or	
CS 205	Concepts of Programming Algorithms using JAVA*.....	4
	Prerequisite: CIS 134 or ENGR 171 or equivalent experience	
CIM 133	Screen Design*.....	4
	Prerequisite: CDP 135	
ACCT 121	Accounting I.....	3
ENGL 121	Composition I*.....	3
	Prerequisite: ENGL 106 or appropriate placement test score or EAP 113 and EAP 117	
MATH 171	College Algebra*.....	3
	Prerequisite: MATH 116 with a grade of "C" or higher or MATH 131 with a grade of "C" or higher or MATH 134 with a grade of "C" or higher or appropriate score on the math assessment test OR	
	Any Precalculus/Calculus Course*.....	3
	Total Semester Credit Hours.....	17

Second Semester

	Level One Programming Language Option.....	4
CS 210	Discrete Structures I*.....	3
	Prerequisites: MATH 171 or both MATH 116 and CIS 134 or appropriate math assessment scores	
CIS 162	Database Programming*.....	4
	Prerequisite: CIS 134 or the equivalent	
CIS 242	Introduction to System Design and Analysis*.....	3
	Prerequisite: CIS 138 or CS 200 or CS 201 or CS205	
SPD 125	Personal Communication.....	3
	or	
ENGL 123	Technical Writing I*.....	3
	Prerequisite: ENGL 121	
	Total Semester Credit Hours.....	17

Third Semester

	CIS Elective.....	3
	Level Two Programming Language Option.....	4
	Humanities/Art Elective.....	3
	Social Science and/or Economic Electives.....	3
	Health and/or Physical Education Elective.....	1
CIS 258	Operating Systems*.....	3
	Prerequisite: CIS 138 or CIS 162 or CS 200 or CS 201 or CS 205 or	
	or	
CIS 204	UNIX Operating System*.....	3
	Prerequisites: CS 200 or CS 205 or CS 201 and CPCA 139	
	Total Semester Credit Hours.....	17

Fourth Semester

	CIS Elective.....	3
	Level Three Programming Language Option.....	4
CIS 264	Application Development and Programming*.....	4
	Prerequisites: CIS 242 and either CIS 260 or CIS 162	

	Prerequisites or Corequisites: CIS 238 or CIS 253 or CIS 269 or CIS 240 and CIS 262	
CIS 260	Database Management*.....4	
	Prerequisite: CS 250 or CS 255 or CIS 235 or CIS 238 or CIS 248	
CIS 262	Project Management*.....3	
	Prerequisite: CIS 242	
	Total Semester Credit Hours.....18	
	TOTAL PROGRAM CREDIT HOURS.....69	

Each student should select one option area from the following list.

All three levels of programming language must be from the same option area.

Level One Programming Language Options:

Option in C++:

CIS 235	Object-Oriented Programming Using C++*.....4	
	Prerequisite: CS 200 using C++ or	
CS 250	Basic Data Structures using C++*.....4	
	Prerequisite: CS 200 - Prerequisite or corequisite: CS 210 for students transferring to most four-year computer science programs	

Option in JAVA:

CS 255	Basic Data Structures using JAVA*.....4	
	Prerequisite: CS 205	

Option in VISUAL BASIC:

CIS 138	Visual Basic .Net*.....4	
	Prerequisite: CIS 134	

Level Two Programming Language Options:

Option in C++:

CIS 235	Object-Oriented Programming Using C++*.....4	
	Prerequisite: CS 200 using C++ or	
CS 250	Basic Data Structures using C++*.....4	
	Prerequisite: CS 200 - Prerequisite or corequisite: CS 210 for students transferring to most four-year computer science programs	

Option in JAVA:

CIS 240	Advanced Topics in JAVA I*.....4	
	Prerequisite: CS 250 or CIS 235 or CS 255	

Option in VISUAL BASIC:

CIS 238	Visual Basic Intermediate Topics*.....4	
	Prerequisite: CIS 138	

Level Three Programming Language Options:

Option in C++:

CIS 269	GUI Programming*.....4	
	Prerequisites: CIS 235 or CS 250	

Option in JAVA:

CIS 280	Advanced Topics in JAVA II*.....4	
	Prerequisite: CIS 240	

Option in VISUAL BASIC:

CIS 277	Active Server Pages.Net*.....4	
	Prerequisites: CS 200 or CS 201 or CS 205 or CIS 162 and either CPCA 139 or CIS 204 and either CPCA 161 or CPCA 158	

Six hours of computer information systems electives are to be selected from the following list:

CS 180	Introduction to Artificial Intelligence*.....3	
	Prerequisite: CIS 145 or CIS 148 or CIS 150 or CS 200	
CS 200	Concepts of Programming Algorithms Using C++*.....4	
	Prerequisite: CIS 134 or ENGR 171 or equivalent experience	

CS 201	Concepts of Programming Algorithms using C#*.....4	
	Prerequisite: CIS 134 or ENGR 171 or equivalent experience	
CS 205	Concepts of Programming Algorithms using JAVA*.....4	
	Prerequisite: CIS 134 or ENGR 171 or equivalent experience	
CS 250	Basic Data Structures using C++*.....4	
	Prerequisite: CS 200 - Prerequisite or corequisite: CS 210 for students transferring to most four-year computer science programs	
CS 255	Basic Data Structures using JAVA*.....4	
	Prerequisite: CS 205	
CS 211	Discrete Structures II*.....3	
	Prerequisite: CS 210	
CIS 138	Visual Basic .Net*^.....4	
	Prerequisite: CIS 134	
CIS 204	UNIX Operating System*^.....3	
	Prerequisites: CS 200 or CS 205 or CS 201 and CPCA 139	
CIS 206	Programming in PERL*.....4	
	Prerequisites: CS 200 or CS 205 or CS 201 and CPCA 139	
CIS 235	Object-Oriented Programming Using C++*.....4	
	Prerequisite: CS 200 using C++	
CIS 238	Visual Basic Intermediate Topics*.....4	
	Prerequisite: CIS 138	
CIS 240	Advanced Topics in JAVA I*.....4	
	Prerequisite: CS 250 or CIS 235 or CS 255	
CIS 243	Object-Oriented Analysis and Design*^.....4	
	Prerequisite: One programming course using an object-oriented programming language or equivalent experience	
CIS 244	Advanced Topics in C# I*.....4	
	Prerequisite: CS 250 or CIS 235 or CS 255	
CIS 254	UNIX System Administration*.....4	
	Prerequisite: CIS 204	
CIS 258	Operating Systems*^.....3	
	Prerequisite: CIS 138 or CIS 162 or CS 200 or CS 201 or CS 205	
CIS 269	GUI Programming*.....4	
	Prerequisites: CIS 235 or CS 250	
CIS 270	Information Systems Internship*^.....3	
	Prerequisites: CS 250 or CS 255 or CIS 235 or CIS 238 or CIS 248 and department approval	
CIS 275	Web-Enabled Database Programming*.....4	
	Prerequisites: CS 200 or CS 201 or CS 205 or CIS 162 and either CPCA 139 or CIS 204 and either CPCA 161 or CPCA 158	
CIS 277	Active Server Pages.Net*.....4	
	Prerequisites: CS 200 or CS 201 or CS 205 or CIS 162 and either CPCA 139 or CIS 204 and either CPCA 161 or CPCA 158	
CIS 280	Advanced Topics in JAVA II*.....4	
	Prerequisite: CIS 240	
CFOR 150	Introduction to Computer Forensics*.....3	
	Prerequisites: CIS 134 and CPCA 139 and department approval	
CFOR 180	File Structure & Residual Artifacts*.....3	
	Prerequisite: CFOR 150	
IT 200	Networking Technologies.....3	
	*Prerequisite/Corequisite required	
	^ recommended electives	

Database Certificate

Completion of this certificate, offered through the computer information systems program, will help to prepare students for future careers as database specialists or for one of many other information systems careers in which knowledge of database concepts, products and technologies is important. Students will be able to design and build personal databases using Access. The student will acquire a strong foundational knowledge in an object-oriented programming language (Visual Basic) and will work with Web-enabled databases, SQL and other database products, as well as attaining formal systems analysis and design skills.

(Major Code 5190; CIP Code 11.0802)

Computing Sciences and Information Technology Department

Career Certificate

Prior to beginning the database certificate program, the student must take the following prerequisite or have taken an equivalent transfer course, or have passed the waiver test, or have obtained a waiver from the program administrator.

CPCA 105	Introduction to Personal Computers: Windows.....1
	or
CPCA 106	Introduction to Personal Computers: Macintosh.....1

First Semester

Full Semester Course	
CIS 134	Programming Fundamentals.....4

First Five Week Session

CPCA 114	Databases I: MS Access*.....1
	Prerequisite: CPCA 105 or CPCA 106 or CPCA 128 or CIS 124 or an appropriate score on a waiver test

Second Five Week Session

CPCA 115	Databases II: MS Access*.....2
	Prerequisite: CPCA 114
CWEB 101	Introduction to the Web using Internet Explorer.....1
	Prerequisites: CPCA 105 or CPCA 106 or CPCA 128 or CIS 124 or appropriate score on an assessment test

Third Five Week Session

CPCA 141	Internet I*.....1
	Prerequisite: CPCA 105 or CPCA 106 or CPCA 128 or CIS 124 or appropriate score on an assessment test
Total Semester Credit Hours.....9	

Second Semester

Full Semester Course	
CIS 138	Visual Basic .Net*.....4
	Prerequisite: CIS 134

First Five Week Session

CPCA 138	Windows for Microcomputers*.....1
	Prerequisite: CPCA 105 or CPCA 106 or CPCA 128 or CIS 124 or an appropriate score on an assessment test

Second Five Week Session

CWEB 136	Introduction to PHP*.....1
	Prerequisites: CWEB 101 and CPCA 114

Third Five Week Session

CWEB 146	PHP with MySQL*.....1
	Prerequisite: CWEB 136
CPCA 117	Databases III: MS Access*.....1
	Prerequisite: CPCA 115
Total Semester Credit Hours.....8	

Third Semester

Full Semester Courses	
CIS 238	Visual Basic Intermediate Topics*.....4
	Prerequisite: CIS 138
CIS 162	Database Programming*.....4
	Prerequisite: CIS 134 or the equivalent
Total Semester Credit Hours.....8	

Fourth Semester

Full Semester Courses	
CIS 260	Database Management*.....4
	Prerequisite: CS 250 or CS 255 or CIS 235 or CIS 238 or CIS 248
CIS 242	Introduction to System Design and Analysis*.....3
	Prerequisite: CIS 138 or CS 200 or CS 201 or CS205
Total Semester Credit Hours.....7	
TOTAL PROGRAM CREDIT HOURS.....32	

*Prerequisite/Corequisite required

The desktop publishing certificate is intended for those seeking entry-level positions, as well as for those currently employed, who desire to enhance their job skills. This certificate provides current or prospective employers with tangible evidence of desktop publishing competency, on the part of the certificate completer.

Application courses for the certificate will encourage students to develop a "cross-platform" mastery, which is made possible by offering most on-campus courses in a dual-platform Macintosh and Windows computing environment.

Required courses that cover skills a student already has may be replaced with other CDTF courses at the discretion of the Assistant Dean of Computing Sciences and Information Technology or a desktop publishing professor. An applicant must complete 14 credits at Johnson County Community College.

(Major Code 4830; CIP Code 11.0202)

Computing Sciences and Information Technology Department

Certificate of Completion

Prior to beginning the database career certificate program the student must take the following prerequisite or have taken an equivalent transfer course, or have passed the waiver test, or have obtained a waiver from the program administrator.

CPCA 105	Introduction to Personal Computers: Windows.....1
	or
CPCA 106	Introduction to Personal Computers: Macintosh.....1

Suggested/Sample Course Sequence Completion in One Semester

The sequence taken by the student may vary depending on prerequisites, course availability, and personal/professional responsibilities.

First Five Week Session

CDTP 135	Desktop Photo Manipulation I: Photoshop.....1
CDTP 140	Desktop Publishing I: InDesign.....1
CDTP 145	Desktop Illustration I: Illustrator.....1

Second Five Week Session

CPCA 134	Managing Your Macintosh*.....1
	Prerequisite: CPCA 106 or an appropriate score on an assessment test. Course offered in spring only.
	or
CPCA 138	Windows for Microcomputers*.....1
	Prerequisite: CPCA 105 or CPCA 106 or CPCA 128 or CIS 124 or an appropriate score on an assessment test
CDTP 155	Desktop Photo Manipulation II: Photoshop*.....1
	Prerequisite: CDTP 135
CDTP 160	Desktop Publishing II: InDesign*.....1
	Prerequisite: CDTP 140
CDTP 165	Desktop Illustration II: Illustrator*.....1
	Prerequisite: CDTP 145

Third Five Week Session

CDTP 175	Desktop Photo Manipulation III: Photoshop*.....1
	Prerequisite: CDTP 155
CDTP 168	Desktop Publishing III: InDesign*.....1
	Prerequisite: CDTP 160
CDTP 185	Desktop Illustration III: Illustrator*.....1
	Prerequisite: CDTP 165

Select four of the following twelve courses:

CPCA 108	Word Processing I: MS Word*.....1
	Prerequisites: CPCA 105 or CPCA 106 or CIS 124 or CPCA 128 or appropriate score on a waiver test
CPCA 123	E-Presentation: MS PowerPoint*.....1
	Prerequisite: CPCA 105 or CPCA 106 or CIS 124 or CPCA 128 or an appropriate score on a waiver test
CPCA 125	Word Processing II: MS Word*.....1
	Prerequisite: CPCA 108
CWEB 105	Introduction to Web Pages: Dreamweaver*.....1
	Prerequisite: CWEB 101
CWEB 106	Introduction to Microsoft FrontPage*.....1
	Prerequisite: CWEB 101

Desktop Publishing Applications Specialist Certificate

An individual, with or without a college degree, with the goal to acquire or improve computer desktop publishing application skills, will accomplish that goal in this certificate. Emphasis is placed upon the acquisition of results-oriented career business and industry skills.

CWEB 115	Intermediate Web Pages: Dreamweaver*	1
	Prerequisite: CWEB 105	
CWEB 125	Introduction to Dynamic Web Pages: Dreamweaver*	1
	Prerequisites: CWEB 115 and CPCA 114	
CWEB 130	Introduction to Flash*	1
	Prerequisite: CPCA 161 or CWEB 105 or CWEB 106	
CWEB 140	Intermediate Flash*	1
	Prerequisite: CWEB 130	
CWEB 150	Advanced Flash*	1
	Prerequisite: CWEB 140	
	TOTAL PROGRAM CREDIT HOURS	14

*Prerequisite/Corequisite required

Microcomputer Programmer Analyst Certificate

The Microcomputer Programmer/Analyst Certificate provides a foundation in skills needed to analyze business problems and develop software solutions using current industry standard development tools. The certificate provides an academic credential reflecting enhanced job skills for those seeking advancement in their information services career or for individuals with a prior degree in another discipline seeking a career change.

(Major Code 5030; CIP Code 11.0201)

Computing Sciences and Information Technology Department

Career Certificate

Prerequisite for Required Courses

Note: Prior to beginning the program, the student must take the following prerequisite, or have taken an equivalent transfer course, or have passed the waiver test (if applicable), or have obtained a waiver from the department.

CIS 134	Programming Fundamentals	4
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Suggested/Sample Course Sequence

The sequence taken by the student may vary depending on prerequisites, course availability, and personal/professional responsibilities.

First Semester

CS 200	Concepts of Programming Algorithms Using C++*^	4
	Prerequisite: CIS 134 or ENGR 171 or equivalent experience	
CS 205	Concepts of Programming Algorithms using JAVA*~	4
	Prerequisite: CIS 134 or ENGR 171 or equivalent experience	
CS 210	Discrete Structures I*	3
	Prerequisites: MATH 171 or both MATH 116 and CIS 134 or appropriate math assessment scores	
CIS 162	Database Programming*	4
	Prerequisite: CIS 134 or the equivalent	
	Total Semester Credit Hours	11

Second Semester

CIS 235	Object-Oriented Programming Using C++*^	4
	Prerequisite: CS 200 using C++ or	
CS 250	Basic Data Structures using C++*^	4
	Prerequisite: CS 200 - Prerequisite or corequisite: CS 210 for students transferring to most four-year computer science programs or	
CS 255	Basic Data Structures using JAVA*~	4
	Prerequisite: CS 205	
CIS 242	Introduction to System Design and Analysis*	3
	Prerequisite: CIS 138 or CS 200 or CS 201 or CS205	
CIS 204	UNIX Operating System*	3
	Prerequisites: CS 200 or CS 205 or CS 201 and CPCA 139	
	Total Semester Credit Hours	10

Third Semester

CIS 269	GUI Programming*	4
	Prerequisites: CIS 235 or CS 250 or	
CIS 240	Advanced Topics in JAVA I*	4
	Prerequisite: CS 250 or CIS 235 or CS 255	
CIS 262	Project Management*	3
	Prerequisite: CIS 242	
CIS 260	Database Management*	4
	Prerequisite: CS 250 or CS 255 or CIS 235 or CIS 238 or CIS 248	
	Total Semester Credit Hours	11
	TOTAL PROGRAM CREDIT HOURS	32

*Prerequisite/Corequisite required

Note: ^ CS 200 students must take either CS 250 or CIS 235

Note: ~ CS 205 students must take CS 255

Personal Computer Applications Specialist Certificate

Individuals with or without a college degree whose goal is to acquire or improve their personal computer application skills will accomplish their goals in this program. Emphasis is on acquiring results-oriented career business and industry skills. The program is intended for those seeking entry-level positions as well as those currently employed who desire to enhance their job skills and take MOUS (Microsoft Office User Specialist) certification tests. It provides employers and current prospective employees with tangible evidence of computer competencies.

(Major Code 4730; CIP Code 11.0202)

Computing Sciences and Information Technology Department

Certificate of Completion

Prior to beginning the personal computer applications certificate program the student must take the following prerequisite or have taken an equivalent transfer course, or have passed the waiver test, or have obtained a waiver from the program administrator.

CPCA 105	Introduction to Personal Computers: Windows	1
	or	
CPCA 106	Introduction to Personal Computers: Macintosh	1

Suggested/Sample Course Sequence Completion - Two Semesters

The sequence taken by the student may vary depending on prerequisites, course availability, and personal/professional responsibilities.

First Semester

First Five Week Session		
CPCA 123	E-Presentation: MS PowerPoint*	1
	Prerequisite: CPCA 105 or CPCA 106 or CIS 124 or CPCA 128 or an appropriate score on a waiver test	
CPCA 138	Windows for Microcomputers*	1
	Prerequisite: CPCA 105 or CPCA 106 or CPCA 128 or CIS 124 or an appropriate score on an assessment test	

Second Five Week Session

CPCA 108	Word Processing I: MS Word*	1
	Prerequisites: CPCA 105 or CPCA 106 or CIS 124 or CPCA 128 or appropriate score on a waiver test	
CPCA 110	Spreadsheets I: MS Excel*	1
	Prerequisite: CPCA 105 or CPCA 106 or CIS 124 or CPCA 128 or appropriate score on a waiver test	

Third Five Week Session

CPCA 111	Spreadsheets II: MS Excel*	1
	Prerequisite: CPCA 110 or CPCA 128	
CPCA 125	Word Processing II: MS Word*	1
	Prerequisite: CPCA 108	
	Total Semester Credit Hours	6

Second Semester

First Five Week Session	
CPCA 114	Databases I: MS Access*.....1 Prerequisite: CPCA 105 or CPCA 106 or CPCA 128 or CIS 124 or an appropriate score on a waiver test
CPCA 141	Internet I*.....1 Prerequisite: CPCA 105 or CPCA 106 or CPCA 128 or CIS 124 or appropriate score on an assessment test
Second Five Week Session	
CPCA 115	Databases II: MS Access*.....2 Prerequisite: CPCA 114
Third Five Week Session	
Continuation of CPCA 115-Database II: MS Access* CPCA Elective.....1 Total Semester Credit Hours.....5 TOTAL PROGRAM CREDIT HOURS.....11	
*Prerequisite/Corequisite required	

CPCA Electives

CPCA 118	Groupware: Outlook*.....1 Prerequisite: CPCA 105 or CPCA 106 or CPCA 128 or CIS 124 or an appropriate score on a waiver test
CPCA 121	Introduction to Project Management*.....1 Prerequisite: CPCA 105 or CPCA 106 or CPCA 128 or CIS 124 or an appropriate score on a waiver test
CPCA 151	Internet II*.....1 Prerequisite: CPCA 141 or an appropriate score on an assessment test
CPCA 161	Introduction to Web Pages using HTML*.....1 Prerequisite: CPCA 151 or an appropriate score on an assessment test

NOTE: A student can elect to take CPCA 128, Personal Computer Applications, in lieu of CPCA 108, CPCA 110 and CPCA 123. An additional elective can then be substituted for CPCA 105.

Second Option

Suggested/Sample Course Sequence Completion in One Semester

The sequence taken by the student may vary depending on prerequisites, course availability, and personal/professional responsibilities.

First Semester

First Five Week Session	
CPCA 108	Word Processing I: MS Word*.....1 Prerequisites: CPCA 105 or CPCA 106 or CIS 124 or CPCA 128 or appropriate score on a waiver test
CPCA 110	Spreadsheets I: MS Excel*.....1 Prerequisite: CPCA 105 or CPCA 106 or CIS 124 or CPCA 128 or appropriate score on a waiver test
CPCA 114	Databases I: MS Access*.....1 Prerequisite: CPCA 105 or CPCA 106 or CPCA 128 or CIS 124 or an appropriate score on a waiver test
CPCA 141	Internet I*.....1 Prerequisite: CPCA 105 or CPCA 106 or CPCA 128 or CIS 124 or appropriate score on an assessment test
Second Five Week Session	
CPCA 123	E-Presentation: MS PowerPoint*.....1 Prerequisite: CPCA 105 or CPCA 106 or CIS 124 or CPCA 128 or an appropriate score on a waiver test
CPCA 138	Windows for Microcomputers*.....1 Prerequisite: CPCA 105 or CPCA 106 or CPCA 128 or CIS 124 or an appropriate score on an assessment test
CPCA 115	Databases II: MS Access*.....2 Prerequisite: CPCA 114
Third Five Week Session	
Continuation of CPCA 115-Database II: MS Access* CPCA Elective.....1 CPCA 111 Spreadsheets II: MS Excel*.....1 Prerequisite: CPCA 110 or CPCA 128	
CPCA 125	Word Processing II: MS Word*.....1 Prerequisite: CPCA 108
TOTAL PROGRAM CREDIT HOURS.....11	
*Prerequisite/Corequisite required	

CPCA Electives

CPCA 118	Groupware: Outlook*.....1 Prerequisite: CPCA 105 or CPCA 106 or CPCA 128 or CIS 124 or an appropriate score on a waiver test
CPCA 121	Introduction to Project Management*.....1 Prerequisite: CPCA 105 or CPCA 106 or CPCA 128 or CIS 124 or an appropriate score on a waiver test
CPCA 151	Internet II*.....1 Prerequisite: CPCA 141 or an appropriate score on an assessment test
CPCA 161	Introduction to Web Pages using HTML*.....1 Prerequisite: CPCA 151 or an appropriate score on an assessment test

NOTE: A student can elect to take CPCA 128, Personal Computer Applications, in lieu of CPCA 108, CPCA 110 and CPCA 123. An additional elective can then be substituted for CPCA 105.

Web Applications Specialist Certificate

This certificate is designed for those seeking entry-level positions and those who are currently employed and want to improve their job skills and career opportunities relating to Web-oriented applications. This certificate gives an employer tangible evidence of Web-based software skills and competencies.

(Major Code 5610; CIP Code 11.0202)

Computing Sciences and Information Technology Department

Certificate of Completion

Prerequisite for Required Courses

Prior to beginning the program, the student must take the follow prerequisite, or have taken an equivalent course, or have passed the waiver test, or have obtained a waiver from the program administrator.

CPCA 105	Introduction to Personal Computers: Windows.....1
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First Semester

First Five Week Session	
CWEB 101	Elective from First Semester List of Electives.....1 Introduction to the Web using Internet Explorer*.....1 Prerequisites: CPCA 105 or CPCA 106 or CPCA 128 or CIS 124 or appropriate score on an assessment test
Second Five Week Session	
CWEB 105	Introduction to Web Pages: Dreamweaver*.....1 Prerequisite: CWEB 101
CWEB 106	Introduction to Microsoft FrontPage*.....1 Prerequisite: CWEB 101
Third Five Week Session	
CWEB 111	Elective from First Semester List of Electives.....1 Intermed Web Concepts/Techniques using Explorer*.....1 Prerequisite: CWEB 101
CWEB 116	Intermediate Microsoft FrontPage*.....1 Prerequisite: CWEB 106 or
CWEB 115	Intermediate Web Pages: Dreamweaver*.....1 Prerequisite: CWEB 105
Total Semester Credit Hours.....7	
FIRST SEMESTER LIST OF ELECTIVES	
CDTP 135	Desktop Photo Manipulation I: Photoshop.....1
CDTP 145	Desktop Illustration I: Illustrator.....1
CWEB 130	Introduction to Flash*.....1 Prerequisite: CPCA 161 or CWEB 105 or CWEB 106

Second Semester

First Five Week Session	
CWEB 230	Introductory E-Commerce Applications*.....1 Prerequisite: CWEB 101 or CPCA 141

CPCA 114	Databases I: MS Access*	1
	Prerequisite: CPCA 105 or CPCA 106 or CPCA 128 or CIS 124 or an appropriate score on a waiver test	
Second Five Week Session		
	Elective from Second Semester List of Electives	1
CWEB 136	Introduction to PHP*	1
	Prerequisites: CWEB 101 and CPCA 114	
CWEB 240	Intermediate E-Commerce Applications*	1
	Prerequisite: CWEB 230	
Third Five Week Session		
	Elective from Second Semester List of Electives	1
CWEB 146	PHP with MySQL*	1
	Prerequisite: CWEB 136	
	Total Semester Credit Hours	7
	TOTAL PROGRAM CREDIT HOURS	14

SECOND SEMESTER LIST OF ELECTIVES

CPCA 161	Introduction to Web Pages using HTML*	1
	Prerequisite: CPCA 151 or an appropriate score on an assessment test	
CWEB 160	Introduction to JavaScript*	1
	Prerequisite: CWEB 105 or CWEB 106 or CPCA 161	
CWEB 107	Web Tools: Microsoft Office*	1
	Prerequisites: CWEB 101 and CPCA 110 or CPCA 114	

*Prerequisite/Corequisite required

	CS 201 and CPCA 139	
CIS 240	Advanced Topics in JAVA I*	4
	Prerequisite: CS 250 or CIS 235 or CS 255	
CIS 260	Database Management*	4
	Prerequisite: CS 250 or CS 255 or CIS 235 or CIS 238 or CIS 248	
	Total Semester Credit Hours	15

Second Semester

CIM 130	Interactive Media Concepts	2
	Prerequisite or corequisite: ENGL 121	
CIS 254	UNIX System Administration*	4
	Prerequisite: CIS 204	
CIS 275	Web-Enabled Database Programming*	4
	Prerequisites: CS 200 or CS 201 or CS 205 or CIS 162 and either CPCA 139 or CIS 204 and either CPCA 161 or CPCA 158	

or

CIS 277	Active Server Pages.Net*	4
	Prerequisites: CS 200 or CS 201 or CS 205 or CIS 162 and either CPCA 139 or CIS 204 and either CPCA 161 or CPCA 158	
CIS 280	Advanced Topics in JAVA II*	4
	Prerequisite: CIS 240	
	Total Semester Credit Hours	14
	TOTAL PROGRAM CREDIT HOURS	29

*Prerequisite/Corequisite required

Web Developer Advanced Certificate

The Web developer advanced certificate is for the computer professional who wants to acquire the necessary skills to enable clients to interface with databases on the World Wide Web.

(Major Code 5150; CIP Code 11.1004)

Computing Sciences and Information Technology Department

Career Certificate

Prerequisites for Required Courses

Note: Prior to beginning the program, the student must take the following prerequisites, or have taken an equivalent transfer course, or have passed the waiver test (if applicable), or have obtained a waiver from the department.

CIS 134	Programming Fundamentals	4
CPCA 161	Introduction to Web Pages using HTML*	1
	Prerequisite: CPCA 151 or an appropriate score on an assessment test	
CDTP 140	Desktop Publishing I: InDesign	1
	or	
CDTP 135	Desktop Photo Manipulation I: Photoshop	1
CIS 162	Database Programming*	4
	Prerequisite: CIS 134 or the equivalent	
CS 200	Concepts of Programming Algorithms Using C++*	4
	Prerequisite: CIS 134 or ENGR 171 or equivalent experience	
	or	
CS 205	Concepts of Programming Algorithms using JAVA*	4
	Prerequisite: CIS 134 or ENGR 171 or equivalent experience	
CIS 235	Object-Oriented Programming Using C++*	4
	Prerequisite: CS 200 using C++	
	or	
CS 255	Basic Data Structures using JAVA*	4
	Prerequisite: CS 205	

Suggested/Sample Course Sequence

The sequence taken by the student may vary depending on prerequisites, course availability, and personal/professional responsibilities.

First Semester

CIM 133	Screen Design*	4
	Prerequisite: CDTP 135	
CIS 204	UNIX Operating System*	3
	Prerequisites: CS 200 or CS 205 or	

Advanced Esthetics Certificate

This 100 contact hour course is designed to meet the educational requirements for licensure by the Missouri Board of Cosmetology for estheticians in the cosmetology sciences and meet the needs of students who desire exposure to advanced esthetics techniques. Students will attend 44 hours of lecture/discussion/demonstration, practice 44 hours of integrated lecture/clinical, complete 4 hours assisting in a salon and participate in 8 hours of community service. Topics covered include body treatments, theory of the day spa, airbrush, makeup, microderm abrasion, and manual lymphatic drainage.

Prerequisite: Must possess current esthetics license granted by the Kansas Board of Cosmetology or a current cosmetology license.

This program requires a professional liability insurance fee. Students will be notified via their JCCC student e-mail account if they are required to pay a \$16 fee. The dollar amount for fees is subject to change.

(Major Code 3760; CIP Code 12.0409)

Cosmetology/Esthetics/Nail Technology

Certificate of Completion

Required Course

CO 218	Esthetics Essential Update*	6
	Prerequisite: Must possess current esthetics license granted by the Kansas Board of Cosmetology, a current cosmetology license, or the minimum of 650 hours of esthetics training from an education institution.	
	TOTAL PROGRAM CREDIT HOURS	6

*Prerequisite/Corequisite required

Cosmetology, A.A.S.

This degree may be earned only by a student who has completed the JCCC cosmetology certificate program. A student must have 19 additional credits in order to receive a degree from Johnson County Community College. Students who graduated with the certificate prior to conversion to credit hours will receive 45 hours of documented advanced standing credit, which will be

placed on the student's record when the application for graduation is filed. Students must also meet JCCC admissions, residency and graduation requirements.

Interested students should contact the JCCC Student Success Center for further information prior to enrollment in the sequence of courses.

Certain courses within this program require a professional liability insurance fee. Students will be notified via their JCCC student e-mail account if they are required to pay a \$16 fee. The dollar amount for fees is subject to change.

(Major Code 2090; CIP Code 12.0401)

Cosmetology/Esthetics/Nail Technology

Associate of Applied Science Degree

Sequence of Courses

Option 1 - No Professional Licensure	
AVCO 110	Introduction to Cosmetology*.....21 Prerequisite: Selective Admission Approval
AVCO 112	Clinical Cosmetology*.....12 Prerequisite: Selective Admission Approval
AVCO 114	Advanced Cosmetology*.....12 Prerequisites: AVCO 110 with a min grade of "C" or higher and selective admission approval or
Option 2 - With Nail Technology Licensure	
AVCO 110	Introduction to Cosmetology*.....21 Prerequisite: Selective Admission Approval
AVCO 112	Clinical Cosmetology*.....12 Prerequisite: Selective Admission Approval
AVCO 115	Cosmetology with Nail Technology License*.....12 Prerequisites: AVCO 110 and current Kansas nail technology license or
Option 3 - With Esthetics Licensure	
AVCO 110	Introduction to Cosmetology*.....21 Prerequisite: Selective Admission Approval
AVCO 112	Clinical Cosmetology*.....12 Prerequisite: Selective Admission Approval
AVCO 116	Cosmetology with Esthetics License*.....12 Prerequisites: AVCO 110 and current Kansas esthetics license or
Option 4 - With Both Nail Technology & Esthetics Licensure	
AVCO 110	Introduction to Cosmetology*.....21 Prerequisite: Selective Admission Approval
AVCO 115	Cosmetology with Nail Technology License*.....12 Prerequisites: AVCO 110 and current Kansas nail technology license
AVCO 116	Cosmetology with Esthetics License*.....12 Prerequisites: AVCO 110 and current Kansas esthetics license
	Communication Elective.....3
	Humanities Elective.....3
	Social Science and/or Economics Electives.....3
	Science and/or Math Elective.....3
	Electives.....3
	Health and/or Physical Education Elective.....1
ENGL 121	Composition I*.....3 Prerequisite: ENGL 106 or appropriate placement test score or EAP 113 and EAP 117
	TOTAL PROGRAM CREDIT HOURS.....64

*Prerequisite/Corequisite required

Cosmetology Certificate

The field of cosmetology relies on creative people who use their ability to visualize shapes and forms for hair design and personal care. Cosmetologists need manual dexterity, an understanding of chemistry and superior client communication skills. This program provides theory and skill development in shampooing, cutting, shaping, curling and coloring hair, as well as manicuring and esthetics.

Employment opportunities are available in beauty salons, department stores, health care and hotel facilities. Entrepreneurship opportunities are also available for cosmetologists who choose to pursue this pathway. Additional employment choices include nail artist, complexion care, cosmetic or beauty supply sales and services, manufacturing technician and color chemist.

Enrollment is limited in the program. Admission requires an interview, testing. Contact the salon at 913-469-2390, for additional information.

Certain courses within this program require a professional liability insurance fee. Students will be notified via their JCCC student e-mail account if they are required to pay a \$16 fee. The dollar amount for fees is subject to change.

(Major Code 370A; CIP Code 12.0401)

Cosmetology/Esthetics/Nail Technology

Career Certificate

Option 1 - No Professional Licensure	
AVCO 110	Introduction to Cosmetology*.....21 Prerequisite: Selective Admission Approval
AVCO 112	Clinical Cosmetology*.....12 Prerequisite: Selective Admission Approval
AVCO 114	Advanced Cosmetology*.....12 Prerequisites: AVCO 110 with a min grade of "C" or higher and selective admission approval
	TOTAL PROGRAM CREDIT HOURS.....45
or	
Option 2 - With Nail Technology Licensure	
AVCO 110	Introduction to Cosmetology*.....21 Prerequisite: Selective Admission Approval
AVCO 112	Clinical Cosmetology*.....12 Prerequisite: Selective Admission Approval
AVCO 115	Cosmetology with Nail Technology License*.....12 Prerequisites: AVCO 110 and current Kansas nail technology license
	TOTAL PROGRAM CREDIT HOURS.....45
or	
Option 3 - With Esthetics Licensure	
AVCO 110	Introduction to Cosmetology*.....21 Prerequisite: Selective Admission Approval
AVCO 112	Clinical Cosmetology*.....12 Prerequisite: Selective Admission Approval
AVCO 116	Cosmetology with Esthetics License*.....12 Prerequisites: AVCO 110 and current Kansas esthetics license
	TOTAL PROGRAM CREDIT HOURS.....45
or	
Option 4 - With Both Nail Technology & Esthetics Licensure	
AVCO 110	Introduction to Cosmetology*.....21 Prerequisite: Selective Admission Approval
AVCO 115	Cosmetology with Nail Technology License*.....12 Prerequisites: AVCO 110 and current Kansas nail technology license
AVCO 116	Cosmetology with Esthetics License*.....12 Prerequisites: AVCO 110 and current Kansas esthetics license
	TOTAL PROGRAM CREDIT HOURS.....45

*Prerequisite/Corequisite required

Cosmetology Instructor Training Certificate

This 300 contact hour course is designed to meet the educational requirements for licensure by the Kansas Board of Cosmetology for instructors in the cosmetology sciences. Students will attend 40 hours of lecture and participate in 260 hours of observation, clinic supervision, and classroom teaching. Topics covered include instructor characteristics, student motivation, methods and evaluation.

This program requires a professional liability insurance fee. Students will be notified via their JCCC student e-mail account if they are required to pay a \$16 fee. The dollar amount for fees is subject to change.

(Major Code 3740; CIP Code 12.0401)

Cosmetology/Esthetics/Nail Technology

Certificate of Completion

Required Course

AVCO 212	Cosmetology Instructor Training*.....9
	Prerequisites: Current Kansas Cosmetology and Esthetics or Nail Technology License. Minimum of one year of practice in trained area and selective admission approval
	TOTAL PROGRAM CREDIT HOURS.....9

*Prerequisite/Corequisite required

Esthetics Certificate

Theory and skill development in sanitation, skin sciences, skin treatments, waxing, makeup and business practices are offered. Upon completion of this program, students are prepared for the Kansas State Board of Cosmetology for Estheticians licensure written and practical exams. Admission requires an esthetics application, interview and a reading comprehension test. Contact the salon at 913-469-2390 for additional information.

This program requires a professional liability insurance fee to have been paid within the year. Students will be notified via their JCCC student e-mail account if they have not paid the required \$16 fee. The dollar amount for fees is subject to change.

(Major Code 372A; CIP Code 12.0409)

Cosmetology/Esthetics/Nail Technology

Career Certificate

Fall Semester

CO 120	Esthetics*.....7
	Prerequisite: Admission to the esthetics program and Corequisites for part- and full-time students: CO 121 and CO 122.
CO 121	Esthetics Lab*.....6
	Prerequisite: Selective admission approval and Corequisites for part- and full-time students: CO 120 and CO 122.
CO 122	Esthetics Clinical*.....2
	Prerequisite: Selective admission approval and Corequisites for part- and full-time students: CO 120 and CO 121.
	Total Semester Credit Hours.....15

Spring Semester

CO 127	Intermediate Esthetics*.....7
	Prerequisite for part- and full-time students: CO 120. Corequisites for part- and full-time students: CO 128 and CO 129. All courses must have a grade of "C" or higher.
CO 128	Intermediate Esthetics Lab*.....6
	Prerequisite for part- and full-time students: CO 121. Corequisites for part- and full-time students: CO 127 and CO 129. All courses must have a grade of "C" or higher.
CO 129	Intermediate Esthetics Clinical*.....2
	Prerequisite for part- and full-time students: CO 122. Corequisites for part- and full-time students: CO 127 and CO 128. All courses must have a grade of "C" or higher.
	Total Semester Credit Hours.....15

Summer Semester

CO 134	Esthetics Essentials*.....2
	Prerequisite for part- or full-time students: CO 127. Corequisites for part-time students: CO 135 and CO 136. Corequisites for full-time students: CO 135 and CO 136 and CO 141 and CO 142 and CO 143. All courses must have a grade of "C" or higher.
CO 135	Esthetics Essentials Lab*.....2
	Prerequisite for part- or full-time students: CO 128. Corequisites for part-time students: CO 134 and CO 136. Corequisites for full-time students: CO 134 and CO 136 and CO 141 and CO 142 and CO 143. All courses must have a grade of "C" or higher.
CO 136	Esthetics Essentials Clinical*.....1
	Prerequisite for part- or full-time students: CO 129.

Corequisites for part-time students: CO 134 and CO 135. Corequisites for full-time students: CO 134 and CO 135 and CO 141 and CO 142 and CO 143. All courses must have a grade of "C" or higher.

Total Semester Credit Hours.....5

Fall Semester

CO 141	Advanced Esthetics*.....5
	Prerequisite for part- or full-time students: CO 134. Corequisites for part-time students: CO 142 and CO 143. Corequisites for full-time students: CO 134 and CO 135 and CO 136 and CO 142 and CO 143. All courses must have a grade of "C" or higher.
CO 142	Advanced Esthetics Lab*.....2
	Prerequisite for part- or full-time students: CO 135. Corequisites for part-time students: CO 141 and CO 143. Corequisites for full-time students: CO 134 and CO 135 and CO 136 and CO 141 and CO 143. All courses must have a grade of "C" or higher.
CO 143	Advanced Esthetics Clinical*.....2
	Prerequisite for part- or full-time students: CO 136. Corequisites for part-time students: CO 141 and CO 142. Corequisites for full-time students: CO 134 and CO 135 and CO 136 and CO 141 and CO 142. All courses must have a grade of "C" or higher.
	Total Semester Credit Hours.....9
	TOTAL PROGRAM CREDIT HOURS.....44

*Prerequisite/Corequisite required

Nail Technology Certificate

The program provides theory and skill development in artistic application of artificial nail services which includes the application of fiberglass and silk wraps, tips with overlay, sculptured nails, and gels. Pedicures, manicures, and identifying the various diseases and disorders of the nails will also be taught. Upon completion of this program, students are prepared for the Kansas State Board of Cosmetology Onychology licensure written and practical exams. Admission requires high school transcript or GED. Contact the Salon at 913-469-2390, for additional information.

This program requires a professional liability insurance fee. Students will be notified via their JCCC student e-mail account if they are required to pay a \$16 fee. The dollar amount for fees is subject to change.

(Major Code 369A; CIP Code 12.0410)

Cosmetology/Esthetics/Nail Technology

Career Certificate

Required Course

AVCO 102	Nail Technology.....17
	TOTAL PROGRAM CREDIT HOURS.....17

Dental Hygiene, A.A.S.

A key member of the professional dental team, the licensed dental hygienist is on the "front line" of patient care, responsible for providing educational, clinical and therapeutic services that promote total health through good oral health. The growing public awareness of the benefits of oral health, combined with the growth of corporate dental plans, has significantly increased the demand for dental care and has made dental hygiene one of the country's fastest-growing careers. The demand for dental hygienists is expected to grow 46 percent by 2010. Competitive salaries and flexible work schedules are added benefits. Students in JCCC's dental hygiene program prepare for careers as preventive dental professionals who have a choice of working in a variety of settings. Upon successful completion of licensure requirements and board examinations, graduates get jobs in school systems, nursing homes and dental supply firms, as well as private dental offices.

Fully accredited by the American Dental Association Commission on Dental Accreditation, this 83-credit-hour program requires four semesters and one

summer session of full-time study. Successful completion leads to an associate of applied science degree. All dental hygiene students gain important practical experience working in JCCC's state-of-the-art clinical facility under the supervision of licensed dental hygienists and dentists.

Enrollment is limited. The deadline for fall semester applications is December 1st. Fall course transcripts are due January 15th. For an application, call the dental hygiene program at 913-469-3808 or download a copy by clicking <http://www.jccc.net/home/depts/001253>

This program requires a professional liability insurance fee. Students will be notified via their JCCC student e-mail account if they are required to pay a \$16 fee. The dollar amount for fees is subject to change.

(Major Code 223A; CIP Code 51.0602)

Dental Hygiene Program

Associate of Applied Science Degree

Selective Admission Program with Limited Enrollment

Before beginning clinical courses

CHEM 122	Principles of Chemistry.....	5
ENGL 121	Composition I*.....	3
	Prerequisite: ENGL 106 or appropriate placement test score or EAP 113 and EAP 117	
BIOL 140	Human Anatomy.....	4
PSYC 130	Introduction to Psychology*.....	3
	Prerequisite: Appropriate score on the COMPASS reading test OR appropriate score on the ACT reading test OR RDG 126 with a grade of "C" or higher	
BIOL 230	Microbiology*.....	3
	Prerequisite: CHEM 122 or CHEM 124 and CHEM 125 or one year of high school chemistry	
BIOL 231	Microbiology Lab*.....	2
	BIOL 231 students must be currently enrolled in BIOL 230 or have successfully completed BIOL 230 within the last three years.	
	Total Preclinical Hours.....	20

Note: CHEM 122 or BIOL 140 or BIOL 230/231 and one of the other prerequisites must be completed by the end of the fall semester. Transcripts from the fall semester are due January 15. The application deadline is December 1.

First Semester

DHYG 121	Clinical Dental Hygiene I: Pre-Clinic*.....	5
	Prerequisites: Admission to the Dental Hygiene Program, a minimum 2.0 GPA in curriculum courses and CHEM 122 and ENGL 121 and BIOL 140 and PSYC 130 and BIOL 230	
	Corequisites: DHYG 125 and DHYG 138	
	Prerequisite or corequisite: DHYG 135 and SOC 122	
	Prerequisite: Selective Admission Approval	
DHYG 125	Developmental Dentistry*.....	2
	Prerequisites: Admission to Dental Hygiene Program and CHEM 122 and ENGL 121 and BIOL 140 and PSYC 130 and BIOL 230 and	
	Corequisites: DHYG 121 and DHYG 138 and	
	Prerequisites or corequisites: SOC 122 and DHYG 135	
DHYG 135	Dental Materials*.....	2
	Prerequisites: CHEM 122 and ENGL 121 and PSYC 130 and BIOL 140 and BIOL 230 and	
	Prerequisite or corequisite: SOC 122	
DHYG 138	Head and Neck Anatomy*.....	2
	Prerequisites: BIOL 230 and CHEM 122 and ENGL 121 and PSYC 130 and BIOL 140 and admission to the Dental Hygiene Program and	
	Prerequisites or corequisites: SOC 122 and DHYG 135	
	Corequisites: DHYG 121 and DHYG 125	
SOC 122	Introduction to Sociology.....	3
	Total Semester Credit Hours.....	14

Second Semester

DHYG 140	Clinical Dental Hygiene II*.....	4
	Prerequisite: DHYG 121	
	Corequisites: DHYG 142 and DHYG 146 and DHYG 148 and	
	prerequisites or corequisites: BIOL 225 and DHYG 135	
DHYG 142	Dental Radiology*.....	2
	Prerequisites: DHYG 121	
	Corequisites: DHYG 140 and	
	DHYG 146 and DHYG 148 and	
	Prerequisites or corequisites: BIOL 225 and DHYG 135	
DHYG 146	Periodontics*.....	3

	Prerequisite: DHYG 121	
	Corequisites: DHYG 140 and	
	DHYG 142 and DHYG 148	
	Prerequisites or Corequisites: BIOL 225 and DHYG 135	
DHYG 148	Dental Health Education*.....	2
	Prerequisite: DHYG 121	
	Corequisites: DHYG 140 and	
	DHYG 142 and DHYG 146	
	Prerequisites or Corequisites: BIOL 225 and DHYG 135	
BIOL 225	Human Physiology*.....	4
	Prerequisites or corequisites: Either CHEM 122 or (CHEM 124 and CHEM 125) and either BIOL 140 or BIOL 144	
	Total Semester Credit Hours.....	15

Summer

	Humanities Elective.....	3
	Mathematics Elective*.....	3
BIOL 235	General Nutrition*.....	3
	Prerequisites: Choice CHEM 122 or (CHEM 124 and CHEM 125) and (BIOL 144 or BIOL 140). If BIOL 140 is used as the prerequisite, BIOL 225 must also be taken as a prerequisite or corequisite with department approval	
	Total Semester Credit Hours.....	9

Third Semester

DHYG 221	Clinical Dental Hygiene III*.....	6
	Prerequisites: DHYG 140 and BIOL 235	
	Corequisites: DHYG 225 and DHYG 230 and DHYG 240	
DHYG 225	Pathology*.....	3
	Prerequisites: DHYG 140 and BIOL 235	
	Corequisites: DHYG 221 and DHYG 230 and DHYG 240	
DHYG 230	Dental Therapeutics*.....	3
	Prerequisites: DHYG 140 and BIOL 235	
	Corequisites: DHYG 221 and DHYG 225 and DHYG 240	
DHYG 240	Community Dental Health*.....	2
	Prerequisites: DHYG 140 and BIOL 235	
	Corequisites: DHYG 221 and DHYG 225 and DHYG 230	
	Total Semester Credit Hours.....	14

Fourth Semester

	Health and/or Physical Education Elective.....	1
DHYG 245	Nitrous Oxide Analgesia*.....	1
	Prerequisite: DHYG 221	
	Corequisite: DHYG 250	
DHYG 250	Clinical Dental Hygiene IV*.....	6
	Prerequisite: DHYG 221	
	Corequisite: DHYG 245	
SPD 120	Interpersonal Communication.....	3
	or	
SPD 121	Public Speaking.....	3
	or	
SPD 125	Personal Communication.....	3
	Total Semester Credit Hours.....	11
	TOTAL PROGRAM CREDIT HOURS.....	83

*Prerequisite/Corequisite required

Computer-aided Drafting and Design Technology, A.A.S.

Drafting technicians are engineering communication specialists who apply mathematics, computer applications and manual skills to develop specifications and drawings for the manufacturing and construction of virtually everything made in the world. JCCC's drafting technology program offers students up-to-date equipment in facilities located in the Industrial Training Center on the JCCC campus. In addition, the program offers departmental specialty courses. The program provides students with the skills necessary to produce detailed shop drawings, land plats, erection drawings and designs for manufacturing, building, production, commercial building and site construction as well as detailed drawings and designs of components, assemblies and systems used in manufactured products.

Industrial growth and increasingly complex design problems will greatly increase the demand for design and drafting services, particularly using CAD equipment. Employers are most interested in applicants with drafting and mechanical skills, a background in CAD techniques and courses in math, science and engineering technology.

The two-year curriculum enables students to use the latest computer-aided design equipment. Course projects and laboratory procedures are similar to those used in industry.

An associate of applied science degree is awarded upon the successful completion of 64 credit hours.

(Major Code 2220; CIP Code 15.1302)

Computer Aided Drafting and Design

Associate of Applied Science Degree

Prerequisites for Required Courses

Note: Prior to beginning the program, the student must take the following prerequisite courses, or have taken an equivalent transfer course, or have passed the waiver test (if applicable), or have obtained a waiver from the program administrator.

DRAF 120	Introduction to Drafting.....	2
BOT 101	Computerized Keyboarding.....	1
DRAF 130	Introduction to CAD Concepts - AutoCAD: 2010*.....	3
	Prerequisite: DRAF 120 or department approval	
CPCA 105	Introduction to Personal Computers: Windows.....	1
CPCA 138	Windows for Microcomputers*.....	1
	Prerequisite: CPCA 105 or CPCA 106 or CPCA 128 or CIS 124 or an appropriate score on an assessment test	
CPCA 141	Internet I*.....	1
	Prerequisite: CPCA 105 or CPCA 106 or CPCA 128 or CIS 124 or appropriate score on an assessment test	

First Semester

DRAF 129	Interpreting Architectural Drawings.....	2
DRAF 123	Interpreting Machine Drawings*.....	2
	Prerequisite or corequisite: DRAF 120 or department approval	
DRAF 135	Graphic Analysis*.....	3
	Prerequisites: DRAF 120 and DRAF 130 or department approval	
DRAF 230	Intermediate CAD: AutoCAD*.....	3
	Prerequisite: DRAF 130 or department approval	
ENGL 121	Composition I*.....	3
	Prerequisite: ENGL 106 or appropriate placement test score or EAP 113 and EAP 117	
MATH 130	Technical Mathematics I*.....	3
	Prerequisite: MATH 111 with a grade of "C" or higher or an appropriate score on the math assessment test	
	Total Semester Credit Hours.....	16

Second Semester

DRAF 238	Technical Electives.....	3
	Architectural Drafting*.....	3
	Prerequisites: DRAF 129 and DRAF 230	
DRAF 231	CAD 3-D*.....	3
	Prerequisite: DRAF 230	
DRAF 252	Structural Drafting*.....	3
	Prerequisite: DRAF 230 or ENGR 131 and Prerequisite or corequisite: MATH 134	
MATH 131	Technical Mathematics II*.....	3
	Prerequisites: MATH 130 or MATH 133 with a grade of "C" or higher or an equivalent course with a grade of "C" or higher	
	Total Semester Credit Hours.....	15

Third Semester

CET 211	Health and/or Physical Education Elective.....	1
	Technical Statics and Design*.....	3
	Prerequisite: MATH 134 or MATH 172 or MATH 173 or MATH 241	
DRAF 222	Mechanical Drafting*.....	3
	Prerequisites: DRAF 123 and DRAF 230	
DRAF 250	Electrical Drafting*.....	3
	Prerequisite and/or corequisite: MATH 134 or MATH 131	
ENGL 123	Technical Writing I*.....	3
	Prerequisite: ENGL 121	
CET 270	Fluid Mechanics*.....	3
	Prerequisites: MATH 172 or MATH 134	
	Total Semester Credit Hours.....	16

Fourth Semester

	Technical Electives.....	3
	Humanities Elective.....	3
	Social Science and/or Economics Elective.....	3
DRAF 228	Industrial Design Applications*.....	3
	Prerequisites: CET 211 and DRAF 222 and DRAF 250 and DRAF 252	
DRAF 243	Architectural Desktop: Revit*.....	2
	Prerequisite: DRAF 230 or ENGR 131 or department approval	
DRAF 244	Land Development Desktop/CIVIL 3D*.....	2
	Prerequisite: DRAF 230 or ENGR 131 or department approval	
DRAF 245	Mechanical Desktop: Inventor*.....	2
	Prerequisite: DRAF 230 or ENGR 131 or department approval	
DRAF 225	Civil Drafting*.....	3
	Prerequisite: DRAF 230 or ENGR 131 and prerequisite or corequisite: MATH 134	
	Total Semester Credit Hours.....	17
	TOTAL PROGRAM CREDIT HOURS.....	64

Technical Electives

CPCA 108	Word Processing I: MS Word*.....	1
	Prerequisites: CPCA 105 or CPCA 106 or CIS 124 or CPCA 128 or appropriate score on a waiver test	
CPCA 110	Spreadsheets I: MS Excel*.....	1
	Prerequisite: CPCA 105 or CPCA 106 or CIS 124 or CPCA 128 or appropriate score on a waiver test	
CPCA 111	Spreadsheets II: MS Excel*.....	1
	Prerequisite: CPCA 110 or CPCA 128	
CPCA 114	Databases I: MS Access*.....	1
	Prerequisite: CPCA 105 or CPCA 106 or CPCA 128 or CIS 124 or an appropriate score on a waiver test	
CPCA 115	Databases II: MS Access*.....	2
	Prerequisite: CPCA 114	
CPCA 117	Databases III: MS Access*.....	1
	Prerequisite: CPCA 115	
CPCA 121	Introduction to Project Management*.....	1
	Prerequisite: CPCA 105 or CPCA 106 or CPCA 128 or CIS 124 or an appropriate score on a waiver test	
CPCA 123	E-Presentation: MS PowerPoint*.....	1
	Prerequisite: CPCA 105 or CPCA 106 or CIS 124 or CPCA 128 or an appropriate score on a waiver test	
CPCA 125	Word Processing II: MS Word*.....	1
	Prerequisite: CPCA 108	
CPCA 151	Internet II*.....	1
	Prerequisite: CPCA 141 or an appropriate score on an assessment test	
CPCA 158	Internet Application and Utilities*.....	3
	Prerequisite: CPCA 141 or an appropriate score on an assessment test	
CPCA 161	Introduction to Web Pages using HTML*.....	1
	Prerequisite: CPCA 151 or an appropriate score on an assessment test	
DRAF 140	Topics in CAD I: BIM / REVIT.....	2
DRAF 232	CAD Applications Workstation Environment*.....	2
	Prerequisite: DRAF 230 or department approval	
DRAF 233	CAD Administration.....	2
DRAF 240	Introduction to AutoLISP*.....	2
	Prerequisite: DRAF 230	
DRAF 242	Topics in CAD II*.....	2
	Prerequisite: DRAF 230 or department approval	
DRAF 243	Architectural Desktop: Revit*.....	2
	Prerequisite: DRAF 230 or ENGR 131 or department approval	
DRAF 244	Land Development Desktop/CIVIL 3D*.....	2
	Prerequisite: DRAF 230 or ENGR 131 or department approval	
DRAF 245	Mechanical Desktop: Inventor*.....	2
	Prerequisite: DRAF 230 or ENGR 131 or department approval	
DRAF 271	Drafting Internship I*.....	3
	Prerequisite: department approval	
DRAF 272	Drafting Internship II*.....	3
	Prerequisites: DRAF 271 and department approval	
CET 105	Construction Methods.....	3
CET 125	Construction Specifications*.....	2
	Prerequisite or corequisite: CET 105 or equivalent	
CET 129	Construction Management.....	3
CET 227	Construction Cost Estimating*.....	3
	Prerequisites: CET 105 and CET 125 or department approval	
	Prerequisite or corequisite: DRAF 129 or department approval	
MFAB 152	Manufacturing Materials and Processes.....	3
ENGR 180	Engineering Land Surveying I*.....	3
	Corequisite: MATH 134 or MATH 172	
	*Prerequisite/Corequisite required	

Computer-aided Drafting Certificate

This certificate makes it possible for those students who already have a drafting or engineering degree, or those who have sufficient work experience, to obtain certification in CAD.

(Major Code 4800; CIP Code 15.1302)

Computer Aided Drafting and Design

Certificate of Completion

Suggested/Sample Course Sequence

The sequence taken by the student may vary depending on prerequisites, course availability, and personal/professional responsibilities.

Prerequisite for Required Course

DRAF 120 Introduction to Drafting.....2
 or
 department approval
 or
 prior learning credit (contact the Testing Center)

First Semester

CPCA Elective.....1
 CPCA 105 Introduction to Personal Computers: Windows.....1
 CPCA 138 Windows for Microcomputers*.....1
 Prerequisite: CPCA 105 or CPCA 106 or CPCA 128 or CIS 124 or an appropriate score on an assessment test
 DRAF 130 Introduction to CAD Concepts - AutoCAD: 2010*.....3
 Prerequisite: DRAF 120 or department approval
 Total Semester Credit Hours.....6

Second Semester

DRAF 230 Intermediate CAD: AutoCAD*.....3
 Prerequisite: DRAF 130 or department approval
 Total Semester Credit Hours.....3

Third Semester

DRAF 231 CAD 3-D*.....3
 Prerequisite: DRAF 230
 Total Semester Credit Hours.....3
 TOTAL PROGRAM CREDIT HOURS.....12

*Prerequisite/Corequisite required

Early Childhood Education, A.S.

The Early Childhood Education associate's degree program is for those students who currently are employed or aspire to work in early childhood care and education programs. Completion of JCCC's associate of science degree program provides students the credentials to advance in quality early childhood care and education settings. The program has four areas of specialization: administration, care and education of young children with special needs, infant/toddler care and education and school age programs. Credits will transfer to many Kansas universities. Excellent practical education opportunities are available to students in the program.

This program requires a professional liability insurance fee. Students will be notified via their JCCC student e-mail account if they are required to pay a \$16 fee. The dollar amount for fees is subject to change.

Prerequisite

Students must meet the requirements for employment in early childhood care and education centers in Kansas (stated in the Kansas Licensing Regulations for Preschools and Child Care Centers).

(Major Code 2100; CIP Code 19.0708)

Early Childhood Education Program

Associate of Science Degree

IMPORTANT - Students graduating with an Early Childhood Education degree must complete an approved cultural diversity course. Some of the approved courses are able to meet both the cultural diversity requirement and a general education requirement. To see a complete list of courses, click on the link provided below.

Cultural Diversity Course Requirement at JCCC.....

First Semester

Math Elective**.....3
 EDUC 130 Foundations of Early Childhood Education.....3
 ENGL 121 Composition I*.....3
 Prerequisite: ENGL 106 or appropriate placement test score or EAP 113 and EAP 117
 PSYC 130 Introduction to Psychology*.....3
 Prerequisite: Appropriate score on the COMPASS reading test OR appropriate score on the ACT reading test OR RDG 126 with a grade of "C" or higher
 SPD 121 Public Speaking.....3
 Total Semester Credit Hours.....15

Second Semester

Health/Physical Education**.....1-2
 Science course with Lab***.....4-5
 EDUC 131 Early Childhood Curriculum I*.....3
 Prerequisite or corequisite: EDUC 130
 EDUC 250 Child Health, Safety and Nutrition.....3
 PSYC 215 Child Development*.....3
 Prerequisite: PSYC 130
 or
 PSYC 218 Human Development*.....3
 Prerequisite: PSYC 130
 Total Semester Credit Hours.....14-16

Summer Semester

Humanities Elective.....3
 ENGL 122 Composition II*.....3
 Prerequisite: ENGL 121
 Total Semester Credit Hours.....6

Third Semester

Science or Math.....4-5
 EDUC 231 Early Childhood Curriculum II*.....3
 Prerequisite: EDUC 131
 EDUC 210 Creative Experiences for Young Children*.....3
 Prerequisites: EDUC 130 and one of the following: PSYC 215 or PSYC 218 or EDUC 270
 EDUC 260 Observing and Interacting with Young Children*.....3
 Prerequisite: EDUC 130 and
 Prerequisite or corequisite: PSYC 215 or PSYC 218 or EDUC 270
 ANTH 130 World Cultures^.....3
 or
 ANTH 125 Cultural Anthropology^.....3
 or
 SOC 131 Marriage and the Family.....3
 Total Semester Credit Hours.....16-17

Fourth Semester

Specialization courses.....6
 Humanities Elective.....3
 EDUC 235 Parenting*.....2
 Prerequisite or corequisite: PSYC 215 or PSYC 218 or EDUC 270
 EDUC 284 Seminar: Early Childhood Education*.....3
 Prerequisite: Department approval and
 Corequisite: EDUC 285
 EDUC 285 Student Teaching: Early Childhood Education*.....3
 Prerequisite: Department approval and
 Corequisite: EDUC 284
 Total Semester Credit Hours.....17
 TOTAL PROGRAM CREDIT HOURS.....69-70

*Prerequisite/Corequisite required
 ^Meets Cultural Diversity requirement

Area of Specialization - select one:

Child Care Administration

ACCT 121 Accounting I.....3

EDUC 280 Administration of Early Childhood Program.....3

Children with Special Needs

EDUC 220 Survey of the Exceptional Child.....3
 EDUC 215 Young Children with Special Needs.....3

Infant and Toddler Care and Education

EDUC 270 Early Childhood Development.....3
 EDUC 225 Infant and Toddler Education and Care*.....3
 Prerequisite: EDUC 130

School-Age Programs

EDUC 240 School-Age Programs and Curriculum I*.....3
 Prerequisite: EDUC 130
 EDUC 245 School-Age Programs and Curriculum II*.....3
 Prerequisite: EDUC 240
 *Prerequisite/Corequisite required

+Recommended math course information

NOTE: The mathematics requirement will be satisfied by any mathematics course except MATH 111, Fundamentals of Mathematics, and MATH 115, Elementary Algebra.

Specific recommended course
 MATH 171 College Algebra*.....3
 Prerequisite: MATH 116 with a grade of "C" or higher or MATH 131 with a grade of "C" or higher or MATH 134 with a grade of "C" or higher or appropriate score on the math assessment test

****Recommended HPER course, if not certified in CPR**

HPER 200 First Aid and CPR.....2

*****Recommended courses for the science requirement**

Life Science

BIOL 121 Introductory Biology for Non-Majors.....4
 BIOL 130 Environmental Science.....3
 BIOL 131 Environmental Science Lab*.....1
 Prerequisite or corequisite: BIOL 130

Physical Science

ASTR 122 Astronomy.....4
 GEOS 130 General Geology.....5
 GEOS 140 Physical Geography.....3
 GEOS 141 Physical Geography Lab*.....2
 Prerequisite or corequisite: GEOS 140 or the equivalent
 PSCI 120 Physical Science.....4
 *Prerequisite/Corequisite required

fee. The dollar amount for fees is subject to change.

(Major Code 6600; CIP Code 19.0708)

Early Childhood Education Program

Career Certificate

Suggested/Sample Course Sequence

The sequence taken by the student may vary depending on prerequisites, course availability, and personal/professional responsibilities.

First Semester

EDUC 130 Foundations of Early Childhood Education.....3
 EDUC 131 Early Childhood Curriculum I*.....3
 Prerequisite or corequisite: EDUC 130
 EDUC 270 Early Childhood Development.....3
 ENGL 121 Composition I*.....3
 Prerequisite: ENGL 106 or appropriate placement test score or EAP 113 and EAP 117
 SPD 120 Interpersonal Communication**.....3
 or
 SPD 121 Public Speaking.....3
 Total Semester Credit Hours.....15

Summer Semester

EDUC 210 Creative Experiences for Young Children*.....3
 Prerequisites: EDUC 130 and one of the following:
 PSYC 215 or PSYC 218 or EDUC 270
 Total Semester Credit Hours.....3

Second Semester

EDUC 231 Early Childhood Curriculum II*.....3
 Prerequisite: EDUC 131
 EDUC 250 Child Health, Safety and Nutrition.....3
 MATH 120 Business Mathematics*.....3
 Prerequisite: MATH 111 with a grade of "C" or higher or appropriate score on the math assessment test
 EDUC 235 Parenting*.....2
 Prerequisite or corequisite: PSYC 215 or PSYC 218 or EDUC 270
 EDUC 283 Prof. Competencies: Early Childhood Education*.....1
 Prerequisite: Department approval

Plus one of the following EDUC courses below:

EDUC 205 Concepts in Early Childhood Education*^.....3
 Prerequisite or corequisite: EDUC 130 for certificate only
 EDUC 240 School-Age Programs and Curriculum I*.....3
 Prerequisite: EDUC 130
 EDUC 280 Administration of Early Childhood Program.....3
 EDUC 215 Young Children with Special Needs.....3
 EDUC 225 Infant and Toddler Education and Care*.....3
 Prerequisite: EDUC 130
 Total Semester Credit Hours.....15
 TOTAL PROGRAM CREDIT HOURS.....33
 *Prerequisite/Corequisite required

NOTE: **Course is not considered credit in the associate of science early childhood education degree program.

NOTE: ^Course is not considered credit in associate of science early childhood education degree program. Credit for experience is available.

Early Childhood Education Certificate

This certificate is for students seeking employment in early childhood care and education programs and for current early childhood care and education teachers/administrators who want to upgrade their skills and increase their knowledge in this area of study. The program does not need to be completed in one year.

Students must be first aid/CPR certified to receive the early childhood education certificate. The first aid/CPR certification may be obtained through your center; you may also enroll in HPER 200 First Aid/CPR at JCCC. Students must meet the requirements for employment in early childhood care and education centers in Kansas (stated in the Kansas Licensing Regulations for Preschool and Child Care Centers).

This program requires a professional liability insurance fee. Students will be notified via their JCCC student e-mail account if they are required to pay a \$16

Commercial Electrical Design Certificate

This three semester certificate provides the student the basic skills needed for employment as an electrical design technician for commercial electrical projects. The electrical design process for commercial construction includes design for three-phase electrical services, feeders, branch circuits, appliances, lighting, communication/data, fire safety, motors and control circuits.

(Major Code 5060; CIP Code 46.0302)

Electrical Technology Program

Career Certificate

Suggested/Sample Course Sequence

The sequence taken by the student may vary depending on prerequisites, course availability, and personal/professional responsibilities.

First Semester

DRAF 120	Introduction to Drafting [^]	2
DRAF 130	Introduction to CAD Concepts - AutoCAD: 2010* [^]	3
	Prerequisite: DRAF 120 or department approval	
MATH 130	Technical Mathematics I*.....	3
	Prerequisite: MATH 111 with a grade of "C" or higher or an appropriate score on the math assessment test	
ELTE 123	Electromechanical Systems.....	4
	Total Semester Credit Hours.....	12

Second Semester

ELTE 200	Commercial Wiring Methods*.....	4
	Prerequisite or corequisite: HVAC 123 or ELTE 123	
ENGL 121	Composition I*.....	3
	Prerequisite: ENGL 106 or appropriate placement test score or EAP 113 and EAP 117	
DRAF 230	Intermediate CAD: AutoCAD*.....	3
	Prerequisite: DRAF 130 or department approval	
ELTE 122	National Electrical Code I.....	4
	Total Semester Credit Hours.....	14

Third Semester

ENGL 123	Technical Writing I*.....	3
	Prerequisite: ENGL 121	
DRAF 250	Electrical Drafting*.....	3
	Prerequisites: MATH 133 and DRAF 230 or ENGR 131	
ELTE 202	Electrical Estimating*.....	3
	Prerequisites: ELTE 122 and ELTE 125 or ELTE 200 or department approval	
	Total Semester Credit Hours.....	9
	TOTAL PROGRAM CREDIT HOURS.....	35

*Prerequisite/Corequisite required

[^]These are 8-week courses and are offered consecutively in the same semester, same time and days.

ELTE 123	Electromechanical Systems.....	4
ELTE 200	Commercial Wiring Methods*.....	4
	Prerequisite or corequisite: HVAC 123 or ELTE 123	
INDT 125	Industrial Safety.....	3
INDT 155	Workplace Skills.....	1
	TOTAL PROGRAM CREDIT HOURS.....	16

*Prerequisite/Corequisite required

Second Option

Fall Semester

ELTE 122	National Electrical Code I.....	4
ELTE 123	Electromechanical Systems.....	4
INDT 155	Workplace Skills.....	1
	Total Semester Credit Hours.....	9

Spring Semester

INDT 125	Industrial Safety.....	3
ELTE 200	Commercial Wiring Methods*.....	4
	Prerequisite or corequisite: HVAC 123 or ELTE 123	
	Total Semester Credit Hours.....	7
	TOTAL PROGRAM CREDIT HOURS.....	16

*Prerequisite/Corequisite required

Electrical Technology, A.A.S.

The use of electrical technology in residential, commercial and industrial applications continues to grow rapidly. Electricians install and maintain electrical systems for a variety of purposes, including lighting, appliances, climate control, security and communications.

JCCC offers a 64-credit-hour associate of applied science degree program and a 29-credit-hour vocational certificate program. Both programs emphasize hands-on training integrated with a knowledge of theory and study of the National Electrical Code that prepares students to take a national licensure exam.

The associate of applied science degree program prepares students to enter the electrical trade in four types of electrical occupations: residential, commercial, industrial and maintenance. The program also prepares students for continued education in electrical contracting/management, electrical design and industrial/electronic controls.

(Major Code 2260; CIP Code 46.0302)

Electrical Technology Program

Associate of Applied Science Degree

First Semester

ELTE 122	National Electrical Code I.....	4
ELTE 125	Residential Wiring Methods*.....	4
	Prerequisite or corequisite: HVAC 123 or ELTE 123	
ELTE 123	Electromechanical Systems.....	4
INDT 125	Industrial Safety.....	3
INDT 155	Workplace Skills.....	1
	Total Semester Credit Hours.....	16

Second Semester

	Technical Electives.....	4
ELTE 200	Commercial Wiring Methods*.....	4
	Prerequisite or corequisite: HVAC 123 or ELTE 123	
ENGL 121	Composition I*.....	3
	Prerequisite: ENGL 106 or appropriate placement test score or EAP 113 and EAP 117	
MATH 130	Technical Mathematics I*.....	3
	Prerequisite: MATH 111 with a grade of "C" or higher or an appropriate score on the math assessment test	
CPCA 105	Introduction to Personal Computers: Windows.....	1
	Total Semester Credit Hours.....	15

Third Semester

	Social Science and/or Economics Elective.....	3
DRAF 129	Interpreting Architectural Drawings.....	2
ELTE 205	Industrial Electrical Wiring*.....	4

Commercial Wiring Certificate

The Electrical Technology Commercial Wiring Vocational Certificate is a 16 credit-hour program that students can complete in one semester. This certificate is designed to give the students the basic skills to gain employment as a commercial electrician.

(Major Code 4010; CIP Code 46.0302)

Electrical Technology Program

Career Certificate

Suggested/Sample Course Sequence

The sequence taken by the student may vary depending on prerequisites, course availability, and personal/professional responsibilities.

First Option

Spring Semester

ELTE 122	National Electrical Code I.....	4
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	Prerequisite: ELTE 122 or ELTE 125 or ELTE 200	
ELTE 210	Code Certification Review*	3
	Prerequisite: ELTE 122	
ELTE 271	Electrical Internship I*	3
	Prerequisite: department approval	
HPER 200	First Aid and CPR	2
	Total Semester Credit Hours	17

	Prerequisite or corequisite: HVAC 123 or ELTE 123	
ELTE 210	Code Certification Review*	3
	Prerequisite: ELTE 122	
ELTE 271	Electrical Internship I*	3
	Prerequisite: department approval	
INDT 155	Workplace Skills	1
	Total Semester Credit Hours	14
	TOTAL PROGRAM CREDIT HOURS	29

Fourth Semester

	Technical Electives	3
	Humanities Elective	3
ENGL 123	Technical Writing I*	3
	Prerequisite: ENGL 121	
ELTE 215	Generators, Transformers and Motors*	4
	Prerequisites: ELTE 123 and one of the following: ELTE 122 or ELTE 125 or ELTE 200 or equivalent experience and department approval	
CET 105	Construction Methods	3
	Total Semester Credit Hours	16
	TOTAL PROGRAM CREDIT HOURS	64

Technical Electives

ELTE 291	Independent Study	1-7
CPCA 128	PC Applications: MS Office	3
DRAF 120	Introduction to Drafting	2
DRAF 130	Introduction to CAD Concepts - AutoCAD: 2010*	3
	Prerequisite: DRAF 120 or department approval	
DRAF 250	Electrical Drafting*	3
	Prerequisites: MATH 133 and DRAF 230 or ENGR 131	
ELEC 120	Introduction to Electronics	3
ELEC 125	Digital Electronics I	4
ELEC 131	Introduction to Sensors and Actuators	3
ELEC 133	Programmable Controllers	3
ELEC 165	Advanced Programmable Controllers*	3
	Prerequisite: ELEC 133	
ELEC 185	LAN Cabling and Installation	3
ELTE 202	Electrical Estimating*	3
	Prerequisites: ELTE 122 and ELTE 125 or ELTE 200 or department approval	
HVAC 121	Basic Principles of HVAC*	4
	Prerequisite or corequisite: HVAC 123 or ELTE 123	
MFAB 121	Intro to Shielded Metal Arc Welding I (SMAW I)*	4
	Prerequisite or corequisite: MFAB 120 or MFAB 127	
BUS 140	Principles of Supervision	3
BUS 145	Small Business Management	3
ENTR 142	Fast Trac Business Plan	3
RRT 165	Railroad Safety, Quality and Environment	3
	*Prerequisite/Corequisite required	

Technical Electives

ELTE 205	Industrial Electrical Wiring*	4
	Prerequisite: ELTE 122 or ELTE 125 or ELTE 200	
ELTE 291	Independent Study	1-7
ELTE 215	Generators, Transformers and Motors*	4
	Prerequisites: ELTE 123 and one of the following: ELTE 122 or ELTE 125 or ELTE 200 or equivalent experience and department approval	
ELEC 185	LAN Cabling and Installation	3
CET 105	Construction Methods	3
DRAF 120	Introduction to Drafting	2
DRAF 129	Interpreting Architectural Drawings	2
ELEC 120	Introduction to Electronics	3
ELEC 126	Microcomputer A+ Preparation	4
ELEC 125	Digital Electronics I	4
ELEC 131	Introduction to Sensors and Actuators	3
ELEC 133	Programmable Controllers	3
ELEC 165	Advanced Programmable Controllers*	3
	Prerequisite: ELEC 133	
ELTE 202	Electrical Estimating*	3
	Prerequisites: ELTE 122 and ELTE 125 or ELTE 200 or department approval	
HVAC 121	Basic Principles of HVAC*	4
	Prerequisite or corequisite: HVAC 123 or ELTE 123	
MFAB 121	Intro to Shielded Metal Arc Welding I (SMAW I)*	4
	Prerequisite or corequisite: MFAB 120 or MFAB 127	
	*Prerequisite/Corequisite required	

Industrial Electrical Wiring Certificate

The electrical technology industrial electrical wiring vocational certificate is a program that students can complete in two semesters. This certificate is designed to give the students the basic skills to gain employment as an industrial electrician.

(Major Code 4020; CIP Code 46.0302)

Electrical Technology Program

Career Certificate

Suggested/Sample Course Sequence

The sequence taken by the student may vary depending on prerequisites, course availability, and personal/professional responsibilities.

First Semester

ELTE 123	Electromechanical Systems	4
ELEC 133	Programmable Controllers	3
INDT 125	Industrial Safety	3
INDT 155	Workplace Skills	1
	Total Semester Credit Hours	11

Second Semester

ELTE 122	National Electrical Code I	4
	or	
ELTE 200	Commercial Wiring Methods*	4
	Prerequisite or corequisite: HVAC 123 or ELTE 123	
ELTE 205	Industrial Electrical Wiring*	4
	Prerequisite: ELTE 122 or ELTE 125 or ELTE 200	
ELTE 210	Code Certification Review*	3
	Prerequisite: ELTE 122	
ELTE 215	Generators, Transformers and Motors*	4
	Prerequisites: ELTE 123 and one of the following: ELTE 122 or ELTE 125 or ELTE 200 or equivalent experience and department approval	
	Total Semester Credit Hours	15
	TOTAL PROGRAM CREDIT HOURS	26

Electrical Technology Certificate

The electrical technology vocational certificate program is a one-year program that students can complete in two semesters. Designed to give students the basic skills to gain employment as a construction or maintenance electrician, the curriculum includes an internship with local employers.

(Major Code 5200; CIP Code 46.0302)

Electrical Technology Program

Career Certificate

Suggested/Sample Course Sequence

The sequence taken by the student may vary depending on prerequisites, course availability, and personal/professional responsibilities.

First Semester

ELTE 122	National Electrical Code I	4
ELTE 125	Residential Wiring Methods*	4
	Prerequisite or corequisite: HVAC 123 or ELTE 123	
ELTE 123	Electromechanical Systems	4
INDT 125	Industrial Safety	3
	Total Semester Credit Hours	15

Second Semester

	Technical Electives	3
ELTE 200	Commercial Wiring Methods*	4

Residential Electrical Design Certificate

This two semester certificate is designed to provide the student basic skills for employment as an electrical design technician for single family and multi-family housing. The electrical design process for residential construction includes design for single-phase electrical services, feeders, branch circuits, appliances, lighting, communication/data and fire safety.

(Major Code 5070; CIP Code 46.0302)

Electrical Technology Program

Career Certificate

Suggested/Sample Course Sequence

The sequence taken by the student may vary depending on prerequisites, course availability, and personal/professional responsibilities.

First Semester

DRAF 120	Introduction to Drafting^.....	2
DRAF 130	Introduction to CAD Concepts - AutoCAD: 2010*^.....	3
	Prerequisite: DRAF 120 or department approval	
ELTE 122	National Electrical Code I.....	4
ELTE 123	Electromechanical Systems.....	4
ELTE 125	Residential Wiring Methods*.....	4
	Prerequisite or corequisite: HVAC 123 or ELTE 123	
	Total Semester Credit Hours.....	17

Second Semester

DRAF 129	Interpreting Architectural Drawings.....	2
DRAF 230	Intermediate CAD: AutoCAD*.....	3
	Prerequisite: DRAF 130 or department approval	
ELEC 123	Smart House Technology.....	3
ELTE 202	Electrical Estimating*.....	3
	Prerequisites: ELTE 122 and ELTE 125 or ELTE 200 or department approval	
	Total Semester Credit Hours.....	11
	TOTAL PROGRAM CREDIT HOURS.....	28

*Prerequisite/Corequisite required

^These are 8-week courses and are offered consecutively in the same semester, same time and days.

Residential Wiring Certificate

The Electrical Technology Residential Wiring Vocational Certificate is a 16-credit hour program that students can complete in one semester. This certificate is designed to give the students the basic skills to gain employment as a residential electrician (wireman).

(Major Code 4030; CIP Code 46.0302)

Electrical Technology Program

Career Certificate

Fall Semester

ELTE 122	National Electrical Code I.....	4
ELTE 123	Electromechanical Systems.....	4
ELTE 125	Residential Wiring Methods*.....	4
	Prerequisite or corequisite: HVAC 123 or ELTE 123	
INDT 125	Industrial Safety.....	3
INDT 155	Workplace Skills.....	1

Electronics Technology, A.A.S.

Electronics technology influences almost every aspect of modern life. Skilled electronics technicians are needed to support growth in this industry. These technicians must be able to fabricate, test, install, operate and maintain high technical systems such as communications systems, computers and computer networks, and industrial process control systems. The program focuses on the underlying principles of electronic devices, circuit analysis and digital electronics and will provide a broad systems view of electronics.

Students in the electronics program will work with outstanding facilities and the latest laboratory equipment. Graduates of the program will have the opportunity for employment in one of today's most challenging and exciting career fields.

Program graduates also have the opportunity to pursue a baccalaureate degree (B.S.E.E.T.) in electronics engineering technology through the transfer of JCCC electronics technology and other courses to participating four-year institutions. Students contemplating this option should seek early counseling and prepare a program plan with specific course selections in anticipation of four-year institution requirements. Students should be prepared to enroll in higher-level math and physics courses when compared with current electronics technology program requirements.

Students who are transferring to JCCC with significant numbers of electronic technology credits should be aware that at least 9 credit hours of approved electronic technology courses must be completed at JCCC before the A.A.S. degree will be awarded. In addition, because of changes in technology, students who desire to graduate using electronics technology courses completed more than seven years ago should seek counseling regarding the current relevance of those courses.

(Major Code 2690; CIP Code 47.0101)

Electronics Technology

Associate of Applied Science Degree

First Semester

ELEC 120	Introduction to Electronics.....	3
ELEC 126	Microcomputer A+ Preparation.....	4
ELEC 125	Digital Electronics I.....	4
MATH 130	Technical Mathematics I or higher*.....	3
	Prerequisite: MATH 111 with a grade of "C" or higher or an appropriate score on the math assessment test	
ENGL 121	Composition I*.....	3
	Prerequisite: ENGL 106 or appropriate placement test score or EAP 113 and EAP 117	
	Total Semester Credit Hours.....	17

Second Semester

	Humanities Elective.....	3
ELEC 122	Circuit Analysis I*.....	3
	Prerequisites: ELEC 120 and MATH 133 or MATH 172	
ELEC 225	Digital Electronics II*.....	3
	Prerequisite: ELEC 125	
MATH 131	Technical Mathematics II or higher*.....	3
	Prerequisites: MATH 130 or MATH 133 with a grade of "C" or higher or an equivalent course with a grade of "C" or higher	
SPD 125	Personal Communication.....	3
	Total Semester Credit Hours.....	15

Third Semester

	Technical Elective.....	3
	Social Science/Economics Elective.....	3
ELEC 130	Electronic Devices I*.....	4
	Prerequisite or corequisite: ELEC 140	
ELEC 140	Circuit Analysis II*.....	3
	Prerequisites: ELEC 122 and MATH 134 or MATH 172 or MATH 173	
ENGL 123	Technical Writing I*.....	3
	Prerequisite: ENGL 121	

Total Semester Credit Hours.....16

Fourth Semester

	Technical Elective.....	3
	Health and/or Physical Education Elective.....	1
ELEC 230	Electronic Devices II*.....	3
	Prerequisite: ELEC 130	
ELEC 240	Electronic Communication Systems*.....	4
	Prerequisite or corequisite: ELEC 230	
PHYS 133	Applied Physics or higher*.....	5
	Prerequisite: MATH 135 or higher	
	Total Semester Credit Hours.....	16
	TOTAL PROGRAM CREDIT HOURS.....	64

Technical Electives

ELEC 118	Mobile Auto Electronics Installation.....	3
ELEC 127	Robots for Humans.....	4
ELEC 131	Introduction to Sensors and Actuators.....	3
ELEC 133	Programmable Controllers.....	3
ELEC 165	Advanced Programmable Controllers*.....	3
	Prerequisite: ELEC 133	
ELEC 175	Telecommunications*.....	3
	Prerequisite or corequisite: ELEC 130	
ELEC 185	LAN Cabling and Installation.....	3
ELEC 245	Microprocessors*.....	3
	Prerequisite: ELEC 225	
ELEC 250	Microcomputer Maintenance*.....	3
	Prerequisite: ELEC 126	
ELEC 271	Electronics Internship I*.....	1
	Prerequisite: department approval	
ELEC 272	Electronics Internship II*.....	1
	Prerequisites: ELEC 271 and department approval	

*Prerequisite/Corequisite required

Industrial Controls Certificate

This certificate is designed to focus on programmable logic controllers and a variety of input and output devices. The certificate is a 9-credit-hour, 3-course sequence involving both the hardware and programming aspects of controllers used in industrial processes. Lectures provide a theoretical basis and laboratory projects offer experience in controller program planning, documentation and troubleshooting.

(Major Code 4720; CIP Code 47.0101)

Electronics Technology

Certificate of Completion

Suggested/Sample Course Sequence

The sequence taken by the student may vary depending on prerequisites, course availability, and personal/professional responsibilities.

First Semester

ELEC 131	Introduction to Sensors and Actuators.....	3
ELEC 133	Programmable Controllers.....	3
	Total Semester Credit Hours.....	6

Second Semester

ELEC 165	Advanced Programmable Controllers*.....	3
	Prerequisite: ELEC 133	
	Total Semester Credit Hours.....	3
	TOTAL PROGRAM CREDIT HOURS.....	9

*Prerequisite/Corequisite required

Microcomputer Technical Support Certificate

The microcomputer technical support vocational certificate is designed to

provide an entry-level set of competencies that will allow the recipient to quickly perform satisfactorily in computer system help desk environment. This 6-course sequence will expose the student to significant aspects of computer hardware, computer networks and interconnection computer software, as well as interpersonal skills. Lectures will provide a theoretical foundation of microcomputer performance while a variety of laboratory projects will offer experience in system organization, interconnection and troubleshooting.

(Major Code 4980; CIP Code 47.0104)

Electronics Technology

Career Certificate

Suggested/Sample Course Sequence

The sequence taken by the student may vary depending on prerequisites, course availability, and personal/professional responsibilities.

First Semester

ELEC 126	Microcomputer A+ Preparation.....	4
CPCA 128	PC Applications: MS Office.....	3
ELEC 185	LAN Cabling and Installation.....	3
	Total Semester Credit Hours.....	10

Second Semester

IT 205	Implementing Windows Client.....	3
ELEC 250	Microcomputer Maintenance*.....	3
	Prerequisite: ELEC 126	
BUS 225	Human Relations.....	3
	or	
SPD 125	Personal Communication.....	3
	Total Semester Credit Hours.....	9
	TOTAL PROGRAM CREDIT HOURS.....	19

*Prerequisite/Corequisite required

Smart House Technology Integrator Certificate

This certificate documents training that the recipient has received to qualify for the area of installing and integrating a wide range of home networking, automation and remote control systems into homes.

(Major Code 4400; CIP Code 47.0199)

Electronics Technology

Career Certificate

Suggested/Sample Course Sequence

The sequence taken by the student may vary depending on prerequisites, course availability, and personal/professional responsibilities.

Fall Semester

ELEC 123	Smart House Technology.....	3
ELEC 126	Microcomputer A+ Preparation.....	4
ELTE 123	Electromechanical Systems.....	4
	or	
HVAC 123	Electromechanical Systems.....	4
ELTE 125	Residential Wiring Methods*.....	4
	Prerequisite or corequisite: HVAC 123 or ELTE 123	
	Total Semester Credit Hours.....	15

Spring Semester

ELTE 122	National Electrical Code I.....	4
IT 200	Networking Technologies.....	3
ELEC 185	LAN Cabling and Installation.....	3
INDT 155	Workplace Skills.....	1

Total Semester Credit Hours.....	11
TOTAL PROGRAM CREDIT HOURS.....	26
*Prerequisite/Corequisite required	

Emergency Medical Science, A.A.S.

People who work in the field of emergency medical science (EMS) often enter people's lives during critical times of illness and injury. Their ability to act knowledgeably, compassionately, quickly and calmly can stabilize chaotic, frightening situations.

JCCC offers three progressively intensive options for learning the skills of emergency medical science. All three options prepare you for state certification examinations.

JCCC's financial aid program includes scholarships, grants and loans if you are eligible. Financial aid is particularly important in the MICT program, since long hours usually prohibit you from holding a full-time job.

EMS First Responder Course

EMS first responder students receive classroom and skills training in cardiopulmonary resuscitation (CPR), patient assessment, and fracture and airway management. This class is recommended for:

- people without a medical background who wish to enter the EMT program
- anyone who wishes to learn basics of emergency medical care
- firefighters, police officers, lifeguards and others from agencies involved in public safety
- employees involved in company safety programs

Students successfully completing this course will be allowed to sit for the certification examination administered by the Kansas Board of Emergency Medical Services.

The EMS First Responder class is offered as the need arises – in general, once each semester.

EMS 128 EMS First Responder.....5

TOTAL CREDIT HOURS.....5

Emergency Medical Technician Course

This program is designed for individuals interested in providing medical care to patients in the pre-hospital setting. It will provide the participants with opportunities to gain information, skills and attitudes necessary for certification and practice as an emergency medical technician (EMT) in the state of Kansas.

The program has been approved by the Kansas Board of Emergency Medical Services. It addresses information and techniques currently considered to be the responsibility of the EMT, according to the United States Department of Transportation, National Standard Curriculum. The program consists of lecture instruction, practical skill training and clinical experience.

Classroom instruction includes anatomy, physiology, recognition and care of actual medical emergencies and trauma-related injuries. Skills in performing CPR, bandaging, splinting, childbirth techniques and other emergency care procedures are taught. An extrication session will give students hands-on experience with auto accident situations and provide the opportunity to observe an air evacuation of a patient. Upon instructor recommendation, students will participate in a clinical observation in a hospital setting. Students participate in seven hours of lecture and five hours of lab a week (average). Students are also required to attend Saturday session(s) as necessary. Saturday dates and times will be announced during the first class session.

Students successfully completing this course with a "C" will be allowed to sit for the certification examinations administered by the Kansas Board of Emergency Medical Services.

EMS 130 Emergency Medical Technician Course*.....9

*Prerequisite - EMS 128 or equivalent, or be an active member in a health-

related occupation (firefighter, rescue, ambulance, law enforcement, industrial first-aid personnel or other health-related field), or attained the minimum of an associate's degree.

TOTAL PROGRAM CREDIT HOURS.....9

EMT Practicum

EMT Practicum is designed to give the EMT-B, recently certified or those with limited field experience, the additional skills and confidence needed to successfully compete for a position as an EMT-B with an EMS service. Skills will include ambulance operation, driving, map reading, insurance billing and unit maintenance. This course will also provide high-fidelity scenario training in all aspects of the EMS call, as well as extensive field lab time with a local EMS service.

Students will become directly involved in their own training by leading and participating in realistic medical emergency scenarios with "actors" playing life-like patients and bystanders. Numerous field internship shifts on a licensed ambulance are part of the training. Students will work through all phases of an ambulance call. They will be presented with complex patient-care situations that require the development of critical thinking and decision-making skills. Students will be tested on their ability to lead a team of pre-hospital caregivers in the diagnosis, proper treatment and evacuation of a patient. Scenario simulations will be set up to be as life-like as possible.

EMS 133 EMT Practicum*.....3

*Prerequisite - EMS 130 EMT-B or equivalent and a copy of current EMT-B card

TOTAL CREDIT HOURS.....3

Mobile Intensive Care Technician (Paramedic) Program

This advanced emergency medical care program consists of four courses, including a clinical rotation in a hospital setting and a field internship with an ambulance service. You learn emergency procedures such as cardiac monitoring and defibrillation and the administration of medications and IV fluids. Successful completion of this program and subsequent certification exams will enable graduates to work as skilled paramedics and to provide sophisticated, advanced pre-hospital life support.

JCCC's MICT program is fully accredited by the Committee on Accreditation of Educational Programs for the EMS Professions (CoAEMSP). If you are interested, contact the Admissions office for an application packet, which includes deadlines, admission requirements and options for meeting academic criteria.

This is a selective admission program with limited enrollment. If you are accepted into the program, you take classes in the spring, summer and fall, completing the program in December.

Students successfully completing this program with a "C" will be allowed to sit for the certification examinations administered by the Kansas Board of Emergency Medical Services.

This program requires a professional liability insurance fee. Students will be notified via their JCCC student e-mail account if they are required to pay a \$16 fee. The dollar amount for fees is subject to change.

(Major Code 248A; CIP Code 51.0904)

Emergency Medical Science

Associate of Applied Science Degree

Prior to beginning professional courses

Successful completion of an EMT course and successful completion of the following courses:

Electives.....	0-2
{depending on which science class(es) are taken}	
Health/Physical Education Elective.....	1
BIOL 144 Human Anatomy and Physiology.....	5
or	
BIOL 140 Human Anatomy.....	4
and	

BIOL 225	Human Physiology*.....4
	Prerequisites or corequisites: Either CHEM 122 or (CHEM 124 and CHEM 125) and either BIOL 140 or BIOL 144
ENGL 121	Composition I*.....3
	Prerequisite: ENGL 106 or appropriate placement test score or EAP 113 and EAP 117
SOC 125	Social Problems.....3
	or Social Science/Economics Elective.....3
PHIL 143	Ethics.....3
	or Humanities Elective.....3
	Total General Education Credit Hours.....17-18

First Semester

EMS 220	MICT I*.....10
	Prerequisite: Admission to the MICT program
EMS 225	MICT II*.....10
	Prerequisite: EMS 220 with a grade of "C" or higher
	Total Semester Credit Hours.....20

Second Semester

EMS 230	MICT III Clinicals*.....12
	Prerequisite: EMS 225 with a grade of "C" or higher
	Total Semester Credit Hours.....12

Third Semester

EMS 271	MICT IV Field Internship*.....15
	Prerequisite: EMS 230 with a grade of "C" or higher
	Total Semester Credit Hours.....15
	Total Professional Credit Hours.....47
	TOTAL PROGRAM CREDIT HOURS.....64-65

*Prerequisite/Corequisite required

Mobile Intensive Care Technician Certificate

Prior to beginning profession courses:

An associate's degree or higher, successful completion of an EMT course, and successful completion of a college-level anatomy/physiology course are required.

Mobile Intensive Care Technician (Paramedic) Program

This advanced emergency medical care program consists of four courses, including a clinical rotation in a hospital setting and a field internship with an ambulance service. You learn emergency procedures such as cardiac monitoring and defibrillation and the administration of medications and IV fluids. Successful completion of this program and subsequent certification exams will enable graduates to work as skilled paramedics and to provide sophisticated, advanced pre-hospital life support.

JCCC's MICT program is fully accredited by the Committee on Accreditation of Educational Programs for the EMS Professions (CoAEMSP). If you are interested, contact the Admissions office for an application packet, which includes deadlines, admission requirements and options for meeting academic criteria.

This is a selective admission program with limited enrollment. If you are accepted into the program, you take classes in the spring, summer and fall, completing the program in December.

Students successfully completing this program will be allowed to sit for the certification examinations administered by the Kansas Board of Emergency Medical Services.

This program requires a professional liability insurance fee. Students will be notified via their JCCC student e-mail account if they are required to pay a \$16 fee. The dollar amount for fees is subject to change.

(Major Code 486A; CIP Code 51.0904)

Emergency Medical Science

Career Certificate

First Semester

EMS 220	MICT I*.....10
	Prerequisite: Admission to the MICT program
EMS 225	MICT II*.....10
	Prerequisite: EMS 220 with a grade of "C" or higher
	Total Semester Credit Hours.....20

Second Session

EMS 230	MICT III Clinicals*.....12
	Prerequisite: EMS 225 with a grade of "C" or higher
	Total Semester Credit Hours.....12

Third Semester

EMS 271	MICT IV Field Internship*.....15
	Prerequisite: EMS 230 with a grade of "C" or higher
	Total Semester Credit Hours.....15
	TOTAL PROGRAM CREDIT HOURS.....47

*Prerequisite/Corequisite required

Emergency Medical Technician Certificate

This certificate program is designed for individuals interested in providing medical care to patients in the pre-hospital setting and prepares the student to enter the workforce as a trained and certified Emergency Medical Technician. Successful graduates of this Kansas Board of Emergency Medical Services (BEMS) course are eligible to take Kansas State and national Certifying examinations. Students completing this course with a minimum grade of "C" will be allowed to sit for the Kansas EMT State Certification Examination and receive JCCC certificate of completion.

(Major Code 4760; CIP 51.0904)

Emergency Medical Science

Certificate of Completion

Required Course

EMS 130	Emergency Medical Technician*.....9
	Prerequisite: EMS 128 or equivalent training as determined by the EMS department (military, other medical or fire department, verification of training will be required), associates degree (transcripts required).
	TOTAL PROGRAM CREDIT HOURS.....9

*Prerequisite/Corequisite required

Energy Perform. & Resource Mgmt-Residential Auditing, A.A.S.

The energy performance and resource management program will prepare the student for entry into the rapidly emerging alternative energy technology field. Upon completion of the program, students will be able to demonstrate an understanding of the science behind active and passive energy systems, analyze energy system designs, and offer professional advice to consumers to improve energy systems' efficiency. Students will acquire the knowledge and skills to provide technical services in planning, designing and construction/installing appropriate energy technologies to manage energy utilization effectively.

(Major Code 2200; CIP Code 15.0503)

Industrial Technology Programs, Assistant Dean

Associate of Applied Science Degree

First Semester

EPRM 121	Introduction to Residential Energy.....	4
ENGL 121	Composition I*.....	3
	Prerequisite: ENGL 106 or appropriate placement test score or EAP 113 and EAP 117	
MATH 130	Technical Mathematics I*.....	3
	Prerequisite: MATH 111 with a grade of "C" or higher or an appropriate score on the math assessment test	
CPCA 105	Introduction to Personal Computers: Windows.....	1
CPCA 110	Spreadsheets I: MS Excel*.....	1
	Prerequisite: CPCA 105 or CPCA 106 or CIS 124 or CPCA 128 or appropriate score on a waiver test	
HVAC 125	Energy Alternatives.....	2
INDT 155	Workplace Skills.....	1
	Total Semester Credit Hours.....	15

Second Semester

	Technical Electives.....	4
EPRM 123	Residential HVAC Systems.....	4
PHYS 133	Applied Physics*.....	5
	Prerequisite: MATH 135 or higher	
ENGL 123	Technical Writing I*.....	3
	Prerequisite: ENGL 121	
CPCA 114	Databases I: MS Access*.....	1
	Prerequisite: CPCA 105 or CPCA 106 or CPCA 128 or CIS 124 or an appropriate score on a waiver test	
	Total Semester Credit Hours.....	17

Third Semester

	Social Science and/or Economics Elective.....	3
EPRM 124	Equipment Selection and Duct Design*.....	4
	Prerequisites: EPRM 121 and EPRM 123	
BIOL 130	Environmental Science.....	3
BIOL 131	Environmental Science Lab*.....	1
	Prerequisite or corequisite: BIOL 130	
CET 150	Construction Safety.....	3
DRAF 129	Interpreting Architectural Drawings.....	2
	Total Semester Credit Hours.....	16

Fourth Semester

	Technical Electives.....	4
	Humanities Elective.....	3
EPRM 125	Residential Energy Auditing Applications*.....	3
	Prerequisites: EPRM 121 and EPRM 123	
PHIL 138	Business Ethics.....	1
BUS 140	Principles of Supervision.....	3
HPER 200	First Aid and CPR.....	2
	Total Semester Credit Hours.....	16
	TOTAL PROGRAM CREDIT HOURS.....	64

Technical Electives

ELEC 123	Smart House Technology.....	3
ELEC 131	Introduction to Sensors and Actuators.....	3
ELTE 122	National Electrical Code I.....	4
HVAC 121	Basic Principles of HVAC*.....	4
	Prerequisite or corequisite: HVAC 123 or ELTE 123	
HVAC 123	Electromechanical Systems.....	4
HVAC 271	HVAC Internship*.....	3
	Prerequisite: Department approval required	
CET 105	Construction Methods.....	3
MFAB 121	Intro to Shielded Metal Arc Welding I (SMAW I)*.....	4
	Prerequisite or corequisite: MFAB 120 or MFAB 127	
MFAB 127	Welding Processes.....	2
	*Prerequisite/Corequisite required	

Energy Auditing Technician-Residential Certificate

This course of study is to prepare students to perform residential energy audits. An energy audit will help customers make decisions about how to conserve energy and save money on utility bills. Customers will also benefit from an increase of comfort, health, safety, and the durability of their homes. The audit involves a visual inspection of the residence, a series of diagnostic tests, and a numerical analysis by means of a software package. Auditors inspect, measure, and test to decide what energy-saving retrofits are practical and cost-effective.

An energy audit is also called a home energy analysis, a home performance analysis or an energy survey.

(Major Code 4300; CIP Code 15.0503)

Industrial Technology Programs, Assistant Dean

Career Certificate

Suggested/Sample Course Sequence

The sequence taken by the student may vary depending on prerequisites, course availability, and personal/professional responsibilities.

First Semester

EPRM 121	Introduction to Residential Energy.....	4
MATH 130	Technical Mathematics I*.....	3
	Prerequisite: MATH 111 with a grade of "C" or higher or an appropriate score on the math assessment test	
EPRM 123	Residential HVAC Systems.....	4
	Total Semester Credit Hours.....	11

Second Semester

DRAF 129	Interpreting Architectural Drawings.....	2
CET 150	Construction Safety.....	3
EPRM 124	Equipment Selection and Duct Design*.....	4
	Prerequisites: EPRM 121 and EPRM 123	
INDT 155	Workplace Skills.....	1
EPRM 125	Residential Energy Auditing Applications*.....	3
	Prerequisites: EPRM 121 and EPRM 123	
	Total Semester Credit Hours.....	13
	TOTAL PROGRAM CREDIT HOURS.....	24

*Prerequisite/Corequisite required

Entrepreneurship, A.A.S.

The small business sector is one of the fastest growing in the nation's economy. With an ever-increasing number of adults today self-employed, many residents in Johnson County either work for a small business or plan to start their own. JCCC's entrepreneurship program can help prospective entrepreneurs launch new ventures or, if you are an entrepreneur who already has your business established, you can strengthen your managerial and business skills to grow your business.

You will learn the fundamentals of starting and operating your own business. The program includes basic business skills as well as specific courses in starting and managing an entrepreneurial business. Course work covers evaluating a business opportunity, preparing a business plan, legal issues for small business, planning advertising and sales promotions, marketing a product or service, developing an accounting system and financial management for the entrepreneurial company.

You also will complete two internships in a small business. You can apply what you learn in the classroom to your job and take your work experiences back to the classroom for analysis.

(Major Code 2340; CIP Code 52.0701)

Entrepreneurship

Associate of Applied Science Degree

First Semester

	Health and/or Physical Education Elective.....	1
ENTR 120	Introduction to Entrepreneurship.....	2
BUS 230	Marketing.....	3
BUS 225	Human Relations.....	3
ENGL 121	Composition I*.....	3
	Prerequisite: ENGL 106 or appropriate placement test score or EAP 113 and EAP 117	
MATH 120	Business Math or higher*.....	3
	Prerequisite: MATH 111 with a grade of "C" or higher or appropriate score on the math assessment test	

Total Semester Credit Hours.....15

Second Semester

ENTR 180	Opportunity Analysis.....	2
ENTR 195	Franchising*.....	3
	Prerequisite: BUS 230	
BUS 150	Business Communications*.....	3
	Prerequisite: ENGL 121	
MKT 134	Professional Selling.....	3
ACCT 111	Small Business Accounting.....	3
	or	
ACCT 121	Accounting I.....	3
ECON 132	Survey of Economics.....	3
	or	
ECON 230	Economics I.....	3
	or	
ECON 231	Economics II.....	3
	Total Semester Credit Hours.....	17

Third Semester

ENTR 131	Financial Management for Small Business*.....	2
	Prerequisite: ACCT 111 or ACCT 121	
ENTR 160	Legal Issues for Small Business.....	2
ENTR 210	Entrepreneurship Internship I*.....	1
	Prerequisite: department approval	
BUS 140	Principles of Supervision.....	3
HIST 141	U.S. History Since 1877.....	3
CIS 124	Introduction to Computer Concepts and Applications...3	
	and	
	CPCA/CDTP elective.....	1
Note: CPCA 105/106 will not meet this one hour requirement.		
	or	
	CPCA/CDTP electives.....	4
ENTR 225	Family Business.....	3
	Total Semester Credit Hours.....	18

Fourth Semester

	Humanities Elective.....	3
ENTR 220	Entrepreneurial Marketing*.....	2
	Prerequisite: BUS 230	
ENTR 142	Fast Trac Business Plan.....	3
ENTR 215	Entrepreneurship Internship II*.....	1
	Prerequisites: ENTR 210 and department approval	
ENTR 190	Small Business Analysis*.....	2
	Prerequisites: ENTR 131 and ENTR 160 and BUS 230 or department approval	
PHIL 138	Business Ethics.....	1
ENTR 240	Funding Acquisition for Entrepreneurs*.....	2
	Prerequisite: ENTR 142	
	Total Semester Credit Hours.....	14
	TOTAL PROGRAM CREDIT HOURS.....	64
*Prerequisite/Corequisite required		

Students may be interested in taking additional courses, as noted below, to complement their degree study. These courses are NOT part of the certificate requirements.

BUS 120	Management Attitudes and Motivation.....	3
BUS 123	Personal Finance.....	3
BUS 235	Introduction to International Business.....	3
BUS 141	Principles of Management.....	3
BUS 243	Human Resource Management.....	3
BUS 261	Business Law I.....	3
BUS 263	Business Law II*.....	3
	Prerequisite: BUS 261	
CPCA 105	Introduction to Personal Computers: Windows.....	1
CPCA 108	Word Processing I: MS Word*.....	1
	Prerequisites: CPCA 105 or CPCA 106 or CIS 124 or CPCA 128 or appropriate score on a waiver test	
CPCA 110	Spreadsheets I: MS Excel*.....	1
	Prerequisite: CPCA 105 or CPCA 106 or CIS 124 or CPCA 128 or appropriate score on a waiver test	
CPCA 111	Spreadsheets II: MS Excel*.....	1
	Prerequisite: CPCA 110 or CPCA 128	
CPCA 114	Databases I: MS Access*.....	1
	Prerequisite: CPCA 105 or CPCA 106 or CPCA 128 or CIS 124 or an appropriate score on a waiver test	
CPCA 115	Databases II: MS Access*.....	2
	Prerequisite: CPCA 114	
CPCA 141	Internet I*.....	1
	Prerequisite: CPCA 105 or CPCA 106 or CPCA 128 or CIS 124 or appropriate score on an assessment test	
CPCA 151	Internet II*.....	1
	Prerequisite: CPCA 141 or an appropriate score on an assessment test	
FASH 231	Merchandising Planning and Control*.....	3
	Prerequisite: MATH 120	
HMG121	Perspectives of Hospitality Management.....	3
MKT 121	Retail Management.....	3
MKT 202	Consumer Behavior.....	3
MKT 234	Services Marketing*.....	3
	Corequisite: BUS 230	

Entrepreneurship Certificate

Students in entrepreneurship certificate programs learn the fundamentals of starting and operating their own businesses. Course work includes evaluating a business idea, preparing a business plan, financial management, legal issues, marketing a product or service and developing an accounting system.

(Major Code 5080; CIP Code 52.0701)

Entrepreneurship

Career Certificate

Prerequisites for Required Courses

BUS 230	Marketing.....	3
ACCT 121	Accounting I.....	3
	or	
ACCT 111	Small Business Accounting.....	3

Required Courses

ENTR 120	Introduction to Entrepreneurship.....	2
ENTR 180	Opportunity Analysis.....	2
ENTR 160	Legal Issues for Small Business.....	2
ENTR 210	Entrepreneurship Internship I*.....	1
	Prerequisite: department approval	
CIS 124	Introduction to Computer Concepts and Applications...3	
	or	
	CPCA/CDTP electives.....	3
ENTR 131	Financial Management for Small Business*.....	2
	Prerequisite: ACCT 111 or ACCT 121	
ENTR 195	Franchising*.....	3
	Prerequisite: BUS 230	
ENTR 220	Entrepreneurial Marketing*.....	2
	Prerequisite: BUS 230	
ENTR 142	Fast Trac Business Plan.....	3
ENTR 190	Small Business Analysis*.....	2
	Prerequisites: ENTR 131 and ENTR 160 and BUS 230 or department approval	
MKT 134	Professional Selling.....	3
ENTR 225	Family Business.....	3
ENTR 240	Funding Acquisition for Entrepreneurs*.....	2
	Prerequisite: ENTR 142	
	TOTAL PROGRAM CREDIT HOURS.....	30
*Prerequisite/Corequisite required		

Students may be interested in taking additional courses, as noted below, to complement their certificate study. These courses are NOT part of the certificate requirements.

BUS 120	Management Attitudes and Motivation.....	3
BUS 123	Personal Finance.....	3
BUS 141	Principles of Management.....	3
BUS 235	Introduction to International Business.....	3
BUS 243	Human Resource Management.....	3
BUS 261	Business Law I.....	3
BUS 263	Business Law II*.....	3
	Prerequisite: BUS 261	
CPCA 105	Introduction to Personal Computers: Windows.....	1
CPCA 108	Word Processing I: MS Word*.....	1
	Prerequisites: CPCA 105 or CPCA 106 or CIS 124 or CPCA 128 or appropriate score on a waiver test	
CPCA 110	Spreadsheets I: MS Excel*.....	1
	Prerequisite: CPCA 105 or CPCA 106 or CIS 124 or CPCA 128 or appropriate score on a waiver test	
CPCA 111	Spreadsheets II: MS Excel*.....	1
	Prerequisite: CPCA 110 or CPCA 128	
CPCA 114	Databases I: MS Access*.....	1
	Prerequisite: CPCA 105 or CPCA 106 or CPCA 128 or CIS 124 or an appropriate score on a waiver test	
CPCA 115	Databases II: MS Access*.....	2
	Prerequisite: CPCA 114	
CPCA 141	Internet I*.....	1
	Prerequisite: CPCA 105 or CPCA 106 or CPCA 128 or CIS 124 or appropriate score on an assessment test	
CPCA 151	Internet II*.....	1
	Prerequisite: CPCA 141 or an appropriate score on an assessment test	
FASH 231	Merchandising Planning and Control*.....	3
	Prerequisite: MATH 120	
HMG121	Perspectives of Hospitality Management.....	3
MKT 121	Retail Management.....	3
MKT 202	Consumer Behavior.....	3
ENTR 215	Entrepreneurship Internship II*.....	1
	Prerequisites: ENTR 210 and department approval	
*Prerequisite/Corequisite required		

Associate of Applied Science Degree

Business Plan Certificate

The business plan certificate program focuses on evaluating an idea for a business and concludes with writing a business plan to start and/or grow a business.

(Major Code 4810; CIP Code 52.0701)

Entrepreneurship

Certificate of Completion

Suggested/Sample Course Sequence

The sequence taken by the student may vary depending on prerequisites, course availability, and personal/professional responsibilities.

First Semester

ENTR 120	Introduction to Entrepreneurship.....	2
ENTR 180	Opportunity Analysis.....	2
	Total Semester Credit Hours.....	4

Second Semester

ENTR 142	Fast Trac Business Plan.....	3
	Total Semester Credit Hours.....	3
	TOTAL PROGRAM CREDIT HOURS.....	7

Fashion Merchandising, A.A.S.

Rome, Paris, New York and Tokyo are centers of the fashion world. In today's fast-paced fashion market, these cities aren't that far ahead of your local shopping mall. Fashion is on the move -- in New York, Paris and Johnson County.

At JCCC, the fashion curriculum is designed to prepare you for a career in retail management, retail sales, apparel and textile design, promotion, display, illustration, and representative positions.

The program includes professional courses in merchandising, design, apparel construction, management, visual merchandising, creative selling and merchandise evaluation. To complement your education, you will also study important basic subjects such as business math, English, economics and marketing.

An associate of applied science degree is awarded after successful completion of the fashion merchandising or fashion design. The program also offers an 18-credit-hour certificate in visual merchandising. Seminars in career options and industry topics are available. Required work-study internships in the fashion business of your choice will give you experience in technical, creative and merchandising skills and make you more marketable in the industry.

With an associate's degree or certificate, you'll be ready to apply your energy and creativity in an industry that rewards both. Or, if you prefer to continue your education, you can complete a bachelor's degree through a transfer program to a college or university.

Students must complete all FASH courses with a "C" or higher to be awarded the AAS degree.

(Major Code 2520; CIP Code 52.1902)

Fashion Merchandising and Design

First Semester

FASH 277	Fashion Seminar: Career Options.....	2
FASH 283	Fashion Internship I.....	1
FASH 121	Fashion Fundamentals.....	3
FASH 122	Aesthetics for Merchandising and Design.....	3
MKT 134	Professional Selling.....	3
ENGL 121	Composition I*.....	3
	Prerequisite: ENGL 106 or appropriate placement test score or EAP 113 and EAP 117	
FASH 135	Image Management.....	1
	Total Semester Credit Hours.....	16

Second Semester

	Health and/or Physical Education Elective.....	1
FASH 242	Consumer Product Evaluation.....	3
FASH 284	Fashion Internship II.....	1
MATH 120	Business Math or higher*.....	3
	Prerequisite: MATH 111 with a grade of "C" or higher or appropriate score on the math assessment test	
FASH 150	Textiles.....	3
FASH 125	Visual Merchandising.....	3
BUS 150	Business Communications*.....	3
	Prerequisite: ENGL 121 or	
ENGL 122	Composition II*.....	3
	Prerequisite: ENGL 121	
	Total Semester Credit Hours.....	17

Third Semester

	Fashion Electives.....	3
BUS 225	Human Relations.....	3
FASH 285	Fashion Internship III.....	1
FASH 132	Marketing Communications.....	3
MKT 121	Retail Management.....	3
ECON 132	Survey of Economics.....	3
	or	
ECON 230	Economics I.....	3
	Total Semester Credit Hours.....	16

Fourth Semester

	Electives.....	2
	Humanities Elective.....	3
FASH 286	Fashion Internship IV*.....	1
	Prerequisites: FASH 283 and FASH 284 and FASH 285 and 40 hours toward degree in Fashion Merchandising	
BUS 230	Marketing.....	3
FASH 231	Merchandising Planning and Control*.....	3
	Prerequisite: MATH 120	
FASH 280	Capstone: Industry Topics*.....	3
	Prerequisites: 40 credit hours toward Fashion Merchandising or Design degree to be approved by the department. Students must pass all FASH courses with a grade of "C" or higher	
	Total Semester Credit Hours.....	15
	TOTAL PROGRAM CREDIT HOURS.....	64

Fashion Electives

FASH 123	Apparel Construction I.....	4
FASH 130	Fashion Illustration I.....	3
	Prerequisite: ART 130	
FASH 265	Fashion Product Development*.....	4
	Prerequisites: FASH 123 and FASH 131 and FASH 133 and FASH 130	
FASH 224	History of Costume.....	3
FASH 268	Field Study: The Market Center*.....	3
	Prerequisite: FASH 121	

*Prerequisite/Corequisite required

Fashion Alteration Entrepreneurship Certificate

The certificate should prepare the student with basic skills in fashion construction and alterations (resizing and repairing) as well as skills in small business development and management. It should provide the student with skills in the fashion alterations service business.

NOTE: THE FASHION DESIGN PROGRAM REQUIREMENTS WILL BE

CHANGING FOR SPRING 2010.

THE DEPARTMENT WILL BE HANDLING WAIVERS ON A CASE BY CASE BASIS. IF YOU ARE EXPERIENCING A PROBLEM REGISTERING FOR COURSES OR NEED ADDITIONAL INFORMATION, PLEASE CONTACT THE DEPARTMENT.

NOTE: THE FASHION DESIGN PROGRAM REQUIREMENTS WILL BE CHANGING FOR SPRING 2010. THE SUGGESTED COURSE ORDER WILL CHANGE TO REFLECT NEW COURSES AND ADDITIONAL PREREQUISITES. PLEASE CONTACT THE DEPARTMENT FOR MORE INFORMATION. 913 469-8500 extension 3357 or extension 3251

Students must complete all FASH courses with a "C" or higher to be awarded the AAS degree.

(Major Code 4440; CIP Code 19.0999)

Fashion Merchandising and Design

Career Certificate

Suggested/Sample Course Sequence

The sequence taken by the student may vary depending on prerequisites, course availability, and personal/professional responsibilities.

First Semester

FASH 123	Apparel Construction I.....	4
FASH 150	Textiles.....	3
ENTR 120	Introduction to Entrepreneurship.....	2
ENTR 180	Opportunity Analysis.....	2
	Total Semester Credit Hours.....	11

Second Semester

FASH 124	Apparel Construction II*.....	4
	Prerequisite: FASH 123 or two years of high school apparel construction training or department approval	
FASH 141	Garment Alterations I*.....	3
	Prerequisites: FASH 123 and Prerequisite or Corequisite: FASH 124	
FASH 140	Garment Design I*.....	3
	Prerequisite: FASH 123	
FASH 283	Fashion Internship I.....	1
	Total Semester Credit Hours.....	11

Third Semester

FASH 142	Garment Alterations II*.....	3
	Prerequisite: FASH 141 and Prerequisite or Corequisite: FASH 143	
FASH 143	Tailoring*.....	4
	Prerequisite: FASH 124	
ENTR 142	Fast Trac Business Plan.....	3
	Total Semester Credit Hours.....	10
	TOTAL PROGRAM CREDIT HOURS.....	32

*Prerequisite/Corequisite required

Students may be interested in taking additional courses, as noted below, to complement their certificate study. These courses are NOT part of the certificate requirements.

FASH 121	Fashion Fundamentals.....	3
FASH 127	Computer Aided Pattern Development*.....	4
	Prerequisite: FASH 131	
FASH 128	CAD Pattern II*.....	4
	Prerequisite: FASH 127	
FASH 220	CAD Apparel Design.....	3
FASH 130	Fashion Illustration I.....	3
	Prerequisite: ART 130	
FASH 230	Fashion Illustration II*.....	3
	Prerequisite: FASH 130	
FASH 224	History of Costume.....	3
ENTR 220	Entrepreneurial Marketing*.....	2
	Prerequisite: BUS 230	
ENTR 195	Franchising*.....	3
	Prerequisite: BUS 230	
ENTR 131	Financial Management for Small Business*.....	2
	Prerequisite: ACCT 111 or ACCT 121	
ENTR 160	Legal Issues for Small Business.....	2
ENTR 225	Family Business.....	3
ENTR 240	Funding Acquisition for Entrepreneurs*.....	2
	Prerequisite: ENTR 142	

Fashion Design Entrepreneurship Certificate

The fashion design entrepreneurship certificate prepares students to open their own fashion design business. This certificate is designed to provide the student with basic skills in fashion design and small business development and management.

NOTE: THE FASHION DESIGN PROGRAM REQUIREMENTS WILL BE CHANGING FOR SPRING 2010. THE SUGGESTED COURSE ORDER WILL CHANGE TO REFLECT NEW COURSES AND ADDITIONAL PREREQUISITES.

THE DEPARTMENT WILL BE HANDLING WAIVERS ON A CASE BY CASE BASIS. IF YOU ARE EXPERIENCING A PROBLEM REGISTERING FOR COURSES OR NEED ADDITIONAL INFORMATION, PLEASE CONTACT THE DEPARTMENT at 913 469-8500 extension 3357 or extension 3251

Students must complete all FASH courses with a "C" or higher to be awarded the AAS degree.

(Major Code 4110; CIP Code 50.0407)

Fashion Merchandising and Design

Career Certificate

Suggested/Sample Course Sequence

The sequence taken by the student may vary depending on prerequisites, course availability, and personal/professional responsibilities.

First Semester

FASH 121	Fashion Fundamentals.....	3
FASH 123	Apparel Construction I.....	4
FASH 150	Textiles.....	3
ART 130	Drawing I.....	3
	Total Semester Credit Hours.....	13

Second Semester

FASH 122	Aesthetics for Merchandising and Design.....	3
ENTR 180	Opportunity Analysis.....	2
FASH 124	Apparel Construction II*.....	4
	Prerequisite: FASH 123 or two years of high school apparel construction training or department approval	
FASH 130	Fashion Illustration I*.....	3
	Prerequisite: ART 130	
	Total Semester Credit Hours.....	12

Third Semester

ENTR 120	Introduction to Entrepreneurship.....	2
ENTR 142	Fast Trac Business Plan.....	3
FASH 131	Flat Pattern Development*.....	4
	Prerequisite: FASH 123	
	Total Semester Credit Hours.....	9
	TOTAL PROGRAM CREDIT HOURS.....	34

*Prerequisite/Corequisite required

Students may be interested in taking additional courses, as noted below, to complement their certificate study. These courses are NOT part of the certificate requirements.

FASH 143	Tailoring*.....	4
	Prerequisite: FASH 124	
FASH 283	Fashion Internship I.....	1
ENTR 220	Entrepreneurial Marketing*.....	2
	Prerequisite: BUS 230	
ENTR 195	Franchising*.....	3
	Prerequisite: BUS 230	
ENTR 131	Financial Management for Small Business*.....	2
	Prerequisite: ACCT 111 or ACCT 121	
ENTR 160	Legal Issues for Small Business.....	2

Fashion Design, A.A.S.

Rome, Paris, New York and Tokyo are centers of the fashion world. In today's fast-paced fashion market, these cities aren't that far ahead of your local shopping mall. Fashion is on the move -- in New York, Paris and Johnson County.

At JCCC, the fashion curriculum is designed to prepare you for a career in retail management, retail sales, apparel and textile design, promotion, display, illustration, and representative positions.

The program includes professional courses in merchandising, design, apparel construction, management, visual merchandising, creative selling and merchandise evaluation. To complement your education, you will also study important basic subjects such as business math, English, economics and marketing.

An associate of applied science degree is awarded after successful completion of the 67-credit-hour curriculum in fashion merchandising or fashion design. The program also offers an 18-credit-hour certificate in visual merchandising. Seminars in career options and industry topics are available. Required work-study internships in the fashion business of your choice will give you experience in technical, creative and merchandising skills and make you more marketable in the industry.

With an associate's degree or certificate, you'll be ready to apply your energy and creativity in an industry that rewards both. Or, if you prefer to continue your education, you can complete a bachelor's degree through a transfer program to a college or university.

Students must complete all FASH courses with a "C" or higher to be awarded the AAS degree.

(Major Code 2600; CIP Code 50.0407)

Fashion Merchandising and Design

Associate of Applied Science Degree

First Semester

FASH 121	Fashion Fundamentals.....	3
FASH 123	Apparel Construction I.....	4
FASH 122	Aesthetics for Merchandising and Design.....	3
ART 130	Drawing I.....	3
ENGL 121	Composition I*.....	3
	Prerequisite: ENGL 106 or appropriate placement test score or EAP 113 and EAP 117	
	Total Semester Credit Hours.....	16

Second Semester

FASH 124	Apparel Construction II*.....	4
	Prerequisite: FASH 123 or two years of high school apparel construction training or department approval	
FASH 130	Fashion Illustration I*.....	3
	Prerequisite: ART 130	
FASH 131	Flat Pattern Development*.....	4
	Prerequisite: FASH 123	
FASH 133	Computer Aided Apparel Design*.....	3
	Prerequisite: FASH 122	
MATH 120	Business Math or higher*.....	3
	Prerequisite: MATH 111 with a grade of "C" or higher or appropriate score on the math assessment test	
	Total Semester Credit Hours.....	17

Third Semester

	Humanities Electives.....	3
	Social Science and/or Economics Elective.....	3
FASH 265	Fashion Product Development*.....	4
	Prerequisites: FASH 123 and FASH 131 and FASH 133 and FASH 130	
FASH 150	Textiles.....	3
FASH 283	Fashion Internship I.....	1
FASH 224	History of Costume.....	3
	Total Semester Credit Hours.....	17

Fourth Semester

	Health and/or Physical Education Elective.....	1
FASH 279	Fashion Portfolio Development*.....	2
	Prerequisites: FASH 121 and FASH 124 and FASH 265	
FASH 280	Capstone: Industry Topics*.....	3
	Prerequisites: 40 credit hours toward Fashion Merchandising or Design degree to be approved by the department. Students must pass all FASH courses with a grade of "C" or higher	
FASH 284	Fashion Internship II*.....	1
FASH 127	Computer Aided Pattern Development*.....	4
	Prerequisite: FASH 131	
FASH 242	Consumer Product Evaluation.....	3
BUS 150	Business Communications*.....	3
	Prerequisite: ENGL 121 or	
ENGL 122	Composition II*.....	3
	Prerequisite: ENGL 121	
	Total Semester Credit Hours.....	17
	TOTAL PROGRAM CREDIT HOURS.....	67

Other Suggested Fashion Courses

FASH 125	Visual Merchandising.....	3
FASH 135	Image Management.....	1
FASH 143	Tailoring*.....	4
	Prerequisite: FASH 124	
FASH 215	Field Study: MAGIC Trade Show*.....	1
	Prerequisite: FASH 121	
FASH 230	Fashion Illustration II*.....	3
	Prerequisite: FASH 130	
FASH 268	Field Study: The Market Center*.....	3
	Prerequisite: FASH 121	
FASH 277	Fashion Seminar: Career Options.....	2
	*Prerequisite/Corequisite required	

Fashion Merchandising Entrep Certificate

The fashion merchandising entrepreneurship certificate prepares students to open their own fashion retail business. This certificate is designed to provide the student with basic skills in fashion merchandising and small business development and management.

Students must complete all FASH courses with a "C" or higher to be awarded the AAS degree.

(Major Code 4150; CIP Code 52.1902)

Fashion Merchandising and Design

Career Certificate

Suggested/Sample Course Sequence

The sequence taken by the student may vary depending on prerequisites, course availability, and personal/professional responsibilities.

First Semester

MATH 120	Business Mathematics*.....	3
	Prerequisite: MATH 111 with a grade of "C" or higher or appropriate score on the math assessment test	
FASH 121	Fashion Fundamentals.....	3
FASH 125	Visual Merchandising.....	3
MKT 134	Professional Selling.....	3
	Total Semester Credit Hours.....	12

Second Semester

ENTR 120	Introduction to Entrepreneurship.....	2
ENTR 180	Opportunity Analysis.....	2
FASH 150	Textiles.....	3
FASH 231	Merchandising Planning and Control*.....	3
	Prerequisite: MATH 120	
	Total Semester Credit Hours.....	10

Third Semester

FASH 242	Consumer Product Evaluation.....	3
MKT 121	Retail Management.....	3
ENTR 142	Fast Trac Business Plan.....	3
FASH 283	Fashion Internship I.....	1
	Total Semester Credit Hours.....	10
	TOTAL PROGRAM CREDIT HOURS.....	32

*Prerequisite/Corequisite required

Students may be interested in taking additional courses, as noted below, to complement their certificate study. These courses are NOT part of the certificate requirements.

ENTR 220	Entrepreneurial Marketing*.....	2
	Prerequisite: BUS 230	
ENTR 195	Franchising*.....	3
	Prerequisite: BUS 230	
ENTR 131	Financial Management for Small Business*.....	2
	Prerequisite: ACCT 111 or ACCT 121	
ENTR 160	Legal Issues for Small Business.....	2

Visual Merchandising Certificate

The visual merchandising certificate provides students with the opportunity to prepare for positions in the retail and wholesale market as display designers or visual merchandise managers.

Students must complete all FASH courses with a "C" or higher to be awarded the AAS degree.

(Major Code 7200; CIP Code 52.1902)

Fashion Merchandising and Design

Career Certificate

Suggested/Sample Course Sequence

The sequence taken by the student may vary depending on prerequisites, course availability, and personal/professional responsibilities.

First Semester

FASH 121	Fashion Fundamentals.....	3
FASH 125	Visual Merchandising.....	3
MKT 121	Retail Management.....	3
ITMD 127	Elements of Floral Design.....	1
	Total Semester Credit Hours.....	10

Second Semester

	Fashion Elective.....	3
ITMD 147	Lighting Basics*.....	1
	Prerequisite: ITMD 121 with a grade of "C" or higher or FASH 125	
FASH 225	Store Planning*.....	3
	Prerequisite: FASH 125	
FASH 283	Fashion Internship I.....	1
	Total Semester Credit Hours.....	8
	TOTAL PROGRAM CREDIT HOURS.....	18

*Prerequisite/Corequisite required

Fashion Electives

FASH 130	Fashion Illustration I*.....	3
	Prerequisite: ART 130	
FASH 132	Marketing Communications.....	3
FASH 150	Textiles.....	3
FASH 242	Consumer Product Evaluation.....	3

Visual Merchandising Entrepreneurship Certificate

This certificate is designed for students interested in opening their own visual merchandising service business providing clients in the retail and wholesale market visual merchandising and design services.

Students must complete all FASH courses with a "C" or higher to be awarded the AAS degree.

(Major Code 4040; CIP Code 52.1902)

Fashion Merchandising and Design

Career Certificate

Prerequisites for Required Courses

BUS 230	Marketing.....	3
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Suggested/Sample Course Sequence

The sequence taken by the student may vary depending on prerequisites, course availability, and personal/professional responsibilities.

First Semester

FASH 121	Fashion Fundamentals.....	3
FASH 125	Visual Merchandising.....	3
ENTR 120	Introduction to Entrepreneurship.....	2
ENTR 180	Opportunity Analysis.....	2
ACCT 121	Accounting I.....	3
	or	
ACCT 111	Small Business Accounting.....	3
ITMD 127	Elements of Floral Design.....	1
	Total Semester Credit Hours.....	14

Second Semester

FASH 130	Fashion Illustration I*.....	3
	Prerequisite: ART 130	
	or	
FASH 132	Marketing Communications.....	3
	or	
FASH 150	Textiles.....	3
	or	
FASH 242	Consumer Product Evaluation.....	3
MKT 121	Retail Management.....	3
ENTR 131	Financial Management for Small Business*.....	2
	Prerequisite: ACCT 111 or ACCT 121	
ENTR 142	Fast Trac Business Plan.....	3
ENTR 220	Entrepreneurial Marketing*.....	2
	Prerequisite: BUS 230	
ITMD 147	Lighting Basics*.....	1
	Prerequisite: ITMD 121 with a grade of "C" or higher or FASH 125	
FASH 225	Store Planning*.....	3
	Prerequisite: FASH 125	
FASH 283	Fashion Internship I.....	1
	Total Semester Credit Hours.....	18
	TOTAL PROGRAM CREDIT HOURS.....	32

*Prerequisite/Corequisite required

Fire Services Administration, A.A.

The goal of the fire science program at Johnson County Community College is to provide comprehensive education and training, specifically designed to:

- Promote the academic and professional development of fire service personnel during their first five years of employment and provide education for advancement to company-level officers.
- Prepare those seeking employment with fire service agencies of Johnson County.

The program serves to provide higher academic education, technical training and lifelong learning for members of Johnson County fire-related organizations

and those seeking employment in those organizations.

The fire science program at JCCC, in close cooperation with the Johnson County Fire Chiefs Association and the University of Kansas Fire and Rescue Training Institute, has developed a degree for advancement in the fire service and for further study toward the baccalaureate degree at a four-year institution, should you elect to pursue your education goals beyond the associate's level.

The program emphasizes general education in addition to technical education and is built around a core of fire science courses carefully selected by the members of the Fire Science Advisory Committee to prepare for your career growth. Technical electives may be pursued through courses available under a continuing cooperative agreement between area fire science programs or through other degree-granting institutions that are accredited by the International Fire Service Accreditation Congress. The transfer of credit from other institutions is governed by JCCC policy. You may fulfill technical education requirements through the advanced standing credit process.

JCCC also offers course work that will prepare you to take the Fire Fighter I and II certification examinations offered by the University of Kansas Fire and Rescue Training Institute. This course work includes FIRE 120 Fire Academy; EMS 130; HPER 240, Lifetime Fitness I; or equivalent. HPER 240 or department approval is a prerequisite FIRE 120 Fire Academy.

Note: Mechanisms have been developed to compensate for the effect of students working 24-hour shifts.

(Major Code 2320; CIP Code 43.0203)

Associate of Arts Degree

IMPORTANT - Students graduating with a Fire Services Administration degree must complete an approved cultural diversity course. Some of the approved courses are able to meet both the cultural diversity requirement and a general education requirement. To see a complete list of courses, click on the link provided below.

Cultural Diversity Course Requirement at JCCC.....

Prerequisite

Prior to admission into any FIRE course, the student must possess an International Fire Service Accreditation Congress certification as a firefighter or be an active member in a fire-related occupation.

First Semester

	Social Science Elective.....	3
	Health and/or Physical Education Elective.....	1
ENGL 121	Composition I*.....	3
	Prerequisite: ENGL 106 or appropriate placement test score or EAP 113 and EAP 117	
BUS 140	Principles of Supervision.....	3
MATH 171	College Algebra equivalent or higher*.....	3
	Prerequisite: MATH 116 with a grade of "C" or higher or MATH 131 with a grade of "C" or higher or MATH 134 with a grade of "C" or higher or appropriate score on the math assessment test	
FIRE 162	Fire Tactics and Strategy*.....	3
	Prerequisite: FIRE 120	
	Total Semester Credit Hours.....	16

Second Semester

	Humanities Elective.....	3
	Physical Science, with lab.....	4
ENGL 122	Composition II*.....	3
	Prerequisite: ENGL 121	
BUS 141	Principles of Management.....	3
FIRE 224	Incident Command Systems*.....	3
	Prerequisite: FIRE 120	
	Total Semester Credit Hours.....	16

Third Semester

	Technical Electives.....	3
	Oral Communication.....	3
	Science and/or Math Elective.....	3
FIRE 135	Building and Fire Codes*.....	3
	Prerequisite: FIRE 120	
FIRE 130	Fire Investigation*.....	1
	Prerequisite: FIRE 120	
FIRE 222	Fire Science Law*.....	3

Prerequisite: FIRE 120
Total Semester Credit Hours.....16

Fourth Semester

	Technical Electives.....	4
	Humanities Elective.....	3
	Social Science Elective.....	3
FIRE 220	Fire Administration*.....	3
	Prerequisite: FIRE 120	
FIRE 250	Fire Service Science Instructional Methodology*.....	3
	Prerequisite: FIRE 120	
	Total Semester Credit Hours.....	16
	TOTAL PROGRAM CREDIT HOURS.....	64

Technical Electives

FIRE 120	Fire Academy*.....	12
	HPER 240 and department approval	
EMS 128	EMS First Responder.....	5
EMS 130	Emergency Medical Technician*.....	9
	Prerequisite: EMS 128 or equivalent training as determined by the EMS department (military, other medical or fire department, verification of training will be required), associates degree (transcripts required).	
EMS 220	MICT I*.....	10
	Prerequisite: Admission to the MICT program	
EMS 225	MICT II*.....	10
	Prerequisite: EMS 220 with a grade of "C" or higher	
CS 200	Concepts of Programming Algorithms Using C++*.....	4
	Prerequisite: CIS 134 or ENGR 171 or equivalent experience	
CS 205	Concepts of Programming Algorithms using JAVA*.....	4
	Prerequisite: CIS 134 or ENGR 171 or equivalent experience	
CS 210	Discrete Structures I*.....	3
	Prerequisites: MATH 171 or both MATH 116 and CIS 134 or appropriate math assessment scores	
CIS 162	Database Programming*.....	4
	Prerequisite: CIS 134 or the equivalent	
CIS 242	Introduction to System Design and Analysis*.....	3
	Prerequisite: CIS 138 or CS 200 or CS 201 or CS205	
CIS 243	Object-Oriented Analysis and Design*.....	4
	Prerequisite: One programming course using an object-oriented programming language or equivalent experience	
CIS 258	Operating Systems*.....	3
	Prerequisite: CIS 138 or CIS 162 or CS 200 or CS 201 or CS 205	
CIS 204	UNIX Operating System*.....	3
	Prerequisites: CS 200 or CS 205 or CS 201 and CPCA 139	
BUS 120	Management Attitudes and Motivation.....	3
BUS 121	Introduction to Business.....	3
BUS 145	Small Business Management.....	3
BUS 150	Business Communications*.....	3
	Prerequisite: ENGL 121	
BUS 225	Human Relations.....	3
BUS 230	Marketing.....	3
BUS 243	Human Resource Management.....	3
BUS 261	Business Law I.....	3
POLS 245	Introduction to Public Administration.....	3
	*Prerequisite/Corequisite required	

Game Business Advanced Certificate

This certificate provides tangible evidence that a student has completed all the requirements to be an entry level game programmer or game business person.

(Major Code 4340; CIP Code 11.0899)

Computing Sciences and Information Technology Department

Career Certificate

Prerequisites for Required Courses

Note: Prior to beginning the program, the student must take the following prerequisites, or have taken an equivalent transfer course, or have passed the waiver test (where applicable) or have obtained a waiver from the program administrator.

CIS 134	Programming Fundamentals.....	4
MATH 171	College Algebra*.....	3
	Prerequisite: MATH 116 with a grade of "C" or higher or MATH 131 with a grade of "C" or higher or MATH 134 with a grade of "C" or higher or appropriate score on the math assessment test or	
MATH 173	Precalculus*.....	5
	Prerequisite: MATH 116 with a grade of "C" or higher or appropriate score on the math assessment test	

Suggested/Sample Course Sequence

The sequence taken by the student may vary depending on prerequisites, course availability, and personal/professional responsibilities.

First Semester

CS 200	Concepts of Programming Algorithms Using C++*.....	4
	Prerequisite: CIS 134 or ENGR 171 or equivalent experience	
GAME 101	Computer Game Creation.....	4
GAME 102	The Business of Games.....	3
GAME 200	Game Design.....	3
	Total Semester Credit Hours.....	14

Second Semester

CIS 242	Introduction to System Design and Analysis*.....	3
	Prerequisite: CIS 138 or CS 200 or CS 201 or CS205	
GAME 140	Game Programming I - 2D*.....	4
	Prerequisite: CS 200	
MATH 191	Math & Physics for Games I*.....	4
	Prerequisites: MATH 171 or MATH 173 with a grade of "C" or higher or appropriate score on math assessment test and CS 200	

or

PHYS 191	Math & Physics for Games I*.....	4
	Prerequisite: MATH 171 or MATH 173 with grade of "C" or higher or appropriate score on math assessment test and CS 200	
	Total Semester Credit Hours.....	11

Third Semester

GAME 230	Game Programming II -3D*.....	4
	Prerequisite: GAME 140	
CIS 262	Project Management*.....	3
	Prerequisite: CIS 242	
	Total Semester Credit Hours.....	7
	TOTAL PROGRAM CREDIT HOURS.....	32

*Prerequisite/Corequisite required

Game Development, A.A.S.

The game development associate of applied science degree provides students with the focused knowledge and understanding of game design and development useful in qualifying for entry level industry positions as game programmers, tool builders, collision detection developers, engine builders and interface programmers as well as video and online training developers, Q/A (Question/Answer) Testers, customer supporters and simulations developers. Completion of this degree program will greatly enhance students' ability to create code for 2D/3D graphics and real time virtual environments. Additional skills will include an understanding of game ethics, of the proper presentation of "game bibles" and of math and physics required to model a realistic game world.

Note: Metropolitan Community College students should seek specific counsel from the JCCC program personnel for the appropriate course plan and numbers.

Metropolitan Community College students should refer to Cooperative Program Information.

(Major Code 2650; CIP Code 11.0899)

Associate of Applied Science

Note: Prior to beginning the game development program, the student must take the following prerequisites, or have taken an equivalent transfer course, or have passed the waiver test (where applicable), or have obtained a waiver from the department.

Prerequisites for Required Courses

CIS 134	Programming Fundamentals.....	4
CDTP 135	Desktop Photo Manipulation I: Photoshop.....	1

First Semester

CS 200	Concepts of Programming Algorithms Using C++*.....	4
	Prerequisite: CIS 134 or ENGR 171 or equivalent experience	
GAME 101	Computer Game Creation.....	4
GAME 102	The Business of Games.....	3
ENGL 121	Composition I*.....	3
	Prerequisite: ENGL 106 or appropriate placement test score or EAP 113 and EAP 117	
MATH 171	College Algebra*.....	3
	Prerequisite: MATH 116 with a grade of "C" or higher or MATH 131 with a grade of "C" or higher or MATH 134 with a grade of "C" or higher or appropriate score on the math assessment test	
	or	
	Any Precalculus/Calculus Course*.....	3
	Total Semester Credit Hours.....	17

Second Semester

GAME 140	Game Programming I - 2D*.....	4
	Prerequisite: CS 200	
CIS 235	Object-Oriented Programming Using C++*.....	4
	Prerequisite: CS 200 using C++ or	
CS 250	Basic Data Structures using C++*.....	4
	Prerequisite: CS 200 - Prerequisite or corequisite: CS 210 for students transferring to most four-year computer science programs	
ANI 123	Concept Art for Animation.....	3
GAME 200	Game Design.....	3
MATH 191	Math & Physics for Games I*.....	4
	Prerequisites: MATH 171 or MATH 173 with a grade of "C" or higher or appropriate score on math assessment test and CS 200	
	or	
PHYS 191	Math & Physics for Games I*.....	4
	Prerequisite: MATH 171 or MATH 173 with grade of "C" or higher or appropriate score on math assessment test and CS 200	
	Total Semester Credit Hours.....	18

Third Semester

	Health and/or Physical Education Elective.....	1
ENGL 150	Digital Narratives*.....	3
	Prerequisite: ENGL 121	
	Game Elective.....	3-4
GAME 230	Game Programming II -3D*.....	4
	Prerequisite: GAME 140	
ANI 145	Introduction to 3D Animation*.....	3
	Prerequisite or corequisite: ANI 123	
GAME 180	Artificial Intelligence for Games*.....	3
	Prerequisite: CS 200	
	Total Semester Credit Hours.....	17-18

Fourth Semester

	Social Science and/or Economics Elective.....	3
GAME 250	Game Programming III-Capstone*.....	4
	Prerequisites: GAME 200 and GAME 230 and CIM 145 and ENGL 150 and Prerequisite or corequisite: GAME 180	
GAME 110	Flash Gaming.....	4
	or	
GAME 255	Mobile Game Programming*.....	4
	Prerequisites: GAME 140 and GAME 200	
HUM 155	Classical Mythology.....	3
ENGL 140	Writing for Interactive Media*.....	3
	Prerequisite: ENGL 121	
	Total Semester Credit Hours.....	17

TOTAL PROGRAM CREDIT HOURS.....69-70

Game Electives

CIM 130	Interactive Media Concepts.....2
	Prerequisite or corequisite: ENGL 121
CIM 140	Interactive Media Assets*.....4
	Prerequisites: CDTF 135 AND prerequisite or corequisite CIM 130
ANI 245	Character Animation*.....3
	Prerequisite: ANI 145
CIS 243	Object-Oriented Analysis and Design*.....4
	Prerequisite: One programming course using an object-oriented programming language or equivalent experience
CIS 262	Project Management*.....3
	Prerequisite: CIS 242
MUS 156	MIDI Music Composition.....3
GAME 110	Flash Gaming.....4
GAME 255	Mobile Game Programming*.....4
	Prerequisites: GAME 140 and GAME 200

*Prerequisite/Corequisite required

GAME 140	Game Programming I - 2D*.....4
	Prerequisite: CS 200
GAME 200	Game Design.....3
MATH 191	Math & Physics for Games I*.....4
	Prerequisites: MATH 171 or MATH 173 with a grade of "C" or higher or appropriate score on math assessment test and CS 200
	or
PHYS 191	Math & Physics for Games I*.....4
	Prerequisite: MATH 171 or MATH 173 with grade of "C" or higher or appropriate score on math assessment test and CS 200
	Total Semester Credit Hours.....16

Third Semester

GAME 230	Game Programming II -3D*.....4
	Prerequisite: GAME 140
	Total Semester Credit Hours.....4
	TOTAL PROGRAM CREDIT HOURS.....31

*Prerequisite/Corequisite required

Game Entrepreneurship Advanced Certificate

The advanced certificate in game entrepreneurship provides tangible evidence that a student has completed all the requirements to be an entry level game programmer with additional skills necessary to start a game company.

(Major Code 4140; CIP Code 11.0899)

Computing Sciences and Information Technology Department

Career Certificate

Prerequisites for Required Courses

Note: Prior to beginning the program, the student must take the following prerequisites, or have taken an equivalent transfer course, or have passed the waiver test (where applicable), or have obtained a waiver from the program administrator:

CIS 134	Programming Fundamentals.....4
CS 200	Concepts of Programming Algorithms Using C++*.....4
	Prerequisite: CIS 134 or ENGR 171 or equivalent experience
MATH 171	College Algebra*.....3
	Prerequisite: MATH 116 with a grade of "C" or higher or MATH 131 with a grade of "C" or higher or MATH 134 with a grade of "C" or higher or appropriate score on the math assessment test
	or
MATH 173	Precalculus*.....5
	Prerequisite: MATH 116 with a grade of "C" or higher or appropriate score on the math assessment test

Suggested/Sample Course Sequence

The sequence taken by the student may vary depending on prerequisites, course availability, and personal/professional responsibilities.

First Semester

BUS 230	Marketing.....3
ENTR 120	Introduction to Entrepreneurship.....2
ENTR 180	Opportunity Analysis.....2
GAME 101	Computer Game Creation.....4
	Total Semester Credit Hours.....11

Second Semester

ENTR 142	Fast Trac Business Plan.....3
ENTR 220	Entrepreneurial Marketing*.....2
	Prerequisite: BUS 230

Game Narrative Advanced Certificate

The advanced certificate in game narrative will provide students with more depth in game narrative as well as tangible evidence that a student is skilled in basic programming for games.

(Major Code 4130; CIP Code 11.0899)

Computing Sciences and Information Technology Department

Career Certificate

Prerequisites for Required Courses

Note: Prior to beginning the program, the student must take the following prerequisites, or have taken an equivalent course, or have passed the waiver test (where applicable), or have obtained a waiver from the program administrator:

ENGL 121	Composition I*.....3
	Prerequisite: ENGL 106 or appropriate placement test score or EAP 113 and EAP 117
CIS 134	Programming Fundamentals.....4
MATH 171	College Algebra*.....3
	Prerequisite: MATH 116 with a grade of "C" or higher or MATH 131 with a grade of "C" or higher or MATH 134 with a grade of "C" or higher or appropriate score on the math assessment test
	or
MATH 173	Precalculus*.....5
	Prerequisite: MATH 116 with a grade of "C" or higher or appropriate score on the math assessment test

Suggested/Sample Course Sequence

The sequence taken by the student may vary depending on prerequisites, course availability, and personal/professional responsibilities.

First Semester

CS 200	Concepts of Programming Algorithms Using C++*.....4
	Prerequisite: CIS 134 or ENGR 171 or equivalent experience
ENGL 150	Digital Narratives*.....3
	Prerequisite: ENGL 121
	NOTE: ENGL 150 is offered Fall semester only.
ENGL 140	Writing for Interactive Media*.....3
	Prerequisite: ENGL 121
GAME 101	Computer Game Creation.....4
	Total Semester Credit Hours.....14

Second Semester

GAME 140	Game Programming I - 2D*	4
	Prerequisite: CS 200	
GAME 200	Game Design	3
HUM 155	Classical Mythology	3
MATH 191	Math & Physics for Games I*	4
	Prerequisites: MATH 171 or MATH 173 with a grade of "C" or higher or appropriate score on math assessment test and CS 200	
	or	
PHYS 191	Math & Physics for Games I*	4
	Prerequisite: MATH 171 or MATH 173 with grade of "C" or higher or appropriate score on math assessment test and CS 200	
	Total Semester Credit Hours	14

Third Semester

GAME 230	Game Programming II -3D*	4
	Prerequisite: GAME 140	
	Total Semester Credit Hours	4
	TOTAL PROGRAM CREDIT HOURS	32

*Prerequisite/Corequisite required

Game Programming Advanced Certificate

The advanced certificate in game programming provides tangible evidence that a student has completed all the requirements to be an entry level game programmer with additional skills in the art of game programming.

Note: Metropolitan Community College students should seek specific counsel from the JCCC program personnel for the appropriate course plan and numbers.

Metropolitan Community College students should refer to Cooperative Program Information.

(Major Code 4120; CIP Code 11.0899)

Computing Sciences and Information Technology Department

Career Certificate

Prerequisites for Required Courses

Note: Prior to beginning the program, the student must take the following prerequisites, or have taken an equivalent transfer course, or have passed the waiver test (where applicable), or have obtained a waiver from the program administrator:

CS 200	Concepts of Programming Algorithms Using C++*	4
	Prerequisite: CIS 134 or ENGR 171 or equivalent experience	
CIS 134	Programming Fundamentals	4
MATH 171	College Algebra*	3
	Prerequisite: MATH 116 with a grade of "C" or higher or MATH 131 with a grade of "C" or higher or MATH 134 with a grade of "C" or higher or appropriate score on the math assessment test	
	or	
MATH 173	Precalculus*	5
	Prerequisite: MATH 116 with a grade of "C" or higher or appropriate score on the math assessment test	

Suggested/Sample Course Sequence

The sequence taken by the student may vary depending on prerequisites, course availability, and personal/professional responsibilities.

First Semester

GAME 101	Computer Game Creation	4
GAME 110	Flash Gaming	4
GAME 200	Game Design	3
	Total Semester Credit Hours	11

Second Semester

GAME 140	Game Programming I - 2D*	4
	Prerequisite: CS 200	
MATH 191	Math & Physics for Games I*	4
	Prerequisites: MATH 171 or MATH 173 with a grade of "C" or higher or appropriate score on math assessment test and CS 200	
	or	
PHYS 191	Math & Physics for Games I*	4
	Prerequisite: MATH 171 or MATH 173 with grade of "C" or higher or appropriate score on math assessment test and CS 200	
GAME 180	Artificial Intelligence for Games*	3
	Prerequisite: CS 200	
	Total Semester Credit Hours	11

Third Semester

GAME 230	Game Programming II -3D*	4
	Prerequisite: GAME 140	
GAME 255	Mobile Game Programming*	4
	Prerequisites: GAME 140 and GAME 200	
	Total Semester Credit Hours	8
	TOTAL PROGRAM CREDIT HOURS	30

*Prerequisite/Corequisite required

General Studies, A.G.S.

The associate of general studies degree from JCCC

- requires completion of 64 college-level credit hours within specified course categories with a 2.0 or higher GPA
- is designed for students who wish to receive a degree for completion of a more general program of study
- does not require an academic major or an emphasis in a specific career program

The credit hours necessary to complete the associate of general studies degree include the following:

General Education Requirements (26 credit hours)

- The Arts (3 hours)
- Communication Skills (6 hours)
- Culture and Ethics (6 hours)
- Health, Physical Education, Recreation (2 hours)
- Mathematics (3 hours)
- Modes of Inquiry (6 hours)

Computer Skills (3 credit hours)

Global Issues/Diversity (3 credit hours)

College level electives (32 credit hours)

Courses may not be used to satisfy requirements in more than one category.

(Major Code 1050; CIP Code 24.0101)

Associate of General Studies

First Semester

	Electives.....	7
	Communications Skills.....	3
	Global Issues/Diversity.....	3
ENGL 121	Composition I*.....	3
	Prerequisite: ENGL 106 or appropriate placement test score or EAP 113 and EAP 117	
	Total Semester Credit Hours.....	16

Second Semester

	Electives.....	7
	Culture & Ethics-Historical Perspective.....	3
	Modes of Inquiry-Scientific.....	3
	Computer Skills.....	3
	Total Semester Credit Hours.....	16

Third Semester

	Electives.....	8
	Health and/or Physical Education Elective.....	2
	Mathematics.....	3
	The Arts.....	3
	Total Semester Credit Hours.....	16

Fourth Semester

	Electives.....	10
	Culture & Ethics-Cultural Perspective.....	3
	Modes of Inquiry-Social.....	3
	Total Semester Credit Hours.....	16
	TOTAL PROGRAM CREDIT HOURS.....	64

Geographic Info Systems Cert

The Geographic Information Systems Certificate program is granted by Metropolitan Community College, but coordinated at JCCC.

This is a professional certificate that gives the GIS user the tools needed to attract a good job in the exciting field of GIS or to advance in their chosen field. It also prepares students to complete their AA degree or transfer to a four year institution. GIS professionals are found in the fields of city, county and state business, economics, natural resources, conservation, pollution, industry, science, infrastructure planners, public works, transportation, architects, education, healthcare, travel, space industry.

The JCCC geographic information systems program is offered to Johnson County residents in cooperation with Metropolitan Community Colleges of Kansas City. Related courses are taken at JCCC. You must be accepted as a student to JCCC and accepted into the program by MCC. Students must be residents of Johnson County in order to receive in-state tuition rates. Consult with a JCCC counselor for more information.

Program courses and credit hours are subject to change because of requirement changes at the degree-granting institution. Contact www.mccck.edu. Required GIS classes are taught at MCC-Longview and MCC-Maple Woods Community Colleges as early evening courses.

Note: Johnson County Community College students should seek specific counsel from the MCC program personnel for the appropriate course plan and numbers.

Johnson County Community College students should refer to Cooperative Program Information.

Career Certificate

Certificate granted by Metropolitan Community College

Specific Program Requirements-must be taken MCC

KEOG 120	Introduction to Geographic Information Systems.....	3
KEOG 220	Geographic Information Systems Database & Design*.....	3
	Prerequisite: KEOG 120	

KEOG 224	Applications in Geographic Information Systems*.....	3
	Prerequisites: KEOG 120 and KEOG 220	
KEOG 228	Administrative Issues in Geographic Info Systems*.....	3
	Prerequisite: KEOG 120	
KEOG 230	Geographic Information Systems Internship*.....	1-3
	Prerequisites: KEOG 120 and KEOG 220	

Note: A student currently employed in a GIS Facility may take the 1-hour option. All others must complete the 3-hour internship.

Specific Program Requirements-must be taken at JCCC

ENGL 121	Composition I*.....	3
	Prerequisite: ENGL 106 or appropriate placement test score or EAP 113 and EAP 117	
GEOS 145	World Regional Geography.....	3
GEOS 130	General Geology.....	5
	or	
GEOS 140	Physical Geography.....	3
	and	
GEOS 141	Physical Geography Lab*.....	2
	Prerequisite or corequisite: GEOS 140 or the equivalent	

Specific Program Requirements-taken at JCCC or MCC

Choose ONE course from the following list:

CIS 162	Database Programming*.....	4
	Prerequisite: CIS 134 or the equivalent or	
CIS 260	Database Management*.....	4
	Prerequisite: CS 250 or CS 255 or CIS 235 or CIS 238 or CIS 248 or	
KEOG 128	Web Development*.....	3
	Prerequisites: MCC's CSIS 110 or CSIS 115 or	
KEOG 144	Introduction to SQL with Oracle*.....	3
	Prerequisite: MCC's CSIS 115	

Select two courses from the following list:

ADMJ 121	Introduction to Administration of Justice.....	3
BIOL 121	Introductory Biology for Non-Majors.....	4
BIOL 125	General Botany.....	5
BIOL 127	General Zoology.....	5
BIOL 130	Environmental Science.....	3
	and	
BIOL 131	Environmental Science Lab*.....	1
	Prerequisite or corequisite: BIOL 130	
BUS 230	Marketing.....	3
DRAF 120	Introduction to Drafting.....	2
	and	
DRAF 130	Introduction to CAD Concepts - AutoCAD: 2010*.....	3
	Prerequisite: DRAF 120 or department approval	

Note: DRAF 120 and DRAF 130 must both be taken and count for only ONE course.

ECON 230	Economics I.....	3
ECON 231	Economics II.....	3
CIS 162	Database Programming*.....	4
	Prerequisite: CIS 134 or the equivalent or	
CIS 260	Database Management*.....	4
	Prerequisite: CS 250 or CS 255 or CIS 235 or CIS 238 or CIS 248	
GEOS 140	Physical Geography.....	3
	and	
GEOS 141	Physical Geography Lab*.....	2
	Prerequisite or corequisite: GEOS 140 or the equivalent	
GEOS 130	General Geology.....	5
	TOTAL PROGRAM CREDIT HOURS.....	33-41

*Prerequisite/Corequisite required

Graphic Design, A.A.S.

The graphic design field is highly competitive for both salaried and freelance positions. There is a demand for artists with above-average talents and graphic art skills. Opportunities in the field range from entry-level layout and production to art director positions.

Demonstrated abilities are most often the key to obtaining a position in the graphic design field. JCCC has structured its graphic design program to help the student develop a comprehensive portfolio. The student's work will be

critiqued by a team of professionals every semester. These professionals working in the field, along with the faculty, will help develop the student's skills in creative problem solving and in the use of materials, processes, tools and equipment. Outstanding studio and computer facilities are available for working on class projects. The two-year curriculum consisting of 71 credit hours leads to an associate of applied science degree.

Some GDES courses are typically offered in the fall semester only, and some courses are typically offered in the spring semester only. This information can be found under the relevant course descriptions.

(Major Code 2290; CIP Code 50.0409)

Graphic Design

Associate of Applied Science Degree

IMPORTANT:

Please enroll in the CDTP sections identified in the credit class search as a Graphic Design Qualifier section. The content of these CDTP sections places emphasis on the Graphic Design career specific application of the Adobe Creative Suite to industry standards for print production and is reserved for students enrolling in the Qualifier semester courses.

It is recommended that you enroll in these five-week CDTP classes in sequence in the Qualifier semester.

Qualifier Semester

ART 124	Design 2D*	3
	Prerequisite or corequisite: CDTP 145	
GDES 120	Introduction to Graphic Design	3
CDTP 145	Desktop Illustration I: Illustrator	1
CDTP 135	Desktop Photo Manipulation I: Photoshop	1
CDTP 140	Desktop Publishing I: InDesign	1
	Total Semester Credit Hours	9

Fall Semester

ART 129	Design Color*	3
	Prerequisite or corequisite: CDTP 135	
GDES 130	Drawing and Media Methods 1*	3
	Prerequisites: GDES 120 and ART 124 and CDTP 135 and CDTP 140 and CDTP 145	
GDES 132	Typography*	3
	Prerequisites: ART 124 and GDES 120 and CDTP 135 and CDTP 140 and CDTP 145	
PHOT 121	Fundamentals of Photography	3
ENGL 121	Composition I*	3
	Prerequisite: ENGL 106 or appropriate placement test score or EAP 113 and EAP 117	
	Total Semester Credit Hours	15

Spring Semester

	Humanities Electives	3
ART 127	Design 3D*	3
	Prerequisite: ART 124	
GDES 131	Drawing and Media Methods 2*	3
	Prerequisite: GDES 130	
GDES 134	Layout Design*	3
	Prerequisite: GDES 132	
GDES 140	Technical Processes*	3
	Prerequisites: PHOT 121 and CDTP 135 and CDTP 140 and CDTP 145	
	Total Semester Credit Hours	15

Fall Semester

	Humanities Electives	3
	Social Science and/or Economics Elective	3
	Health and/or Physical Education Elective	1
GDES 230	Drawing and Media Methods 3*	3
	Prerequisites: GDES 131 and GDES 132 and GDES 134	
GDES 231	Advanced Typography*	3
	Prerequisite: GDES 134	
GDES 235	Production Methods*	3
	Prerequisites: GDES 134 and GDES 140	
	Total Semester Credit Hours	16

Spring Semester

	Technical/Studio Elective	1
	Science and/or Math Elective*	3

GDES 236	Electronic Production*	3
	Prerequisites: GDES 230 and GDES 231 and GDES 235	
GDES 244	Communication Systems*	3
	Prerequisites: GDES 230 and GDES 231 and GDES 235	
GDES 245	Advanced Design Practice*	3
	Prerequisites: GDES 230 and GDES 231 and GDES 235	
GDES 272	Professional Preparation*	3
	Prerequisites: GDES 230 and GDES 231 and GDES 235	
	Prerequisite: The student must have completed all required studio courses in the graphic design program prior to the semester for which he or she is enrolling in this course or be co-enrolled in all fourth-semester studio courses.	
	Total Semester Credit Hours	16
	TOTAL PROGRAM CREDIT HOURS	71

Technical/Studio Electives

CDTP 160	Desktop Publishing II: InDesign*	1
	Prerequisite: CDTP 140	
CDTP 165	Desktop Illustration II: Illustrator*	1
	Prerequisite: CDTP 145	
CDTP 185	Desktop Illustration III: Illustrator*	1
	Prerequisite: CDTP 165	
CDTP 155	Desktop Photo Manipulation II: Photoshop*	1
	Prerequisite: CDTP 135	
CDTP 175	Desktop Photo Manipulation III: Photoshop*	1
	Prerequisite: CDTP 155	
CWEB 105	Introduction to Web Pages: Dreamweaver*	1
	Prerequisite: CWEB 101	
CWEB 115	Intermediate Web Pages: Dreamweaver*	1
	Prerequisite: CWEB 105	
CWEB 130	Introduction to Flash*	1
	Prerequisite: CPCA 161 or CWEB 105 or CWEB 106	
CIM 135	Digital Imaging and Video*	3
	Prerequisite: CDTP 135	
	Recommended: PHOT 121	
PHOT 122	Advanced Photography*	3
	Prerequisite: PHOT 121	
PHOT 123	Studio Photography*	3
	Prerequisite: PHOT 121	
ART 135	Painting I	3
ART 136	Painting II*	3
	Prerequisite: ART 135	
ART 172	Watercolor Painting	3
ART 231	Life Drawing I*	3
	Prerequisite: ART 130	
ART 232	Life Drawing II*	3
	Prerequisite: ART 231	
GDES 275	Graphic Design Internship*^	1
	Prerequisite: Graphic design faculty review committee approval	

*Prerequisite/Corequisite required

Note: ^A graphic design major may apply to this internship course if the student is also enrolled in or has completed all fourth-semester studio courses.

Health Care Interpreting Certificate

Health care interpreting (HCI) is designed to give bilingual (English and Spanish) students the awareness, knowledge and skills necessary to serve as entry-level interpreters and translators in health care settings, including hospitals, clinics, medical offices and similar environments. Program completers should be eligible for employment as salaried or on-call staff interpreters, or as self-employed freelance interpreters. Employment opportunities may also be available with professional interpreting and translating service companies. Although the emphasis of the program is medical interpreting, the skills gained could be applied to other interpreting and translating settings in the community, such as conference and escort interpreting and translation of written documents.

The health care interpreting program is a 20-credit hour vocational program leading to a certificate of completion. It is designed to be completed in three semesters, although there is enough flexibility in the curriculum to extend the time period for several additional semesters, if the student prefers a slower pace. The program is organized in a progression of courses leading the student from general concepts to increasingly complex skills and knowledge, culminating in a comprehensive skills exam and a professional practicum. It includes five courses developed specifically for the program plus two courses offered through other departments. Students must earn a grade of C or higher in each of the program's courses to continue in the program. The latter two courses, AAC 130, Medical Terminology, and HC 101, Introduction to Health Care Delivery, do not have prerequisites and could be taken at any time prior

to completion of the program. Students must have all course work but the HC 101 course completed before beginning HCI 180, the medical interpreting practicum. Please note, however, that HCI 101 is not offered during the summer semester.

The HCI program is organized as part of the JCCC interpreter training program, although it has its own unique course prefix (HCI) and curriculum. Other courses in the interpreter training program emphasize deaf communication and sign language. HCI students should enroll only in courses with the HCI prefix, plus AAC 130 and HC 101.

Students must earn a grade of "C" or higher in all coursework and be able to demonstrate at least 85% accuracy in both English and Spanish while interpreting.

REQUIREMENTS: All students who participate in shadowing and practicum assignments at Truman Medical Centers (TMC) must complete specific requirement. At the end of the fall semester, all students must complete the following information. 1) A paid background check from Validity Screenings (approximately \$38). This background check is for GSA Excluded Parties Testing System, Police/Criminal Background Check for Missouri, and the U.S. Department of Human and Health Services List of Excluded Individuals/Entities. 2) Name and Social Security number - this information is sent to the Missouri Department of Health and Senior Services Employee Disqualification List. 3) Proof of up-to-date immunizations - records must include a TB test and Hepatitis B vaccinations. 4) HIPAA training - a printout that proves HIPAA training has been completed is required. 5) Test results - results from the Clinical Nurse Educator Orientation are required.

This program requires a professional liability insurance fee. Students will be notified via their JCCC student e-mail account when they are required to pay a \$16 fee. This fee needs to be paid once enrolled in HCI 180. The dollar amount for fees is subject to change.

(Major Code 4390; CIP Code 16.0103)

Interpreter Training

Career Certificate

Suggested/Sample Course Sequence

The sequence taken by the student may vary depending on prerequisites, course availability, and personal/professional responsibilities.

Fall Semester

HCI 110	Introduction to Interpreting*	3
	Prerequisites: Interview and permission of the facilitator. Potential indicators of proficiency may be required.	
HCI 120	Interpreting Skills I*	3
	Prerequisite or corequisite: HCI 110 with a grade of "C" or higher	
HC 101	Introduction to Health Care Delivery	3
	Total Semester Credit Hours	9

Spring Semester

HCI 130	Interpreting Skills II*	3
	Prerequisites: HCI 110 with a grade of "C" or higher and HCI 120 with a grade of "C" or higher	
HCI 140	Spanish Medical Interpreting*	3
	Prerequisite: HCI 120 with a grade of "C" or higher and Prerequisites or corequisites: HCI 130 with a grade of "C" or higher and AAC 130	
AAC 130	Medical Terminology	3
	Total Semester Credit Hours	9

Summer/Fall Semester

HCI 180	Medical Interpreting Practicum*	2
	Prerequisites: HCI 130 with a grade of "C" or higher and HCI 140 with a grade of "C" or higher and Prerequisite or corequisite: HC 101 with a grade of "C" or higher	
	Total Semester Credit Hours	2
	TOTAL PROGRAM CREDIT HOURS	20

*Prerequisite/Corequisite required

Health Care Interpreting Entrepreneurship Certificate

This certificate is designed to prepare students to open their own business providing health care interpreting services. The certificate will provide the student with instruction in the national standards; professional roles and responsibilities of interpreters; common medical conditions, treatments, protocols and procedures; medical terminology in both English and Spanish; culture competence; code of ethics and professional standards of practice; and legal aspects of interpreting. Students will successfully complete a field practicum course and a comprehensive skills test. Prospective students must demonstrate fluency in both English and Spanish through an oral interview and other documentation as needed. Additionally, the certificate provides the student instruction in small business development and management.

Students must earn a grade of "C" or higher in all coursework and be able to demonstrate at least 85% accuracy in both English and Spanish while interpreting.

REQUIREMENTS: All students who participate in shadowing and practicum assignments at Truman Medical Centers (TMC) must complete specific requirement. At the end of the fall semester, all students must complete the following information. 1) A paid background check from Validity Screenings (approximately \$38). This background check is for GSA Excluded Parties Testing System, Police/Criminal Background Check for Missouri, and the U.S. Department of Human and Health Services List of Excluded Individuals/Entities. 2) Name and Social Security number - this information is sent to the Missouri Department of Health and Senior Services Employee Disqualification List. 3) Proof of up-to-date immunizations - records must include a TB test and Hepatitis B vaccinations. 4) HIPAA training - a printout that proves HIPAA training has been completed is required. 5) Test results - results from the Clinical Nurse Educator Orientation are required.

This program requires a professional liability insurance fee. Students will be notified via their JCCC student e-mail account when they are required to pay a \$16 fee. The dollar amount for fees is subject to change.

(Major Code 4260; CIP Code 16.0103)

Interpreter Training

Career Certificate

Suggested/Sample Course Sequence

The sequence taken by the student may vary depending on prerequisites, course availability, and personal/professional responsibilities.

First Semester

HCI 110	Introduction to Interpreting*	3
	Prerequisites: Interview and permission of the facilitator. Potential indicators of proficiency may be required.	
HCI 120	Interpreting Skills I*	3
	Prerequisite or corequisite: HCI 110 with a grade of "C" or higher	
AAC 130	Medical Terminology	3
ENTR 120	Introduction to Entrepreneurship	2
ENTR 180	Opportunity Analysis	2
	Total Semester Credit Hours	13

Second Semester

HCI 130	Interpreting Skills II*	3
	Prerequisites: HCI 110 with a grade of "C" or higher and HCI 120 with a grade of "C" or higher	
HCI 140	Spanish Medical Interpreting*	3
	Prerequisite: HCI 120 with a grade of "C" or higher and Prerequisites or corequisites: HCI 130 with a grade of "C" or higher and AAC 130	
HC 101	Introduction to Health Care Delivery	3
ENTR 142	Fast Trac Business Plan	3
	Total Semester Credit Hours	12

Third Semester

HCI 180	Medical Interpreting Practicum*.....2
	Prerequisites: HCI 130 with a grade of "C" or higher and HCI 140 with a grade of "C" or higher and Prerequisite or corequisite: HC 101 with a grade of "C" or higher
	Total Semester Credit Hours.....2
	TOTAL PROGRAM CREDIT HOURS.....27

*Prerequisite/Corequisite required

Students may be interested in taking additional courses, as noted below, to complement their certificate study. These courses are NOT part of the certificate requirements.

ENTR 220	Entrepreneurial Marketing*.....2
	Prerequisite: BUS 230
ENTR 131	Financial Management for Small Business*.....2
	Prerequisite: ACCT 111 or ACCT 121
ENTR 160	Legal Issues for Small Business.....2
ENTR 195	Franchising*.....3
	Prerequisite: BUS 230

Health Information Tech, A.A.S

The Health Information Technology, AAS degree program is granted by Metropolitan Community College, but coordinated at JCCC.

A health information technician has the technical skills needed to maintain the components of health information systems consistent with the medical, administrative, ethical, legal accreditation and regulatory requirements of the health care delivery system. Area hospitals and a variety of other health facilities in the community offer field experience in all procedures performed by the health information technician. When the 70-72 credit-hour program has been completed and the associate of applied science degree obtained, you will be eligible to take the accreditation examination of the American Association of Health Information Management.

Health information technology is a cooperative program between JCCC and MCC-Penn Valley Community College for Johnson County residents. You must be accepted as a student at JCCC and accepted into the program by MCC-Penn Valley. Consult with a JCCC counselor for more information.

Program courses and credit hours are subject to change because of requirement changes at the degree-granting institution. Contact MCC-Penn Valley Community College at 816-604-4245 for an application packet, which includes deadlines, program prerequisites and admission requirements.

Note: Johnson County Community College students should seek specific counsel from the MCC program personnel for the appropriate course plan and numbers.

Johnson County Community College students should refer to Cooperative Program Information.

Associate of Applied Science Degree

Degree granted by Metropolitan Community College

General Education Requirements-must be taken at JCCC

BIOL 144	Human Anatomy and Physiology.....5
BIOL 227	Human Pathophysiology*.....4
	Prerequisite: BIOL 144 or BIOL 225
ENGL 121	Composition I*.....3
	Prerequisite: ENGL 106 or appropriate placement test score or EAP 113 and EAP 117
SPD 121	Public Speaking.....3
	Elective (Intro to Psych strongly recommended).....3

American Institutions

HIST 140	U.S. History to 1877.....3
	or
HIST 141	U.S. History Since 1877.....3
	or
POLS 122	Political Science.....3
	or
POLS 124	American National Government.....3
	or
POLS 126	State and Local Government.....3

Specific Program Requirements-must be taken at JCCC

CIS 124	Introduction to Computer Concepts and Applications...3
CPCA 110	Spreadsheets I: MS Excel*.....1
	Prerequisite: CPCA 105 or CPCA 106 or CIS 124 or CPCA 128 or appropriate score on a waiver test
CPCA 114	Databases I: MS Access*.....1
	Prerequisite: CPCA 105 or CPCA 106 or CPCA 128 or CIS 124 or an appropriate score on a waiver test
CPCA 141	Internet I*.....1
	Prerequisite: CPCA 105 or CPCA 106 or CPCA 128 or CIS 124 or appropriate score on an assessment test

Specific Program Requirements-taken at MCC-Penn Valley

KSS 153	The Missouri Constitution.....1
KMRT 101	Introduction to the Health Information Technology ...2
KMRT 102	Health Records Systems, Analysis and Control.....3.5
KMRT 103	Medical Terminology for Health Records.....3
KMRT 106	Health Care Statistics*.....3
	Prerequisite: KMRT 102
KMRT 108	Legal Aspects of the Health Information Technology*...2
	Prerequisite: KMRT 102
KMRT 109	Directed Practice I*.....2.5
	Prerequisites: BIOL 144 and KMRT 102
KMRT 110	Introduction to Basic Pharmacology*.....1.5
	Prerequisites: BIOL 144 and KMRT 103
KMRT 200	Introduction to Classification Systems.....1
KMRT 201	Quality Management*.....3
	Prerequisite: KMRT 108
KMRT 202	Class. Sysms/Nomenclatures/Indexes & Registers I*...4
	Prerequisite: KMRT 200
KMRT 203	Directed Practice II*.....2
	Prerequisites: BIOL 144 and KMRT 202 and KMRT 210 or BIOL 144 and concurrent enrollment in KMRT 202 and KMRT 210
KMRT 206	Specialized Health Records Systems.....2
KMRT 207	Class. System/Nomenclature/Index & Register II*.....3
	Prerequisites: BIOL 144 and KMRT 202
KMRT 208	Directed Practice III*.....2
	Prerequisite: KMRT 203
KMRT 210	Classif Systems & Nomenclatures/Ambulatory Care*....3
	Prerequisites: KMRT 200 and BIOL 108/PVCC or concurrent enrollment in BIOL 108/PVCC
KMRT 211	Organization & Administration Health Information*....3
	Prerequisites: KMRT 201, KMRT 202, and KMRT 203
KMRT 212	Intro to Medical Insurance & Office Procedures*....1.5
	Prerequisites: KMRT 103, KMRT 202, KMRT 210 and BIOL 144
	TOTAL PROGRAM CREDIT HOURS.....70

*Prerequisite/Corequisite required

Certified Medication Aide Certificate

This 80-hour course covers information related to many commonly prescribed medications. Students learn the classification, side effects and techniques of administration, including preparations and accurate distribution of medications. Safety of clients in long-term care will be discussed and demonstrated by students. Clinical practice sessions will be conducted in a long-term care facility.

A pre-requisite to admission is successful completion of a reading level exam/assessment. Copies of the following will be required on the first day of class: social security card, current Kansas CNA card, current CPR for Health Care Provider card and documentation of a current negative TB test. The Kansas CMA examination is administered to successful completers of this course.

The employment outlook for the future is excellent. Facilities employing the CMA include long-term care nursing centers as well as other types of group homes and agencies.

For more information, go to http://www.jccc.net/home/depts/5104/site/newstudent/types/adm_avs/CMA_Information-Requirements

This program requires a professional liability insurance fee. Students will be notified via their JCCC student e-mail account if they are required to pay a \$16 fee. The dollar amount for fees is subject to change.

(Major Code 3560; CIP Code 51.2603)

Health Occupations

Certificate of Completion

Required Course

AVHO 104 Certified Medication Aide (CMA)*.....4
Prerequisites: Appropriate Compass reading test score,
and proof of Kansas CNA certification
or having completed the state CNA examination and
awaiting results. If CNA examination results are not
satisfactory, the student must withdraw from the CMA
course.
Documentation of current TB skin test - negative
results within the last year.
Current CPR for Health Care Providers and Social
Security card.
TOTAL PROGRAM CREDIT HOURS.....4
*Prerequisite/Corequisite required

successful completion of the course, students will be scheduled to take the Kansas CNA examination. Sufficient notice of the exam date is given to allow students to make arrangements to be in attendance on the appointed day.

Employment for workers with CNA skills and training is abundant in long-term care facilities. Acute-care hospitals also employ basic patient care aides who are willing to learn advanced skills.

For more information, go to
http://www.jccc.net/home/depts/5104/site/newstudent/types/adm_avs/CNA_Information-Requirements

This program requires a professional liability insurance fee. Students will be notified via their JCCC student e-mail account if they are required to pay a \$16 fee. The dollar amount for fees is subject to change.

(Major Code 3530; CIP Code 51.1614)

Health Occupations

Certified Medication Aide Update Certificate

Certified medication aides in Kansas are required to obtain continuing education every two years to renew the CMA certificate. This course meets the state requirements for recertification. The update course includes review of commonly used drugs and their interactions with foods and other drugs.

Students will discuss and identify legal implications and regulations related to administration and record keeping. Biological effects of medications on the elderly and basic safety principles are reviewed and discussed with other CMAU course participants. This course is available in the classroom and online. A roster of CMAs who complete the update course will be submitted to the Department of Health and Environment for certificate renewal.

Copies of the following are required on the first day of class: social security card, CNA card, and CMA card. Students also must provide a check or money order payable to KDHE for \$20.00.

For more information, go to
http://www.jccc.net/home/depts/5104/site/newstudent/types/adm_avs/CMA_Update_Info-Requirements

(Major Code 3600; CIP Code 51.2603)

Health Occupations

Certificate of Completion

Required Course

AVHO 108 Certified Medication Aide Update (CMA-U)*.....1
Prerequisites: Proof of Kansas CMA certification and
Proof of Kansas CNA Certification
TOTAL PROGRAM CREDIT HOURS.....1
*Prerequisite/Corequisite required

Certificate of Completion

Required Course

AVHO 102 Certified Nurse Aide (CNA)*.....5
Prerequisite: ENGL 121 with a grade of "C" or higher
or Appropriate Compass reading test score.
Documentation
of current
TB test and current CPR for Health Care Providers
and a Social Security Card.
TOTAL PROGRAM CREDIT HOURS.....5
*Prerequisite/Corequisite required

Certified Nurse Aide Refresher Certificate

The CNA in Kansas is required to work at least eight hours every two years for the CNA certificate to remain active. If the CNA does not work for two years, a 21-hour refresher course must be completed. This course meets the state requirement to activate the CNA certificate.

This course includes 12 hours of classroom instruction and 9 hours of laboratory experience. Students will discuss the nurse aide's responsibility in the current health care system and the importance of resident's rights. The student will demonstrate safety measures, infection control procedures, personal care skills, measurement of vital signs and transfers, positioning and turning.

Students enrolled in the refresher course must show proof of certification as a Kansas CNA by bringing a copy of their card on the first day of class.

For more information, go to
http://www.jccc.net/home/depts/5104/site/newstudent/types/adm_avs/CNA_Refresher_Info-Requirement

(Major Code 3540; CIP Code 51.1614)

Health Occupations

Certified Nurse Aide Certificate

This 96-hour course provides classroom and clinical instruction for basic care of clients in long-term and acute-care facilities. Students will learn skills for daily hygiene, bedside care, vital-sign measurement, positioning and safe transfer of clients. You will learn about common health problems and chronic illnesses. Clinical practice sessions are conducted in the nursing home setting. This course is offered in a classroom setting as well as non-traditional online.

Enrollees for this course must pass a reading level exam/assessment prior to admission. Copies of the following will be required on the first day of class: social security card, current CPR for Health Care Providers card and documentation of a current negative TB test.

Attendance is critical and should be given top priority. Failure to meet the criteria outlined in the syllabus will necessitate withdrawal from a class. Upon

Certificate of Completion

Required Course

AVHO 103 Certified Nurse Aide Refresher Course (CNA-R)*.....1
Prerequisite: Kansas CNA Certification
TOTAL PROGRAM CREDIT HOURS.....1
*Prerequisite/Corequisite required

Dental Assisting, A.A.S.

The Dental Assisting, AAS degree program is granted by Metropolitan Community College, but coordinated at JCCC.

This program, which leads to either an associate in applied science degree or a certificate of proficiency, prepares the student to enter the workforce as a trained dental auxiliary. Graduates of this program are eligible to take the national certifying examination given by the Dental Assisting National Board.

Admission to the Dental Assisting Program - Because enrollment in the program is limited, a student must meet the requirements and apply for admission.

JCCC offers the cooperative dental assisting degree for Johnson County residents with MCC-Penn Valley Community College. You must be accepted as a student at JCCC and accepted into the program at MCC-Penn Valley Community College. The student is awarded the degree from MCC-Penn Valley Community College upon successful completion of all requirements. It is the student's responsibility to check with a JCCC counselor before enrollment.

Program courses and credit hours are subject to change because of requirement changes at the degree-granting institution. Contact MCC-Penn Valley Community College at 816-604-4237 for an application packet, which includes deadlines, program prerequisites and admission requirements.

Note: Johnson County Community College students should seek specific counsel from the MCC program personnel for the appropriate course plan and numbers.

Johnson County Community College students should refer to Cooperative Program Information.

Associate of Applied Science

Degree Granted by Metropolitan Community College

General Education Requirements-can be taken at JCCC

ENGL 121	Composition I*	3
	Prerequisite: ENGL 106 or appropriate placement test score or EAP 113 and EAP 117	
MATH 116	Intermediate Algebra or higher*	3
	Prerequisite: MATH 115 with a grade of "C" or higher or appropriate score on the math assessment test	
SPD 121	Public Speaking	3
PSYC 130	Introduction to Psychology*	3
	Prerequisite: Appropriate score on the COMPASS reading test OR appropriate score on the ACT reading test OR RDG 126 with a grade of "C" or higher	
SOC 122	Introduction to Sociology	3

American Institutions

HIST 140	U.S. History to 1877	3
	or	
HIST 141	U.S. History Since 1877	3
	or	
POLS 122	Political Science	3
	or	
POLS 124	American National Government	3
	or	
POLS 126	State and Local Government	3

Specific Program Requirements

The following courses can be taken at any campus

BIOL 144	Human Anatomy and Physiology	5
	and	
BIOL 145	Human Anatomy and Physiology Dissection*	1
	Prerequisites: BIOL 144 and department approval	
	or	
BIOL 140	Human Anatomy	4
	and	
BIOL 225	Human Physiology*	4
	Prerequisites or corequisites: Either CHEM 122 or	

(CHEM 124 and CHEM 125) and either BIOL 140 or BIOL 144

BIOL 230	Microbiology*	3
	Prerequisite: CHEM 122 or CHEM 124 and CHEM 125 or one year of high school chemistry	
BIOL 231	Microbiology Lab*	2
	BIOL 231 students must be currently enrolled in BIOL 230 or have successfully completed BIOL 230 within the last three years.	
CHEM 122	Principles of Chemistry	5

Specific Program Requirements-taken at MCC-Penn Valley

KSS 153	The Missouri Constitution	1
KDA 100	Introduction to Dental Assisting	1
KDA 101	Body Structure and Function*	2
	Prerequisite: Admission to dental assisting program	
KDA 102	Head & Neck Anatomy*	2
	Prerequisite: Admission to the dental assisting program	
KDA 103	Dental Anatomy	2
KDA 104	Dental Emergencies & Pharmacology	1
KDA 105	Dental Materials I*	2
KDA 108	Oral Microbiology & Infection Control	2
KDA 110	Chairside Assisting I*	5
KDA 115	Dental Radiology I*	4
	Prerequisite: KDA 102	
KDA 125	Clinical Experience I*	2
	Prerequisite: Admission to the Dental Assisting Program and completion of CPR for healthcare workers.	
KDA 205	Dental Materials II*	3
	Prerequisite: KDA 105	
KDA 210	Chairside Assisting II*	5
	Prerequisite: KDA 110	
KDA 215	Dental Radiology II*	2
	Prerequisite: KDA 115	
KDA 225	Dental Office Management*	2
	Prerequisite: Enrollment in the Dental Assisting Program	
KDA 230	Oral Pathology*	1
	Prerequisites: KDA 108 and KDA 110	
KDA 250	Clinical Experience II*	4
	Prerequisite: KDA 125	
KDA 260	Dental Assisting Seminar*	2
	Prerequisite: KDA 125	
	TOTAL PROGRAM CREDIT HOURS	77-79

*Prerequisite/Corequisite required

Dental Assisting Certificate

The Dental Assisting Certificate program is granted by Metropolitan Community College, but coordinated at JCCC.

One of the most exciting features of a dental assistant career is the variety of work experiences you'll have, including working chair-side with dentists, taking radiographs, mixing dental materials, performing laboratory procedures, taking dental impressions, creating models, and fabricating bleaching trays and mouth guards. The demand for dental assistants and other professionals that dentists rely on to serve patients has increased dramatically.

The dental assistant program has accreditation from the American Dental Association (ADA), Commission on Dental Accreditation. Graduating from an ADA-accredited dental assisting program allows you to take the Dental Assisting National Board examination without the two years of full-time work experience that would otherwise be required.

JCCC offers the cooperative dental assisting certificate program for Johnson County residents with MCC-Penn Valley Community College. You must be accepted as a student at JCCC and accepted into the program at MCC-Penn Valley Community College. Consult with a JCCC counselor for more information.

Program courses and credit hours are subject to change because of requirement changes at the certificate-granting institution. Contact MCC-Penn Valley Community College at 816-604-4237 for an application packet, which includes deadlines, program prerequisites and admission requirements.

Note: Johnson County Community College students should seek specific counsel from the MCC program personnel for the appropriate course plan and numbers.

Johnson County Community College students should refer to Cooperative Program Information.

Career Certificate

Certificate granted by Metropolitan Community College

Specific Program Requirements-must be taken at JCCC

ENGL 121	Composition I*	3
	Prerequisite: ENGL 106 or appropriate placement test score or EAP 113 and EAP 117	
PSYC 130	Introduction to Psychology*	3
	Prerequisite: Appropriate score on the COMPASS reading test OR appropriate score on the ACT reading test OR RDG 126 with a grade of "C" or higher	
SPD 121	Public Speaking	3

Specific Program Requirements taken at MCC-Penn Valley

KDA 100	Introduction to Dental Assisting	1
KDA 101	Body Structure and Function*	2
	Prerequisite: Admission to dental assisting program	
KDA 102	Head & Neck Anatomy*	2
	Prerequisite: Admission to the dental assisting program	
KDA 103	Dental Anatomy	2
KDA 104	Dental Emergencies & Pharmacology	1
KDA 105	Dental Materials I*	2
KDA 108	Oral Microbiology & Infection Control	2
KDA 110	Chairside Assisting I*	5
KDA 115	Dental Radiology I*	4
	Prerequisite: KDA 102	
KDA 125	Clinical Experience I*	2
	Prerequisite: Admission to the Dental Assisting Program and completion of CPR for healthcare workers.	
KDA 205	Dental Materials II*	3
	Prerequisite: KDA 105	
KDA 210	Chairside Assisting II*	5
	Prerequisite: KDA 110	
KDA 215	Dental Radiology II*	2
	Prerequisite: KDA 115	
KDA 225	Dental Office Management*	2
	Prerequisite: Enrollment in the Dental Assisting Program	
KDA 230	Oral Pathology*	1
	Prerequisites: KDA 108 and KDA 110	
KDA 250	Clinical Experience II*	4
	Prerequisite: KDA 125	
KDA 260	Dental Assisting Seminar*	2
	Prerequisite: KDA 125	
	TOTAL PROGRAM CREDIT HOURS	51

*Prerequisite/Corequisite required

Home Health Aide Certificate

Home health care services are in demand, and continued growth in employment opportunities is expected into the next century. Home health aides may be required to provide support services for all age levels in the home setting. This 21-hour course will provide you with information necessary for nutritional meal planning, task modification, emotional support and personal services to clients and families needing health care assistance at home.

Enrollees must complete a reading comprehension exam/assessment prior to admission. Copies of the following will be required on the first day of class: social security card, current Kansas CNA card, current CPR for Health Care Provider card and documentation of a current negative TB test. Those who successfully complete this course will be scheduled to take the Kansas HHA certification examination. Sufficient notice of the exam date is given to allow students to make arrangements to be in attendance on the appointed day.

For more information, go to http://www.jccc.net/home/depts/5104/site/newstudent/types/adm_avs/HHA_Information-Requirements

This program requires a professional liability insurance fee. Students will be notified via their JCCC student e-mail account if they are required to pay a \$16 fee. The dollar amount for fees is subject to change.

(Major Code 3580; CIP Code 51.2602)

Health Occupations

Certificate of Completion

Required Course

AVHO 106	Home Health Aide (HHA)*	1
	Prerequisites: Proof of Kansas CNA certification and appropriate Compass reading test score	
	Requirements - copy of current TB test, current CPR for Health Care Providers card and Social Security Card.	
	TOTAL PROGRAM CREDIT HOURS	1

*Prerequisite/Corequisite required

IV Therapy for LPN's Certificate

This 48-hour course is designed to prepare the student for clients who require intravenous fluid therapy. This course meets the Kansas requirements for nurses seeking certification in IV therapy.

During this course, you will review basic physiology of the circulatory system and learn principles of site selection for veins appropriate to assess for IV therapy. A pharmacology review will include action, interaction, breakdown and allergic responses to medications commonly administered via the intravenous route. Principles of infection control, correct legal documentation and calculation of infusion rates will be taught. Equipment and supplies routinely used to initiate and administer IV therapy will be used in instruction. You will use the laboratory setting to demonstrate the basic skills of initiating intravenous therapy along with clinical sessions in a hospital setting.

At the conclusion of the class, a comprehensive written exam will be administered. Upon successful completion of the exam, the Kansas State Board of Nursing will be notified and the individual's nursing license will be updated to reflect IV certification.

Copies of the following are required at the first class: Current LPN License, documentation of current Professional Liability Insurance-standard policy, current CPR for Health Care Provider card and documentation of a current negative TB skin test or negative chest X-ray. Enrollment in certain courses may require a professional liability fee of \$16.00. Students will be notified via their JCCC student e-mail account if the fee is due and instructions on how to pay the fee.

For more information, go to http://www.jccc.net/home/depts/5104/site/newstudent/types/adm_avs/IV_Therapy_Info-Requirements

(Major Code 3640; CIP Code 51.1613)

Health Occupations

Certificate of Completion

Required Course

AVHO 115	I V Therapy For LPNs*	3
	Prerequisites: Proof of Kansas LPN licensure, Present evidence of Personal Liability insurance at the time of application for admission to the program and maintain it throughout the clinical practicum. Maintenance of current CPR certification for the duration of the course. Evidence of negative TB test or chest X-ray within the past year.	
	JCCC Student Professional Liability Insurance	
	TOTAL PROGRAM CREDIT HOURS	3

*Prerequisite/Corequisite required

Occupational Therapy Asst, AAS

The Occupational Therapy Assistant, AAS degree program is granted by Metropolitan Community College, but coordinated at JCCC.

The occupational therapy assistant works under the supervision of a registered

occupational therapist, helping people with emotional and developmental limitations achieve more functional lives. Graduates are eligible to sit for the national certification examination for the occupational therapy assistant administered by the National Board for Certification in Occupational Therapy (NBCOT). After successful completion of the exam, the individual will be a Certified Occupational Therapy Assistant (COTA). Most states require licensure in order to practice; however, state licenses are usually based on the results of the NBCOT Certification Examination.

The JCCC occupational therapy assistant program is offered to Johnson County residents in cooperation with MCC-Penn Valley Community College. The support courses are held at JCCC. The clinical courses are held at MCC-Penn Valley or at affiliated clinical agencies. You must be accepted as a student at JCCC and accepted into the program at MCC-Penn Valley. Consult with a JCCC counselor for more information.

Program courses and credit hours are subject to change because of requirement changes at the degree-granting institution. Contact MCC-Penn Valley Community College at 816-604-4235 for an application packet, which includes deadlines, program prerequisites and admission requirements.

Note: Johnson County Community College students should seek specific counsel from the MCC program personnel for the appropriate course plan and numbers.

Johnson County Community College students should refer to Cooperative Program Information.

Health Occupations

Associate of Applied Science Degree

Degree granted by Metropolitan Community College
General Education Requirements-must be taken at JCCC

ENGL 121	Composition I*	3
	Prerequisite: ENGL 106 or appropriate placement test score or EAP 113 and EAP 117	
SPD 121	Public Speaking	3
PSYC 130	Introduction to Psychology*	3
	Prerequisite: Appropriate score on the COMPASS reading test OR appropriate score on the ACT reading test OR RDG 126 with a grade of "C" or higher	

American Institutions

HIST 140	U.S. History to 1877	3
	or	
HIST 141	U.S. History Since 1877	3
	or	
POLS 122	Political Science	3
	or	
POLS 124	American National Government	3
	or	
POLS 126	State and Local Government	3

Prerequisite Courses-must be taken at JCCC

CHEM 122	Principles of Chemistry	5
AAC 130	Medical Terminology	3

Specific Program Requirements-must be taken at JCCC

Option 1

BIOL 144	Human Anatomy and Physiology	5
	and	
BIOL 145	Human Anatomy and Physiology Dissection*	1
	Prerequisites: BIOL 144 and department approval	

Note: BIOL 144 must be taken before BIOL 145

or

Option 2

BIOL 140	Human Anatomy	4
	and	
BIOL 225	Human Physiology*	4
	Prerequisites or corequisites: Either CHEM 122 or (CHEM 124 and CHEM 125) and either BIOL 140 or BIOL 144	

Note: BIOL 140 and CHEM 122 must be taken prior to BIOL 225

Specific Program Requirements-taken at MCC-Penn Valley

KSS 153	The Missouri Constitution	1
KOT 112	Basic Emergency Patient Care	1
KOT 100	Introduction to Occupational Therapy	2
KOT 102	Documentation Guidelines*	2
	Prerequisite: Formal admission into the occupational therapy assistant program	
KOT 103	Clinical Conditions*	2
	Prerequisite: Formal admission into the occupational therapy assistant program	
KOT 106	Therapeutic Interventions I*	4
	Prerequisite: Formal admission into the occupational therapy assistant program	
KOT 116	Level I Fieldwork I*	1
	Prerequisite: Formal admission into the occupational therapy assistant program	
KOT 118	Assistive Technology*	2
	Prerequisites: BIOL 144 and BIOL 145, KOT 112, KOT 100, 102, 103, 106 and 116	
KOT 120	Pediatrics*	3
	Prerequisites: KOT 112, BIOL 144 and BIOL 145 and KOT 100, KOT 102, KOT 103, KOT 106 and KOT 116	
KOT 121	Level I Fieldwork II*	5
	Prerequisites: BIOL 144 and BIOL 145, KOT 112, and KOT 100, KOT 102, KOT 103, KOT 106 and KOT 116 and concurrent enrollment in KOT 120 NOTE: KOT 121 is .50 credit hour	
KOT 130	Analysis of Physical Performance*	3
	Prerequisites: KOT 112, BIOL 144 and BIOL 145, KOT 100, KOT 102 KOT 103 KOT 106 and KOT 116	
KOT 154	Applied Neurology*	2
	Prerequisites: BIOL 144 and BIOL 145, MCC BIOL 210, and admission to OTHA or PTHA program.	
KOT 201	Mental Health*	2.5
	Prerequisites: KOT 118 and KOT 120 and KOT 121 and KOT 130 and KOT 154	
KOT 202	Physical Dysfunction*	3
	Prerequisites: KOT 118 and KOT 120 and KOT 121 and KOT 130 and KOT 154	
KOT 203	Gerontology*	3
	Prerequisites: KOT 118 and KOT 120 and KOT 121 and KOT 130 and KOT 154	
KOT 208	Therapeutic Interventions II*	2
	Prerequisites: KOT 118 and KOT 120 and KOT 121 and KOT 130 and KOT 154	
KOT 212	Level I Fieldwork III*	2
	Prerequisites: KOT 118 and KOT 120 and KOT 121 and KOT 130 and KOT 154	
KOT 217	Fieldwork Seminar*	3
	Prerequisites: KOT 118 and KOT 120 and KOT 121 and KOT 130 and KOT 154	
KOT 222	Level II Fieldwork*	12
	Prerequisites: KOT 201, KOT 202, KOT 203, KOT 208 and KOT 212 and KOT 217	
	TOTAL PROGRAM CREDIT HOURS	77-79

*Prerequisite/Corequisite required

Physical Therapist Asst, A.A.S

The Physical Therapist Assistant, AAS degree program is granted by Metropolitan Community College, but coordinated at JCCC.

The physical therapist assistant, under the supervision of a licensed physical therapist, performs direct patient care. The therapist uses physical agents such as heat, light, sound, water, cold, massage, exercise and rehabilitation techniques as prescribed by a physician. The Commission on Accreditation in Physical Therapy Education accredits the program.

The JCCC physical therapist assistant program is offered to Johnson County residents in cooperation with MCC-Penn Valley Community College. The support courses are held at JCCC. All the clinical courses are held at MCC-Penn Valley and affiliated clinical agencies. You must be accepted as a student at JCCC and accepted into the program at MCC-Penn Valley. Consult with a JCCC counselor for more information.

Program courses and credit hours are subject to change because of requirement changes at the degree-granting institution. Contact MCC-Penn Valley Community College at 816-604-4241 for an application packet, which includes deadlines, program prerequisites and admission requirements.

Note: Johnson County Community College students should seek specific counsel from the MCC program personnel for the appropriate course plan and numbers.

Johnson County Community College students should refer to Cooperative Program Information.

Associate of Applied Science Degree

Degree granted by Metropolitan Community College

General Education Requirements-must be taken at JCCC

ENGL 121	Composition I*	3
	Prerequisite: ENGL 106 or appropriate placement test score or EAP 113 and EAP 117	
SPD 121	Public Speaking	3
PSYC 130	Introduction to Psychology*	3
	Prerequisite: Appropriate score on the COMPASS reading test OR appropriate score on the ACT reading test OR RDG 126 with a grade of "C" or higher	

American Institutions

HIST 140	U.S. History to 1877	3
	or	
HIST 141	U.S. History Since 1877	3
	or	
POLS 122	Political Science	3
	or	
POLS 124	American National Government	3
	or	
POLS 126	State and Local Government	3

Prerequisite Courses-must be taken at JCCC

CHEM 122	Principles of Chemistry	5
AAC 130	Medical Terminology	3

Specific Program Requirements-must be taken at JCCC

Option 1

BIOL 144	Human Anatomy and Physiology	5
	and	
BIOL 145	Human Anatomy and Physiology Dissection*	1
	Prerequisites: BIOL 144 and department approval	

Note: BIOL 144 must be taken first

or

Option 2

BIOL 140	Human Anatomy	4
	and	
BIOL 225	Human Physiology*	4
	Prerequisites or corequisites: Either CHEM 122 or (CHEM 124 and CHEM 125) and either BIOL 140 or BIOL 144	

Note: BIOL 140 and CHEM 122 must be taken before BIOL 225.

Specific Program Requirements-taken at MCC-Penn Valley

KSS 153	The Missouri Constitution	1
KPT 151	Introduction to Physical Therapy	2

Note: KPT 151 is a prerequisite course)

KPT 102	Basic Emergency Patient Care	1
KPT 152	Physical Therapy Fundamentals I*	4
	Prerequisite: Formal acceptance into the program.	
KPT 153	Kinesiology*	4
	Prerequisites: BIOL 144, BIOL 145, KPT 152 and KPT 160	
KPT 154	Applied Neurology*	2
	Prerequisites: BIOL 144 and BIOL 145, MCC BIOL 210 and admission to OTHA or PTHA program.	
KPT 155	Rehabilitation*	4
	Prerequisite: KPT 162	
KPT 158	Therapeutic Exercise*	4
	Prerequisite: KPT 162	
KPT 159	Orthopedic Pathology*	2
	Prerequisites: BIOL 144, BIOL 145, KPT 152 and KPT 160	
KPT 160	Medical Diseases*	2
	Prerequisites: Formal acceptance into the program.	
KPT 161	Physical Therapy Fundamentals II*	4
	Prerequisites: BIOL 144, BIOL 145, KPT 152, and KPT 160	
KPT 162	Clinical Experience I*	2
	Prerequisites: KPT 153, KPT 154, KPT 159, KPT 161,	

	and KPT 102	
KPT 164	Pediatrics and Gerontology*	2
	Prerequisite: KPT 162	
KPT 170	Clinical Experience II*	2
	Prerequisites: KPT 162 and concurrent enrollment in KPT 155, KPT 158, KPT 164 and KPT 171	
KPT 171	Clinical Seminar*	2
	Prerequisite: KPT 162	
KPT 172	Clinical Experience III*	12
	Prerequisites: Completion of all other required courses in the KPT program	
	TOTAL PROGRAM CREDIT HOURS	76-78

*Prerequisite/Corequisite required

Radiologic Technology, A.A.S.

The Radiologic Technology, AAS degree program is granted by Metropolitan Community College, but coordinated at JCCC.

The radiologic technology curriculum (X-ray technology) consists of a continuous 24-month period of study. Areas of study are radiographic exposure, positioning and anatomy, and the use of imaging equipment. The program is fully accredited by the Joint Review Committee on Education in Radiologic Technology.

The JCCC radiologic technology program is offered to Johnson County residents in cooperation with MCC-Penn Valley Community College. Related courses are taken at JCCC with lab and clinical courses held at MCC-Penn Valley or at a cooperating health facility. You must be accepted as a student at JCCC and accepted into the program by MCC-Penn Valley. Consult with a JCCC counselor for more information.

Program courses and credit hours are subject to change because of requirement changes at the degree-granting institution. Contact MCC-Penn Valley Community College at 816-604-4243 for an application packet, which includes deadlines, admission requirements and options for meeting academic criteria.

Note: Johnson County Community College students should seek specific counsel from the MCC program personnel for the appropriate course plan and numbers.

Johnson County Community College students should refer to Cooperative Program Information.

Associate of Applied Science Degree

Degree granted by Metropolitan Community College

General Education Requirements-must be taken at JCCC

ENGL 121	Composition I*	3
	Prerequisite: ENGL 106 or appropriate placement test score or EAP 113 and EAP 117	
SPD 121	Public Speaking	3
PSYC 130	Introduction to Psychology*	3
	Prerequisite: Appropriate score on the COMPASS reading test OR appropriate score on the ACT reading test OR RDG 126 with a grade of "C" or higher	

American Institutions

HIST 140	U.S. History to 1877	3
	or	
HIST 141	U.S. History Since 1877	3
	or	
POLS 122	Political Science	3
	or	
POLS 124	American National Government	3
	or	
POLS 126	State and Local Government	3

Specific Program Requirements-must be taken at JCCC

BIOL 140	Human Anatomy	4
AAC 130	Medical Terminology	3

Specific Program Requirements-taken at MCC-Penn Valley

KSS 153	The Missouri Constitution.....	1
KRAD 150	Introduction to Radiologic Technology.....	2
KRAD 160	Survey of Radiologic Technology.....	6
	Prerequisite: Admission to the radiologic technology program	
KRAD 162	Image Processing*.....	2
	Prerequisites: KRAD 160, KRAD 172 and KRAD 173	
KRAD 165	Patient Care*.....	2
	Prerequisite: KRAD 160	
KRAD 170	Radiation Biology and Protection*.....	3
	Prerequisite: KRAD 160 with concurrent enrollment in corresponding semester of clinical training	
KRAD 171	Radiographic Exposures I*.....	3
	Prerequisite: Admission to the program	
KRAD 172	Radiographic Positioning I*.....	3
	Prerequisite: KRAD 160 and concurrent enrollment in KRAD 165 and KRAD 173	
KRAD 173	Clinical Practice I*.....	3
	Prerequisite: KRAD 160 and concurrent enrollment in KRAD 165 and KRAD 172	
KRAD 174	Radiographic Exposures II*.....	3
	Prerequisites: KRAD 160, KRAD 171, KRAD 172 and KRAD 173	
KRAD 175	Clinical Practice II*.....	4
	Prerequisites: KRAD 165, KRAD 172 and KRAD 173 and concurrent enrollment in KRAD 176	
KRAD 176	Radiographic Positioning II*.....	3
	Prerequisites: BIOL 140 and KRAD 165, KRAD 172 and KRAD 173 and concurrent enrollment in KRAD 162 and KRAD 175	
KRAD 178	Clinical Practice III*.....	4
	Prerequisites: KRAD 175 and KRAD 176	
KRAD 278	Imaging Modalities and Pathology*.....	3
	Prerequisites: KRAD 279, KRAD 280, KRAD 281 and concurrent enrollment in KRAD 282	
KRAD 279	Radiographic Positioning III*.....	2
	Prerequisites: KRAD 176 and KRAD 178 and concurrent enrollment in KRAD 280, KRAD 281 and KRAD 285	
KRAD 280	Clinical Practice IV*.....	4
	Prerequisites: KRAD 162, KRAD 176 and KRAD 178, and concurrent enrollment in KRAD 279, KRAD 281 and KRAD 285	
KRAD 281	Radiation Physics*.....	3
	Prerequisite: PHYS 162 and KRAD 171	
KRAD 282	Clinical Practice V*.....	4
	Prerequisites: KRAD 279, KRAD 280, KRAD 281 and KRAD 285 and concurrent enrollment in KRAD 278	
KRAD 283	Final Seminar*.....	2
	Prerequisites: KRAD 174 and KRAD 279 and KRAD 280	
KRAD 285	Special Procedures*.....	2
	Prerequisites: KRAD 170 and KRAD 171 and KRAD 178, and concurrent enrollment in KRAD 279 and KRAD 280 and KRAD 281	
	TOTAL PROGRAM CREDIT HOURS.....	80
	*Prerequisite/Corequisite required	

Rehabilitative Aide Certificate

The 32-hour rehabilitative aide course includes both classroom and laboratory instruction. The roles of the rehabilitative aide as a member of the health care team and in the aging process are emphasized. Students learn skills required to enhance the ability of elderly residents in long-term care. Skills required for residents with special needs are also learned. Student must have current CNA certification.

(Major Code 3620; CIP Code 51.2602)

Health Occupations

Certificate of Completion

Required Course

AVHO 112	Rehabilitative Aide (RA)*.....	2
	Prerequisite: Proof of current Kansas CNA certification	
	TOTAL PROGRAM CREDIT HOURS.....	2
	*Prerequisite/Corequisite required	

Surgical Technology Cert

The Surgical Technology Certificate program is granted by Metropolitan Community College, but coordinated at JCCC.

The surgical technology vocational certificate program leads to a certificate of proficiency and prepares students for entry-level jobs as operating room technicians.

JCCC offers the cooperative surgical vocational certificate program for Johnson County residents with MCC-Penn Valley Community College. You must be accepted as a student at JCCC and accepted into the program at MCC-Penn Valley Community College. Consult with a JCCC counselor for more information. Students must be a resident of Johnson County in order to receive in-state tuition rates.

Program courses and credit hours are subject to change at the certificate-granting institution. Contact MCC-Penn Valley Community College at 816-604-4664 for an application packet, which includes deadlines, program prerequisites, and admission requirements.

Note: Johnson County Community College students should seek specific counsel from the MCC program personnel for the appropriate course plan and numbers.

Johnson County Community College students should refer to Cooperative Program Information.

Career Certificate

Certificate granted by Metropolitan Community College

The following courses should be taken first at JCCC

BIOL 144	Human Anatomy and Physiology.....	5
AAC 130	Medical Terminology.....	3

Specific Program Requirements-taken at MCC-Penn Valley

KST 100	Introduction to Surgical Technology.....	2
KST 102	Introduction to Fundamentals I*.....	5
	Prerequisites: The student must meet the entrance requirements and be accepted into the surgical technology program.	
KST 103	Introduction to Fundamentals II*.....	6
	Prerequisites: KST 100 and KST 102 and KST 106	
KST 105	Pharmacology for the Surgical Technologist*.....	2
KST 106	Microbiology for the Surgical Technologist*.....	3
KST 109	Surgical Procedures I*.....	8
KST 110	Surgical Procedures II*.....	8
KST 114	Surgical Procedures III*.....	8
KST 111	Career Development for the Surgical Technologist*.....	2
	TOTAL PROGRAM CREDIT HOURS.....	52
	*Prerequisite/Corequisite required	

General Basic HVAC Certificate

This vocational certificate is the recommended first step to employment in the Heating, Ventilation and Air Conditioning field. It is 10 credit hours of basic knowledge in HVAC. This certificate is the first completion point for students in the HVAC field and verifies that the student can demonstrate several basic HVAC skills.

(Major Code 3770; CIP Code 47.0201)

Heating, Ventilation, Air Cond. Technology

Certificate of Completion

Required Courses

HVAC 121	Basic Principles of HVAC*.....	4
	Prerequisite or corequisite: HVAC 123 or ELTE 123	
HVAC 123	Electromechanical Systems.....	4
HVAC 150	Refrigerant Management and Certification.....	1
HVAC 155	Workplace Skills.....	1

TOTAL PROGRAM CREDIT HOURS.....10
 *Prerequisite/Corequisite required

General Basic HVAC Installation and Duct Fabrication Cert.

This vocational certificate provides the student with the fundamentals necessary to gain employment in the area of installation and duct fabrication in the heating and air conditioning field. It is 20 credit hours of basic knowledge in heating ventilation air conditioning, industrial safety, and sheet metal. This certificate is the beginning completion point for students in the HVAC field and verifies that the student can demonstrate several basic HVAC skills as they relate to installation and duct fabrication.

(Major Code 3780; CIP Code 47.0201)

Heating, Ventilation, Air Cond. Technology

Career Certificate

Suggested/Sample Course Sequence

The sequence taken by the student may vary depending on prerequisites, course availability, and personal/professional responsibilities.

First Semester

HVAC 121	Basic Principles of HVAC*	4
	Prerequisite or corequisite: HVAC 123 or ELTE 123	
HVAC 123	Electromechanical Systems	4
HVAC 150	Refrigerant Management and Certification	1
HVAC 155	Workplace Skills	1
	Total Semester Credit Hours	10

Second Semester

INDT 125	Industrial Safety	3
HVAC 167	Sheet Metal Layout and Fabrication	3
MATH 130	Technical Mathematics I*	3
	Prerequisite: MATH 111 with a grade of "C" or higher or an appropriate score on the math assessment test	
	Total Semester Credit Hours	9
	TOTAL PROGRAM CREDIT HOURS	19

*Prerequisite/Corequisite required

General Basic HVAC Maintenance Certificate

This vocational certificate provides the student with the fundamentals necessary to gain employment in the area of maintenance in the heating and air conditioning field. It is 23 credit hours of basic knowledge in heating ventilation air conditioning, industrial safety, electrical wiring and plumbing. This certificate is the beginning completion point for students in the HVAC field and verifies that the student can demonstrate several basic HVAC skills as they relate to building maintenance.

(Major Code 3790; CIP Code 47.0201)

Heating, Ventilation, Air Cond. Technology

Career Certificate

Suggested/Sample Course Sequence

The sequence taken by the student may vary depending on prerequisites, course availability, and personal/professional responsibilities.

First Semester

HVAC 121	Basic Principles of HVAC*	4
	Prerequisite or corequisite: HVAC 123 or ELTE 123	
HVAC 123	Electromechanical Systems	4
HVAC 155	Workplace Skills	1
ELTE 125	Residential Wiring Methods*	4
	Prerequisite or corequisite: HVAC 123 or ELTE 123	
	Total Semester Credit Hours	13

Second Semester

HVAC 167	Sheet Metal Layout and Fabrication	3
HVAC 146	Plumbing Systems Applications	3
INDT 125	Industrial Safety	3
HVAC 150	Refrigerant Management and Certification	1
	Total Semester Credit Hours	10
	TOTAL PROGRAM CREDIT HOURS	23

*Prerequisite/Corequisite required

General Basic HVAC Sales, Design and Estimating Cert.

This vocational certificate is the recommended first step to employment in the area of sales, design and estimating in the heating and air conditioning field. It is 20 credit hours of basic knowledge in HVAC with an emphasis on design and marketing. This certificate is a beginning completion point for students in the HVAC field and verifies that the student can demonstrate several basic HVAC and selling skills.

(Major Code 3800; CIP Code 47.0201)

Heating, Ventilation, Air Cond. Technology

Career Certificate

Suggested/Sample Course Sequence

The sequence taken by the student may vary depending on prerequisites, course availability, and personal/professional responsibilities.

First Semester

HVAC 121	Basic Principles of HVAC*	4
	Prerequisite or corequisite: HVAC 123 or ELTE 123	
HVAC 123	Electromechanical Systems	4
HVAC 150	Refrigerant Management and Certification	1
HVAC 155	Workplace Skills	1
	Total Semester Credit Hours	10

Second Semester

ENGL 121	Composition I*	3
	Prerequisite: ENGL 106 or appropriate placement test score or EAP 113 and EAP 117	
HVAC 124	Equipment Selection and Duct Design	4
	Prerequisites: HVAC 121 and either HVAC 123 or ELTE 123	
MKT 134	Professional Selling	3
	Total Semester Credit Hours	10
	TOTAL PROGRAM CREDIT HOURS	20

*Prerequisite/Corequisite required

HVAC Commercial Service Technician, A.A.S.

Modern residential, commercial, institutional and manufacturing operations depend on carefully monitored temperature conditions and well-trained installation and service technicians. Government researchers say graduates of training programs that emphasize hands-on experience will have a definite advantage when seeking employment in heating, ventilation and air conditioning technology. JCCC provides you the opportunity to work on actual

equipment while pursuing a degree or certificate program. The 64-credit-hour associate of applied science degree program focuses on developing an awareness of basic mathematical and scientific principles. The curriculum is concerned with the manner by which these principles affect the control of temperature and the quality of air, design, testing, installation and development of heating and cooling systems.

If you select the commercial maintenance technician degree, you will learn the special emphasis is on energy conservation through computer management. The theory of operation as well as installation, service and repair of rooftop air conditioners, cooling towers, steam boilers and commercial systems air conditioning are part of the curriculum. In addition to the 31 core hours, the following courses are required for the A.A.S. degree, facilities maintenance technician option.

(Major Code 2870; CIP Code 47.0201)

Heating, Ventilation, Air Cond. Technology

Associate of Applied Science Degree

First Semester

HVAC 121	Basic Principles of HVAC*	4
	Prerequisite or corequisite: HVAC 123 or ELTE 123	
HVAC 123	Electromechanical Systems	4
HVAC 143	Reading Blueprints and Ladder Diagrams	2
HVAC 155	Workplace Skills	1
INDT 125	Industrial Safety	3
ENGL 121	Composition I*	3
	Prerequisite: ENGL 106 or appropriate placement test score or EAP 113 and EAP 117	
EMS 121	CPR I - Basic Life Support for Healthcare Provider	1
	Total Semester Credit Hours	18

Second Semester

HVAC 146	Plumbing Systems Applications	3
HVAC 150	Refrigerant Management and Certification	1
HVAC 167	Sheet Metal Layout and Fabrication	3
HVAC 221	Commercial Systems: Air Conditioning*	4
	Prerequisites: HVAC 121 and either HVAC 123 or ELTE 123	
HVAC 231	HVAC Rooftop Units*	3
	Prerequisites: HVAC 121 and either HVAC 123 or ELTE 123	
	Total Semester Credit Hours	14

Third Semester

	Social Science and/or Economic Elective	3
MATH 130	Technical Mathematics I*	3
	Prerequisite: MATH 111 with a grade of "C" or higher or an appropriate score on the math assessment test	
HVAC 223	Commercial Systems: Heating*	4
	Prerequisite: HVAC 123 or ELTE 123	
ELTE 122	National Electrical Code I	4
CPCA 105	Introduction to Personal Computers: Windows	1
	Total Semester Credit Hours	15

Fourth Semester

	Technical Elective	3
	General Education Elective	3
	Humanities Elective	3
HVAC 229	Advanced Control Systems*	4
	Prerequisites: HVAC 121 and either HVAC 123 or ELTE 123	
ELTE 205	Industrial Electrical Wiring*	4
	Prerequisite: ELTE 122 or ELTE 125 or ELTE 200	
	Total Semester Credit Hours	17
	TOTAL PROGRAM CREDIT HOURS	64

Technical Electives

HVAC 125	Energy Alternatives	2
HVAC 271	HVAC Internship*	3
	Prerequisite: Department approval required	
HVAC 291	Independent Study	1-7
ELTE 125	Residential Wiring Methods*	4
	Prerequisite or corequisite: HVAC 123 or ELTE 123	

General Education Electives

ENGL 123	Technical Writing I*	3
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	Prerequisite: ENGL 121	
SPD 120	Interpersonal Communication	3
	*Prerequisite/Corequisite required	

HVAC Commercial Service Technician Certificate

The postsecondary certificate program is designed to prepare you for the basic job skills needed to service and maintain heating and air conditioning equipment. Students who elect the facilities maintenance technician certificate option learn the theory of operation and how to service, repair and design rooftop air conditioners, cooling towers, steam boilers and commercial systems air conditioners. This knowledge is reinforced by working on actual equipment in the laboratory. Completion of this program will allow the student to seek employment as a commercial maintenance and service technician in the heating/air conditioning trade.

(Major Code 6250; CIP Code 47.0201)

Heating, Ventilation, Air Cond. Technology

Career Certificate

Suggested/Sample Course Sequence

The sequence taken by the student may vary depending on prerequisites, course availability, and personal/professional responsibilities.

Fall Semester

ENGL 121	Composition I*	3
	Prerequisite: ENGL 106 or appropriate placement test score or EAP 113 and EAP 117	
HVAC 121	Basic Principles of HVAC*	4
	Prerequisite or corequisite: HVAC 123 or ELTE 123	
HVAC 123	Electromechanical Systems	4
MATH 115	Elementary Algebra*	3
	Prerequisite: MATH 111 with a grade of "C" or higher or appropriate score on the math assessment test	
	Total Semester Credit Hours	14

Spring Semester

HVAC 150	Refrigerant Management and Certification	1
HVAC 231	HVAC Rooftop Units*	3
	Prerequisites: HVAC 121 and either HVAC 123 or ELTE 123	
HVAC 221	Commercial Systems: Air Conditioning*	4
	Prerequisites: HVAC 121 and either HVAC 123 or ELTE 123	
HVAC 155	Workplace Skills	1
HVAC 143	Reading Blueprints and Ladder Diagrams	2
	Total Semester Credit Hours	11

Fall Semester

HVAC 229	Advanced Control Systems*	4
	Prerequisites: HVAC 121 and either HVAC 123 or ELTE 123	
HVAC 167	Sheet Metal Layout and Fabrication	3
HVAC 223	Commercial Systems: Heating*	4
	Prerequisite: HVAC 123 or ELTE 123	
INDT 125	Industrial Safety	3
	Total Semester Credit Hours	14
	TOTAL PROGRAM CREDIT HOURS	39

*Prerequisite/Corequisite required

HVAC Installation Technician Certificate

The heating, ventilation and air conditioning vocational certificate program is a one-year program you can complete in two semesters. The program is

designed as a fast track to employment for both new students into the job market and those who have been displaced from their jobs due to changes in the employment market. Upon successful completion of the program, you will be equipped with the entry-level technical skills necessary to enter the job market as an installation technician in the heating/air conditioning trade.

(Major Code 6270; CIP Code 47.0201)

Heating, Ventilation, Air Cond. Technology

Career Certificate

Suggested/Sample Course Sequence

The sequence taken by the student may vary depending on prerequisites, course availability, and personal/professional responsibilities.

First Semester

HVAC 121	Basic Principles of HVAC*	4
	Prerequisite or corequisite: HVAC 123 or ELTE 123	
HVAC 123	Electromechanical Systems	4
HVAC 167	Sheet Metal Layout and Fabrication	3
HVAC 155	Workplace Skills	1
INDT 125	Industrial Safety	3
	Total Semester Credit Hours	15

Second Semester

HVAC 148	HVAC Installation and Start-up Procedures*	3
	Prerequisites: HVAC 121 and either HVAC 123 or ELTE 123	
HVAC 146	Plumbing Systems Applications	3
HVAC 143	Reading Blueprints and Ladder Diagrams	2
HVAC 124	Equipment Selection and Duct Design*	4
	Prerequisites: HVAC 121 and either HVAC 123 or ELTE 123	
HVAC 150	Refrigerant Management and Certification	1
	Total Semester Credit Hours	13
	TOTAL PROGRAM CREDIT HOURS	28

*Prerequisite/Corequisite required

HVAC Residential Service Technician, A.A.S.

Modern residential, commercial, institutional and manufacturing operations depend on carefully monitored temperature conditions and well-trained installation and service technicians. Government researchers say graduates of training programs that emphasize hands-on experience will have a definite advantage when seeking employment in heating, ventilation and air conditioning technology. JCCC provides you the opportunity to work on actual equipment while pursuing a degree or certificate program. The 64-credit-hour associate of applied science degree program focuses on developing an awareness of basic mathematical and scientific principles. The curriculum is concerned with the manner by which these principles affect the control of temperature and the quality of air, design, testing, installation and development of heating and cooling systems.

If you select the residential degree, you will learn the theory of operation as well as installation, duct design, service and repair of gas and electric furnaces, heat pumps and central air conditioners. In addition to the 31 core hours, the following courses are required for the A.A.S. degree, residential option.

(Major Code 2880; CIP Code 47.0201)

Heating, Ventilation, Air Cond. Technology

Associate of Applied Science Degree

First Semester

HVAC 121	Basic Principles of HVAC*	4
	Prerequisite or corequisite: HVAC 123 or ELTE 123	

HVAC 123	Electromechanical Systems	4
HVAC 143	Reading Blueprints and Ladder Diagrams	2
HVAC 155	Workplace Skills	1
INDT 125	Industrial Safety	3
ENGL 121	Composition I*	3
	Prerequisite: ENGL 106 or appropriate placement test score or EAP 113 and EAP 117	
EMS 121	CPR I - Basic Life Support for Healthcare Provider	1
	Total Semester Credit Hours	18

Second Semester

HVAC 146	Plumbing Systems Applications	3
HVAC 150	Refrigerant Management and Certification	1
HVAC 137	Residential Systems: Air Conditioning*	4
	Prerequisites: HVAC 121 and either HVAC 123 or ELTE 123	
HVAC 124	Equipment Selection and Duct Design*	4
	Prerequisites: HVAC 121 and either HVAC 123 or ELTE 123	
HVAC 167	Sheet Metal Layout and Fabrication	3
	Total Semester Credit Hours	15

Third Semester

	Technical Elective	4
	Social Science and/or Economics Elective	3
MATH 130	Technical Mathematics I*	3
	Prerequisite: MATH 111 with a grade of "C" or higher or an appropriate score on the math assessment test	
HVAC 127	Residential Systems: Heating*	4
	Prerequisites: HVAC 121 and either HVAC 123 or ELTE 123	
HVAC 148	HVAC Installation and Start-up Procedures*	3
	Prerequisites: HVAC 121 and either HVAC 123 or ELTE 123	
	Total Semester Credit Hours	17

Fourth Semester

	Technical Electives	4
	General Education Elective	3
	Humanities Elective	3
HVAC 235	Residential Heat Pump Systems*	4
	Prerequisites: HVAC 121 and either HVAC 123 or ELTE 123	
	Total Semester Credit Hours	14
	TOTAL PROGRAM CREDIT HOURS	64

Technical Electives

AUTO 230	Automotive Heating and Air Conditioning*	3
	Prerequisite or corequisite: AUTO 125 or department approval	
ELTE 122	National Electrical Code I	4
ELTE 125	Residential Wiring Methods*	4
	Prerequisite or corequisite: HVAC 123 or ELTE 123	
HVAC 125	Energy Alternatives	2
HVAC 221	Commercial Systems: Air Conditioning*	4
	Prerequisites: HVAC 121 and either HVAC 123 or ELTE 123	
HVAC 223	Commercial Systems: Heating*	4
	Prerequisite: HVAC 123 or ELTE 123	
HVAC 231	HVAC Rooftop Units*	3
	Prerequisites: HVAC 121 and either HVAC 123 or ELTE 123	
HVAC 271	HVAC Internship*	3
	Prerequisite: Department approval required	
HVAC 291	Independent Study	1-7

General Education Electives

ENGL 123	Technical Writing I*	3
	Prerequisite: ENGL 121	
SPD 120	Interpersonal Communication	3
	*Prerequisite/Corequisite required	

HVAC Residential Service Technician Certificate

The postsecondary certificate program is designed to prepare you for the basic job skills needed to service residential heating and air conditioning equipment. Students who elect the residential service certificate option learn the theory of operation and how to service, repair and design gas furnaces, central air

conditioners, heat pumps and rooftop air conditioning systems. This knowledge is reinforced by working on actual equipment in the laboratory. Completion of this program will allow the student to seek employment as a residential maintenance and service technician in the heating/air conditioning trade.

(Major Code 6260; CIP Code 47.0201)

Heating, Ventilation, Air Cond. Technology

Career Certificate

Suggested/Sample Course Sequence

The sequence taken by the student may vary depending on prerequisites, course availability, and personal/professional responsibilities.

Fall Semester

ENGL 121	Composition I*	3
	Prerequisite: ENGL 106 or appropriate placement test score or EAP 113 and EAP 117	
HVAC 121	Basic Principles of HVAC*	4
	Prerequisite or corequisite: HVAC 123 or ELTE 123	
HVAC 123	Electromechanical Systems	4
MATH 115	Elementary Algebra*	3
	Prerequisite: MATH 111 with a grade of "C" or higher or appropriate score on the math assessment test	
	Total Semester Credit Hours	14

Spring Semester

HVAC 150	Refrigerant Management and Certification	1
HVAC 124	Equipment Selection and Duct Design*	4
	Prerequisites: HVAC 121 and either HVAC 123 or ELTE 123	
HVAC 137	Residential Systems: Air Conditioning*	4
	Prerequisites: HVAC 121 and either HVAC 123 or ELTE 123	
HVAC 235	Residential Heat Pump Systems*	4
	Prerequisites: HVAC 121 and either HVAC 123 or ELTE 123	
	Total Semester Credit Hours	13

Fall Semester

	Technical Electives	3-4
HVAC 167	Sheet Metal Layout and Fabrication	3
HVAC 155	Workplace Skills	1
HVAC 127	Residential Systems: Heating*	4
	Prerequisites: HVAC 121 and either HVAC 123 or ELTE 123	
	Total Semester Credit Hours	11-12
	TOTAL PROGRAM CREDIT HOURS	38-39

Technical Electives

HVAC 125	Energy Alternatives	2
HVAC 143	Reading Blueprints and Ladder Diagrams	2
HVAC 221	Commercial Systems: Air Conditioning*	4
	Prerequisites: HVAC 121 and either HVAC 123 or ELTE 123	
HVAC 223	Commercial Systems: Heating*	4
	Prerequisite: HVAC 123 or ELTE 123	
HVAC 231	HVAC Rooftop Units*	3
	Prerequisites: HVAC 121 and either HVAC 123 or ELTE 123	
HVAC 271	HVAC Internship*	3
	Prerequisite: Department approval required	
HVAC 291	Independent Study	1
CPCA 105	Introduction to Personal Computers: Windows	1
INDT 125	Industrial Safety	3
	*Prerequisite/Corequisite required	

Floral Design Entrepreneurship Certificate

This certificate is designed to prepare students to realize their entrepreneurial dream of opening their own business in the floral design industry. This

certificate is designed to provide the student with basic skills in floral design and maintenance and small business development and management.

(Major Code 4240; CIP Code 01.0601)

Science Division

Career Certificate

Suggested/Sample Course Sequence

The sequence taken by the student may vary depending on prerequisites, course availability, and personal/professional responsibilities.

First Semester

ACCT 111	Small Business Accounting	3
	or	
ACCT 121	Accounting I	3
ENTR 120	Introduction to Entrepreneurship	2
ENTR 180	Opportunity Analysis	2
HORT 160	Garden Center Operations	3
BUS 230	Marketing	3
ITMD 121	Interior Design	3
	Total Semester Credit Hours	16

Second Semester

HORT 220	Herbaceous Plants	3
ITMD 127	Elements of Floral Design	1
ITMD 282	Interiors Internship I*	1
	Prerequisite: ITMD 121 with a grade of "C" or higher	
HORT 210	Concepts of Floral Design	3
ENTR 131	Financial Management for Small Business*	2
	Prerequisite: ACCT 111 or ACCT 121	
ENTR 220	Entrepreneurial Marketing*	2
	Prerequisite: BUS 230	
ENTR 142	Fast Trac Business Plan	3
	Total Semester Credit Hours	15
	TOTAL PROGRAM CREDIT HOURS	31
	*Prerequisite/Corequisite required	

Students may be interested in taking additional courses, as noted below, to complement their certificate study. These courses are NOT part of the certificate requirements.

HORT 115	Home Horticulture	2
HORT 201	Introduction to Horticultural Science	4
HORT 205	Plant Propagation*	3
	Prerequisite: HORT 201 or department approval	
ENTR 160	Legal Issues for Small Business	2
ENTR 195	Franchising*	3
	Prerequisite: BUS 230	
ENTR 225	Family Business	3
ENTR 240	Funding Acquisition for Entrepreneurs*	2
	Prerequisite: ENTR 142	

Floriculture Certificate

The floriculture certificate program is designed to prepare students with the knowledge and job skills for employment in the Floriculture Industry. Upon completion of the floriculture certificate, students will possess the competencies to be successful at entry-level or higher positions in the Floriculture Industry.

(Major Code 4420; CIP Code 01.0608)

Science Division

Career Certificate

Suggested/Sample Course Sequence

The sequence taken by the student may vary depending on prerequisites, course availability, and personal/professional responsibilities.

First Semester

	Electives.....	3
FLR 130	Principles of Traditional Design.....	3
FLR 150	Contemporary Design Styles.....	3
ACCT 111	Small Business Accounting.....	3
	Total Semester Credit Hours.....	12

Second Semester

	Electives.....	4-6
FLR 220	Wedding Design*.....	3
	Prerequisites: FLR 130 or FLR 150	
FLR 200	Plants for Interior Design.....	3
FLR 250	Sympathy Flowers*.....	3
	Prerequisites: FLR 130 or FLR 150	
	Total Semester Credit Hours.....	13-15

Third Semester

FLR 270	Retail Flower Shop Operations*.....	3
	Prerequisites: FLR 200 and FLR 220 and FLR 250	
	Total Semester Credit Hours.....	3
	TOTAL PROGRAM CREDIT HOURS.....	28-30

*Prerequisite/Corequisite required

List of Electives

BUS 145	Small Business Management.....	3
BUS 230	Marketing.....	3
ENTR 131	Financial Management for Small Business*.....	2
	Prerequisite: ACCT 111 or ACCT 121	
ENTR 160	Legal Issues for Small Business.....	2
ENTR 220	Entrepreneurial Marketing*.....	2
	Prerequisite: BUS 230	
MATH 120	Business Mathematics*.....	3
	Prerequisite: MATH 111 with a grade of "C" or higher or appropriate score on the math assessment test	

	Humanities/Art Elective.....	3
HORT 140	Turfgrass I.....	3
HORT 235	Landscape Maintenance and Techniques.....	3
	Total Semester Credit Hours.....	15-17

Fourth Semester

	Horticulture Electives.....	6-8
HORT 160	Garden Center Operations.....	3
HORT 225	Plant Problems*.....	3
	Prerequisites: HORT 214 and HORT 220 or department approval	
HORT 270	Horticulture Internship*.....	3
	Prerequisite: Department approval	
	Total Semester Credit Hours.....	15-17
	TOTAL PROGRAM CREDIT HOURS.....	64-68

Horticulture Electives

HORT 135	Landscape Design.....	3
HORT 240	Turfgrass II*.....	3
	Prerequisite: HORT 140	
HORT 265	Landscape Construction.....	3
HORT 165	Arboriculture.....	3
HORT 255	Pest Control Management.....	3
FLR 130	Principles of Traditional Design.....	3
FLR 150	Contemporary Design Styles.....	3

List of Electives

BUS 140	Principles of Supervision.....	3
BUS 150	Business Communications*.....	3
	Prerequisite: ENGL 121	
FL 130	Elementary Spanish I.....	5
BIOL 121	Introductory Biology for Non-Majors.....	4
CHEM 122	Principles of Chemistry.....	5
	*Prerequisite/Corequisite required	

Horticulture, A.A.S.

The horticulture degree program is designed to prepare students with the knowledge and job skills for employment in the greening industry. Upon completion of the associate of applied science degree, students will possess the competencies to be successful at entry-level or higher positions in landscape design and maintenance, greenhouse operations, chemical applicator lawn care, park attendants, plant science technicians, groundskeepers, landscape technicians, irrigation technicians and other related occupations.

Major Code 2150; CIP Code 01.0601

Science Division

Associate of Applied Science

First Semester

HORT 201	Introduction to Horticultural Science.....	4
HORT 214	Woody Plants I, Deciduous.....	3
BIOL 125	General Botany.....	5
HORT 220	Herbaceous Plants.....	3
ENGL 121	Composition I*.....	3
	Prerequisite: ENGL 106 or appropriate placement test score or EAP 113 and EAP 117	
	Total Semester Credit Hours.....	18

Second Semester

	Social Science/Economics Elective.....	3
	Health and/or Physical Education Elective.....	1
HORT 205	Plant Propagation*.....	3
	Prerequisite: HORT 201 or department approval	
HORT 215	Woody Plants II, Evergreens.....	3
HORT 260	Horticulture Soils.....	3
MATH 116	Intermediate Algebra or higher*.....	3
	Prerequisite: MATH 115 with a grade of "C" or higher or appropriate score on the math assessment test	
	Total Semester Credit Hours.....	16

Third Semester

	Electives.....	6-8
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Horticulture Certificate

Programs in some career areas are made available by means of cooperative agreements with other educational institutions. These cooperative agreements have resulted in the sharing of programming, curriculum and staffing in the greater Kansas City area and have promoted increased economies of operations for cooperating institutions. The horticultural certificate program is a cooperative program with the Metropolitan Community Colleges.

The 31-credit-hour certificate granted by Johnson County Community College is a certificate program designed to prepare students for a career in the "greening industry." Upon completion of this certificate, students will possess the competencies to be successful at entry-level or higher positions in landscape design and maintenance, lawn care, garden centers and nurseries, wholesale greenhouse growers, and greenhouse operations and other related occupations.

Note: Metropolitan Community College students should seek specific counsel from the JCCC program personnel for the appropriate course plan and numbers.

Metropolitan Community College students should refer to Cooperative Program Information.

(Major Code 6180; CIP Code 01.0601)

Science Division

Career Certificate

Suggested/Sample Course Sequence

The sequence taken by the student may vary depending on prerequisites, course availability, and personal/professional responsibilities.

First Semester

HORT 140	Turfgrass I.....	3
HORT 214	Woody Plants I, Deciduous.....	3

HORT 220	Herbaceous Plants.....	3
HORT 201	Introduction to Horticultural Science.....	4
HORT 235	Landscape Maintenance and Techniques.....	3
	Total Semester Credit Hours.....	16

Second Semester

	Elective.....	3
HORT 215	Woody Plants II, Evergreens.....	3
HORT 225	Plant Problems*.....	3
	Prerequisites: HORT 214 and HORT 220 or department approval	
HORT 135	Landscape Design.....	3
HORT 205	Plant Propagation*.....	3
	Prerequisite: HORT 201 or department approval	
	Total Semester Credit Hours.....	15
	TOTAL PROGRAM CREDIT HOURS.....	31

*Prerequisite/Corequisite required

Elective (choose one course)

BUS 121	Introduction to Business.....	3
BUS 145	Small Business Management.....	3
HORT 160	Garden Center Operations.....	3
HORT 255	Pest Control Management.....	3
HORT 260	Horticulture Soils.....	3
SPD 128	Business and Professional Speech.....	3

Horticulture Entrepreneurship Certificate

This certificate is designed to prepare students to open their own business in the “greening industry” businesses such as landscape design and maintenance, lawn care, garden centers and nurseries, and wholesale greenhouse growers. This certificate is design to provide the student with basic skills in horticulture and small business development and management.

(Major Code 4270; CIP Code 01.0601)

Science Division

Career Certificate

Suggested/Sample Course Sequence

The sequence taken by the student may vary depending on prerequisites, course availability, and personal/professional responsibilities.

First Semester

HORT 140	Turfgrass I.....	3
HORT 214	Woody Plants I, Deciduous.....	3
HORT 220	Herbaceous Plants.....	3
HORT 135	Landscape Design.....	3
ENTR 120	Introduction to Entrepreneurship.....	2
ENTR 180	Opportunity Analysis.....	2
	Total Semester Credit Hours.....	16

Second Semester

HORT 215	Woody Plants II, Evergreens.....	3
HORT 225	Plant Problems*.....	3
	Prerequisites: HORT 214 and HORT 220 or department approval	
HORT 235	Landscape Maintenance and Techniques.....	3
HORT 150	Fruits, Vegetables and Herb Crops.....	2
ENTR 142	Fast Trac Business Plan.....	3
	Total Semester Credit Hours.....	14
	TOTAL PROGRAM CREDIT HOURS.....	30

*Prerequisite/Corequisite required

Students may be interested in taking additional courses, as noted below, to complement their certificate study. These courses are NOT part of the certificate requirements.

HORT 115	Home Horticulture.....	2
HORT 160	Garden Center Operations.....	3
HORT 201	Introduction to Horticultural Science.....	4
HORT 205	Plant Propagation*.....	3
	Prerequisite: HORT 201 or department approval	

HORT 210	Concepts of Floral Design*.....	3
HORT 255	Pest Control Management.....	3
HORT 260	Horticulture Soils.....	3
ENTR 160	Legal Issues for Small Business.....	2
ENTR 220	Entrepreneurial Marketing*.....	2
	Prerequisite: BUS 230	
ENTR 131	Financial Management for Small Business*.....	2
	Prerequisite: ACCT 111 or ACCT 121	
ENTR 195	Franchising*.....	3
	Prerequisite: BUS 230	
ENTR 225	Family Business.....	3
ENTR 240	Funding Acquisition for Entrepreneurs*.....	2
	Prerequisite: ENTR 142	
FL 130	Elementary Spanish I.....	5

Landscape Technician Certificate

The 31-credit-hour certificate program is designed to prepare students for a career in landscape design and maintenance. Upon completion of this certificate, students will possess the competencies to be successful at entry-level or higher positions in landscape design and maintenance and other related occupations.

A full-time student can complete this certificate in a fall-spring sequence year.

(Major Code 6190; CIP Code 01.0605)

Science Division

Career Certificate

Suggested/Sample Course Sequence

The sequence taken by the student may vary depending on prerequisites, course availability, and personal/professional responsibilities.

First Semester

HORT 201	Introduction to Horticultural Science.....	4
HORT 214	Woody Plants I, Deciduous.....	3
HORT 140	Turfgrass I.....	3
HORT 220	Herbaceous Plants.....	3
HORT 235	Landscape Maintenance and Techniques.....	3
	Total Semester Credit Hours.....	16

Second Semester

	Landscape Elective (see list below).....	3
HORT 215	Woody Plants II, Evergreens.....	3
HORT 225	Plant Problems*.....	3
	Prerequisites: HORT 214 and HORT 220 or department approval	
HORT 135	Landscape Design.....	3
HORT 265	Landscape Construction.....	3
	Total Semester Credit Hours.....	15
	TOTAL PROGRAM CREDIT HOURS.....	31

*Prerequisite/Corequisite required

Landscape Electives

HORT 205	Plant Propagation*.....	3
	Prerequisite: HORT 201 or department approval	
HORT 260	Horticulture Soils.....	3
HORT 240	Turfgrass II*.....	3
	Prerequisite: HORT 140	
SPD 128	Business and Professional Speech.....	3
BUS 121	Introduction to Business.....	3
BUS 145	Small Business Management.....	3

Landscape Technician Entrepreneurship Certificate

This certificate is designed to prepare students to open their own business in the landscape design and maintenance industry. It will provide students with the basic skills in landscape design and maintenance and small business

development and management. Upon completion, the student should be prepared to develop, grow and sustain their own landscape and maintenance business venture.

(Major Code 4280; CIP Code 01.0601)

Science Division

Career Certificate

Suggested/Sample Course Sequence

The sequence taken by the student may vary depending on prerequisites, course availability, and personal/professional responsibilities.

First Semester

HORT 214	Woody Plants I, Deciduous.....	3
HORT 201	Introduction to Horticultural Science.....	4
HORT 220	Herbaceous Plants.....	3
HORT 135	Landscape Design.....	3
ENTR 120	Introduction to Entrepreneurship.....	2
ENTR 180	Opportunity Analysis.....	2
	Total Semester Credit Hours.....	17

Second Semester

HORT 260	Horticulture Soils.....	3
HORT 225	Plant Problems*.....	3
	Prerequisites: HORT 214 and HORT 220 or department approval	
HORT 235	Landscape Maintenance and Techniques.....	3
HORT 265	Landscape Construction.....	3
ENTR 142	Fast Trac Business Plan.....	3
	Total Semester Credit Hours.....	15
	TOTAL PROGRAM CREDIT HOURS.....	32

*Prerequisite/Corequisite required

Students may be interested in taking additional courses, as noted below, to complement their certificate study. These courses are NOT part of the certificate requirements.

HORT 115	Home Horticulture.....	2
HORT 160	Garden Center Operations.....	3
HORT 205	Plant Propagation.....	3
	Prerequisite: HORT 201 or department approval	
HORT 210	Concepts of Floral Design.....	3
HORT 255	Pest Control Management.....	3
HORT 260	Horticulture Soils.....	3
ENTR 160	Legal Issues for Small Business.....	2
ENTR 220	Entrepreneurial Marketing*.....	2
	Prerequisite: BUS 230	
ENTR 131	Financial Management for Small Business*.....	2
	Prerequisite: ACCT 111 or ACCT 121	
ENTR 195	Franchising*.....	3
	Prerequisite: BUS 230	
ENTR 225	Family Business.....	3
ENTR 240	Funding Acquisition for Entrepreneurs*.....	2
	Prerequisite: ENTR 142	
FL 130	Elementary Spanish I.....	5

Sustainable Agriculture Entrepreneurship Certificate

This certificate will provide educational opportunities that involve agriscience and agribusiness. It will focus on sustainable agriculture, market farming, the preparation of locally grown food, and entrepreneurship. Experiential learning will be emphasized by the offering of hands-on courses, numerous field trips, guest lectures, and the engagement with local farming and food communities.

Note: Metropolitan Community College students should seek specific counsel from the JCCC program personnel for the appropriate course plan and numbers.

Metropolitan Community College students should refer to Cooperative Program Information.

Metropolitan Community College students should refer to Cooperative Program Information.

(Major Code 4430; CIP Code 01.0601)

Science Division

Career Certificate

Suggested/Sample Course Sequence

The sequence taken by the student may vary depending on prerequisites, course availability, and personal/professional responsibilities.

Fall Semester

HORT 245	Commercial Crop Production.....	3
HORT 272	Sustainable Agriculture Fall Practicum.....	2
ENTR 120	Introduction to Entrepreneurship.....	2
ENTR 180	Opportunity Analysis.....	2
	Total Semester Credit Hours.....	9

Spring Semester

HORT 260	Horticulture Soils.....	3
HORT 274	Sustainable Agriculture Spring Practicum.....	2
ENTR 142	Fast Trac Business Plan.....	3
HMG 165	Food Industry Compliance & Safety.....	3
	Total Semester Credit Hours.....	11

Summer Semester

HORT 255	Pest Control Management.....	3
HORT 276	Sustainable Agriculture Summer Practicum.....	2
HMG 167	Local Food Production.....	3
	Total Semester Credit Hours.....	8
	TOTAL PROGRAM CREDIT HOURS.....	28

*Prerequisite/Corequisite required

Students may be interested in taking additional courses, as noted below, to complement their certificate study. These courses are NOT part of the certificate requirements.

HORT 201	Introduction to Horticultural Science.....	4
HORT 205	Plant Propagation*.....	3
	Prerequisite: HORT 201 or department approval	
ENTR 160	Legal Issues for Small Business.....	2
ENTR 220	Entrepreneurial Marketing*.....	2
	Prerequisite: BUS 230	
ENTR 131	Financial Management for Small Business*.....	2
	Prerequisite: ACCT 111 or ACCT 121	
ENTR 225	Family Business.....	3

Bed & Breakfast Entrepreneurship Certificate

This certificate program is designed to provide the student with the knowledge and skills they will need to open their own bed and breakfast. Students will learn the basic skills in hotel and lodging management, culinary arts and the business acumen necessary to operate their own entrepreneurial business venture.

(Major Code 4220; CIP Code 52.0904)

Hospitality Management

Career Certificate

Prerequisites for Required Courses

HMG 120	Food Service Sanitation.....	1
HMG 121	Perspectives of Hospitality Management.....	3
HMG 123	Professional Cooking I*.....	3
	Prerequisite or corequisite: HMG 120	

Suggested/Sample Course Sequence

The sequence taken by the student may vary depending on prerequisites, course availability, and personal/professional responsibilities.

professional responsibilities.

or appropriate score on the math assessment test
Total Semester Credit Hours.....12

First Semester

HMGT 132 Seminar in Housekeeping Operations.....3
HMGT 203 Hotel Sales and Marketing*.....3
Prerequisites: HMGT 121 and admission to the hospitality management program
HMGT 271 Seminar in Hospitality Management: Purchasing.....3
Total Semester Credit Hours.....9

Second Semester

HMGT 235 Seminar: Risk Management and Loss Prevention.....3
HMGT 265 Front Office Management.....3
MATH 120 Business Mathematics*.....3
Prerequisite: MATH 111 with a grade of "C" or higher or appropriate score on the math assessment test
ENTR 180 Opportunity Analysis.....2
Total Semester Credit Hours.....11

Third Semester

HMGT 273 Hospitality Cost Accounting*.....3
Prerequisites: MATH 120 or higher and HMGT 121
HMGT 221 Design and Facilities Management*.....3
Prerequisites: HMGT 123 and HMGT 271
ENTR 225 Family Business.....3
ENTR 142 Fast Trac Business Plan.....3
Total Semester Credit Hours.....12
TOTAL PROGRAM CREDIT HOURS.....32

*Prerequisite/Corequisite required

Students may be interested in taking additional courses, as noted below, to complement their certificate study. These courses are NOT part of the certificate requirements.

HMEC 151 Nutrition and Meal Planning.....3
HMGT 279 Beverage Control.....3
FL 133 Basic Spanish for Hospitality Management.....2
ENTR 160 Legal Issues for Small Business.....2
ENTR 220 Entrepreneurial Marketing*.....2
Prerequisite: BUS 230
ENTR 240 Funding Acquisition for Entrepreneurs*.....2
Prerequisite: ENTR 142

Second Semester

ENTR 120 Introduction to Entrepreneurship.....2
ENTR 180 Opportunity Analysis.....2
ENTR 160 Legal Issues for Small Business.....2
HMGT 230 Professional Cooking II*.....3
Prerequisites: HMGT 120 and HMGT 123
HMGT 277 Seminar in Hospitality Management: Menu Planning*.....3
Prerequisite: HMGT 123
Total Semester Credit Hours.....12

Third Semester

HMGT 220 American Regional Cuisine*.....3
Prerequisite: HMGT 230
HMGT 273 Hospitality Cost Accounting*.....3
Prerequisites: MATH 120 or higher and HMGT 121
ENTR 142 Fast Trac Business Plan.....3
Total Semester Credit Hours.....9
TOTAL PROGRAM CREDIT HOURS.....33

*Prerequisite/Corequisite required

Students may be interested in taking additional courses, as noted below, to complement their certificate study. These courses are NOT part of the certificate requirements.

HMEC 151 Nutrition and Meal Planning.....3
HMGT 279 Beverage Control.....3
HMGT 271 Seminar in Hospitality Management: Purchasing.....3
FL 133 Basic Spanish for Hospitality Management.....2
ENTR 195 Franchising*.....3
Prerequisite: BUS 230

Catering Entrepreneurship Certificate

This certificate is designed to prepare students with the knowledge and skills necessary to open their own catering business. Students will learn the basic skills in culinary arts and business acumen necessary to operate their own entrepreneurial business venture.

(Major Code 4230; CIP Code 52.0904)

Hospitality Management

Career Certificate

Prerequisites for Required Courses

HMGT 120 Food Service Sanitation.....1
HMGT 121 Perspectives of Hospitality Management.....3

Suggested/Sample Course Sequence

The sequence taken by the student may vary depending on prerequisites, course availability, and personal/professional responsibilities.

First Semester

HMGT 123 Professional Cooking I*.....3
Prerequisite or corequisite: HMGT 120
HMGT 150 Seminar: Food Service Sales and Marketing.....3
HMGT 250 Introduction to Catering.....3
MATH 120 Business Mathematics*.....3
Prerequisite: MATH 111 with a grade of "C" or higher

Chef Apprenticeship, A.A.S.

The hospitality management program at JCCC is a comprehensive study of the food service and public lodging industries. The program is accredited by the American Culinary Federation Educational Institute Accrediting Commission.

The chef apprenticeship program at the college is sponsored by the American Culinary Federation and the U.S. Department of Labor. The three-year program has special admission requirements. You must be 18 years old and have a high school diploma or the equivalent.

The career program features formal course work along with the opportunity to actually practice such skills as baking, menu planning, food purchasing, beverage control and food preparation. After job placement, you join the American Culinary Federation Educational Institute for registered apprentice membership. Likewise, you register with the Department of Labor and will be officially indentured to supervising chefs and the sponsoring American Culinary Federation affiliate chapter for 6,000 hours. The program consists of 75 credit hours and leads to an associate of applied science degree.

Note: Metropolitan Community College students should seek specific counsel from the JCCC program personnel for the appropriate course plan and numbers.

Metropolitan Community College students should refer to Cooperative Program Information.

(Major Code 2440; CIP Code 12.0503)

Hospitality Management

Associate of Applied Science Degree

First Semester

HMGT 121 Perspectives of Hospitality Management.....3
HMGT 123 Professional Cooking I*.....3
Prerequisite or corequisite: HMGT 120
MATH 120 Business Math or higher*.....3
Prerequisite: MATH 111 with a grade of "C" or higher or appropriate score on the math assessment test
HMGT 120 Food Service Sanitation.....1
HMGT 281 Culinary Arts Practicum I*.....2
Prerequisite: Acceptance into the American Culinary

Federation Chef Apprenticeship training program and
hospitality management department approval
Total Semester Credit Hours.....12

Second Semester

CPCA	Computer Elective.....	1
HMGT 273	Hospitality Cost Accounting*.....	3
	Prerequisites: MATH 120 or higher and HMGT 121	
HMGT 230	Professional Cooking II*.....	3
	Prerequisites: HMGT 120 and HMGT 123	
HMEC 151	Nutrition and Meal Planning.....	3
HMGT 282	Culinary Arts Practicum II*.....	2
	Prerequisite: HMGT 281	
	Total Semester Credit Hours.....	12

Summer

ENGL 121	Composition I*.....	3
	Prerequisite: ENGL 106 or appropriate placement test score or EAP 113 and EAP 117	
SPD 120	Interpersonal Communication.....	3
	or	
SPD 121	Public Speaking.....	3
	or	
SPD 125	Personal Communication.....	3
	Total Semester Credit Hours.....	6

Third Semester

HMGT	Hospitality Program Elective.....	3
HMGT 271	Seminar in Hospitality Management: Purchasing.....	3
HMGT 220	American Regional Cuisine*.....	3
	Prerequisite: HMGT 230	
HMGT 285	Culinary Arts Practicum III*.....	2
	Prerequisite: HMGT 282	
	Total Semester Credit Hours.....	11

Fourth Semester

HMGT 226	Garde Manger*.....	3
	Prerequisite: HMGT 230	
HMGT 223	Fundamentals of Baking.....	3
HMGT 277	Seminar in Hospitality Management: Menu Planning*.....	3
	Prerequisite: HMGT 123	
HMGT 286	Culinary Arts Practicum IV*.....	2
	Prerequisite: HMGT 285	
	Total Semester Credit Hours.....	11

Fifth Semester

HMGT 231	Advanced Food Preparation*.....	4
	Prerequisites: HMGT 230 and department approval	
HMGT 279	Beverage Control.....	3
PSYC 121	Applied Psychology.....	3
	or	
PSYC 130	Introduction to Psychology*.....	3
	Prerequisite: Appropriate score on the COMPASS reading test OR appropriate score on the ACT reading test OR RDG 126 with a grade of "C" or higher	
HMGT 287	Culinary Arts Practicum V*.....	2
	Prerequisite: HMGT 286	
	Total Semester Credit Hours.....	12

Sixth Semester

	Humanities Elective.....	3
HMGT 128	Supervisory Management.....	3
HMGT 228	Advanced Hospitality Management*.....	3
	Prerequisite: Department approval	
HMGT 288	Culinary Arts Practicum VI*.....	2
	Prerequisites: HMGT 287 and hospitality management department approval	
	Total Semester Credit Hours.....	11
	TOTAL PROGRAM CREDIT HOURS.....	75

Hospitality Program Electives

HMGT 126	Food Management*.....	4
	Prerequisites: HMGT 123 and HGMT 230 and HMGT 277 and admission to the hospitality management program	
HMGT 130	Hospitality Law.....	3
HMGT 132	Seminar in Housekeeping Operations.....	3
HMGT 150	Seminar: Food Service Sales and Marketing.....	3
HMGT 203	Hotel Sales and Marketing*.....	3
	Prerequisites: HMGT 121 and admission to the hospitality management program	
HMGT 207	Hospitality Human Resource Management*.....	3
	Prerequisite: HMGT 128	
HMGT 221	Design and Facilities Management*.....	3
	Prerequisites: HMGT 123 and HMGT 271	

HMGT 240	Advanced Baking*.....	4
	Prerequisites: HMGT 123 and HMGT 223	
HMGT 248	Confectionery Arts.....	3
HMGT 250	Introduction to Catering.....	3
HMGT 256	Casino Management.....	3
HMGT 265	Front Office Management.....	3
HMGT 268	Hospitality Managerial Accounting*.....	3
	Prerequisites: MATH 120 and HMGT 121 and HMGT 273	

*Prerequisite/Corequisite required

Food and Beverage Management, A.A.S.

The hospitality management program at JCCC is a comprehensive study of the food service and public lodging industries. The program is accredited by the American Culinary Federation Educational Institute Accrediting Commission.

The JCCC food and beverage management program prepares graduates to enter restaurant, club or food service management as a trainee or assistant manager. Courses in the 66-credit-hour program include supervisory management, hospitality accounting, hospitality law, food management, design techniques and advanced hospitality management. In addition, students learn food preparation skills through courses in basic and intermediate food preparation, menu planning, purchasing, nutrition and beverage control. Individuals considering this field should enjoy a very active environment and a lot of contact with people.

Note: Metropolitan Community College students should seek specific counsel from the JCCC program personnel for the appropriate course plan and numbers.

Metropolitan Community College students should refer to Cooperative Program Information.

(Major Code 2550; CIP Code 12.0504)

Hospitality Management

Associate of Applied Science Degree

First Semester

CPCA	Computer Elective.....	1
HMGT 121	Perspectives of Hospitality Management.....	3
SPD 120	Interpersonal Communication.....	3
	or	
SPD 121	Public Speaking.....	3
	or	
SPD 125	Personal Communication.....	3
MATH 120	Business Math or higher*.....	3
	Prerequisite: MATH 111 with a grade of "C" or higher or appropriate score on the math assessment test	
ENGL 121	Composition I*.....	3
	Prerequisite: ENGL 106 or appropriate placement test score or EAP 113 and EAP 117	
HMGT 120	Food Service Sanitation.....	1
	Total Semester Credit Hours.....	14

Second Semester

HMGT 128	Supervisory Management.....	3
HMGT 123	Professional Cooking I*.....	3
	Prerequisite or corequisite: HMGT 120	
HMGT 277	Seminar in Hospitality Management: Menu Planning*.....	3
	Prerequisite: HMGT 123	
HMGT 271	Seminar in Hospitality Management: Purchasing.....	3
HMEC 151	Nutrition and Meal Planning.....	3
	Total Semester Credit Hours.....	15

Summer

	Humanities Requirement.....	3
PSYC 121	Applied Psychology.....	3
	or	
PSYC 130	Introduction to Psychology*.....	3
	Prerequisite: Appropriate score on the COMPASS reading test OR appropriate score on the ACT reading test OR RDG 126 with a grade of "C" or higher	
	Total Semester Credit Hours.....	6

Third Semester

HMGT 230	Professional Cooking II*	3
	Prerequisites: HMGT 120 and HMGT 123	
HMGT 207	Hospitality Human Resource Management*	3
	Prerequisite: HMGT 128	
HMGT 279	Beverage Control	3
HMGT 221	Design and Facilities Management*	3
	Prerequisites: HMGT 123 and HMGT 271	
HMGT 273	Hospitality Cost Accounting*	3
	Prerequisites: MATH 120 or higher and HMGT 121	
	Total Semester Credit Hours	15

Fourth Semester

HMGT	Hospitality Program Elective	3
HMGT 126	Food Management*	4
	Prerequisites: HMGT 123 and HMGT 230 and HMGT 277 and admission to the hospitality management program	
HMGT 228	Advanced Hospitality Management*	3
	Prerequisite: Department approval	
HMGT 268	Hospitality Managerial Accounting*	3
	Prerequisites: MATH 120 and HMGT 121 and HMGT 273	
HMGT 150	Seminar: Food Service Sales and Marketing	3
	Total Semester Credit Hours	16
	TOTAL PROGRAM CREDIT HOURS	66

Hospitality Program Electives

HMGT 130	Hospitality Law	3
HMGT 203	Hotel Sales and Marketing*	3
	Prerequisites: HMGT 121 and admission to the hospitality management program	
HMGT 223	Fundamentals of Baking	3
HMGT 250	Introduction to Catering	3
HMGT 256	Casino Management	3
HMGT 275	Seminar in Hospitality Management: Internship*	3
	Prerequisite: Admission to the hospitality management program	

*Prerequisite/Corequisite required

Food and Beverage Management Certificate

The food and beverage management certificate program is a one-year program that students can complete in two semesters. Designed to give students basic skills hospitality industry employers are seeking for entry-level positions, the program includes an internship, which allows the student to gain actual experience with local employers.

(Major Code 4840; CIP Code 12.0504)

Hospitality Management

Career Certificate

First Semester

ENGL 121	Composition I*	3
	Prerequisite: ENGL 106 or appropriate placement test score or EAP 113 and EAP 117	
HMGT 120	Food Service Sanitation	1
HMGT 121	Perspectives of Hospitality Management	3
HMGT 123	Professional Cooking I*	3
	Prerequisite or corequisite: HMGT 120	
HMGT 128	Supervisory Management	3
MATH 120	Business Mathematics*	3
	Prerequisite: MATH 111 with a grade of "C" or higher or appropriate score on the math assessment test	
	Total Semester Credit Hours	16

Second Semester

HMGT 230	Professional Cooking II*	3
	Prerequisites: HMGT 120 and HMGT 123	
HMGT 126	Food Management*	4
	Prerequisites: HMGT 123 and HMGT 230 and HMGT 277 and admission to the hospitality management program	
	NOTE: HMGT 126 requires prerequisite override for the certificate only.	
HMGT 271	Seminar in Hospitality Management: Purchasing	3
HMGT 273	Hospitality Cost Accounting*	3

	Prerequisites: MATH 120 or higher and HMGT 121	
HMGT 275	Seminar in Hospitality Management: Internship*	3
	Prerequisite: Admission to the hospitality management program	
	Total Semester Credit Hours	16
	TOTAL PROGRAM CREDIT HOURS	32

*Prerequisite/Corequisite required

Hospitality Entrepreneurship Certificate

The hospitality entrepreneurship certificate prepares students to open their own hospitality business. This certificate is designed to provide the student with basic skills in restaurant operation small business development and management.

(Major Code 4190; CIP Code 52.0901)

Hospitality Management

Career Certificate

Prerequisites for Required Courses

HMGT 123	Professional Cooking I*	3
	Prerequisite or corequisite: HMGT 120	
BUS 230	Marketing	3

Suggested/Sample Course Sequence

The sequence taken by the student may vary depending on prerequisites, course availability, and personal/professional responsibilities.

First Semester

HMGT 121	Perspectives of Hospitality Management	3
HMGT 120	Food Service Sanitation	1
HMGT 128	Supervisory Management	3
MATH 120	Business Math or higher*	3
	Prerequisite: MATH 111 with a grade of "C" or higher or appropriate score on the math assessment test	
ENTR 120	Introduction to Entrepreneurship	2
	Total Semester Credit Hours	12

Second Semester

HMGT 277	Seminar in Hospitality Management: Menu Planning*	3
	Prerequisite: HMGT 123	
ENTR 180	Opportunity Analysis	2
ENTR 195	Franchising*	3
	Prerequisite: BUS 230	
HMGT 230	Professional Cooking II*	3
	Prerequisites: HMGT 120 and HMGT 123	
	Total Semester Credit Hours	11

Third Semester

HMGT 273	Hospitality Cost Accounting*	3
	Prerequisites: MATH 120 or higher and HMGT 121	
ENTR 160	Legal Issues for Small Business	2
ENTR 220	Entrepreneurial Marketing*	2
	Prerequisite: BUS 230	
ENTR 142	Fast Trac Business Plan	3
	Total Semester Credit Hours	10
	TOTAL PROGRAM CREDIT HOURS	33

*Prerequisite/Corequisite required

Students may be interested in taking additional courses, as noted below, to complement their certificate study. These courses are NOT part of the certificate requirements.

HMEC 151	Nutrition and Meal Planning	3
HMGT 279	Beverage Control	3
HMGT 271	Seminar in Hospitality Management: Purchasing	3
HMGT 130	Hospitality Law	3
HMGT 250	Introduction to Catering	3
HMGT 203	Hotel Sales and Marketing*	3
	Prerequisites: HMGT 121 and admission to the hospitality management program	
FL 133	Basic Spanish for Hospitality Management	2

Hotel & Lodging Management, A.A.S.

The hospitality management program at JCCC is a comprehensive study of the food service and public lodging industries. The program is accredited by the American Culinary Federation Educational Institute Accrediting Commission.

The JCCC hotel and lodging management program prepares the graduate to enter hotel and lodging management, usually as a trainee or department supervisor. Courses in supervisory management, hotel accounting, hotel sales and marketing, and advanced hospitality management provide a comprehensive management background. In addition the students learn basic skills through courses in housekeeping, front office management, basic and intermediate food preparation, and beverage control.

Individuals considering this field should enjoy a very active environment and a lot of contact with people.

Note: Metropolitan Community College students should seek specific counsel from the JCCC program personnel for the appropriate course plan and numbers.

Metropolitan Community College students should refer to Cooperative Program Information.

(Major Code 2510; CIP Code 52.0904)

Hospitality Management

Associate of Applied Science

First Semester

HMGT 121	Perspectives of Hospitality Management.....	3
ENGL 121	Composition I*.....	3
	Prerequisite: ENGL 106 or appropriate placement test score or EAP 113 and EAP 117	
PSYC 121	Applied Psychology.....	3
	or	
PSYC 130	Introduction to Psychology*.....	3
	Prerequisite: Appropriate score on the COMPASS reading test OR appropriate score on the ACT reading test OR RDG 126 with a grade of "C" or higher	
HMGT 120	Food Service Sanitation.....	1
HPER 200	First Aid and CPR.....	2
HMGT 132	Seminar in Housekeeping Operations.....	3
	Total Semester Credit Hours.....	15

Second Semester

MATH 120	Business Math or higher*.....	3
	Prerequisite: MATH 111 with a grade of "C" or higher or appropriate score on the math assessment test	
HMGT 265	Front Office Management.....	3
HMGT 128	Supervisory Management.....	3
HMGT 235	Seminar: Risk Management and Loss Prevention.....	3
HMGT 123	Professional Cooking I*.....	3
	Prerequisite or corequisite: HMGT 120	
	Total Semester Credit Hours.....	15

Summer

CPCA	Computer Elective.....	1
HMGT 275	Seminar in Hospitality Management: Internship*.....	3
	Prerequisite: Admission to the hospitality management program	
	Total Semester Credit Hours.....	4

Third Semester

SPD 120	Interpersonal Communication.....	3
	or	
SPD 121	Public Speaking.....	3
	or	
SPD 125	Personal Communication.....	3
HMGT 230	Professional Cooking II*.....	3
	Prerequisites: HMGT 120 and HMGT 123	
HMGT 279	Beverage Control.....	3
HMGT 203	Hotel Sales and Marketing*.....	3
	Prerequisites: HMGT 121 and admission to the hospitality management program	
HMGT 273	Hospitality Cost Accounting*.....	3
	Prerequisites: MATH 120 or higher and HMGT 121	
	Total Semester Credit Hours.....	15

Fourth Semester

HMGT	Hospitality Program Elective.....	3
	Humanities Requirement.....	3
HMGT 228	Advanced Hospitality Management*.....	3
	Prerequisite: Department approval	
HMGT 268	Hospitality Managerial Accounting*.....	3
	Prerequisites: MATH 120 and HMGT 121 and HMGT 273	
HMGT 207	Hospitality Human Resource Management*.....	3
	Prerequisite: HMGT 128	
	Total Semester Credit Hours.....	15
	TOTAL PROGRAM CREDIT HOURS.....	64

Hospitality Program Electives

HMEC 151	Nutrition and Meal Planning.....	3
HMGT 126	Food Management*.....	4
	Prerequisites: HMGT 123 and HGMT 230 and HMGT 277 and admission to the hospitality management program	
HMGT 130	Hospitality Law.....	3
HMGT 221	Design and Facilities Management*.....	3
	Prerequisites: HMGT 123 and HMGT 271	
HMGT 223	Fundamentals of Baking.....	3
HMGT 250	Introduction to Catering.....	3
HMGT 256	Casino Management.....	3
HMGT 271	Seminar in Hospitality Management: Purchasing.....	3
HMGT 277	Seminar in Hospitality Management: Menu Planning*.....	3
	Prerequisite: HMGT 123	
	*Prerequisite/Corequisite required	

Pastry/Baking Certificate

The one-year pastry/baking certificate program is for students who are seeking employment as pastry cooks in pastry/bake shops, hotels, restaurants or other areas that produce pastry and baked products. Students may have an entrepreneurial interest for opening their own operation.

The program involves a total of 30 credits over two semesters with a maximum enrollment of 15 students. There is a selection process for this program that is online at <http://www.jccc.edu/home/depts/1205/site/hospitalityMgmtDegrees/VC-PASTRYBAK>. This program only starts in the fall semester. Current industry professionals may desire this program to upgrade their skills and increase their knowledge in this area of study.

Students must complete HMGT 120, Food Service Sanitation, and HMGT 123, Professional Cooking I, before enrolling in the program.

(Major Code 4350; CIP Code 12.0501)

Hospitality Management

Career Certificate

Prerequisites for Required Courses

All Students must complete the two prerequisite courses with a passing grade PRIOR to enrolling in the pastry program.

HMGT 120	Food Service Sanitation.....	1
HMGT 123	Professional Cooking I*.....	3
	Prerequisite or corequisite: HMGT 120	

Fall Semester Only

HMPB 155	Pastry Shop Production I*.....	4
	Prerequisites: HMGT 120 and HMGT 123	
	Corequisites: HMPB 160 and HMPB 233 and HMPB 252	
HMPB 160	Pastry Shop Principles I*.....	4
	Prerequisites: HMGT 120 and HMGT 123	
	Corequisites: HMPB 155 and HMPB 233 and HMPB 252	
HMPB 233	Patisserie*.....	4
	Prerequisites: HMGT 120 and HMGT 123	
	Corequisites: HMPB 155 and HMPB 160 and HMPB 252	
HMPB 252	Pastry Shop Business Basics I*.....	3
	Prerequisites: HMGT 120 and HMGT 123	
	Corequisites: HMPB 155 and HMPB 160 and HMPB 233	
	Total Semester Credit Hours.....	15

Spring Semester Only

HMPB 255	Pastry Shop Production II*	4
	Prerequisites: HMPB 155 and HMPB 160 and HMPB 233 and HMPB 252	
	Corequisites: HMPB 260 and HMPB 257 and HMPB 252	
HMPB 260	Pastry Shop Principles II*	4
	Prerequisites: HMPB 155 and HMPB 160 and HMPB 233 and HMPB 252	
	Corequisites: HMPB 255 and HMPB 257 and HMPB 262	
HMPB 257	Sugar Basics*	4
	Prerequisites: HMPB 155 and HMPB 160 and HMPB 233 and HMPB 252	
	Corequisites: HMPB 255 and HMPB 260 and HMPB 262	
HMPB 262	Pastry Shop Business Basics II*	3
	Prerequisites: HMPB 155 and HMPB 160 and HMPB 233 and HMPB 252	
	Corequisites: HMPB 255 and HMPB 260 and HMPB 257	
	Total Semester Credit Hours	15
	TOTAL PROGRAM CREDIT HOURS	30

*Prerequisite/Corequisite required

HMPB 262	Pastry Shop Business Basics II*	3
	Prerequisites: HMPB 155 and HMPB 160 and HMPB 233 and HMPB 252	
	Corequisites: HMPB 255 and HMPB 260 and HMPB 257	
ENTR 142	Fast Trac Business Plan	3
	Total Semester Credit Hours	18
	TOTAL PROGRAM CREDIT HOURS	37

*Prerequisite/Corequisite required

Students may be interested in taking additional courses, as noted below, to complement their certificate study. These courses are NOT part of the certificate requirements.

ENTR 160	Legal Issues for Small Business	2
ENTR 195	Franchising	3
	Prerequisite: BUS 230	
ENTR 220	Entrepreneurial Marketing	2
	Prerequisite: BUS 230	
ENTR 131	Financial Management for Small Business*	2
	Prerequisite: ACCT 111 or ACCT 121	

Pastry/Baking Entrepreneurship Certificate

This certificate is designed to prepare students to open their own business, and to provide the student with basic skills in pastry/baking preparation and small business development and management.

The program involves two semesters of pastry/baking courses with a maximum enrollment of 15 students. There is a selection process for this program that is online at <http://www.jccc.edu/pending/catalog.php/spring-2010/careerprograms/VC-PASTRYBAK>. This program only starts in the fall semester. Students must complete HMG 120, Food Service Sanitation, and HMG 123, Professional Cooking I, with a passing grade before enrolling in pastry/baking courses (HMPB). Current industry professionals may desire this program to upgrade their skills and increase their knowledge in this area of study.

(Major Code 4080; CIP Code 12.0501)

Hospitality Management

Career Certificate

Prerequisites for Required Courses

HMG 120	Food Service Sanitation	1
HMG 123	Professional Cooking I*	3
	Prerequisite or corequisite: HMG 120	

Fall Semester

HMPB 155	Pastry Shop Production I*	4
	Prerequisites: HMG 120 and HMG 123	
	Corequisites: HMPB 160 and HMPB 233 and HMPB 252	
HMPB 160	Pastry Shop Principles I*	4
	Prerequisites: HMG 120 and HMG 123	
	Corequisites: HMPB 155 and HMPB 233 and HMPB 252	
HMPB 233	Patisserie*	4
	Prerequisites: HMG 120 and HMG 123	
	Corequisites: HMPB 155 and HMPB 160 and HMPB 252	
HMPB 252	Pastry Shop Business Basics I*	3
	Prerequisites: HMG 120 and HMG 123	
	Corequisites: HMPB 155 and HMPB 160 and HMPB 233	
ENTR 120	Introduction to Entrepreneurship	2
ENTR 180	Opportunity Analysis	2
	Total Semester Credit Hours	19

Spring Semester

HMPB 255	Pastry Shop Production II*	4
	Prerequisites: HMPB 155 and HMPB 160 and HMPB 233 and HMPB 252	
	Corequisites: HMPB 260 and HMPB 257 and HMPB 252	
HMPB 260	Pastry Shop Principles II*	4
	Prerequisites: HMPB 155 and HMPB 160 and HMPB 233 and HMPB 252	
	Corequisites: HMPB 255 and HMPB 257 and HMPB 262	
HMPB 257	Sugar Basics*	4
	Prerequisites: HMPB 155 and HMPB 160 and HMPB 233 and HMPB 252	
	Corequisites: HMPB 255 and HMPB 260 and HMPB 262	

Industrial Maintenance, A.A.S.

Industrial maintenance requires people employed in the field to be trained in a variety of areas, including welding, electricity, HVAC, gasoline or diesel engines, and generators. Often, the needs will change due to growth in a company or the expansion of services provided. This degree option will allow a student to choose from numerous courses to custom build a program that will fit the needs of an employer. It will also allow students employed in an industrial maintenance position to broaden their skill areas and achieve an associate of applied science degree.

(Major Code 2270; CIP Code 47.0303)

Electrical Technology Program

Associate of Applied Science Degree

Note: MFAB 120-MFAB Tools and Equipment or MFAB 127-Welding Processes are prerequisites/corequisites to MFAB 121. Students who may have the skills needed for MFAB 120 or MFAB 127 may contact the career program facilitator for a waiver or may contact the Testing Center for prior learning credit.

First Semester

DRAF 129	Interpreting Architectural Drawings	2
	or	
MFAB 180	Blueprint and Symbols Reading for Welders	2
	or	
HVAC 143	Reading Blueprints and Ladder Diagrams	2
ENGL 121	Composition I*	3
	Prerequisite: ENGL 106 or appropriate placement test score or EAP 113 and EAP 117	
INDT 125	Industrial Safety	3
HVAC 123	Electromechanical Systems	4
MATH 130	Technical Mathematics I*	3
	Prerequisite: MATH 111 with a grade of "C" or higher or an appropriate score on the math assessment test	
	Total Semester Credit Hours	15

Second Semester

	Technical Electives	6
CPCA 128	PC Applications: MS Office	3
ELTE 122	National Electrical Code I	4
ENGL 123	Technical Writing I*	3
	Prerequisite: ENGL 121	
INDT 155	Workplace Skills	1
	Total Semester Credit Hours	17

Third Semester

	Related Electives	3
	Technical Electives	3-5
ECON 132	Survey of Economics	3
MFAB 121	Intro to Shielded Metal Arc Welding I (SMAW I)*	4
	Prerequisite or corequisite: MFAB 120 or MFAB 127 or	
MFAB 127	Welding Processes	2
SPD 120	Interpersonal Communication	3
	Total Semester Credit Hours	16

Fourth Semester

	Related Electives.....	3
	Technical Electives.....	9
	Humanities Elective.....	3
EMS 121	CPR I - Basic Life Support for Healthcare Provider...	1
	Total Semester Credit Hours.....	16
	TOTAL PROGRAM CREDIT HOURS.....	64

Technical Electives

AUTO 165	Automotive Engine Repair*	4
	Prerequisite or corequisite: AUTO 125 or department approval	
AUTO 210	Advanced Engine Repair*	3
	Prerequisite: AUTO 165	
CET 105	Construction Methods.....	3
ELEC 120	Introduction to Electronics.....	3
ELEC 133	Programmable Controllers.....	3
ELEC 165	Advanced Programmable Controllers*	3
	Prerequisite: ELEC 133	
ELTE 200	Commercial Wiring Methods*	4
	Prerequisite or corequisite: HVAC 123 or ELTE 123	
ELTE 205	Industrial Electrical Wiring*	4
	Prerequisite: ELTE 122 or ELTE 125 or ELTE 200	
ELTE 271	Electrical Internship I*	3
	Prerequisite: department approval	
HVAC 150	Refrigerant Management and Certification.....	1
HVAC 121	Basic Principles of HVAC*	4
	Prerequisite or corequisite: HVAC 123 or ELTE 123	
HVAC 146	Plumbing Systems Applications.....	3
HVAC 221	Commercial Systems: Air Conditioning*	4
	Prerequisites: HVAC 121 and either HVAC 123 or ELTE 123	
HVAC 223	Commercial Systems: Heating*	4
	Prerequisite: HVAC 123 or ELTE 123	
HVAC 271	HVAC Internship*	3
	Prerequisite: Department approval required	
MFAB 125	Advanced Gas and Arc Welding*	4
	Prerequisite: MFAB 121	
MFAB 170	Basic Machine Tool Processes.....	4
MFAB 240	Metallurgy.....	2
MFAB 140	Maintenance Repair Welding*	3
	Prerequisite: MFAB 121 or MFAB 130	
MFAB 271	Metal Fabrication Internship*	3
	Prerequisite: Department approval	

Related Electives

BUS 140	Principles of Supervision.....	3
BUS 141	Principles of Management.....	3
CET 129	Construction Management.....	3
CET 140	Civil Engineering Materials*.....	3
	Prerequisite or corequisite: MATH 133	

Note: Must take concurrent with Math 133

CPCA 105	Introduction to Personal Computers: Windows.....	1
CPCA 121	Introduction to Project Management*.....	1
	Prerequisite: CPCA 105 or CPCA 106 or CPCA 128 or CIS 124 or an appropriate score on a waiver test	
CPCA 141	Internet I*.....	1
	Prerequisite: CPCA 105 or CPCA 106 or CPCA 128 or CIS 124 or appropriate score on an assessment test	
IT 200	Networking Technologies.....	3

*Prerequisite/Corequisite required

Industrial Maintenance Certificate

Industrial maintenance mechanics are employed in the die-casting, plastics, food processing, printing, precision metal and woodworking industries. The vocational certificate course work includes a broad curriculum of industrial electricity, welding, HVAC and blueprint reading. Emphasis will be hands-on training in the repairing and testing of equipment. This also allows students employed in an industrial maintenance position to broaden their skill areas and achieve a vocational certificate.

(Major Code 5210; CIP Code 47.0303)

Electrical Technology Program

Career Certificate

Note: MFAB 120-MFAB Tools and Equipment or MFAB 127-Welding Processes are prerequisites/corequisites to MFAB 121. Students who may have the skills needed for MFAB 120 or

MFAB 127 may contact the career program facilitator for a waiver or may contact the Testing Center for prior learning credit.

Suggested/Sample Course Sequence

The sequence taken by the student may vary depending on prerequisites, course availability, and personal/professional responsibilities.

First Semester

DRAF 129	Interpreting Architectural Drawings.....	2
	or	
MFAB 180	Blueprint and Symbols Reading for Welders.....	2
	or	
HVAC 143	Reading Blueprints and Ladder Diagrams.....	2
ELTE 123	Electromechanical Systems.....	4
INDT 125	Industrial Safety.....	3
MFAB 121	Intro to Shielded Metal Arc Welding I (SMAW I)*.....	4
	Prerequisite or corequisite: MFAB 120 or MFAB 127	
	or	
MFAB 127	Welding Processes.....	2
	Total Semester Credit Hours.....	11-13

Second Semester

	Technical Electives.....	11-13
	TOTAL PROGRAM CREDIT HOURS.....	24

*Prerequisite/Corequisite required

Technical Electives

ELEC 120	Introduction to Electronics.....	3
ELEC 133	Programmable Controllers.....	3
ELEC 165	Advanced Programmable Controllers*.....	3
	Prerequisite: ELEC 133	
ELTE 122	National Electrical Code I.....	4
ELTE 200	Commercial Wiring Methods*.....	4
	Prerequisite or corequisite: HVAC 123 or ELTE 123	
ELTE 205	Industrial Electrical Wiring*.....	4
	Prerequisite: ELTE 122 or ELTE 125 or ELTE 200	
HVAC 121	Basic Principles of HVAC*.....	4
	Prerequisite or corequisite: HVAC 123 or ELTE 123	
CET 105	Construction Methods.....	3
MFAB 125	Advanced Gas and Arc Welding*.....	4
	Prerequisite: MFAB 121	
MFAB 140	Maintenance Repair Welding*.....	3
	Prerequisite: MFAB 121 or MFAB 130	
MFAB 170	Basic Machine Tool Processes.....	4
MFAB 240	Metallurgy.....	2
INDT 155	Workplace Skills.....	1

Information Technology, A.A.S.

Information technology connects people, departments and companies for communication purposes. The technology of local area networks gives employees the ability to share and retrieve information at the group level. Combining local area networks with the Internet and telecommunications resources gives employees unlimited intranet access to information throughout the company and beyond. The associate of applied science degree in information technology provides students with a foundation in designing, installing and implementing computer networking resources. Course requirements include network operations and product-specific requirements for Windows, Unix and Cisco.

(Major Code 2330; CIP Code 11.0901)

Information Technology

Associate of Applied Science Degree

First Semester

	Social Science and/or Economics Elective.....	3
IT 140	Networking Fundamentals.....	4
IT 205	Implementing Windows Client.....	3
IT 230	UNIX Fundamentals.....	3
ENGL 121	Composition I*.....	3
	Prerequisite: ENGL 106 or appropriate placement test score or EAP 113 and EAP 117	
	Total Semester Credit Hours.....	16

Second Semester

IT	221	Windows Server*	3
		Prerequisites: IT 205	
IT	209	LAN Switching*	4
		Prerequisite: IT 140 or IT 200	
IT	145	Routing Protocols and Concepts*	3
		Prerequisites: IT 200 or IT 140	
MATH	171	College Algebra or higher*	3
		Prerequisite: MATH 116 with a grade of "C" or higher or MATH 131 with a grade of "C" or higher or MATH 134 with a grade of "C" or higher or appropriate score on the math assessment test	
ENGL	122	Composition II*	3
		Prerequisite: ENGL 121	
		or	
ENGL	123	Technical Writing I*	3
		Prerequisite: ENGL 121	
		Total Semester Credit Hours	16

Third Semester

		Technical Elective	3
		Humanities Elective	3
		Health and/or Physical Education Elective	1
IT	225	Windows Active Directory Services*	3
		Prerequisite: IT 221	
IT	231	UNIX Administration*	3
		Prerequisite: IT 230	
IT	247	Accessing Wide Area Networks*	3
		Prerequisites: IT 209 and (IT 145 or IT 246)	
		Total Semester Credit Hours	16

Fourth Semester

		Technical Electives	6
IT	245	Network Infrastructure*	3
		Prerequisite: IT 221	
IT	251	Network Security Fundamentals*	4
		Prerequisite: IT 247	
SPD	121	Public Speaking	3
		or	
SPD	125	Personal Communication	3
		Total Semester Credit Hours	16
		TOTAL PROGRAM CREDIT HOURS	64

Technical Elective

CIS	134	Programming Fundamentals	4
CPCA	121	Introduction to Project Management*	1
		Prerequisite: CPCA 105 or CPCA 106 or CPCA 128 or CIS 124 or an appropriate score on a waiver test	
ELEC	126	Microcomputer A+ Preparation	4
ELEC	150	Introduction to Telecommunications	3
ELEC	185	LAN Cabling and Installation	3
ELEC	250	Microcomputer Maintenance*	3
		Prerequisite: ELEC 126	
IT	200	Networking Technologies	3
IT	203	Voice Over IP Fundamentals*	4
		Prerequisite: IT 145	
IT	227	SQL Server Administration*	3
		Prerequisite: IT 221	
IT	228	Exchange Server*	3
		Prerequisite: IT 225	
IT	232	UNIX Networking*	4
		Prerequisite: IT 231	
IT	249	Advanced Routing*	3
		Prerequisite: IT 247	
IT	250	Networking Seminar*	3
		Prerequisite: IT 225 and IT 247	
IT	252	Firewall Security*	4
		Prerequisite: IT 247	
IT	253	Advanced Switching*	3
		Prerequisite: IT 247	
IT	254	Remote Access Networks*	3
		Prerequisite: IT 247	
IT	255	Wireless Security*	4
		Prerequisite: IT 247	
IT	271	Information Technology Internship I*	3
		Prerequisites: IT 210 or IT 221 or IT 230 and department approval	
IT	272	Information Technology Internship II*	3
		Prerequisites: IT 271 and department approval	

*Prerequisite/Corequisite required

Interactive Media, A.A.S.

The interactive media program provides instruction in the design and development process for different types of interactive media, acquiring and managing assets, the history and theory of communication forms, authoring for

interactive media, screen design, interface design, and project management. This program is designed to build a common foundation of experience while allowing the student to select courses from the interactive media electives list as well as general electives that best serve his or her individual needs. Depending on individual choices and talents, students who complete the interactive media program should be prepared for employment in a variety of positions in the interactive media field. For more information and to see samples of student work, go to web.jccc.net/academic/cim

(Major Code 2410; CIP Code 11.0801)

Interactive Media

Associate of Applied Science Degree

Prerequisite for Required Courses

Note: Prior to beginning the program, the student must take the following prerequisite, or have taken the equivalent transfer course, or have passed the waiver test (where applicable), or have obtained a waiver from the program administrator.

CDTP 135 Desktop Photo Manipulation I: Photoshop.....1

Fall Semester

		Elective	3
ENGL	121	Composition I*	3
		Prerequisite: ENGL 106 or appropriate placement test score or EAP 113 and EAP 117	
CIM	130	Interactive Media Concepts	2
		Prerequisite or corequisite: ENGL 121	
CIM	140	Interactive Media Assets*	4
		Prerequisites: CDTP 135 AND prerequisite or corequisite CIM 130	
CIM	133	Screen Design*	4
		Prerequisite: CDTP 135	
		Total Semester Credit Hours	16

Spring Semester

		Humanities Elective	3
ENGL	140	Writing for Interactive Media*	3
		Prerequisite: ENGL 121	
CIM	156	Interactive Authoring I*	4
		Prerequisite: CIM 130 and prerequisite or corequisite: CIM 140	
CIM	200	Interactive Communication Form*	3
		Prerequisite or corequisite: CIM 130	
CIM	135	Digital Imaging and Video	3
		Prerequisite: CDTP 135	
		Recommended: PHOT 121	
		Total Semester Credit Hours	16

Fall Semester

		Interactive Media Elective	3
CIM	254	Interact Authoring II*	4
		Prerequisite: CIM 156	
CIM	230	Interactive Media Development*	4
		Prerequisite: CIM 156 AND prerequisite or corequisite CIM 254 AND corequisite: CIM 250	
CIM	250	Interface Design*	4
		Prerequisite: CIM 156 AND prerequisite or corequisite: CIM 254 AND corequisite: CIM 230	
MATH	120	Business Math or higher*	3
		Prerequisite: MATH 111 with a grade of "C" or higher or appropriate score on the math assessment test	
		Total Semester Credit Hours	18

Spring Semester

		Interactive Media Elective	3
		Social Science and/or Economic Elective	3
		Health and/or Physical Education	1
CIM	270	Interactive Media Project*	4
		Prerequisites: CIM 230 and CIM 250 and CIM 254	
CIM	273	Career Preparation*	4
		Prerequisites: CIM 230 and CIM 250 and prerequisite or corequisite: CIM 270	
		Total Semester Credit Hours	15
		TOTAL PROGRAM CREDIT HOURS	64

Interactive Media Elective List

ANI 123 Concept Art for Animation.....3

ANI	145	Introduction to 3D Animation*	3
		Prerequisite or corequisite: ANI 123	
BUS	141	Principles of Management	3
CIM	235	Advanced Digital Video*	3
		Prerequisite: CIM 135	
CIS	134	Programming Fundamentals	4
CIS	162	Database Programming*	4
		Prerequisite: CIS 134 or the equivalent	
ENGL	150	Digital Narratives*	3
		Prerequisite: ENGL 121	
ENTR	120	Introduction to Entrepreneurship	2
ENTR	180	Opportunity Analysis	2
ENTR	142	Fast Trac Business Plan	3
MUS	156	MIDI Music Composition	3
SPD	120	Interpersonal Communication	3
SPD	121	Public Speaking	3
SPD	125	Personal Communication	3

*Prerequisite/Corequisite required

Interactive Media Certificate

These two certificates are designed to prepare students to open their own business providing Web design services. They provide the student with instruction in the design and development process needed to deliver information and media, primarily via the World Wide Web. This includes acquiring and managing assets (i.e., text, graphics, sound and video), the history and theory of communication forms, screen design, multimedia authoring, interface design, and project management.

The business plan certificate program focuses on evaluating an idea for a business and concludes with writing a business plan to start and/or grow a business.

(Interactive Media - Major Code 6410; CIP Code 11.0801 and Business Plan - Major Code 4810; CIP Code 52.0710)

For the Interactive Media & Business Plan Certificates, go to link below.

[Interactive Media](#)

Career Certificate

Suggested/Sample Course Sequence

The sequence taken by the student may vary depending on prerequisites, course availability, and personal/professional responsibilities.

Prerequisite for Required Course

CDTP	135	Desktop Photo Manipulation I: Photoshop	1
		or department approval	
		or prior learning credit (contact the Testing Center)	

Fall Semester

ENGL	121	Composition I*	3
		Prerequisite: ENGL 106 or appropriate placement test score or EAP 113 and EAP 117	
CIM	130	Interactive Media Concepts*	2
		Prerequisite or corequisite: ENGL 121	
CIM	140	Interactive Media Assets*	4
		Prerequisites: CDTP 135 AND prerequisite or corequisite CIM 130	
MATH	120	Business Math or higher*	3
		Prerequisite: MATH 111 with a grade of "C" or higher or appropriate score on the math assessment test	
		Total Semester Credit Hours	12

Spring Semester

CIM	133	Screen Design*	4
		Prerequisite: CDTP 135	
CIM	156	Interactive Authoring I*	4
		Prerequisite: CIM 130 and prerequisite or corequisite: CIM 140	
CIM	200	Interactive Communication Form*	3
		Prerequisite or corequisite: CIM 130	
		Total Semester Credit Hours	11

Fall Semster

CIM	254	Interact Authoring II*	4
		Prerequisite: CIM 156	
CIM	230	Interactive Media Development*	4
		Prerequisite: CIM 156 AND prerequisite or corequisite CIM 254 AND corequisite: CIM 250	
CIM	250	Interface Design*	4
		Prerequisite: CIM 156 AND prerequisite or corequisite: CIM 254 AND corequisite: CIM 230	
		Total Semester Credit Hours	12

Spring Semester

CIM	270	Interactive Media Project*	4
		Prerequisites: CIM 230 and CIM 250 and CIM 254	
		Total Semester Credit Hours	4
		TOTAL PROGRAM CREDIT HOURS	39

*Prerequisite/Corequisite required

Business Plan Certificate

The Business Plan certificate focuses on writing a business plan to start and/or grow a business.

First Semester

ENTR	120	Introduction to Entrepreneurship	2
ENTR	180	Opportunity Analysis	2
		Total Semester Credit Hours	4

Second Semester

ENTR	142	Fast Trac Business Plan	3
		Total Semester Credit Hours	3
		TOTAL PROGRAM CREDIT HOURS	7

Interior Design, A.A.S.

Seven options in JCCC's interior design program offer students opportunities to choose a career path from a wide variety of exciting fields. Three associate of applied science degree options -- interior design, interior merchandising and interior entrepreneurship -- offer design, retail and business proprietorship skills. Three certificate programs, the interior products sales certificate, interior design and merchandising entrepreneurship certificate and the interior design sales and marketing representative certificate, are available for students who need skills for immediate employment or who want a broader knowledge base for their current employment. The interior design advanced certificate offers classes needed to sit for the NCIDQ exam.

JCCC's program offers courses in interior materials and resources, professional selling, business management, manual and CAD drafting, and product presentation, combined with a basic curriculum of business math, English and art history. Two required internships help develop technical, creative and business skills.

Faculty have worked in the field, which equips them to offer valuable firsthand knowledge of what it takes to succeed.

JCCC's interior design program is recognized by the National Kitchen and Bath Association as an NKBA Accredited program.

Note: Metropolitan Community College students should seek specific counsel from the JCCC program personnel for the appropriate course plan and numbers.

Metropolitan Community College students should refer to Cooperative Program Information.

Note: Some prerequisite courses for the Interior Design programs require a "C" or higher to be awarded the AAS degrees and certificates.

(Major Code 2750; CIP Code 50.0408)

[Interior Design](#)

Associate of Applied Science Degree

First Semester

ITMD 121	Interior Design.....	3
DRAF 164	Architectural Drafting/Residential Interior Design...3	
ITMD 133	Furniture & Ornamentation/Antiquity to Renaissance...3	
MATH 120	Business Math or higher*.....3	
	Prerequisite: MATH 111 with a grade of "C" or higher or appropriate score on the math assessment test	
ITMD 125	Interior Textiles.....	3
ENGL 121	Composition I*.....	3
	Prerequisite: ENGL 106 or appropriate placement test score or EAP 113 and EAP 117	
	Total Semester Credit Hours.....	18

Second Semester

ITMD 123	Space Planning*.....	3
	Prerequisites: ITMD 121 with "C" or higher and DRAF 164 with a grade of "C" or higher	
ITMD 129	Design Presentation*.....	3
	Prerequisites: ITMD 121 with a grade of "C" or higher and DRAF 164 with a grade of "C" or higher	
ITMD 132	Materials and Resources.....	3
MKT 134	Professional Selling.....	3
ITMD 231	Furniture & Ornamentation Renaissance to 20th Cent...3	
BUS 150	Business Communications*.....	3
	Prerequisite: ENGL 121	
	Total Semester Credit Hours.....	18

Third Semester

DRAF 264	CAD:Interior Design*.....	3
	Prerequisites: ITMD 123 and ITMD 129 both with a grade of grade of "C" or higher, or department approval	
ITMD 271	Budgeting and Estimating*.....	3
	Prerequisites: ITMD 121 with a grade of "C" or higher and ITMD 125 with a grade of "C" or higher and MATH 120 with a grade of "C" or higher	
ITMD 282	Interiors Internship I*.....	1
	Prerequisite: ITMD 121 with a grade of "C" or higher	
ARTH 180	Art History: Ancient to Renaissance.....	3
ECON 132	Survey of Economics.....	3
	or	
ECON 230	Economics I.....	3
ITMD 213	Lighting Design and Planning*.....	3
	Prerequisite: ITMD 121 with grade of "C" or higher or FASH 125	
	Total Semester Credit Hours.....	16

Fourth Semester

	Health and/or Physical Education Elective.....	1
ITMD 221	Residential Design*.....	3
	Prerequisites: DRAF 264 with a grade of "C" or higher AND prerequisite or corequisite ITMD 271 with a grade of "C" or higher	
ITMD 273	Interiors Seminar: Practices and Procedures*.....	2
	Prerequisite: ITMD 123 with a grade of "C" or higher	
ITMD 284	Interiors Internship II*.....	1
	Prerequisites: ITMD 121 with a grade of "C" or higher and ITMD 282 with a grade of "C" or higher	
ITMD 140	Window Treatments*.....	1
	Prerequisites: ITMD 121 and ITMD 125 both with a grade of "C" or higher and prerequisite or corequisite: ITMD 271 with a grade of "C" or higher	
ITMD 145	Upholstered Furniture*.....	1
	Prerequisites: ITMD 121 and ITMD 125 both with a grade of "C" or higher and prerequisite or corequisite: ITMD 271 with a grade of "C" or higher	
ITMD 149	Casegoods*.....	1
	Prerequisite: ITMD 121 with a grade of "C" or higher	
ITMD 148	History of Asian Furniture and Design.....	2
ITMD 150	Asian Rugs and Carpets.....	1
ITMD 180	Leadership in Design*.....	1
	Prerequisite: ITMD 123 with a grade of "C" or higher	
ITMD 239	Capstone: Interior Design*.....	2
	Prerequisite: Department approval	
	Total Semester Credit Hours.....	16
	TOTAL PROGRAM CREDIT HOURS.....	68

*Prerequisite/Corequisite required

Students may be interested in taking additional courses, as noted below, to complement their AAS degree study. These courses are NOT part of the degree requirements.

ITMD 127	Elements of Floral Design.....	1
ITMD 143	Accessory Fundamentals*.....	1
	Prerequisite: ITMD 121 with a grade of "C" or higher	
ITMD 175	Advanced Floral Design*.....	1
	Prerequisite: ITMD 127	

ITMD 189	Sustaining Design.....	1
ITMD 250	20th Century Designers.....	1
ITMD 295	Field Study: Design and Merchandising*.....	3
	Prerequisites: ITMD 121 and department approval	
ITMD 296	Interior Design: the Orient.....	3

*Prerequisite/Corequisite required

Interior Design Advanced Certificate

This certificate is designed for students who wish to be certified or registered interior designers. Students must have completed the Interior Design AAS degree.

Faculty have worked in the field, which equips them to offer valuable firsthand knowledge of what it takes to succeed.

JCCC's interior design program is recognized by the National Kitchen and Bath Association as an NKBA Accredited program.

Note: Metropolitan Community College students should seek specific counsel from the JCCC program personnel for the appropriate course plan and numbers.

Metropolitan Community College students should refer to Cooperative Program Information.

Note: Some prerequisite courses for the Interior Design programs require a "C" or higher to be awarded the AAS degrees and certificates.

(Major Code 4100; CIP Code 50.0408)

Interior Design

Career Certificate

Suggested/Sample Course Sequence

The sequence taken by the student may vary depending on prerequisites, course availability, and personal/professional responsibilities.

First Semester

ITMD 225	Interior Textiles II*.....	3
	Prerequisite: ITMD 125 with a grade of "C" or higher	
DRAF 230	Intermediate CAD: AutoCAD*.....	3
	Prerequisite: DRAF 130 or department approval or	
ART 129	Design Color*.....	3
	Prerequisite or corequisite: CDTF 135	
ITMD 223	Commercial Design*.....	3
	Prerequisite: DRAF 264 with a grade of "C" or higher	
	Total Semester Credit Hours.....	9

Second Semester

	Art Elective.....	3
	Interior Design Elective.....	3
ITMD 219	Issues in Interior Design*.....	3
	Prerequisite: ITMD 221 with a grade of "C" or higher	
ITMD 234	Kitchen and Bath: Planning and Design*.....	3
	Prerequisites: DRAF 264 with a grade of "C" or higher and ITMD 123 with a grade of "C" or higher	
	Total Semester Credit Hours.....	12
	TOTAL PROGRAM CREDIT HOURS.....	21

*Prerequisite/Corequisite required

Art/Art History Electives

ARTH 182	Art History: Renaissance to Modern.....	3
ART 124	Design 2D*.....	3
	Prerequisite or corequisite: CDTF 145	
ART 127	Design 3D*.....	3
	Prerequisite: ART 124	

Interior Design Electives

ITMD 127	Elements of Floral Design.....	1
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ITMD 143	Accessory Fundamentals*	1
	Prerequisite: ITMD 121 with a grade of "C" or higher	
ITMD 175	Advanced Floral Design*	1
	Prerequisite: ITMD 127	
ITMD 250	20th Century Designers	1
ITMD 295	Field Study: Design and Merchandising*	3
	Prerequisites: ITMD 121 and department approval	
ITMD 296	Interior Design: the Orient	3

	Prerequisite: ITMD 121 with a grade of "C" or higher	
ITMD 145	Upholstered Furniture*	1
	Prerequisites: ITMD 121 and ITMD 125 both with a grade of "C" or higher and prerequisite or corequisite: ITMD 271 with a grade of "C" or higher	
ITMD 147	Lighting Basics*	1
	Prerequisite: ITMD 121 with a grade of "C" or higher or FASH 125	
ITMD 149	Casegoods*	1
	Prerequisite: ITMD 121 with a grade of "C" or higher	
ITMD 213	Lighting Design and Planning*	3
	Prerequisite: ITMD 121 with grade of "C" or higher or FASH 125	
ITMD 225	Interior Textiles II*	3
	Prerequisite: ITMD 125 with a grade of "C" or higher	
ITMD 231	Furniture & Ornamentation Renaissance to 20th Cent	3
ITMD 273	Interiors Seminar: Practices and Procedures*	2
	Prerequisite: ITMD 123 with a grade of "C" or higher	

Interior Design Retail Sales/Manufacturing Rep Certificate

The interior design retail sales/manufacturers representative certificate is a program designed for students employed in or seeking positions in the retail or wholesale interior design market.

Faculty have worked in the field, which equips them to offer valuable firsthand knowledge of what it takes to succeed.

Note: Metropolitan Community College students should seek specific counsel from the JCCC program personnel for the appropriate course plan and numbers.

Metropolitan Community College students should refer to Cooperative Program Information.

Note: Some prerequisite courses for the Interior Design programs require a "C" or higher to be awarded the AAS degrees and certificates.

(Major Code 6510; CIP Code 50.0408)

Interior Design

Career Certificate

Suggested/Sample Course Sequence

The sequence taken by the student may vary depending on prerequisites, course availability, and personal/professional responsibilities.

First Semester

ITMD 121	Interior Design	3
ITMD 125	Interior Textiles	3
ITMD 132	Materials and Resources	3
MATH 120	Business Math or higher*	3
	Prerequisite: MATH 111 with a grade of "C" or higher or appropriate score on the math assessment test	
MKT 134	Professional Selling	3
FASH 135	Image Management	1
ITMD 282	Interiors Internship I*	1
	Prerequisite: ITMD 121 with a grade of "C" or higher	
	Total Semester Credit Hours	17

Second Semester

ITMD	Elective	3
MKT 121	Retail Management	3
FASH 125	Visual Merchandising	3
ITMD 271	Budgeting and Estimating*	3
	Prerequisites: ITMD 121 with a grade of "C" or higher and ITMD 125 with a grade of "C" or higher and MATH 120 with a grade of "C" or higher	
ITMD 284	Interiors Internship II*	1
	Prerequisites: ITMD 121 with a grade of "C" or higher and ITMD 282 with a grade of "C" or higher	
	Total Semester Credit Hours	13
	TOTAL PROGRAM CREDIT HOURS	30

*Prerequisite/Corequisite required

List of ITMD Electives

ITMD 127	Elements of Floral Design	1
ITMD 140	Window Treatments*	1
	Prerequisites: ITMD 121 and ITMD 125 both with a grade of "C" or higher and prerequisite or corequisite: ITMD 271 with a grade of "C" or higher	
ITMD 143	Accessory Fundamentals*	1

Interior Design & Merchandising Entrep Certificate

The interior design and merchandising entrepreneurship certificate prepares students to open their own interior design or merchandising service or retail business. This certificate is designed to provide the student with basic skills in interior merchandising and design and the basic skills in small business development and management.

Faculty have worked in the field, which equips them to offer valuable firsthand knowledge of what it takes to succeed.

Note: Metropolitan Community College students should seek specific counsel from the JCCC program personnel for the appropriate course plan and numbers.

Metropolitan Community College students should refer to Cooperative Program Information.

Note: Some prerequisite courses for the Interior Design programs require a "C" or higher to be awarded the AAS degrees and certificates.

(Major Code 4210; CIP Code 50.0408)

Interior Design

Career Certificate

Prerequisites for Required Courses

MATH 120	Business Mathematics*	3
	Prerequisite: MATH 111 with a grade of "C" or higher or appropriate score on the math assessment test	
DRAF 164	Architectural Drafting/Residential Interior Design	3

Required Courses

ITMD 121	Interior Design	3
ITMD 125	Interior Textiles	3
ITMD 132	Materials and Resources	3
ENTR 120	Introduction to Entrepreneurship	2
ENTR 180	Opportunity Analysis	2
ITMD 123	Space Planning*	3
	Prerequisites: ITMD 121 with "C" or higher and DRAF 164 with a grade of "C" or higher	
ITMD 271	Budgeting and Estimating*	3
	Prerequisites: ITMD 121 with a grade of "C" or higher and ITMD 125 with a grade of "C" or higher and MATH 120 with a grade of "C" or higher	
ITMD 273	Interiors Seminar: Practices and Procedures*	2
	Prerequisite: ITMD 123 with a grade of "C" or higher	
ENTR 160	Legal Issues for Small Business	2
ENTR 142	Fast Trac Business Plan	3
ITMD 282	Interiors Internship I*	1
	Prerequisite: ITMD 121 with a grade of "C" or higher	

Choose 3 of the 5 one-credit hour courses

ITMD 127	Elements of Floral Design	1
ITMD 175	Advanced Floral Design*	1
	Prerequisite: ITMD 127	
ITMD 140	Window Treatments*	1

	Prerequisites: ITMD 121 and ITMD 125 both with a grade of "C" or higher and prerequisite or corequisite: ITMD 271 with a grade of "C" or higher	
ITMD 145	Upholstered Furniture*.....1	
	Prerequisites: ITMD 121 and ITMD 125 both with a grade of "C" or higher and prerequisite or corequisite: ITMD 271 with a grade of "C" or higher	
ITMD 147	Lighting Basics*.....1	
	Prerequisite: ITMD 121 with a grade of "C" or higher or FASH 125	
	TOTAL PROGRAM CREDIT HOURS.....30	

*Prerequisite/Corequisite required

Students may be interested in taking additional courses, as noted below, to complement their certificate study. These courses are NOT part of the certificate requirements.

ENTR 195	Franchising*.....3	
	Prerequisite: BUS 230	
ENTR 220	Entrepreneurial Marketing*.....2	
	Prerequisite: BUS 230	
ENTR 131	Financial Management for Small Business*.....2	
	Prerequisite: ACCT 111 or ACCT 121	

Interior Entrepreneurship, A.A.S.

Seven options in JCCC's interior design program offer students opportunities to choose a career path from a wide variety of exciting fields. Three associate of applied science degree options -- interior design, interior merchandising and interior entrepreneurship--offer design, retail and business proprietorship skills. Three certificate programs, the interior products sales certificate, interior design and merchandising entrepreneurship certificate and the interior design sales and marketing representative certificate, are available for students who need skills for immediate employment or who want a broader knowledge base for their current employment. The interior design advanced certificate offers classes needed to sit for the NCIDQ exam.

JCCC's program offers courses in interior materials and resources, professional selling, business management, manual and CAD drafting, and product presentation, combined with a basic curriculum of business math, English and art history. Two required work-study internships help develop technical, creative and business skills.

Faculty have worked in the field, which equips them to offer valuable firsthand knowledge of what it takes to succeed.

Note: Metropolitan Community College students should seek specific counsel from the JCCC program personnel for the appropriate course plan and numbers.

Metropolitan Community College students should refer to Cooperative Program Information.

Note: Some prerequisite courses for the Interior Design programs require a "C" or higher to be awarded the AAS degrees and certificates.

(Major Code 2770; CIP Code 50.0408)

Interior Design

Associate of Applied Science Degree

First Semester

ITMD 121	Interior Design.....3	
ITMD 133	Furniture & Ornamentation/Antiquity to Renaissance...3	
DRAF 164	Architectural Drafting/Residential Interior Design...3	
MATH 120	Business Math or higher*.....3	
	Prerequisite: MATH 111 with a grade of "C" or higher or appropriate score on the math assessment test	
ITMD 125	Interior Textiles.....3	
ENGL 121	Composition I*.....3	
	Prerequisite: ENGL 106 or appropriate placement test score or EAP 113 and EAP 117	
	Total Semester Credit Hours.....18	

Second Semester

	Interiors Elective.....3	
ITMD 123	Space Planning*.....3	
	Prerequisites: ITMD 121 with "C" or higher and DRAF 164 with a grade of "C" or higher	
ITMD 132	Materials and Resources.....3	
MKT 134	Professional Selling.....3	
ITMD 231	Furniture & Ornamentation Renaissance to 20th Cent...3	
BUS 150	Business Communications*.....3	
	Prerequisite: ENGL 121	
	Total Semester Credit Hours.....18	

Third Semester

	Interiors Elective.....3	
	Business/Marketing/Entrepreneurship Electives.....3	
ITMD 271	Budgeting and Estimating*.....3	
	Prerequisites: ITMD 121 with a grade of "C" or higher and ITMD 125 with a grade of "C" or higher and MATH 120 with a grade of "C" or higher	
ITMD 282	Interiors Internship I*.....1	
	Prerequisite: ITMD 121 with a grade of "C" or higher	
ARTH 180	Art History: Ancient to Renaissance.....3	
ECON 132	Survey of Economics.....3	
	or	
ECON 230	Economics I.....3	
	Total Semester Credit Hours.....16	

Fourth Semester

	Interiors Elective.....3	
	Business/Marketing/Entrepreneurship Electives.....6	
	Physical Education Elective.....1	
ITMD 273	Interiors Seminar: Practices and Procedures*.....2	
	Prerequisite: ITMD 123 with a grade of "C" or higher	
ITMD 284	Interiors Internship II*.....1	
	Prerequisites: ITMD 121 with a grade of "C" or higher and ITMD 282 with a grade of "C" or higher	
ITMD 237	Capstone: Merchandising and Entrepreneurship*.....2	
	Prerequisite: Department approval	
ITMD 180	Leadership in Design*.....1	
	Prerequisite: ITMD 123 with a grade of "C" or higher	
	Total Semester Credit Hours.....16	
	TOTAL PROGRAM CREDIT HOURS.....68	

Interiors Electives

ITMD 127	Elements of Floral Design.....1	
ITMD 140	Window Treatments*.....1	
	Prerequisites: ITMD 121 and ITMD 125 both with a grade of "C" or higher and prerequisite or corequisite: ITMD 271 with a grade of "C" or higher	
ITMD 143	Accessory Fundamentals*.....1	
	Prerequisite: ITMD 121 with a grade of "C" or higher	
ITMD 145	Upholstered Furniture*.....1	
	Prerequisites: ITMD 121 and ITMD 125 both with a grade of "C" or higher and prerequisite or corequisite: ITMD 271 with a grade of "C" or higher	
ITMD 147	Lighting Basics*.....1	
	Prerequisite: ITMD 121 with a grade of "C" or higher or FASH 125	
ITMD 148	History of Asian Furniture and Design.....2	
ITMD 149	Casegoods*.....1	
	Prerequisite: ITMD 121 with a grade of "C" or higher	
ITMD 150	Asian Rugs and Carpets.....1	
ITMD 175	Advanced Floral Design*.....1	
	Prerequisite: ITMD 127	
ITMD 213	Lighting Design and Planning*.....3	
	Prerequisite: ITMD 121 with grade of "C" or higher or FASH 125	
ITMD 225	Interior Textiles II*.....3	
	Prerequisite: ITMD 125 with a grade of "C" or higher	
ITMD 250	20th Century Designers.....1	
ITMD 295	Field Study: Design and Merchandising*.....3	
	Prerequisites: ITMD 121 and department approval	
ITMD 296	Interior Design: the Orient.....3	

Business/Marketing/Entrepreneurship Electives

ACCT 111	Small Business Accounting.....3	
	or	
ACCT 121	Accounting I.....3	
BUS 230	Marketing.....3	
MKT 121	Retail Management.....3	
ENTR 120	Introduction to Entrepreneurship.....2	
ENTR 131	Financial Management for Small Business*.....2	
	Prerequisite: ACCT 111 or ACCT 121	
ENTR 142	Fast Trac Business Plan.....3	
ENTR 160	Legal Issues for Small Business.....2	
ENTR 180	Opportunity Analysis.....2	

*Prerequisite/Corequisite required

Interior Merchandising, A.A.S.

Seven options in JCCC's interior design program offer students opportunities to choose a career path from a wide variety of exciting fields. Three associate of applied science degree options -- interior design, interior merchandising and interior entrepreneurship -- offer design, retail and business proprietorship skills. Three certificate programs, the interior products sales certificate, interior design and merchandising entrepreneurship certificate and the interior design sales and marketing representative certificate, are available for students who need skills for immediate employment or who want a broader knowledge base for their current employment. The interior design advanced certificate offers classes needed to sit for the NCIDQ exam.

JCCC's program offers courses in materials and resources, professional selling, business management, manual and CAD drafting, and product presentation, combined with a basic curriculum of business math, English and art history. Two required work-study internships help develop technical, creative and business skills.

Faculty have worked in the field, which equips them to offer valuable firsthand knowledge of what it takes to succeed.

Note: Metropolitan Community College students should seek specific counsel from the JCCC program personnel for the appropriate course plan and numbers.

Metropolitan Community College students should refer to Cooperative Program Information.

Note: Some prerequisite courses for the Interior Design programs require a "C" or higher to be awarded the AAS degrees and certificates.

(Major Code 2760; CIP Code 50.0408)

Interior Design

Associate of Applied Science Degree

First Semester

ITMD 121	Interior Design.....	3
ITMD 133	Furniture & Ornamentation/Antiquity to Renaissance...	3
DRAF 164	Architectural Drafting/Residential Interior Design...	3
MATH 120	Business Math or higher*.....	3
	Prerequisite: MATH 111 with a grade of "C" or higher or appropriate score on the math assessment test	
ITMD 125	Interior Textiles.....	3
ENGL 121	Composition I*.....	3
	Prerequisite: ENGL 106 or appropriate placement test score or EAP 113 and EAP 117	
	Total Semester Credit Hours.....	18

Second Semester

ITMD 123	Interiors Elective.....	3
	Space Planning*.....	3
	Prerequisites: ITMD 121 with "C" or higher and DRAF 164 with a grade of "C" or higher	
ITMD 132	Materials and Resources.....	3
MKT 134	Professional Selling.....	3
ITMD 231	Furniture & Ornamentation Renaissance to 20th Cent...	3
BUS 150	Business Communications*.....	3
	Prerequisite: ENGL 121	
	Total Semester Credit Hours.....	18

Third Semester

	Interiors Elective.....	3
	Business/Marketing Elective.....	3
ITMD 271	Budgeting and Estimating*.....	3
	Prerequisites: ITMD 121 with a grade of "C" or higher and ITMD 125 with a grade of "C" or higher and MATH 120 with a grade of "C" or higher	
ITMD 282	Interiors Internship I*.....	1
	Prerequisite: ITMD 121 with a grade of "C" or higher	
ARTH 180	Art History: Ancient to Renaissance.....	3
ECON 132	Survey of Economies.....	3
	or	
ECON 230	Economics I.....	3
	Total Semester Credit Hours.....	16

Fourth Semester

	Interiors Elective.....	3
	Business/Marketing Elective.....	3
	Physical Education Elective.....	1
ITMD 273	Interiors Seminar: Practices and Procedures*.....	2
	Prerequisite: ITMD 123 with a grade of "C" or higher	
ITMD 284	Interiors Internship II*.....	1
	Prerequisites: ITMD 121 with a grade of "C" or higher and ITMD 282 with a grade of "C" or higher	
FASH 125	Visual Merchandising.....	3
FASH 135	Image Management.....	1
	or	
ITMD 180	Leadership in Design*.....	1
	Prerequisite: ITMD 123 with a grade of "C" or higher	
ITMD 237	Capstone: Merchandising and Entrepreneurship*.....	2
	Prerequisite: Department approval	
	Total Semester Credit Hours.....	16
	TOTAL PROGRAM CREDIT HOURS.....	68

Interior Electives

ITMD 127	Elements of Floral Design.....	1
ITMD 140	Window Treatments*.....	1
	Prerequisites: ITMD 121 and ITMD 125 both with a grade of "C" or higher and prerequisite or corequisite: ITMD 271 with a grade of "C" or higher	
ITMD 143	Accessory Fundamentals*.....	1
	Prerequisite: ITMD 121 with a grade of "C" or higher	
ITMD 145	Upholstered Furniture*.....	1
	Prerequisites: ITMD 121 and ITMD 125 both with a grade of "C" or higher and prerequisite or corequisite: ITMD 271 with a grade of "C" or higher	
ITMD 147	Lighting Basics*.....	1
	Prerequisite: ITMD 121 with a grade of "C" or higher or FASH 125	
ITMD 148	History of Asian Furniture and Design.....	2
ITMD 149	Casegoods*.....	1
	Prerequisite: ITMD 121 with a grade of "C" or higher	
ITMD 150	Asian Rugs and Carpets.....	1
ITMD 175	Advanced Floral Design*.....	1
	Prerequisite: ITMD 127	
ITMD 213	Lighting Design and Planning*.....	3
	Prerequisite: ITMD 121 with grade of "C" or higher or FASH 125	
ITMD 225	Interior Textiles II*.....	3
	Prerequisite: ITMD 125 with a grade of "C" or higher	
ITMD 250	20th Century Designers.....	1
ITMD 295	Field Study: Design and Merchandising*.....	3
	Prerequisites: ITMD 121 and department approval	
ITMD 296	Interior Design: the Orient.....	3

Business/Marketing Electives

BUS 145	Small Business Management.....	3
BUS 230	Marketing.....	3
MKT 121	Retail Management.....	3
MKT 221	Sales Management*.....	3
	Prerequisite: MKT 134	
	*Prerequisite/Corequisite required	

Interior Products Sales Representative Certificate

The interior products sales representative certificate is a 17-credit-hour program designed for students employed in or seeking positions in the interior design retail market. The required courses are already included in the approved curriculum of the interior design program.

Faculty have worked in the field, which equips them to offer valuable first hand knowledge of what it takes to succeed.

Note: Metropolitan Community College students should seek specific counsel from the JCCC program personnel for the appropriate course plan and numbers.

Metropolitan Community College students should refer to Cooperative Program Information.

Note: Some prerequisite courses for the Interior Design programs require a "C" or higher to be awarded the AAS degrees and certificates.

(Major Code 6500; CIP Code 50.0408)

Interior Design

Career Certificate

Suggested/Sample Course Sequence

The sequence taken by the student may vary depending on prerequisites, course availability, and personal/professional responsibilities.

First Semester

ITMD 121	Interior Design.....	3
ITMD 125	Interior Textiles.....	3
MATH 120	Business Math or higher*.....	3
	Prerequisite: MATH 111 with a grade of "C" or higher or appropriate score on the math assessment test	
MKT 134	Professional Selling.....	3
	Total Semester Credit Hours.....	12

Second Semester

ITMD 132	Materials and Resources.....	3
FASH 125	Image Management.....	1
ITMD 282	Interiors Internship I*.....	1
	Prerequisite: ITMD 121 with a grade of "C" or higher	
	Total Semester Credit Hours.....	5
	TOTAL PROGRAM CREDIT HOURS.....	17

*Prerequisite/Corequisite required

Interpreter Training, A.A.S.

The employment outlook for sign language interpreters is promising. As the population grows, so does the need for interpreters. Another factor in the predicted increase in employment opportunities is the effort many social service agencies, school systems, medical services and industries are making to provide interpreter services.

JCCC's program concentrates on preparing students to provide entry-level interpretation and transliteration for the deaf, hard of hearing and non-deaf communities. During the last semester of the program, students participate in a practicum class in which they interpret under supervision in a variety of situations. Upon successful completion of this program, and a required capstone evaluation, students will earn an associate of applied science degree.

This is a selective admission program with limited enrollment. The deadline for fall semester applications is February 15th. If you are interested, contact the Admissions office for an application packet, which includes prerequisites, deadlines, admission requirements and academic criteria.

Students must earn a grade of "C" or higher in all coursework.

(Major Code 259A; CIP Code 16.1603)

Interpreter Training

Associate of Applied Science Degree

Prerequisites

ASL 120	Elementary American Sign Language I.....	3
ASL 121	Elementary American Sign Language II*.....	3
	Prerequisite: INTR 120 or ASL 120 or FL 180. All prerequisites require a grade of "C" or higher	
ENGL 121	Composition I*.....	3
	Prerequisite: ENGL 106 or appropriate placement test score or EAP 113 and EAP 117	
	Total Prerequisite Credit Hours.....	9

Note: ENGL 121 must be passed with a "B" or higher.
Note: ASL 120 and 121 must be passed with a "C" or higher.

General Education Requirements

ANTH 125	Cultural Anthropology.....	3
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Note: ANTH 125 is required to meet the Social Science and/or Economics Elective and must be taken before second semester of the ITP.

SPD 120	Interpersonal Communication.....	3
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Note: SPD 120 is required to meet the Communications Elective and must be taken before the second semester of the ITP.

	Humanities Elective.....	3
	Science and/or Math Elective.....	3
	Health and/or Physical Educ Elect.....	1
SPD 121	Public Speaking.....	3
ENGL 122	Composition II*.....	3
	Prerequisite: ENGL 121	
	Total General Education Credit Hours.....	19

Note: It is highly recommended that all general education requirements be taken prior to enrollment in the program or during the summer. However, AAC 150 should be taken in student's last semester due to

course/career relevancy.

First Semester

INTR 122	Intermediate American Sign Language I*.....	3
	Prerequisite: INTR 121 or ASL 121 or FL 181 with a grade of "C" or higher and Corequisite: Students accepted in the interpreter training program must take corequisites of INTR 130 and INTR 126 and (INTR 147 or ASL 145) and (INTR 145 or ASL 145) all with a grade of "C" or higher	
INTR 126	Classifiers in American Sign Language*.....	2
	Prerequisites: INTR 121 or ASL 121 with grade of "C" or higher and acceptance in the interpreter training program	
	Corequisites: (INTR 122 or ASL 122) and INTR 130 and (INTR 147 or ASL 147) and (INTR 145 or ASL 145)	
INTR 130	Survey of the Interpreting Profession*.....	3
	Prerequisites: INTR 121 or FL 181 or ASL 121 with a grade of "C" or higher and acceptance in the interpreter training program	
	Corequisites: (INTR 122 or ASL 122) and INTR 126 and (INTR 147 or ASL 147) and (INTR 145 or ASL 145) all with a grade of "C" or higher	
INTR 147	Fingerspelling I*.....	2
	Prerequisite: INTR 121 or FL 181 or ASL 121 with a grade of "C" or higher and Corequisites: For students accepted in the interpreter training program, enroll in: (INTR 122 or ASL 122) and INTR 126 and INTR 130 and (INTR 145 or ASL 145) all with a grade of "C" or higher	
INTR 145	Introduction to the Deaf Community*.....	3
	Prerequisite: Acceptance to interpreter training program and Prerequisite or corequisite: ANTH 125 and SPD 120 for Interpreter Training Program	
	Corequisites for Interpreter Training Program: INTR 122 and INTR 126 and INTR 130 and INTR 147 all with a grade of "C" or higher	
	Note: Prerequisite or corequisite of INTR 120 or ASL 120 or FL 180 required for students in the American Sign Language Studies Certificate	
	Total Semester Credit Hours.....	13

Second Semester

INTR 123	Intermediate American Sign Language II*.....	3
	Prerequisite: INTR 122 or ASL 122 or FL 270 with a grade of "C" or higher and Corequisite: For students accepted in the interpreter training program: INTR 131 and INTR 135 and INTR 242 and INTR 248 all with a grade of "C" or higher	
INTR 131	Interpreting Preparation Skills*.....	2
	Prerequisites: INTR 130 with a grade of "C" or higher and acceptance into the interpreter training program	
	Corequisites: INTR 123 and INTR 135 and INTR 242 and INTR 248 all with a grade of "C" or higher	
INTR 135	Intro to American Sign Language Linguistics*.....	3
	Prerequisite: INTR 122 or ASL 122 or FL 270 with a grade of "C" or higher	
	Corequisites: for students accepted in the interpreter training program enroll in: INTR 123 and INTR 242 and INTR 131 and INTR 248 all with a grade of "C" or higher	
INTR 242	Fingerspelling II*.....	2
	Prerequisite: INTR 147 with a grade of "C" or higher	
	Corequisites: INTR 123 and INTR 131 and INTR 135 and INTR 248 all with a grade of "C" or higher	
INTR 248	Deaf Community Ethnography*.....	3
	Prerequisite: INTR 145 or ASL 145 with a grade of "C" or higher	
	Corequisites: (INTR 123 or ASL 123) and INTR 131 and	

(INTR 135 or ASL 135) and INTR 242 all with a grade of "C" or higher
 Total Semester Credit Hours.....13

Third Semester

INTR 181	Interpreting Practicum I*	1
	Prerequisites: INTR 130 and INTR 145 with a grade of "C" or higher and Corequisites: INTR 223 and INTR 226 and INTR 250 all with a grade of "C" or higher	
INTR 223	Advanced American Sign Language*	3
	Prerequisite: INTR 123 or ASL 123 or FL 271 with a grade of "C" or higher Corequisites: INTR 250 and INTR 226 and INTR 181 all with a grade of "C" or higher	
INTR 226	Specialized and Technical Vocabulary*	2
	Prerequisite: INTR 123 or ASL 123 with a grade of "C" or higher Corequisites: INTR 181 and INTR 250 and INTR 223 all with a grade of "C" or higher	
INTR 250	Interpreting I*	6
	Prerequisite: INTR 131 with a grade of "C" or higher Corequisites: INTR 181 and INTR 223 and INTR 226 all with a grade of "C" or higher	
	Total Semester Credit Hours.....	12

Fourth Semester

INTR 251	Interpreting II*	2
	Prerequisite: INTR 250 with a grade of "C" or higher Corequisites: INTR 262 and INTR 282 and AAC 150 all with a grade of "C" or higher	
INTR 262	Seminar on Interpreting*	3
	Prerequisite: INTR 250 with a grade of "C" or higher Corequisites: INTR 251 and INTR 282 and AAC 150 all with a grade of "C" or higher	
INTR 282	Interpreting Practicum II*	6
	Prerequisite: INTR 181 with a grade of "C" or higher Corequisites: INTR 251 and INTR 262 and AAC 150 all with a grade of "C" or higher	
AAC 150	Job Search Skills.....	1
	Total Semester Credit Hours.....	12
	TOTAL PROGRAM CREDIT HOURS.....	69

*Prerequisite/Corequisite required

American Sign Language Studies Certificate

The American Sign Language (ASL) studies postsecondary certificate has been developed based on the need for professionals and community members to be skilled in ASL. This program is intended as supplementary and does not prepare the learner to work as an interpreter. MATH 115 or higher is required for the certificate program; students planning to apply for admission to the interpreter training program after receiving their certificates are advised that MATH 116 or higher and/or a science elective are required for the A.A.S. degree. Students should contact a counselor or the career program facilitator for advice concerning graduation requirements.

Students must earn a grade of "C" or higher in all ASL courses.

Please note: ASL 145, ASL 122 and ASL 147 are only offered in the fall semester; ASL 123, ASL 135 and ASL 150 are only offered in the spring semester.

(Major Code 6800; CIP Code 16.1603)

Interpreter Training

Career Certificate

First Semester

	Health/Physical Education Elective.....	1
ASL 120	Elementary American Sign Language I.....	3
ASL 145	Introduction to the Deaf Community*.....	3
	Prerequisites or Corequisite: INTR 120 or ASL 120 or FL 180 with a grade of "C" or higher	
ENGL 121	Composition I*.....	3
	Prerequisite: ENGL 106 or appropriate placement test score or EAP 113 and EAP 117	
	Total Semester Credit Hours.....	10

Second Semester

	Social Science or Economics Elective.....	3
ASL 121	Elementary American Sign Language II*.....	3
	Prerequisite: INTR 120 or ASL 120 or FL 180. All prerequisites require a grade of "C" or higher	
ENGL 122	Composition II*.....	3
	Prerequisite: ENGL 121	
	Total Semester Credit Hours.....	9

Third Semester

	Math Elective*.....	3
ASL 122	Intermediate American Sign Language I*.....	3
	Prerequisites: INTR 121 or ASL 121 or FL 181. All prerequisites require a grade of "C" or higher	
ASL 147	Fingerspelling I*.....	2
	Prerequisites: INTR 121 or ASL 121 or FL 181, with a grade of "C" or higher	
	Total Semester Credit Hours.....	8

Fourth Semester

ASL 123	Intermediate American Sign Language II*.....	3
	Prerequisites: INTR 122 or ASL 122 or FL 270. All prerequisites require a grade of "C" or higher	
ASL 135	Intro to American Sign Language Linguistics*.....	3
	Prerequisites: INTR 122 or ASL 122 or FL 270. All prerequisites require a grade of "C" or higher	
ASL 150	American Sign Language Literature*.....	3
	Prerequisite: INTR 122 or ASL 122 with a grade of "C" or higher	
	Total Semester Credit Hours.....	9
	TOTAL PROGRAM CREDIT HOURS.....	36

Math Elective

MATH 115	Elementary Algebra*.....	3
	Prerequisite: MATH 111 with a grade of "C" or higher or appropriate score on the math assessment test	
MATH 116	Intermediate Algebra*.....	3
	Prerequisite: MATH 115 with a grade of "C" or higher or appropriate score on the math assessment test	
MATH 118	Geometry*.....	3
	Prerequisite: MATH 115 with a grade of "C" or higher or appropriate score on the math assessment test	
MATH 120	Business Mathematics*.....	3
	Prerequisite: MATH 111 with a grade of "C" or higher or appropriate score on the math assessment test	
MATH 122	Mathematics in Our Culture*.....	3
	Prerequisite: MATH 111 with a grade of "C" or higher or appropriate score on the math assessment test	
MATH 130	Technical Mathematics I*.....	3
	Prerequisite: MATH 111 with a grade of "C" or higher or an appropriate score on the math assessment test	
MATH 131	Technical Mathematics II*.....	3
	Prerequisites: MATH 130 or MATH 133 with a grade of "C" or higher or an equivalent course with a grade of "C" or higher	
MATH 165	Finite Mathematics*.....	3
	Prerequisite: MATH 116 with a grade of "C" or higher or appropriate score on the math assessment test	
MATH 171	College Algebra*.....	3
	Prerequisite: MATH 116 with a grade of "C" or higher or MATH 131 with a grade of "C" or higher or MATH 134 with a grade of "C" or higher or appropriate score on the math assessment test	
MATH 172	Trigonometry*.....	3
	Prerequisite: MATH 171 with a grade of "C" or higher or appropriate score on the math assessment test	
MATH 173	Precalculus*.....	5
	Prerequisite: MATH 116 with a grade of "C" or higher or appropriate score on the math assessment test	
MATH 175	Discrete Mathematics and its Applications*.....	3
	Prerequisite: MATH 171 or MATH 173 with a grade of "C" or higher or appropriate score on the math assessment test	
MATH 181	Statistics*.....	3
	Prerequisite: MATH 171 or MATH 173 or an equivalent course with a grade of "C" or higher or appropriate score on the math assessment test	
MATH 225	Mathematics as a Decision Making Tool*.....	3
	Prerequisite: MATH 171 or MATH 173 with a grade of "C" or higher or appropriate score on the math assessment test	
MATH 231	Business and Applied Calculus I*.....	3
	Prerequisite: MATH 171 or MATH 173 with a grade of "C" or higher or appropriate score on the math assessment test	
MATH 232	Business and Applied Calculus II*.....	3
	Prerequisites: MATH 231 and either MATH 172 or MATH 173 with a grade of "C" or higher or appropriate score on the math assessment test	
MATH 241	Calculus I*.....	5
	Prerequisite: MATH 172 or MATH 173 or an equivalent course with a grade of "C" or higher or an appropriate score on an assessment test	
MATH 242	Calculus II*.....	5

	Prerequisite: MATH 237 or MATH 241 or an equivalent course with a grade of "C" or higher	
MATH 243	Calculus III*.....5	
	Prerequisite: MATH 242 with a grade of "C" or higher or an equivalent course with a grade of "C" or higher	
MATH 254	Differential Equations*.....4	
	Prerequisite: MATH 243 with a grade of "C" or higher or an equivalent course with a grade of "C" or higher	
	*Prerequisite/Corequisite required	

	equivalent OR	
ASTR 122	Astronomy.....4	
MATH 181	Statistics*.....3	
	Prerequisite: MATH 171 or MATH 173 or an equivalent course with a grade of "C" or higher or appropriate score on the math assessment test	

Specific Program Requirements-may be taken at JCCC

ENGR 180	Engineering Land Surveying I*.....3	
	Corequisite: MATH 134 or MATH 172	
ENTR 142	Fast Trac Business Plan.....3	

Specific Program Requirements-taken at MCC-Longview

KSS 153	The Missouri Constitution.....1	
KSRV 152	Engineering Graphics & CADD I*.....5	
	Prerequisite: MATH test	
KSRV 120	Introduction to Geographic Information Systems.....3	
KSRV 137	Subdivision Planning and Layout*.....3	
	Prerequisites: ENGR 180 MCC's and DRAF 152	
KSRV 235	Advanced Surveying*.....3	
	Prerequisite: ENGR 180	
KSRV 236	Boundary Control & Legal Principles*.....3	
	Prerequisite: ENGR 180	
KSRV 237	Evidence and Procedures for Boundary Locations*.....3	
	Prerequisite: ENGR 180	
KSRV 244	Fundamentals of GPS Surveying*.....3	
	Prerequisite: ENGR 180	

Specific Program Requirements-taken at JCCC or MCC-Longview

Choose TWO courses from the following list:

ACCT 121	Accounting I.....3	
DRAF 230	Intermediate CAD: AutoCAD*.....3	
	Prerequisite: DRAF 130 or department approval OR	
KSRV 269	Computer Aided Design II*.....4	
	Prerequisites: DRAF 152 or 169 (MCC)	
KSRV 220	GIS Database and Design*.....3	
	Prerequisite: KSRV 120	
	TOTAL PROGRAM CREDIT HOURS.....63-66	
	*Prerequisite/Corequisite required	

Land Surveying, A.A.S.

The Land Surveying, AAS degree program is granted by Metropolitan Community College, but coordinated at JCCC.

This program leads to an associate in applied science degree which provides students with the experience and knowledge they need to take the exam to become a land surveyor.

The JCCC land surveying program is offered to Johnson County residents in cooperation with MCC-Longview Community College. The support courses are held at JCCC. Program course and credit hours are subject to change because of the requirement changes at the degree-granting institution. It is the student's responsibility to check with a JCCC counselor or advisor before enrollment. Contact MCC-Longview Community College at 816-672-2510 for an application packet, which includes deadlines, program prerequisites and admission requirements.

Note: Johnson County Community College students should seek specific counsel from the MCC program personnel for the appropriate course plan and numbers.

Johnson County Community College students should refer to Cooperative Program Information.

Associate of Applied Science Degree

Degree Granted by Metropolitan Community College

General Education Requirements-must be taken at JCCC

ENGL 121	Composition I*.....3	
	Prerequisite: ENGL 106 or appropriate placement test score or EAP 113 and EAP 117	
ENGL 122	Composition II*.....3	
	Prerequisite: ENGL 121	
ENGL 123	Technical Writing I*.....3	
	Prerequisite: ENGL 121	
SPD 121	Public Speaking.....3	
MATH 171	College Algebra*.....3	
	Prerequisite: MATH 116 with a grade of "C" or higher or MATH 131 with a grade of "C" or higher or MATH 134 with a grade of "C" or higher or appropriate score on the math assessment test AND	
MATH 172	Trigonometry*.....3	
	Prerequisite: MATH 171 with a grade of "C" or higher or appropriate score on the math assessment test OR	
MATH 173	Precalculus*.....5	
	Prerequisite: MATH 116 with a grade of "C" or higher or appropriate score on the math assessment test	
American Institutions (choose one from the following list):		
HIST 140	U.S. History to 1877.....3	
	OR	
HIST 141	U.S. History Since 1877.....3	
	OR	
ECON 132	Survey of Economics.....3	
	OR	
ECON 230	Economics I.....3	
	OR	
PHIL 143	Ethics.....3	
	OR	
POLS 122	Political Science.....3	
	OR	
POLS 124	American National Government.....3	
	OR	
POLS 126	State and Local Government.....3	
	OR	
GEOS 140	Physical Geography.....3	
	AND	
GEOS 141	Physical Geography Lab*.....2	
	Prerequisite or corequisite: GEOS 140 or the	

Land Surveying Certificate

The Land Surveying Certificate program is granted by Metropolitan Community College, but coordinated at JCCC.

This certificate prepares an individual to take the state-licensing exam to become a registered land surveyor with the state of Missouri.

The JCCC land surveying certificate is offered to Johnson County residents in cooperation with MCC-Longview Community College. The support courses are held at JCCC. Program course and credit hours are subject to change because of the requirement changes at the degree-granting institution. It is the student's responsibility to check with a JCCC counselor or advisor before enrollment. Contact MCC-Longview Community College at 816-672-2510 for an application packet, which includes deadlines, program prerequisites and admission requirements.

Note: Johnson County Community College students should seek specific counsel from the MCC program personnel for the appropriate course plan and numbers.

Johnson County Community College students should refer to Cooperative Program Information.

Career Certificate

Certificate granted by Metropolitan Community College

Specific Program Requirements-must be taken at JCCC

MATH 171	College Algebra*.....3	
	Prerequisite: MATH 116 with a grade of "C" or higher or MATH 131 with a grade of "C" or higher or MATH 134 with a grade of "C" or higher or appropriate score on the math assessment test AND	

MATH 172	Trigonometry*	3
	Prerequisite: MATH 171 with a grade of "C" or higher or appropriate score on the math assessment test OR	
MATH 173	Precalculus*	5
	Prerequisite: MATH 116 with a grade of "C" or higher or appropriate score on the math assessment test	
ENGR 180	Engineering Land Surveying I*	3
	Corequisite: MATH 134 or MATH 172	

Specific Program Requirements-taken at MCC-Longview

KSRV 152	Engineering Graphics & CADD I*	5
	Prerequisite: MATH test	
KSRV 137	Subdivision Planning and Layout*	3
	Prerequisites: ENGR 180 MCC's and DRAF 152	
KSRV 235	Advanced Surveying*	3
	Prerequisite: ENGR 180	
KSRV 236	Boundary Control & Legal Principles*	3
	Prerequisite: ENGR 180	
KSRV 237	Evidence and Procedures for Boundary Locations*	3
	Prerequisite: ENGR 180	
	TOTAL PROGRAM CREDIT HOURS	26-29

*Prerequisite/Corequisite required

Paralegal, A.A.

The expanding role of the paralegal in the delivery of legal services has created increased opportunities with private law firms, corporate legal departments, insurance companies, real estate and title firms, banks, and government agencies. If you are interested in entering this career field, you should be aware that although the number of jobs for trained paralegals is rising, competition for these positions is increasing. A minimum of 18 hours of legal specialty courses must be taken at Johnson County Community College. Please contact Anita Tebbe for more information at atebbe@jccc.edu.

PARALEGALS MAY NOT PROVIDE LEGAL SERVICE DIRECTLY TO THE PUBLIC, EXCEPT AS PERMITTED BY LAW.

The paralegal program at JCCC

- has a challenging curriculum
- requires that you possess excellent communication skills, analytical ability and a high level of motivation
- is approved by the American Bar Association
- is a selective admission program based on various academic and testing criteria

(Major Code 264A; CIP Code 22.0302)

Paralegal

Associate of Arts Degree

IMPORTANT - Students planning to graduate with a Paralegal degree must complete one of the approved cultural diversity courses. Some of the approved courses are able to meet both the cultural diversity requirement and a general education requirement. To see a complete list of approved courses, click on the link provided below.

Cultural Diversity Course Requirement at JCCC.....

Suggested Sample Course Sequence: Students may take any number of courses each semester that will also allow them to fulfill their other personal and professional responsibilities.

First Semester

ENGL 121	Science and Mathematics Electives	3
	Composition I*	3
	Prerequisite: ENGL 106 or appropriate placement test score or EAP 113 and EAP 117	
LAW 121	Introduction to Law	3
LAW 123	Paralegal Professional Studies	1
LAW 125	Introduction to Legal Research*	1
	Prerequisite: Admission to the paralegal program or department chair approval.	

SPD 120	Interpersonal Communication	3
	or	
SPD 121	Public Speaking	3
	or	
SPD 125	Personal Communication	3
	Total Semester Credit Hours	14

Second Semester

Following admission to the paralegal program:

	Paralegal Electives	3
	Humanities Elective	3
	Social Science and/or Economics Electives	3
ENGL 122	Composition II*	3
	Prerequisite: ENGL 121	
LAW 134	Introduction to Legal Technology*	3
	Prerequisite: Admission as a student to the paralegal program or department chair approval	
LAW 132	Civil Litigation*	3
	Prerequisites: paralegal students or legal nurse consultant students - admission to the program and LAW 121 or department chair approval	
	Total Semester Credit Hours	18

Third Semester

	Paralegal Electives	6
	Humanities Elective	3
	Science and Mathematics Elective	3
	Health and/or Physical Education Elective	1
LAW 205	Legal Analysis and Writing*	3
	Prerequisite: Admission to the legal studies program or department chair approval	
	Total Semester Credit Hours	16

Fourth Semester

	Paralegal Electives	2
	Science and Mathematics Electives	3
	Social Science and/or Economics Electives	3
LAW 271	Legal Ethics, Interviewing and Investigation*	3
	Prerequisite: Paralegal program students - admission to the paralegal program or department chair approval	
	Legal Nurse Consultant students - admission to the legal nurse consultant program or department chair approval	
LAW 210	Advanced Legal Research*	3
	Prerequisite: Admission to the paralegal program and LAW 125 and LAW 205 or department chair approval	
LAW 201	Advanced Legal Technology*	3
	Prerequisite: Admission to the paralegal program and completion of LAW 134 or department chair approval	
	Total Semester Credit Hours	17
	TOTAL PROGRAM CREDIT HOURS	65

Paralegal Electives

LAW 140	Alternative Dispute Resolution*	3
	Prerequisites: Legal nurse consultant students and paralegal program students - LAW 132 and selective admission approval	
LAW 142	Torts*	3
	Prerequisites: Legal nurse consultant students and paralegal program students - LAW 132 and selective admission approval	
LAW 148	Criminal Litigation*	3
	Prerequisite: Legal nurse consultant students and paralegal program students - LAW 132	
LAW 152	Real Estate Law*	3
	Prerequisites: Paralegal program students - Admission to the paralegal program or department approval. Legal nurse consultant students - LAW 225 and LAW 121	
LAW 162	Family Law*	3
	Prerequisites: Paralegal program students - admission to paralegal program or department approval. Legal nurse consultant students - LAW 225 and LAW 121	
LAW 165	Forensic Science and the Law*	3
LAW 171	Law Office Management*	3
	Prerequisites: Paralegal program students - admission to the paralegal program or department approval. Legal nurse consultant students - LAW 225 and LAW 121	
LAW 175	Environmental Policy and Law*	3
LAW 212	Business Organizations*	3
	Prerequisites: Paralegal program students - admission to the paralegal program or department approval. Legal nurse consultant students - LAW 225 and LAW 121	
LAW 226	Immigration Law*	3
	Prerequisites: Paralegal program students: admission to the paralegal program or department approval. Legal nurse consultant students: LAW 225 and LAW 121	
LAW 241	Wills, Trusts and Probate Administration*	3

		Prerequisites: Paralegal program students - admission to the paralegal program or department approval. Legal nurse consultant students - LAW 225 and LAW 121	
LAW	245	Elder Law*.....3	
		Prerequisites: Paralegal program students - admission to the paralegal program or department approval. Legal nurse consultant students - LAW 225 and LAW 121	
LAW	247	Intellectual Property Law*.....3	
		Prerequisites: Paralegal program students - admission to the paralegal program or division administrator approval. Legal nurse consultant students - LAW 225 and LAW 121	
LAW	266	Employment Law*.....3	
		Prerequisites: Paralegal program students - admission to the paralegal program or department approval. Legal nurse consultant students - LAW 121 and LAW 225	
LAW	269	Bankruptcy Law*.....3	
		Prerequisites: Paralegal program students - admission to the paralegal program or department chair approval. Legal nurse consultant students - LAW 121 or LAW 225	
LAW	270	Administrative Law*.....3	
		Prerequisite: Admission to the legal nurse consultant program and LAW 225 and LAW 121 or admission to the paralegal program	
LAW	275	Paralegal Internship I*.....1	
		Prerequisite or Corequisite: Paralegal program students - LAW 271	
LAW	276	Paralegal Internship II*.....1	
		Prerequisite: LAW 275	
		*Prerequisite/Corequisite required	

		consultant students - admission to the program and LAW 121 or department chair approval	
LAW	270	Administrative Law*.....3	
		Prerequisite: Admission to the legal nurse consultant program and LAW 225 and LAW 121 or admission to the paralegal program	
LAW	271	Legal Ethics, Interviewing and Investigation*.....3	
		Prerequisite: Paralegal program students - admission to the paralegal program or department chair approval. Legal Nurse Consultant students - admission to the legal nurse consultant program or department chair approval	
		Total Semester Credit Hours.....18	
		TOTAL PROGRAM CREDIT HOURS.....22	
		*Prerequisite/Corequisite required	

LAW Electives

LAW	140	Alternative Dispute Resolution*.....3	
		Prerequisites: Legal nurse consultant students and paralegal program students - LAW 132 and selective admission approval	
LAW	142	Torts*.....3	
		Prerequisites: Legal nurse consultant students and paralegal program students - LAW 132 and selective admission approval	
LAW	148	Criminal Litigation*.....3	
		Prerequisite: Legal nurse consultant students and paralegal program students - LAW 132	
LAW	152	Real Estate Law*.....3	
		Prerequisites: Paralegal program students - Admission to the paralegal program or department approval. Legal nurse consultant students - LAW 225 and LAW 121	
LAW	162	Family Law*.....3	
		Prerequisites: Paralegal program students - admission to paralegal program or department approval. Legal nurse consultant students - LAW 225 and LAW 121	
LAW	165	Forensic Science and the Law*.....3	
LAW	171	Law Office Management*.....3	
		Prerequisites: Paralegal program students - admission to the paralegal program or department approval. Legal nurse consultant students - LAW 225 and LAW 121	
LAW	175	Environmental Policy and Law*.....3	
LAW	212	Business Organizations*.....3	
		Prerequisites: Paralegal program students - admission to the paralegal program or department approval. Legal nurse consultant students - LAW 225 and LAW 121	
LAW	226	Immigration Law*.....3	
		Prerequisites: Paralegal program students: admission to the paralegal program or department approval . Legal nurse consultant students: LAW 225 and LAW 121	
LAW	241	Wills, Trusts and Probate Administration*.....3	
		Prerequisites: Paralegal program students - admission to the paralegal program or department approval. Legal nurse consultant students - LAW 225 and LAW 121	
LAW	245	Elder Law*.....3	
		Prerequisites: Paralegal program students - admission to the paralegal program or department approval. Legal nurse consultant students - LAW 225 and LAW 121	
LAW	247	Intellectual Property Law*.....3	
		Prerequisites: Paralegal program students - admission to the paralegal program or division administrator approval. Legal nurse consultant students - LAW 225 and LAW 121	
LAW	266	Employment Law*.....3	
		Prerequisites: Paralegal program students - admission to the paralegal program or department approval. Legal nurse consultant students - LAW 121 and LAW 225	
LAW	269	Bankruptcy Law*.....3	
		Prerequisites: Paralegal program students - admission to the paralegal program or department chair approval. Legal nurse consultant students - LAW 121 or LAW 225	

Legal Nurse Consultant Certificate

A legal nurse consultant (LNC) is a registered nurse who possesses both medical and legal knowledge. The LNC assists members of the legal profession with medical malpractice, personal injury and workers' compensation cases. The LNC functions in two roles: a consulting expert and a testifying expert.

Prior to admission, you must have earned a registered nurse degree and have satisfied JCCC and American Bar Association general education requirements. Students will have fulfilled these general education requirements if they have 18 hours of general education. LNC applicants must also possess a current state license to practice nursing and have completed 2,500 hours of clinical work as a registered nurse. A minimum of 18 hours of legal specialty courses must be taken at Johnson County Community College. Please contact Anita Tebbe for more information at atebbe@jccc.edu.

LEGAL NURSE CONSULTANTS MAY NOT PROVIDE LEGAL SERVICES DIRECTLY TO THE PUBLIC, EXCEPT AS PERMITTED BY LAW.

(Major Code 5450; CIP 22.0302)

Legal Nurse Consulting

Career Certificate

Suggested/Sample Course Sequence

The sequence taken by the student may vary depending on prerequisites, course availability, and personal/professional responsibilities.

First Semester

LAW	225	Legal Nurse Consultant Profession*.....1	
		Prerequisite: Admission to the legal nurse consultant program or department chair approval	
LAW	121	Introduction to Law.....3	
		Total Semester Credit Hours.....4	

Second Semester

		LAW Electives.....6	
LAW	250	Medicolegal Research and Writing*.....3	
		Prerequisites: Admission to the legal nurse consultant program or department chair approval	
LAW	132	Civil Litigation*.....3	
		Prerequisites: paralegal students or legal nurse	

Legal Nurse Consultant Entrepreneurship Certificate

This certificate is designed to prepare students to open their own legal nurse consultant (LNC) service business providing two services to their clients: consulting testifying expertise. A legal nurse consultant is a registered nurse who possesses both medical and legal knowledge. The LNC assists members of the legal profession with medical malpractice, personal injury and workers' compensation cases.

This certificate is designed to provide the student with basic skills as a legal nurse consultant as well as small business development and management skills.

Prior to admission, you must have earned a registered nurse degree and have satisfied JCCC and American Bar Association general education requirements. Students will have fulfilled these general education requirements if they have 18 hours of general education credits. LNC applicants must also possess a current state license to practice nursing and have completed 2,500 hours of clinical work as a registered nurse. A minimum of 18 hours of legal specialty courses must be taken at Johnson County Community College. Please contact Anita Tebbe for more information at atebbe@jccc.edu.

LEGAL NURSE CONSULTANTS MAY NOT PROVIDE LEGAL SERVICES DIRECTLY TO THE PUBLIC, EXCEPT AS PERMITTED BY LAW.

(Major Code 4060; CIP Code 22.0302)

Paralegal

Career Certificate

Suggested/Sample Course Sequence

First Semester

LAW 121	Introduction to Law.....	3
LAW 225	Legal Nurse Consultant Profession*.....	1
	Prerequisite: Admission to the legal nurse consultant program or department chair approval	
ENTR 120	Introduction to Entrepreneurship.....	2
ENTR 142	Fast Trac Business Plan.....	3
ENTR 180	Opportunity Analysis.....	2
	Total Semester Credit Hours.....	11

Second Semester

	LAW electives.....	6
LAW 250	Medicolegal Research and Writing*.....	3
	Prerequisites: Admission to the legal nurse consultant program or department chair approval	
LAW 132	Civil Litigation*.....	3
	Prerequisites: paralegal students or legal nurse consultant students - admission to the program and LAW 121 or department chair approval	
LAW 270	Administrative Law*.....	3
	Prerequisite: Admission to the legal nurse consultant program and LAW 225 and LAW 121 or admission to the paralegal program	
LAW 271	Legal Ethics, Interviewing and Investigation*.....	3
	Prerequisite: Paralegal program students - admission to the paralegal program or department chair approval	
	Legal Nurse Consultant students - admission to the legal nurse consultant program or department chair approval	
	Total Semester Credit Hours.....	18
	TOTAL PROGRAM CREDIT HOURS.....	29

*Prerequisite/Corequisite required

LAW Electives

Students are encouraged to choose additional LAW coursework which will enhance their ability to develop, grow, and sustain their Legal Nurse Consultant entrepreneurial business concept.

LAW 140	Alternative Dispute Resolution*.....	3
	Prerequisites: Legal nurse consultant students and paralegal program students - LAW 132 and selective admission approval	
LAW 142	Torts*.....	3
	Prerequisites: Legal nurse consultant students and paralegal program students - LAW 132 and selective admission approval	
LAW 148	Criminal Litigation*.....	3
	Prerequisite: Legal nurse consultant students and paralegal program students - LAW 132	
LAW 152	Real Estate Law*.....	3
	Prerequisites: Paralegal program students - Admission to the paralegal program or department approval. Legal nurse consultant students - LAW 225 and LAW 121	
LAW 162	Family Law*.....	3
	Prerequisites: Paralegal program students - admission to paralegal program or department approval. Legal nurse consultant students - LAW 225 and LAW 121	
LAW 165	Forensic Science and the Law*.....	3
LAW 171	Law Office Management*.....	3

			Prerequisites: Paralegal program students - admission to the paralegal program or department approval. Legal nurse consultant students - LAW 225 and LAW 121
LAW 175	Environmental Policy and Law*.....	3	
LAW 212	Business Organizations*.....	3	
	Prerequisites: Paralegal program students - admission to the paralegal program or department approval. Legal nurse consultant students - LAW 225 and LAW 121		
LAW 226	Immigration Law*.....	3	
	Prerequisites: Paralegal program students: admission to the paralegal program or department approval . Legal nurse consultant students: LAW 225 and LAW 121		
LAW 241	Wills, Trusts and Probate Administration*.....	3	
	Prerequisites: Paralegal program students - admission to the paralegal program or department approval. Legal nurse consultant students - LAW 225 and LAW 121		
LAW 245	Elder Law*.....	3	
	Prerequisites: Paralegal program students - admission to the paralegal program or department approval. Legal nurse consultant students - LAW 225 and LAW 121		
LAW 247	Intellectual Property Law*.....	3	
	Prerequisites: Paralegal program students - admission to the paralegal program or division administrator approval. Legal nurse consultant students - LAW 225 and LAW 121		
LAW 266	Employment Law*.....	3	
	Prerequisites: Paralegal program students - admission to the paralegal program or department approval. Legal nurse consultant students - LAW 121 and LAW 225		
LAW 269	Bankruptcy Law*.....	3	
	Prerequisites: Paralegal program students - admission to the paralegal program or department chair approval		
	Legal nurse consultant students - LAW 121 or LAW 225		
	Students may be interested in taking additional courses, as noted below, to complement their certificate study. These courses are NOT part of the certificate requirements.		
ENTR 160	Legal Issues for Small Business.....	2	
ENTR 195	Franchising*.....	3	
	Prerequisite: BUS 230		
ENTR 220	Entrepreneurial Marketing*.....	2	
	Prerequisite: BUS 230		
BUS 230	Marketing.....	3	

Paralegal Certificate

You must have completed a two-year degree or a four-year degree and have satisfied JCCC and American Bar Association general education requirements prior to admission. Students will have fulfilled these general education requirements if they have 18 hours of general education credit, including Composition I and Introduction to Algebra or a higher math course.

The following courses must be completed with a minimum GPA of 2.0 prior to application for admission to the paralegal program. A minimum of 18 hours of legal specialty courses must be taken at Johnson County Community College. Please contact Anita Tebbe for more information at atebbe@jccc.edu.

PARALEGALS MAY NOT PROVIDE LEGAL SERVICES DIRECTLY TO THE PUBLIC, EXCEPT AS PERMITTED BY LAW.

(Major Code 489A; CIP Code 22.0302)

Paralegal

Career Certificate

Suggested order of courses: Students may take any number of courses each semester that will also allow them to fulfill their other personal and professional responsibilities.

First Semester

LAW 121	Introduction to Law.....	3
LAW 123	Paralegal Professional Studies.....	1
LAW 125	Introduction to Legal Research*.....	1
	Prerequisite: Admission to the paralegal program or department chair approval.	
	Total Semester Credit Hours.....	5

Second Semester

Paralegal Electives.....7
 LAW 134 Introduction to Legal Technology*.....3
 Prerequisite: Admission as a student to the paralegal program or department chair approval
 LAW 132 Civil Litigation*.....3
 Prerequisites: paralegal students or legal nurse consultant students - admission to the program and LAW 121 or department chair approval
 Total Semester Credit Hours.....13

Third Semester

Paralegal Electives.....4
 LAW 205 Legal Analysis and Writing*.....3
 Prerequisite: Admission to the legal studies program or department chair approval
 LAW 201 Advanced Legal Technology*.....3
 Prerequisite: Admission to the paralegal program and completion of LAW 134 or department chair approval
 Total Semester Credit Hours.....10

Fourth Semester

LAW 210 Advanced Legal Research*.....3
 Prerequisite: Admission to the paralegal program and LAW 125 and LAW 205 or department chair approval
 LAW 271 Legal Ethics, Interviewing and Investigation*.....3
 Prerequisite: Paralegal program students - admission to the paralegal program or department chair approval
 Legal Nurse Consultant students - admission to the legal nurse consultant program or department chair approval
 Total Semester Credit Hours.....6
 TOTAL PROGRAM CREDIT HOURS.....34

Paralegal Electives

LAW 140 Alternative Dispute Resolution*.....3
 Prerequisites: Legal nurse consultant students and paralegal program students - LAW 132 and selective admission approval
 LAW 142 Torts*.....3
 Prerequisites: Legal nurse consultant students and paralegal program students - LAW 132 and selective admission approval
 LAW 148 Criminal Litigation*.....3
 Prerequisite: Legal nurse consultant students and paralegal program students - LAW 132
 LAW 152 Real Estate Law*.....3
 Prerequisites: Paralegal program students - admission to the paralegal program or department approval. Legal nurse consultant students - LAW 225 and LAW 121
 LAW 162 Family Law*.....3
 Prerequisites: Paralegal program students - admission to paralegal program or department approval. Legal nurse consultant students - LAW 225 and LAW 121
 LAW 165 Forensic Science and the Law*.....3
 LAW 171 Law Office Management*.....3
 Prerequisites: Paralegal program students - admission to the paralegal program or department approval. Legal nurse consultant students - LAW 225 and LAW 121
 LAW 175 Environmental Policy and Law*.....3
 LAW 212 Business Organizations*.....3
 Prerequisites: Paralegal program students - admission to the paralegal program or department approval. Legal nurse consultant students - LAW 225 and LAW 121
 LAW 226 Immigration Law*.....3
 Prerequisites: Paralegal program students: admission to the paralegal program or department approval. Legal nurse consultant students: LAW 225 and LAW 121
 LAW 241 Wills, Trusts and Probate Administration*.....3
 Prerequisites: Paralegal program students - admission to the paralegal program or department approval. Legal nurse consultant students - LAW 225 and LAW 121
 LAW 245 Elder Law*.....3
 Prerequisites: Paralegal program students - admission to the paralegal program or department approval. Legal nurse consultant students - LAW 225 and LAW 121
 LAW 247 Intellectual Property Law*.....3
 Prerequisites: Paralegal program students - admission to the paralegal program or division administrator approval. Legal nurse consultant students - LAW 225 and LAW 121
 LAW 266 Employment Law*.....3
 Prerequisites: Paralegal program students - admission to the paralegal program or department approval. Legal nurse consultant students - LAW 121 and LAW 225
 LAW 269 Bankruptcy Law*.....3

Prerequisites: Paralegal program students - admission to the paralegal program or department chair approval
 Legal nurse consultant students - LAW 121 or LAW 225
 LAW 270 Administrative Law*.....3
 Prerequisite: Admission to the legal nurse consultant program and LAW 225 and LAW 121 or admission to the paralegal program
 LAW 275 Paralegal Internship I*.....1
 Prerequisite or Corequisite: Paralegal program students - LAW 271
 LAW 276 Paralegal Internship II*.....1
 Prerequisite: LAW 275
 *Prerequisite/Corequisite required

Liberal Arts, A.A.

An Associate of Arts in Liberal Arts degree provides students a broad range of courses that can be transferred to degree programs at a four-year college or university. This degree provides students with exposure to many different subjects and perspectives. It requires 64 college-level credit hours, with 31 hours of general education requirements and 33 hours of electives. Many students choose to earn an Associate of Arts in Liberal Arts degree prior to transferring to a four-year college or university. (See sample degree program below.)

(Major Code 1000; CIP Code 24.0101)

Associate of Arts

IMPORTANT - Students planning to graduate with a Liberal Arts degree must complete one of the approved cultural diversity courses. Some of the approved courses are able to meet both the cultural diversity requirement and a general education requirement. To see a complete list of approved courses, click on the link provided below.

Cultural Diversity Course Requirement at JCCC.....

First Semester

Electives.....7
 Oral Communication.....3
 Humanities Elective.....3
 ENGL 121 Composition I*.....3
 Prerequisite: ENGL 106 or appropriate placement test score or EAP 113 and EAP 117
 Total Semester Credit Hours.....16

Second Semester

Electives.....6
 Social Science Elective.....3
 Health and/or Physical Education Elective.....1
 ENGL 122 Composition II*.....3
 Prerequisite: ENGL 121
 MATH 171 College Algebra or higher*.....3
 Prerequisite: MATH 116 with a grade of "C" or higher or MATH 131 with a grade of "C" or higher or MATH 134 with a grade of "C" or higher or appropriate score on the math assessment test
 Total Semester Credit Hours.....16

Third Semester

Electives.....9
 Humanities Elective.....3
 Science course with Lab.....4
 Total Semester Credit Hours.....16

Fourth Semester

Electives.....10
 Science and/or Mathematics Elective*.....3
 Social Science Elective.....3
 Total Semester Credit Hours.....16
 TOTAL PROGRAM CREDIT HOURS.....64

Marketing and Management, A.A.S.

Merchandising, marketing and management-related fields have recently experienced tremendous growth and expansion in Johnson County. Surveys indicate that few other areas offer greater opportunity to qualified people. In fact, employment of people in this field is expected to increase faster than the average for all occupations nationwide.

JCCC's marketing and management program prepares you for jobs in this field. Graduates of JCCC's program are ready for entry-level management or sales positions in retail, wholesale or manufacturing and marketing services.

Through marketing and management courses and in the case studies capstone course, you learn the latest in business trends. You also learn the importance of good customer service and the skills needed to deliver that service. The curriculum reflects current industry standards, including an emphasis on personal computer use, interpersonal communications and human relations.

Because all marketing and management students work at least 15 hours a week each semester in a store or business, you can apply what you learn in the classroom to your job. You also can take your work experiences back to the classroom for analysis and a greater understanding of the problems businesses face. You acquire basic merchandising information and learn how to work with people. By integrating coursework and on-the-job experience, you are given the knowledge, skills and attitudes necessary to reach your career objectives.

(Major Code 2620; CIP Code 52.1401)

Marketing and Management

Associate of Applied Science Degree

First Semester

MKT 134	Professional Selling.....	3
ENGL 121	Composition I*.....	3
	Prerequisite: ENGL 106 or appropriate placement test score or EAP 113 and EAP 117	
MATH 120	Business Math or higher*.....	3
	Prerequisite: MATH 111 with a grade of "C" or higher or appropriate score on the math assessment test	
BUS 121	Introduction to Business.....	3
BUS 230	Marketing.....	3
MKT 284	Marketing and Management Internship I.....	1
	Total Semester Credit Hours.....	16

Second Semester

ACCT 111	Small Business Accounting.....	3
	or	
ACCT 121	Accounting I.....	3
MKT 121	Retail Management.....	3
MKT 202	Consumer Behavior.....	3
BUS 150	Business Communications*.....	3
	Prerequisite: ENGL 121	
BUS 141	Principles of Management.....	3
MKT 286	Marketing and Management Internship II*.....	1
	Prerequisite: MKT 284	
	Total Semester Credit Hours.....	16

Third Semester

MKT 234	Services Marketing*.....	3
	Corequisite: BUS 230	
MKT 240	Advertising and Promotion.....	3
ECON 132	Survey of Economics.....	3
	or	
ECON 230	Economics I.....	3
HUM 122	Introduction to Humanities.....	3
CIS 124	Introduction to Computer Concepts and Applications...3	
	and	
	CPCA/CDTP elective.....	1
	Note: CPCA 105/106 will not meet this one hour requirement.	

	or	
	CPCA/CDTP electives.....	4
MKT 288	Marketing and Management Internship III*.....	1
	Prerequisite: MKT 286	
	Total Semester Credit Hours.....	17

Fourth Semester

	Health and/or Physical Education Elective.....	1
MKT 221	Sales Management*.....	3
	Prerequisite: MKT 134	
MKT 290	Capstone: Marketing and Management Case Studies*.....	3
	Prerequisites: BUS 141 and BUS 230 and MKT 284 and MKT 286 or department approval	
BUS 261	Business Law I.....	3
HIST 141	U.S. History Since 1877.....	3
PHIL 138	Business Ethics.....	1
MKT 289	Marketing and Management Internship IV*.....	1
	Prerequisite: MKT 288	
	Total Semester Credit Hours.....	15
	TOTAL PROGRAM CREDIT HOURS.....	64

*Prerequisite/Corequisite required

Marketing Specialist Entrepreneurship Certificate

The marketing specialist entrepreneurship certificate prepares students to open their own service business providing marketing services to businesses. This certificate is designed to provide the student with basic skills in marketing as well as basic skills in small business development and management.

(Major Code 4250; CIP Code 52.1401)

Marketing and Management

Career Certificate

Suggested/Sample Course Sequence

The sequence taken by the student may vary depending on prerequisites, course availability, and personal/professional responsibilities.

First Semester

BUS 230	Marketing.....	3
MKT 134	Professional Selling.....	3
MKT 121	Retail Management.....	3
ACCT 111	Small Business Accounting.....	3
	or	
ACCT 121	Accounting I.....	3
ENTR 120	Introduction to Entrepreneurship.....	2
ENTR 180	Opportunity Analysis.....	2
	Total Semester Credit Hours.....	16

Second Semester

MKT 202	Consumer Behavior.....	3
MKT 240	Advertising and Promotion.....	3
ENTR 131	Financial Management for Small Business*.....	2
	Prerequisite: ACCT 111 or ACCT 121	
ENTR 220	Entrepreneurial Marketing*.....	2
	Prerequisite: BUS 230	
ENTR 142	Fast Trac Business Plan.....	3
MKT 284	Marketing and Management Internship I.....	1
	Total Semester Credit Hours.....	14
	TOTAL PROGRAM CREDIT HOURS.....	30

*Prerequisite/Corequisite required

Students may be interested in taking additional courses, as noted below, to complement their certificate study. These courses are NOT part of the certificate requirements.

ENTR 195	Franchising*.....	3
	Prerequisite: BUS 230	
ENTR 160	Legal Issues for Small Business.....	2
MKT 234	Services Marketing*.....	3
	Corequisite: BUS 230	

Retail Sales Representative Certificate

This retail sales representative certificate is designed for students seeking positions in the growing retail industry in Johnson County.

(Major Code 5260; CIP Code 52.1803)

Marketing and Management

Career Certificate

Required Courses

BUS 230	Marketing.....	3
FASH 135	Image Management.....	1
MKT 121	Retail Management.....	3
MKT 134	Professional Selling.....	3
MKT 202	Consumer Behavior.....	3
MKT 234	Services Marketing*.....	3
	Corequisite: BUS 230	
MKT 284	Marketing and Management Internship I.....	1
	TOTAL PROGRAM CREDIT HOURS.....	17

*Prerequisite/Corequisite required

All 17 credit hours in the retail sales representative certificate program apply to the 35-credit-hour sales and customer service certificate.

Sales and Customer Relations Certificate

JCCC's sales and customer relations program is designed for people employed in sales who wish to refine their skills or those who are contemplating a career in sales. The program focuses on the steps involved in the selling process and the delivery of effective customer service. Students who complete the program may find careers in sales (retail, wholesale or manufacturing) or in the customer service departments of stores, businesses and manufacturers.

All of the 33 credit hours required for the sales and customer relations certificate apply toward JCCC's 64-credit-hour marketing and management associate of applied science degree.

(Major Code 4920; CIP Code 52.1804)

Marketing and Management

Career Certificate

Suggested/Sample Course Sequence

The sequence taken by the student may vary depending on prerequisites, course availability, and personal/professional responsibilities.

First Semester

ENGL 121	Composition I*.....	3
	Prerequisite: ENGL 106 or appropriate placement test score or EAP 113 and EAP 117	
MKT 134	Professional Selling.....	3
MKT 121	Retail Management.....	3
FASH 135	Image Management.....	1
MKT 202	Consumer Behavior.....	3
CIS 124	Introduction to Computer Concepts and Applications.....	3
	or CPCA/CDTP electives.....	3
MKT 284	Marketing and Management Internship I.....	1
	Total Semester Credit Hours.....	17

Second Semester

BUS 150	Business Communications*.....	3
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		Prerequisite: ENGL 121
MKT 221	Sales Management*.....	3
		Prerequisite: MKT 134
MKT 234	Services Marketing*.....	3
		Corequisite: BUS 230
BUS 230	Marketing.....	3
MKT 240	Advertising and Promotion.....	3
MKT 286	Marketing and Management Internship II*.....	1
		Prerequisite: MKT 284
	Total Semester Credit Hours.....	16
	TOTAL PROGRAM CREDIT HOURS.....	33

*Prerequisite/Corequisite required

Metal Fabrication Technology, A.A.S.

The welding technology/metal fabrication is a safety-oriented program that provides students the opportunity to learn practical knowledge and skill competencies associated with welding, metal fabrication and related processes. The JCCC welding technology/metal fabrication curriculum is designed to prepare students for various phases and levels of occupational skills. The program also offers currently employed professional welders the opportunity to upgrade their skills by taking advanced welding courses. Day and evening classes are available. Opportunities for those who wish to become welders, cutters and machine operators should be good through the year 2015. The number of qualified (certified) welders graduating from technical schools and community colleges is expected to be in balance with the number of future job openings. Welding technology/metal fabrication offers the service of five welding instructors and two machine tool instructors. Three are American Society (AWS) Certified Welding Inspectors (CWIs) for the inspection and testing of welds. JCCC welding technology professors can customize welding and machine programs to provide course materials utilizing many processes, materials or welding positions that can meet a particular company's needs.

JCCC provides well-equipped laboratories that enable students to receive instruction in blueprint and symbol reading for welders. The welding technology program consists of individual welding processes that allow students time to master each. After students master the Introduction to Welding course, other welding processes can be selected to meet individual needs. They are oxyacetylene welding (OAW) and cutting (OFC), plasma arc cutting (PAC), shielded metal arc welding (SMAW), gas metal arc welding (GMAW), flux cored arc welding (FCAW), gas tungsten arc welding (GTAW), metallurgy and allied processes. Basic machining includes hands-on training with milling machines, turning lathes, surface grinders, band saws and the use of hand tools. The program is accredited as an American Welding Society Participating Organization in the Training and Testing of Entry Level Welders and the National Center for Construction Education and Research (NCCER). Eligible students may elect to test under AWS QC10 certification guidelines and, if successful, be listed in the AWS National Registry of Entry Level Welders and/or the NCCER National Registry for Construction Workers.

A series of welder related certificates or completion and career certificates are offered, all leading toward the associate of applied science degree.

(Major Code 2460; CIP Code 48.0508)

Metal Fabrication (Welding) Technology

Associate of Applied Science Degree

First Semester

INDT 125	Industrial Safety.....	3
MFAB 121	Intro to Shielded Metal Arc Welding I (SMAW I)*.....	4
	Prerequisite or corequisite: MFAB 120 or MFAB 127	
ENGL 121	Composition I*.....	3
	Prerequisite: ENGL 106 or appropriate placement test score or EAP 113 and EAP 117	
MATH 130	Technical Mathematics I*.....	3
	Prerequisite: MATH 111 with a grade of "C" or higher or an appropriate score on the math assessment test	
MFAB 127	Welding Processes.....	2
MFAB 180	Blueprint and Symbols Reading for Welders.....	2
	Total Semester Credit Hours.....	17

Second Semester

	Social Science Elective.....	3
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MFAB 125	Advanced Gas and Arc Welding*	4
	Prerequisite: MFAB 121	
MFAB 240	Metallurgy	2
MFAB 130	Introduction to Gas Metal Arc Welding I (GMAW I)*	4
	Prerequisite or corequisite: MFAB 120 or MFAB 127	
ENGL 123	Technical Writing I*	3
	Prerequisite: ENGL 121	
INDT 155	Workplace Skills	1
	Total Semester Credit Hours	17

or
approval of career program facilitator
or
prior learning credit (contact the Testing Center)

Third Semester

	Humanities Elective	3
MFAB 160	Gas Tungsten Arc Welding*	4
	Prerequisite: MFAB 121 or MFAB 130	
MFAB 260	Fabrication Practices I*	4
	Prerequisite: Metal Fabrication Combination Welder Certificates I and II or have earned the Metal Fabrication Vocational Certificate or equivalent advanced welder training course work to be approved by the department	
MFAB 152	Manufacturing Materials and Processes	3
HPER 200	First Aid and CPR	2
	Total Semester Credit Hours	16

Fourth Semester

	Related Electives	2
MFAB 170	Basic Machine Tool Processes	4
MFAB 230	Gas Metal Arc Welding II*	4
	Prerequisite: MFAB 130	
MFAB 261	Fabrication Practices II*	4
	Prerequisite: Metal Fabrication Welder Certificates I and II, or have earned the Metal Fabrication Vocational Certificate or equivalent advanced welders training coursework to be approved by the department	
	Total Semester Credit Hours	14
	TOTAL PROGRAM CREDIT HOURS	64

Related Electives

AUTO 121	Small Engine Service	3
BUS 120	Management Attitudes and Motivation	3
BUS 140	Principles of Supervision	3
BUS 145	Small Business Management	3
ENTR 142	Fast Trac Business Plan	3
CET 105	Construction Methods	3
CIS 124	Introduction to Computer Concepts and Applications	3
ELEC 131	Introduction to Sensors and Actuators	3
ELEC 133	Programmable Controllers	3
HVAC 167	Sheet Metal Layout and Fabrication	3
MATH 131	Technical Mathematics II*	3
	Prerequisites: MATH 130 or MATH 133 with a grade of "C" or higher or an equivalent course with a grade of "C" or higher	
MFAB 140	Maintenance Repair Welding*	3
	Prerequisite: MFAB 121 or MFAB 130	
MFAB 271	Metal Fabrication Internship*	3
	Prerequisite: Department approval	

*Prerequisite/Corequisite required

Suggested/Sample Course Sequence

The sequence taken by the student may vary depending on prerequisites, course availability, and personal/professional responsibilities.

First Semester

INDT 125	Industrial Safety	3
MFAB 180	Blueprint and Symbols Reading for Welders	2
MFAB 121	Intro to Shielded Metal Arc Welding I (SMAW I)*	4
	Prerequisite or corequisite: MFAB 120 or MFAB 127	
	Total Semester Credit Hours	9

Second Semester

MFAB 125	Advanced Gas and Arc Welding*	4
	Prerequisite: MFAB 121	
	or	
MFAB 140	Maintenance Repair Welding*	3
	Prerequisite: MFAB 121 or MFAB 130	
MFAB 130	Introduction to Gas Metal Arc Welding I (GMAW I)*	4
	Prerequisite or corequisite: MFAB 120 or MFAB 127	
MFAB 160	Gas Tungsten Arc Welding*	4
	Prerequisite: MFAB 121 or MFAB 130	
	Total Semester Credit Hours	11-12

Third Semester

MFAB 230	Gas Metal Arc Welding II*	4
	Prerequisite: MFAB 130	
INDT 155	Workplace Skills	1
	Total Semester Credit Hours	5
	TOTAL PROGRAM CREDIT HOURS	25-26

*Prerequisite/Corequisite required

Combination Welder I Certificate

This certificate is the second step to the achievement of the MFAB A.A.S. degree. It is 11 college credit hours of general basic knowledge in welding.

The Combination Welder I certificate could be a completion point, for employment as a combination welder. This certificate verifies that the student has an understanding of several welding and cutting processes, and is entry level skilled with two basic welding processes, shielded metal arc welding (SMAW) and gas metal welding (GMAW). The student should have an understanding of basic metallurgy or welding symbols and blue print reading for welders.

Students are encouraged to pursue other welding certificates that will enhance their knowledge of welding and metal fabrication.

(Major Code 4600; CIP Code 48.0508)

Metal Fabrication (Welding) Technology

Certificate of Completion

Prerequisite/Corequisite for Required Courses

MFAB 120	MFAB Tools and Equipment	2
	or	
MFAB 127	Welding Processes	2
	or	
	approval of career program facilitator	
	or	
	prior learning credit (contact the Testing Center)	

Suggested/Sample Course Sequence

The sequence taken by the student may vary depending on prerequisites, course availability, and personal/professional responsibilities.

Metal Fabrication Technology Certificate

The welding/metal fabrication vocational certificate program teaches welding skills in the areas of shielded metal arc welding (SMAW), gas metal arc welding (GMAW), oxyacetylene welding (OAW) and cutting (OFC), plasma arc cutting (PAC), shielded metal arc welding (SMAW), gas metal arc welding (GMAW), and gas tungsten arc welding (GTAW). The students also will receive training in safety and basic blueprint reading. This should give the student the skills needed to successfully enter the field of welding.

(Major Code 4790; 48.0508)

Metal Fabrication (Welding) Technology

Career Certificate

Prerequisite/Corequisite for Required Courses

MFAB 120	MFAB Tools and Equipment	2
	or	
MFAB 127	Welding Processes	2

Required Courses

MFAB 121	Intro to Shielded Metal Arc Welding I (SMAW I)*.....4
	Prerequisite or corequisite: MFAB 120 or MFAB 127
MFAB 130	Introduction to Gas Metal Arc Welding I (GMAW I)*....4
	Prerequisite or corequisite: MFAB 120 or MFAB 127
MFAB 240	Metallurgy.....2
INDT 155	Workplace Skills.....1
	TOTAL PROGRAM CREDIT HOURS.....11

*Prerequisite/Corequisite required

Combination Welder II Certificate

This certificate is the third step to achievement of the MFAB A.A.S. degree. It is 14 college credit hours of advanced welding knowledge.

Entry into this vocational certificate will depend on the applicant's past experience as a welder and on the prerequisites of course materials.

This certificate is a completion point if an advanced combination welder with entry level skills in several welding processes is needed. Both certificates, general basic welding and the combination welder I, must be completed before the combination welder II can be taken.

This certificate verifies that the student has entry level skills in at least four main welding processes, Shielded Metal Arc Welding (SMAW), Gas Metal Arc Welding I (GMAW), Gas Tungsten Arc Welding (GTAW) and Gas Metal Arc Welding-S (GMAW-S) and aluminum wire and stainless steel. The student should have successfully completed work place skills. Blue print and symbol reading for welders and/or metallurgy.

(Major Code 4610; CIP Code 48.0508)

Metal Fabrication (Welding) Technology

Certificate of Completion

Suggested/Sample Course Sequence

The sequence taken by the student may vary depending on prerequisites, course availability, and personal/professional responsibilities.

Required Courses

MFAB 125	Advanced Gas and Arc Welding*.....4
	Prerequisite: MFAB 121
MFAB 160	Gas Tungsten Arc Welding*.....4
	Prerequisite: MFAB 121 or MFAB 130
MFAB 180	Blueprint and Symbols Reading for Welders.....2
	or
MFAB 240	Metallurgy.....2
MFAB 230	Gas Metal Arc Welding II*.....4
	Prerequisite: MFAB 130
	TOTAL PROGRAM CREDIT HOURS.....14

*Prerequisite/Corequisite required

Combination Welder/Machinist I Certificate

This certificate is the fourth step to the achievement of the MFAB A.A.S. degree. It is 15 college credit hours with an emphasis on machine tool materials and processes.

Completion of this vocational certificate will depend on the applicants past experience as a welder, and/or machinist, and on the prerequisites of course materials and successfully completing the basic machine tool processes class.

The advanced combination welder/machinist provides entry level skills in several welding processes. Both certificates, general basic welding and combination welder I, must be completed before starting this certificate. Combination Welder II is optional welding training and can be taken before or

after this certificate is pursued.

This vocational certificate verifies that the student understands and has entry level skills with several basic machines and processes welding and cutting skills needed for entry level repair welding with multiple welding processes and machine tool skills.

The student should also have an understanding of metallurgy and blueprint and symbols for welders.

(Major Code 4620; CIP Code 48.0508)

Metal Fabrication (Welding) Technology

Certificate of Completion

Prerequisite/Corequisite for Required Courses

MFAB 120	MFAB Tools and Equipment.....2
	or
MFAB 127	Welding Processes.....2
	or
	approval of career program facilitator
	or
	prior learning credit (contact the Testing Center)

Suggested/Sample Course Sequence

The sequence taken by the student may vary depending on prerequisites, course availability, and personal/professional responsibilities.

First Semester

MFAB 121	Intro to Shielded Metal Arc Welding I (SMAW I)*.....4
	Prerequisite or corequisite: MFAB 120 or MFAB 127
	or
MFAB 130	Introduction to Gas Metal Arc Welding I (GMAW I)*....4
	Prerequisite or corequisite: MFAB 120 or MFAB 127
MFAB 152	Manufacturing Materials and Processes.....3
MFAB 170	Basic Machine Tool Processes.....4
INDT 155	Workplace Skills.....1
	Total Semester Credit Hours.....12

Second Semester

MFAB 140	Maintenance Repair Welding*.....3
	Prerequisite: MFAB 121 or MFAB 130
	Total Semester Credit Hours.....3
	TOTAL PROGRAM CREDIT HOURS.....15

*Prerequisite/Corequisite required

General Basic Welding Certificate

This certificate is the recommended first step to employment in the welding field. It is 9 college credit hours of general basic knowledge in welding.

The general basic welding certificate verifies that the student can demonstrate several welding and cutting processes. It is designed for automotive students, artists, hobby welders or students interested in exploring welding as a possible career.

(Major Code 4590; CIP Code 48.0508)

Metal Fabrication (Welding) Technology

Certificate of Completion

Required Courses

MFAB 127	Welding Processes.....2
MFAB 121	Intro to Shielded Metal Arc Welding I (SMAW I)*.....4
	Prerequisite or corequisite: MFAB 120 or MFAB 127
	or
MFAB 130	Introduction to Gas Metal Arc Welding I (GMAW I)*....4
	Prerequisite or corequisite: MFAB 120 or MFAB 127
MFAB 180	Blueprint and Symbols Reading for Welders.....2
	or

MFAB 240	Metallurgy.....	2
INDT 155	Workplace Skills.....	1
	TOTAL PROGRAM CREDIT HOURS.....	9

*Prerequisite/Corequisite required

Introduction to Manufacturing Certificate

This certificate exposes the students to the manufacturing industry. Topics covered include manufacturing equipment, processes, materials and safety.

(Major Code 4320; CIP Code 48.0599)

Metal Fabrication (Welding) Technology

Certificate of Completion

Suggested/Sample Course Sequence

The sequence taken by the student may vary depending on prerequisites, course availability, and personal/professional responsibilities.

Required Courses

MFAB 120	MFAB Tools and Equipment.....	2
MFAB 152	Manufacturing Materials and Processes.....	3
INDT 125	Industrial Safety.....	3
CPCA 105	Introduction to Personal Computers: Windows.....	1
INDT 155	Workplace Skills.....	1
MFAB 271	Metal Fabrication Internship*.....	3
	Prerequisite: Department approval	
	TOTAL PROGRAM CREDIT HOURS.....	13

Welder Fabricator Advanced Certificate

This certificate is the capstone for the MFAB program. It will allow all previous certificate completers along with current degree seeking students to continue their education as a professional metal fabricator-certified welder, and American Welding Society (AWS) certified welder. Coursework will focus on modern welding fabrication techniques and practices used in the manufacturing and installation of structural steel, piping systems, tank and vessel systems, and miscellaneous welded mechanical items. Students will work in teams as workers do on the job. All teams will work from discipline specific drawings to manufacture and assemble a mock building section using acquired skills. Fabrication Practices I focuses on structural steel and Fabrication Practices II focuses on tanks and vessels.

Completers with this certificate may elect to test to the AWS Entry Level I and Level II Welder program and the National Center for Construction Education and Research (NCCER) accreditation and national registry.

(Major Code: 4990; CIP Code 48.0508)

Metal Fabrication (Welding) Technology

Career Certificate

Prerequisite

Students must have completed MFAB Combination Welder certificates I & II or have earned the MFAB career certificate or equivalent advanced welder training course work to be approved by the department.

Suggested/Sample Course Sequence

The sequence taken by the student may vary depending on prerequisites, course availability, and personal/professional responsibilities.

First Semester

MFAB 260	Fabrication Practices I*.....	4
	Prerequisite: Metal Fabrication Combination Welder Certificates I and II or have earned the Metal Fabrication Vocational Certificate or equivalent advanced welder training course work to be approved by the department	
HVAC 167	Sheet Metal Layout and Fabrication.....	3
CET 105	Construction Methods.....	3
	TOTAL SEMESTER CREDIT HOURS.....	10

Second Semester

INDT 125	Industrial Safety.....	3
MFAB 261	Fabrication Practices II*.....	4
	Prerequisite: Metal Fabrication Welder Certificates I and II, or have earned the Metal Fabrication Vocational Certificate or equivalent advanced welders training coursework to be approved by the department	
	TOTAL SEMESTER CREDIT HOURS.....	7
	TOTAL PROGRAM CREDIT HOURS.....	17

*Prerequisite/Corequisite required

Nursing - Registered Nurse, A.A.S.

Nursing is a rewarding and challenging career with an optimistic employment future. JCCC's registered nurse program is fully accredited by the National League for Nursing Accrediting Commission and Kansas State Board of Nursing. It is designed with the assistance of a community advisory committee composed of men and women who work in the nursing health care fields and are aware of the requirements for a successful nursing career. Our faculty are well qualified and experienced in the practice and teaching of nursing.

Students receive clinical practice in a variety of settings, including hospitals, long-term care facilities and clinics. Experiences are offered in maternal child nursing, pediatric nursing, operating room nursing, medical-surgical nursing, mental health nursing and gerontology.

A registered nurse with an associate's degree is a skilled health care provider who administers nursing care directly to patients and their families in a variety of settings. The job outlook is very positive. Employment of registered nurses is expected to grow faster than the average for all occupations.

This program requires a professional liability insurance fee. Students will be notified via their JCCC student e-mail account if they are required to pay a \$16 fee. The dollar amount for fees is subject to change.

Students will be assessed fees for content mastery and assessment exams. These fees will be collected each semester as part of the tuition and fee structure and are non-refundable.

Students must earn a grade of "C" or higher in all coursework.

(Major Code 235A; CIP Code 51.1601)

Nursing

Associate of Applied Science Degree

Note: Kansas CNA certification is required for application to the nursing program.

Prerequisites: Prior to enrolling in NURS 124

CHEM 122	Principles of Chemistry.....	5
MATH 116	Intermediate Algebra or Higher*.....	3
	Prerequisite: MATH 115 with a grade of "C" or higher or appropriate score on the math assessment test	
	TOTAL SEMESTER CREDIT HOURS.....	8

First Semester

BIOL 144	Human Anatomy and Physiology.....5
	or
BIOL 140	Human Anatomy.....4
	AND
BIOL 225	Human Physiology*.....4
	Prerequisites or corequisites: Either CHEM 122 or (CHEM 124 and CHEM 125) and either BIOL 140 or BIOL 144
PSYC 130	Introduction to Psychology*.....3
	Prerequisite: Appropriate score on the COMPASS reading test OR appropriate score on the ACT reading test OR RDG 126 with a grade of "C" or higher
NURS 124	Foundations of Nursing*.....9
	Prerequisites: Admission to the Nursing Program and current certification in Kansas as Certified Nursing Assistant (CNA) and Cardiopulmonary Resuscitation Certification (CPR) for Health Care Providers and CHEM 122 and MATH 116 or higher level MATH course and corequisite: BIOL 144 and PSYC 130
	Total Semester Credit Hours.....17-20

Second Semester

	Communications Elective.....3
PSYC 218	Human Development*.....3
	Prerequisite: PSYC 130
NURS 126	Nursing Care of the Adult: Health Alterations*.....9
	Prerequisites: BIOL 144 and PSYC 130 and NURS 124 and prerequisite or corequisite: PSYC 218
	Total Semester Credit Hours.....15

Summer

ENGL 121	Composition I*.....3
	Prerequisite: ENGL 106 or appropriate placement test score or EAP 113 and EAP 117
	Total Semester Credit Hours.....3

Third Semester

NURS 228	Nursing Care of the Childbearing Family*.....5
	Prerequisites: ENGL 121 and PSYC 218 and NURS 126 and Prerequisite or Corequisites: BIOL 230 and NURS 230 and either SOC 122 or SOC 125
NURS 230	Nursing Care of Children*.....5
	Prerequisites: ENGL 121 and PSYC 218 and NURS 126 and Prerequisite or Corequisites: BIOL 230 and NURS 228 and either SOC 122 or SOC 125
SOC 122	Introduction to Sociology.....3
	or
SOC 125	Social Problems.....3
BIOL 230	Microbiology*.....3
	Prerequisite: CHEM 122 or CHEM 124 and CHEM 125 or one year of high school chemistry
	Total Semester Credit Hours.....16

Fourth Semester

	Humanities Elective.....3
	Health and/or Physical Education Elective.....1
NURS 232	Complex Patient Care Management*.....9
	Prerequisites: NURS 228 and NURS 230
	Total Semester Credit Hours.....13
	TOTAL PROGRAM CREDIT HOURS.....72-75

*Prerequisite/Corequisite required

PN to RN Transition, A.A.S

The LPN to RN bridge program provides those licensed practical nurses wanting to become registered nurses the opportunity to do so. Admission to the program is based on academic criteria.

All licensed practical nurses making application must have completed required general education courses before being accepted.

Following successful completion of the summer transition courses, students are admitted to the third semester of the program. At least 10 openings are available each year. Successful completion of the third and fourth semesters of the program allows the graduate to apply to take the national licensing examination for RNs. The application deadline is Jan. 15.

This program requires a professional liability insurance fee. Students will be

notified via their JCCC student e-mail account if they are required to pay a \$16 fee. The dollar amount for fees is subject to change.

(Major Code 235A; CIP Code 51.1601)

Nursing

Associate of Applied Science Degree

Note: LPN to RN Transition
Students must successfully complete NURS 136 and NURS 228 and NURS 230 before advanced standing credits for NURS 124 and NURS 126 will be granted.

Prerequisite: Prior to enrolling in NURS 228 and NURS 230

	Communications Elective.....3
MATH 116	Intermediate Algebra or Higher*.....3
	Prerequisite: MATH 115 with a grade of "C" or higher or appropriate score on the math assessment test
BIOL 144	Human Anatomy and Physiology.....5
CHEM 122	Principles of Chemistry.....5
ENGL 121	Composition I*.....3
	Prerequisite: ENGL 106 or appropriate placement test score or EAP 113 and EAP 117
PSYC 130	Introduction to Psychology*.....3
	Prerequisite: Appropriate score on the COMPASS reading test OR appropriate score on the ACT reading test OR RDG 126 with a grade of "C" or higher
PSYC 218	Human Development*.....3
	Prerequisite: PSYC 130
	Total Prerequisite Credit Hours.....25

Summer

NURS 136	LPN-RN Transition Course*.....6
	Prerequisites: Completion of LPN program, Current Cardiopulmonary Resuscitation Certificate (CPR) for Health Care Providers and CHEM 122 and MATH 116 or higher and either BIOL 144 or BIOL 140 and BIOL 225 and ENGL 121 and PSYC 130 and PSYC 218
	Note: NURS 136 is not added into the total program hours.
	Total Semester Credit Hours.....6

Third Semester

NURS 228	Nursing Care of the Childbearing Family*.....5
	Prerequisites: ENGL 121 and PSYC 218 and NURS 126 and Prerequisite or Corequisites: BIOL 230 and NURS 230 and either SOC 122 or SOC 125
NURS 230	Nursing Care of Children*.....5
	Prerequisites: ENGL 121 and PSYC 218 and NURS 126 and Prerequisite or Corequisites: BIOL 230 and NURS 228 and either SOC 122 or SOC 125
SOC 122	Introduction to Sociology.....3
	or
SOC 125	Social Problems.....3
BIOL 230	Microbiology*.....3
	Prerequisite: CHEM 122 or CHEM 124 and CHEM 125 or one year of high school chemistry
	Total Semester Credit Hours.....16

Fourth Semester

	Humanities Elective.....3
	Health and/or Physical Education Elective.....1
NURS 232	Complex Patient Care Management*.....9
	Prerequisites: NURS 228 and NURS 230
	Total Semester Credit Hours.....13
	TOTAL PROGRAM CREDIT HOURS.....72

*Prerequisite/Corequisite required

Note: Total Program Hours include 18 hours APL for NURS 124/126

Practical Nursing Certificate

The health care industry needs informed, skilled and dependable workers to complete the care team. The licensed practical nurse assists registered nurses and physicians in caring for physically or mentally ill clients. In the long-term

care setting and home health, the LPN may supervise other nursing care personnel.

Practical nursing offers employment in many health care settings. Long-term care, physicians' offices, home care, hospitals and clinics provide opportunity for the practical nurse to administer care to a variety of clients. Job outlook for the Kansas City area is good, with an average starting salary of \$36,000-\$38,000.

Upon successful completion of the program, graduates are eligible to apply to take the Practical Nursing Licensing exam. After completing the practical nursing program, LPNs may continue their education to become a registered nurse.

The full time program, which can be completed in 10 months, provides 880 clock hours of instruction. This includes classroom and clinical laboratory experiences in many areas of nursing. The application deadline is March 15th for every year and has an August start date. Admission to this program requires successful completion of several prerequisites.

FULL TIME 10-MONTH PROGRAM - GENERAL SCHEDULE*

Monday and Tuesday 8:30 a.m. - 3:45 p.m.

Wednesday and Thursday 6:30 a.m. - 2:00 p.m.

Friday 9:00 a.m. - 1:00 p.m.

*Clinical days and times may vary

The Evening-Weekend Program, which can be completed in 24 months, provides approximately 880 clock hours of instruction. This includes classroom and clinical laboratory experiences in many areas of nursing. Application deadline will be October 15th every year and has a January start date. Admission to this program requires successful completion of several prerequisites.

EVENING/WEEKEND 24-MONTH PROGRAM - GENERAL SCHEDULE*

Tuesday and Thursday 5:00 p.m. - 9:00 p.m.

Every other weekend (Sat. & Sun.) 6:30 a.m. - 2:30 p.m.

*Clinical days and times may vary

The practical nursing programs require a professional liability insurance fee. Students will be notified via their JCCC student e-mail account if they are required to pay a \$16 fee. The dollar amount for fees is subject to change.

Students must "pass" all clinical courses and maintain a grade of "C" or higher in all non-clinical courses to remain in the program.

(Major Code 366A; CIP Code 51.1613)

Health Occupations

Career Certificate

Prerequisites BEFORE Beginning Professional Courses

Admission to the Practical Nursing Program;
Current Certification in Kansas as a Nursing Assistant and
Cardiopulmonary Resuscitation (CPR) for Healthcare Providers

Prerequisite Courses

BIOL 144	Human Anatomy and Physiology.....	5
PSYC 130	Introduction to Psychology*.....	3
	Prerequisite: Appropriate score on the COMPASS reading test OR appropriate score on the ACT reading test OR RDG 126 with a grade of "C" or higher	
PSYC 218	Human Development*.....	3
	Prerequisite: PSYC 130	
	Total Semester Credit Hours.....	11

First Semester

PN 120	Introduction to Practical Nursing*.....	2
	Prerequisites: Admission to the Practical Nursing Program; current certification in Kansas as Certified Nursing Assistant (CNA); Cardiopulmonary Resuscitation Certification (CPR) for Health Care Providers; and	

	BIOL 144 and PSYC 130 and PSYC 218. Corequisites: PN 125 and PN 126 and PN 130 and PN 131 and PN 135 Must maintain a grade of "C" or higher in all corequisites to remain in the program	
PN 125	KSPN Foundations of Nursing*.....	4
	Corequisites: PN 120 and PN 126 and PN 130 and PN 131 and PN 135 Must maintain a grade of "C" or higher in all corequisites to remain in the program.	
PN 126	KSPN Foundations of Nursing Clinical*.....	2
	Corequisites: PN 120 and PN 125 and PN 130 and PN 131 and PN 135. Must maintain a grade of "C" or higher in all corequisites to remain in the program.	
PN 130	KSPN Medical Surgical Nursing I*.....	4
	Corequisites: PN 120 and PN 125 and PN 126 and PN 131 and PN 135. Must maintain a grade of C or higher in all corequisites to remain in the program.	
PN 131	KSPN Medical Surgical Nursing I Clinical*.....	3
	Corequisites: PN 120 and PN 25 and PN 126 and PN 135. Must maintain a grade of "C" or higher in all corequisites to remain in the program.	
PN 135	KSPN Pharmacology*.....	3
	Corequisites: PN 120 and PN 125 and PN 126 and PN 130 and PN 131. Must maintain a grade of "C" or higher in all corequisites to remain in the program.	
	Total Semester Credit Hours.....	18

Second Semester

PN 140	KSPN Maternal Child Nursing*.....	2
	Prerequisites: Admission to the Practical Nursing Program; current certification in Kansas as Certified Nursing Assistant (CNA); Cardiopulmonary Resuscitation Certification (CPR) for Health Care Providers; BIOL 144 and PSYC 130 and PSYC 218 and PN 120 and PN 125 and PN 126 and PN 130 and PN 131 and PN 135 and Corequisites: PN 141 and PN 145 and PN 146 and PN 150 and PN 151 and PN 155 and PN 160 and PN 165 Students must maintain a grade of "C" or higher in all corequisites to remain in the program.	
PN 141	KSPN Maternal Child Clinical*.....	1
	Prerequisites: Admission to the Practical Nursing Program; current certification in Kansas as Certified Nursing Assistant (CNA); Cardiopulmonary Resuscitation Certification (CPR) for Health Care Providers; BIOL 144 and PSYC 130 and PSYC 218 and PN 120 and PN 125 and PN 126 and PN 130 and PN 131 and PN 135 and Corequisites: PN 140 and PN 145 and PN 146 and PN 150 and PN 151 and PN 155 and PN 160 and PN 165 Students must maintain a grade of "C" or higher in all corequisites to remain in the program.	
PN 145	KSPN Mental Health Nursing*.....	2
	Prerequisites: Admission to the Practical Nursing Program; current certification in Kansas as Certified Nursing Assistant (CNA); Cardiopulmonary Resuscitation Certification (CPR) for Health Care Providers; BIOL 144 and PSYC 130 and PSYC 218 and PN 120 and PN 125 and PN 126 and PN 130 and PN 131 and PN 135 and Corequisites: PN 140 and PN 141 and PN 146 and PN 150 and PN 151 and PN 155 and PN 160 and PN 165. Students must maintain a grade of "C" or higher in all corequisites to remain in the program.	
PN 146	Mental Health Nursing Clinical*.....	1
	Prerequisites: Admission to the Practical Nursing Program; current certification in Kansas as Certified Nursing Assistant (CNA); Cardiopulmonary Resuscitation Certification (CPR) for Health Care Providers; BIOL 144 and PSYC 130 and PSYC 218 and PN 120 and PN 125 and PN 126 and PN 130 and PN 131 and PN 135 and Corequisites: PN 140 and PN 141 and PN 145 and PN 150 and PN 151 and PN 155 and PN 160 and PN 165. Students must maintain a grade of "C" or higher in all corequisites to remain in the program.	
PN 150	KSPN Medical Surgical Nursing II*.....	4
	Prerequisites: Admission to the Practical Nursing Program; current certification in Kansas as Certified Nursing Assistant (CNA); Cardiopulmonary Resuscitation Certification (CPR) for Health Care Providers; BIOL 144 and PSYC 130 and PSYC 218 and PN 120 and PN 125 and PN 126 and PN 130 and PN 131 and PN 135 and Corequisites: PN 140 and PN 141 and PN 145 and PN 146 and PN 151 and PN 155 and PN 160 and PN 165. Students must maintain a grade of "C" or higher in all corequisites to remain in the program.	
PN 151	KSPN Medical Surgical Nursing II Clinical*.....	3
	Prerequisites: Admission to the Practical Nursing Program; current certification in Kansas as	

Certified Nursing Assistant (CNA); Cardiopulmonary Resuscitation Certification (CPR) for Health Care Providers; and BIOL 144 and PSYC 130 and PSYC 218 and PN 120 and PN 125 and PN 126 and PN 130 and PN 131 and PN 135 and
 Corequisites: PN 140 and PN 141 and PN 145 and PN 146 and PN 150 and PN 155 and PN 160 and PN 165. Students must maintain a grade of "C" or higher in all corequisites to remain in the program.

PN 155	KSPN Gerontology Nursing*.....2
	Prerequisites: Admission to the Practical Nursing Program; current certification in Kansas as Certified Nursing Assistant (CNA); Cardiopulmonary Resuscitation Certification (CPR) for Health Care Providers and BIOL 144 and PSYC 130 and PSYC 218 and PN 120 and PN 125 and PN 126 and PN 130 and PN 131 and PN 135 and Corequisites: PN 140 and PN 141 and PN 145 and PN 146 and PN 150 and PN 151 and PN 160 and PN 165. Students must maintain a grade of "C" or higher in all corequisites to remain in the program.
PN 160	Applied Pharmacology*.....2
	Prerequisites: Admission to the Practical Nursing Program; current certification in Kansas as Certified Nursing Assistant (CNA); Cardiopulmonary Resuscitation Certification (CPR) for Health Care Providers and BIOL 144 and PSYC 130 and PSYC 218 and PN 120 and PN 125 and PN 126 and PN 130 and PN 131 and PN 135 and Corequisites: PN 140 and PN 141 and PN 145 and PN 146 and PN 150 and PN 151 and PN 155 and PN 165 Students must maintain a grade of "C" or higher in all corequisites to remain in the program
PN 165	Transition to Nursing Practice*.....2
	Prerequisites: Admission to the Practical Nursing Program; current certification in Kansas as Certified Nursing Assistant (CNA); Cardiopulmonary Resuscitation Certification (CPR) for Health Care Providers and BIOL 144 and PSYC 130 and PSYC 218 and PN 120 and PN 125 and PPN 126 and PN 130 and PN 131 and PN 135 and Corequisites: PN 140 and PN 141 and PN 145 and PN 146 and PN 150 and PN 151 and PN 155 and PN 160. Students must maintain a grade of "C" or higher in all corequisites to remain in the program.
	Total Semester Credit Hours.....19
	TOTAL PROGRAM CREDIT HOURS.....48

*Prerequisite/Corequisite required

Polysomnography/Sleep Technology, A.A.S.

Polysomnographic technologists perform sleep diagnostics working in conjunction with physicians to provide comprehensive clinical evaluations that are required for diagnosis of sleep disorders. By applying non-invasive monitoring equipment, the technologist simultaneously monitors EEG (electroencephalography), EOG (electro-oculography), EMG (electromyography), ECG (electrocardiography), multiple breathing variables and blood oxygen and carbon dioxide levels during sleep. Interpretive knowledge is required to provide sufficient monitoring diligence to recording parameters and the clinical events observed during sleep. Technologists provide supportive services related to the ongoing treatment of sleep related problems. The professional realm of this support includes guidance on the use of devices for the treatment of breathing problems during sleep and helping individuals develop sleeping habits that promote good sleep hygiene. PSG technologists are employed in Sleep Disorders Centers and Labs, which may be located in medical centers, hospitals, or clinic/office settings.

Application for program accreditation will be made to the Commission on Accreditation of Allied Health Education Programs (CAAHEP). Graduates of the program will enter the field as Polysomnographic Technicians and be prepared to sit the national exam given by the Board of Registered Polysomnographic Technologists (BRPT) to gain the Registered Polysomnographic Technologist (RPSGT) credential.

This is a selective admission program with limited enrollment. Prospective students are encouraged to visit the program Web site at <http://www.jccc.net/sleeptechnology> or to contact JCCC program personnel for additional information and application materials at 913-469-7655.

Note: Metropolitan Community College students should seek specific counsel from the JCCC program personnel for the appropriate course plan and numbers.

Metropolitan Community College students should refer to Cooperative Program Information.

This program requires a professional liability insurance fee. Students will be notified via their JCCC student e-mail account if they are required to pay a \$16 fee. The dollar amount for fees is subject to change.

Students must "pass" all clinical courses and maintain a grade of "C" or higher in all non-clinical courses to remain in the program.

(Major Code 236A; CIP Code 51.0999)

Polysomnography / Sleep Technology

Associate of Applied Science Degree

	Prior to beginning professional courses.....3
MATH 116	Intermediate Algebra or higher*.....3
	Prerequisite: MATH 115 with a grade of "C" or higher or appropriate score on the math assessment test
CHEM 122	Principles of Chemistry.....5
BIOL 144	Human Anatomy and Physiology.....5
	or
BIOL 140	Human Anatomy.....4
	and
BIOL 225	Human Physiology*.....4
	Prerequisites or corequisites: Either CHEM 122 or (CHEM 124 and CHEM 125) and either BIOL 140 or BIOL 144
	Total Semester Credit Hours.....13-16

First Semester

EMS 121	CPR I - Basic Life Support for Healthcare Provider...1
	or
	current AHA BLS Health Care Provider Certification AND Health and/or Physical Education Elective.....1
AAC 130	Medical Terminology.....3
	or
	satisfactory completion of a health related degree or certificate
ENGL 121	Composition I*.....3
	Prerequisite: ENGL 106 or appropriate placement test score or EAP 113 and EAP 117
PSG 125	Introduction to Sleep Medicine*.....4
	Prerequisite: Admission to the polysomnography program Corequisite: Current AHA BLS Health Care Provider Certification
PSG 130	Physiology of Sleep Medicine*.....3
	Prerequisite: Admission to the polysomnography
	Total Semester Credit Hours.....11-14

Second Semester

	Communications Elective.....3
PSG 140	Sleep Disorders*.....4
	Prerequisites: PSG 125 with a grade of "C" or higher and PSG 130 with a grade of "C" or higher and Corequisite: Current AHA BLS for Health Care
PSG 145	Sleep Study Instrumentation*.....4
	Prerequisites: PSG 125 with a grade of "C" or higher and PSG 130 with a grade of "C" or higher
PSG 150	Polysomnography I*.....4
	Prerequisites: PSG 125 with a grade of "C" or higher and PSG 130 with a grade of "C" or higher and Prerequisites or Corequisites: PSG 140 with a grade of "C" or higher and PSG 145 with a grade of "C" or higher
	Total Semester Credit Hours.....15

Third Semester

	Social Science/Economics Elective.....3
PSG 245	Polysomnography Clinical I*.....6
	Prerequisites: PSG 140 with a grade of "C" or higher and PSG 145 with a grade of "C" or higher and PSG 150 with a grade of "C" or higher and Corequisites: Current AHA BLS Health Care Provider Certification
PSG 250	Polysomnography II*.....4
	Prerequisite: PSG 150 with a grade of "C" or higher
	Total Semester Credit Hours.....13

Fourth Semester

	Humanities/Art Elective.....3
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PSG 255	Polysomnography Clinical II*	6
	Prerequisites: PSG 245 with a grade of "C" or higher and PSG 250 with a grade of "C" or higher and Corequisites: Current AHA BLS Health Care Provider Certification	
PSG 265	Polysomnography Capstone*	3
	Prerequisite or Corequisite: PSG 255 with a grade of "C" or higher	
	Total Semester Credit Hours	12
	TOTAL PROGRAM CREDIT HOURS	64-70

*Prerequisite/Corequisite required

EDUC 246	Prerequisite: PSYC 130	
	Multicultural Issues in Education	2
	Total Semester Credit Hours	15
	TOTAL PROGRAM CREDIT HOURS	64-65

Education Electives

EDUC 210	Creative Experiences for Young Children*	3
	Prerequisites: EDUC 130 and one of the following: PSYC 215 or PSYC 218 or EDUC 270	
EDUC 240	School-Age Programs and Curriculum I*	3
	Prerequisite: EDUC 130	
EDUC 245	School-Age Programs and Curriculum II*	3
	Prerequisite: EDUC 240	
EDUC 250	Child Health, Safety and Nutrition*	3

*Prerequisite/Corequisite required

Professional Paraeducator Program, A.A.

The Professional Paraeducator Program is designed to recruit, educate and place well-qualified personnel who will function as effective partners to students, teachers, administrators and parents.

(Major Code 2390; CIP Code 13.1501)

Associate of Arts

IMPORTANT - Students graduating with a Professional Paraeducator degree must complete an approved cultural diversity course. Some of the approved courses are able to meet both the cultural diversity requirement and a general education requirement. To see a complete list of courses, click on the link provided below.

[Cultural Diversity Course Requirement at JCCC](#)

First Semester

	Humanities Elective	3
	Science course with Lab	4-5
ENGL 121	Composition I*	3
	Prerequisite: ENGL 106 or appropriate placement test score or EAP 113 and EAP 117	
EDUC 121	Introduction to Teaching*	3
	Note: For possible future elementary/secondary educators	
PSYC 130	Introduction to Psychology*	3
	Prerequisite: Appropriate score on the COMPASS reading test OR appropriate score on the ACT reading test OR RDG 126 with a grade of "C" or higher	
	Total Semester Credit Hours	16-17

Second Semester

	PSYC Elective	3
	(Note: Any PSYC course will meet this requirement not already required in program.)	
	Social Science/Economics Elective	3
ENGL 122	Composition II*	3
	Prerequisite: ENGL 121	
EDUC 220	Survey of the Exceptional Child	3
PSYC 218	Human Development*	3
	Prerequisite: PSYC 130	
MATH 171	College Algebra or higher*	3
	Prerequisite: MATH 116 with a grade of "C" or higher or MATH 131 with a grade of "C" or higher or MATH 134 with a grade of "C" or higher or appropriate score on the math assessment test	
	Total Semester Credit Hours	18

Third Semester

	Education Elective	3
	Humanities Elective	3
	Science and/or Mathematics Elective*	3
EDUC 243	Issues and Skills for Paraeducators	3
PSYC 225	Educational Psychology*	3
	Prerequisite: PSYC 130	
	Total Semester Credit Hours	15

Fourth Semester

	Oral Communication	3
	Social Science/Economics Elective	3
	Health and/or Physical Education Elective	2
	(Recommend HPER 200-First Aid and CPR)	
EDUC 235	Parenting*	2
	Prerequisite or corequisite: PSYC 215 or PSYC 218 or EDUC 270	
PSYC 215	Child Development*	3

Railroad Electronics, A.A.S.

The associate of applied science in railroad electronics degree program is a restricted access program for those students enrolled in the railroad electronics certificate program who wish to progress to a degree. The certificate program has been an active program on the JCCC campus since 1993, with a total enrollment to date of almost 400 students.

The certificate program consists of 33 credit hours of electronics courses, previously designated as ELEC courses, currently designated as RREL courses. The total program content is equivalent to the electronics degree program, but the delivery differs. Content is divided into courses differently. Examples tend to be railroad-related where possible, and courses are delivered in alternative format, combining distance learning (using a remote access server) and classroom presentations.

Electronics technology influences almost every aspect of modern life. Skilled electronics technicians are needed to support growth in the railroad industry. These technicians must be able to fabricate, test, install, operate and maintain highly technical systems, such as communications systems networks, medical delivery systems, computers and computer networks, and industrial process control systems. The program focuses on the underlying principles of electronic devices used extensively in railroad signaling, circuit analysis and digital electronics and will provide a broad systems view of electronics.

Students in the railroad electronics technology program will work with outstanding facilities and the latest laboratory equipment. Graduates of the program will have the opportunity for employment in today's most challenging and exciting railroad signal career field.

No new courses are required for this program. All RREL courses are offered as closed courses for BNSF Railway, with the railroad furnishing all equipment, trainers, computers and software.

For information visit the National Academy of Railroad Sciences. Hover your cursor over the "New Careers" tab and choose from the list.

(Major Code 2820; CIP Code 49.0299)

Associate of Applied Science Degree

First Semester

	Elective	3
	Science and/or Mathematics Elective*	3
RREL 180	Introduction to Railroad Electronics*	1
	Prerequisites: Approval of the railroad training administrator and the JCCC department approval	
RREL 181	Circuit Analysis DC/AC*	6
	Prerequisites: RREL 180 and the approval of the railroad training administrator and the JCCC department approval	
ENGL 121	Composition I*	3
	Prerequisite: ENGL 106 or appropriate placement test score or EAP 113 and EAP 117	
	Total Semester Credit Hours	16

Second Semester

	Humanities Elective.....	3
RREL 182	Semiconductor Devices and Circuits*.....	6
	Prerequisites: RREL 181 and the approval of the railroad training administrator and the JCCC department approval	
RREL 183	Digital Techniques*.....	6
	Prerequisites: RREL 182 and approval of the railroad training administrator and the JCCC department approval	
	Total Semester Credit Hours.....	15

Third Semester

	Technical Electives.....	6
	Social Science/Economics Elective.....	3
RREL 284	Electronic Communications*.....	6
	Prerequisites: RREL 183 and approval of the railroad training director and the JCCC department approval	
	Total Semester Credit Hours.....	15

Fourth Semester

	Technical Electives.....	6
	Communications Elective.....	3
	Health and/or Physical Education Elective.....	1
RREL 285	Microprocessor Techniques*.....	6
	Prerequisites: RREL 183 and approval of the railroad training director and the JCCC department approval	
RREL 286	Applied Microprocessors*.....	2
	Prerequisites: RREL 285 and approval of the railroad training director and the JCCC department approval	
	Total Semester Credit Hours.....	18
	TOTAL PROGRAM CREDIT HOURS.....	64

Note: MATH 111 and MATH 115 will not meet math requirements.

Technical Electives

ASTR 120	Fundamentals of Astronomy.....	3
AUTO 121	Small Engine Service.....	3
AUTO 122	Introduction to Automotive Glass.....	3
AUTO 125	Introduction to Automotive Shop Practices.....	3
BOT 101	Computerized Keyboarding.....	1
BOT 103	Business English.....	3
BOT 105	Keyboarding and Formatting I.....	3
BOT 115	Electronic Calculators.....	1
BOT 150	Records Management.....	3
	Prerequisite: BOT 106 or experience using Microsoft Access	
CET 105	Construction Methods.....	3
CET 120	Engineered Plumbing Systems I.....	3
CET 122	Engineered Plumbing Systems II.....	3
CET 129	Construction Management.....	3
CPCA 105	Introduction to Personal Computers: Windows.....	1
CPCA 106	Introduction to Personal Computers: Macintosh.....	1
CPCA 128	PC Applications: MS Office.....	3
CIS 124	Introduction to Computer Concepts and Applications.....	3
CIS 134	Programming Fundamentals.....	4
DRAF 120	Introduction to Drafting.....	2
DRAF 123	Interpreting Machine Drawings*.....	2
	Prerequisite or corequisite: DRAF 120 or department approval	
DRAF 129	Interpreting Architectural Drawings.....	2
DRAF 132	Introduction to AutoCAD LT.....	3
DRAF 140	Topics in CAD I: BIM / REVIT.....	2
DRAF 238	Architectural Drafting*.....	3
	Prerequisites: DRAF 129 and DRAF 230	
ELEC 120	Introduction to Electronics.....	3
ELEC 126	Microcomputer A+ Preparation.....	4
ELEC 125	Digital Electronics I.....	4
ELEC 131	Introduction to Sensors and Actuators.....	3
ELEC 133	Programmable Controllers.....	3
ELEC 150	Introduction to Telecommunications.....	3
ELEC 185	LAN Cabling and Installation.....	3
ENGR 121	Engineering Orientation.....	2
GEOS 130	General Geology.....	5
GEOS 140	Physical Geography.....	3
GEOS 145	World Regional Geography.....	3
HVAC 125	Energy Alternatives.....	2
HVAC 143	Reading Blueprints and Ladder Diagrams.....	2
HVAC 146	Plumbing Systems Applications.....	3
HVAC 150	Refrigerant Management and Certification.....	1
HVAC 155	Workplace Skills.....	1
HVAC 167	Sheet Metal Layout and Fabrication.....	3
INDT 125	Industrial Safety.....	3
INDT 140	Quality Improvement Using SPC.....	2
INDT 155	Workplace Skills.....	1
IT 200	Networking Technologies.....	3
IT 205	Implementing Windows Client.....	3
MFAB 121	Intro to Shielded Metal Arc Welding I (SMAW I)*.....	4
	Prerequisite or corequisite: MFAB 120 or MFAB 127	

MFAB 152	Manufacturing Materials and Processes.....	3
MFAB 170	Basic Machine Tool Processes.....	4
MFAB 180	Blueprint and Symbols Reading for Welders.....	2
MFAB 240	Metallurgy.....	2
RRT 120	History of Railroad.....	3
RRT 121	Railroad Technical Careers.....	3
RRT 150	Railroad Operations.....	3
RRT 165	Railroad Safety, Quality and Environment.....	3

*Prerequisite/Corequisite required

Railroad Electronics Certificate

This certificate is a comprehensive program of study that covers the fundamental electronic principles used by railroad signal control systems technicians. Upon successful completion of this program, the student should be able to apply basic digital and analog theory required in the maintenance of right-of-way crossing and train control systems.

Enrollment in the program is subject to the approval of the BNSF training director and JCCC division administrator.

For information visit the National Academy of Railroad Sciences. Hover your cursor over the "New Careers" tab and choose from the list.

(Major Code 4540; CIP Code 49.0299)

Career Certificate

Required Courses

RREL 180	Introduction to Railroad Electronics*.....	1
	Prerequisites: Approval of the railroad training administrator and the JCCC department approval	
RREL 181	Circuit Analysis DC/AC*.....	6
	Prerequisites: RREL 180 and the approval of the railroad training administrator and the JCCC department approval	
RREL 182	Semiconductor Devices and Circuits*.....	6
	Prerequisites: RREL 181 and the approval of the railroad training administrator and the JCCC department approval	
RREL 183	Digital Techniques*.....	6
	Prerequisites: RREL 182 and approval of the railroad training administrator and the JCCC department approval	
RREL 284	Electronic Communications*.....	6
	Prerequisites: RREL 183 and approval of the railroad training director and the JCCC department approval	
RREL 285	Microprocessor Techniques*.....	6
	Prerequisites: RREL 183 and approval of the railroad training director and the JCCC department approval	
RREL 286	Applied Microprocessors*.....	2
	Prerequisites: RREL 285 and approval of the railroad training director and the JCCC department approval	
	TOTAL PROGRAM CREDIT HOURS.....	33

*Prerequisite/Corequisite required

Railroad Carman Welding Certificate

JCCC's railroad industrial technology certificate program is OPEN ONLY TO BNSF RAILWAY EMPLOYEES.

Enrollment is subject to the approval of the BNSF Railway training director and JCCC division administrator.

The railroad carman welding vocational certificate is designed to provide students with training in welding and cutting operations used by carmen employed in the railroad industry. Students completing the program should be able to demonstrate safe operating procedures for welding and cutting applications and perform skill competencies involving oxyacetylene cutting, shielded metal arc welding, gas metal arc welding and flux corded arc welding. Students should also be able to complete qualification tests according to industry standards.

(Major Code 4560; CIP Code 49.0299)

Certificate of Completion

Required Courses

RRIT 127	Welding Processes*	2
	Prerequisites: Approval of the BNSF training director and the JCCC department approval	
RRIT 140	Structural Quality SMAW*	3
	Prerequisites: RRIT 127 or approval of the BNSF training director and the JCCC department approval	
RRIT 141	Structural Quality GMAW*	3
	Prerequisites: RRIT 127 or approval of the BNSF training director and the JCCC department approval	
	TOTAL PROGRAM CREDIT HOURS	8

*Prerequisite/Corequisite required

Railroad Machinist Welding Certificate

JCCC's railroad industrial technology certificate program is OPEN ONLY TO BNSF RAILWAY EMPLOYEES.

Enrollment is subject to the approval of the BNSF Railway training director and JCCC division administrator.

The railroad machinist welding vocational certificate is designed to provide students with training in welding and cutting operations used by machinists employed in the railroad industry. Students completing the program should be able to demonstrate safe operating procedures for welding and cutting applications and perform skill competencies involving complete qualification tests according to industry standards.

(Major Code 4570; CIP Code 49.0299)

Railroad Welder Training Program

Certificate of Completion

Required Courses

RRIT 127	Welding Processes*	2
	Prerequisites: Approval of the BNSF training director and the JCCC department approval	
RRIT 140	Structural Quality SMAW*	3
	Prerequisites: RRIT 127 or approval of the BNSF training director and the JCCC department approval	
	TOTAL PROGRAM CREDIT HOURS	5

*Prerequisite/Corequisite required

Railroad Structural Welding Certificate

JCCC's railroad industrial technology certificate program is OPEN ONLY TO BNSF RAILWAY EMPLOYEES.

Enrollment is subject to the approval of the BNSF Railway training director and JCCC division administrator.

This certificate is designed to address the training needs for railway structural welders. Upon successful completion of this program, you should be able to demonstrate safe operating procedures for welding applications, perform skill competencies involving a variety of processes and positions, pass code welding requirements according to AWS D1.5, and perform welding operations as needed.

(Major Code 4530; CIP Code 49.0299)

Certificate of Completion

Required Courses

RRIT 122	Elements of Welding*	3
	Prerequisites: Approval of the BNSF manager of track and roadway maintenance training and the JCCC department approval	
RRIT 123	Basic Welding*	3
	Prerequisites: RRIT 122 or approval of the BNSF manager of engineering and maintenance training and the JCCC department approval	
RRIT 137	Structural Welding SMAW*	3
	Prerequisites: RRIT 123 and approval of the BNSF manager of engineering and maintenance training and the JCCC department approval	
RRIT 138	Structural Welding FCAW*	3
	Prerequisites: RRIT 137 and approval of the BNSF manager of engineering and maintenance training and the JCCC department approval	
RRIT 139	Structural Welding Pipe*	3
	Prerequisites: RRIT 137 and approval of the BNSF manager of engineering and maintenance training and the JCCC department approval	

or

RRIT 142	Structural Pipe Welding	3
	Prerequisites: RRIT 137 and RRIT 138 and approval of the BNSF manager of engineering and maintenance training and the JCCC department approval	
	TOTAL CREDIT HOURS	15

*Prerequisite/Corequisite required

Railroad Track Welding Certificate

Enrollment is subject to the approval of the BNSF Railway training director and JCCC division administrator.

This certificate is designed to provide a concentrated program for industry-specific training in track maintenance and repairs. Upon successful completion of this program, you should have the ability to safely operate track welding equipment, perform basic and advanced welding operations, and complete specialized procedures as needed to perform the job of railway track welder.

(Major Code 4520; CIP Code 49.0299)

Railroad Welder Training Program

Certificate of Completion

Required Courses

RRIT 122	Elements of Welding*	3
	Prerequisites: Approval of the BNSF manager of track and roadway maintenance training and the JCCC department approval	
RRIT 123	Basic Welding*	3
	Prerequisites: RRIT 122 or approval of the BNSF manager of engineering and maintenance training and the JCCC department approval	
RRIT 132	Thermite Welding*	3
	Prerequisites: Approval of the BNSF manager of engineering and maintenance training and the JCCC department approval	
RRIT 136	Rail and Switch Point Repair Welding*	3
	Prerequisites: RRIT 123 and approval of the BNSF manager of engineering and maintenance training and the JCCC department approval	
RRIT 145	Frog Welding*	3
	Prerequisites: RRIT 123 and approval of the BNSF manager of engineering and maintenance training and the JCCC department approval	
	TOTAL CREDIT HOURS	15

*Prerequisite/Corequisite required

Railroad Operations - Conductor Option, A.A.S.

Conductors are responsible for supervising over-the-road operation of freight trains and are in demand throughout the railroad industry. They may choose career paths leading to locomotive engineer service or railroad management. The final phase of this program consists of six weeks of full-time training provided in cooperation with the National Academy of Railroad Sciences on the campus of JCCC.

For information visit the National Academy of Railroad Sciences. Hover your cursor over the "New Careers" tab and choose from the list.

Note: Metropolitan Community College students should seek specific counsel from the JCCC program personnel for the appropriate course plan and numbers.

Metropolitan Community College students should refer to Cooperative Program Information.

(Major Code 2810; CIP Code 49.0299)

Associate of Applied Science Degree

First Semester

CPCA 105	Introduction to Personal Computers: Windows.....1
CPCA 108	Word Processing I: MS Word*.....1
	Prerequisites: CPCA 105 or CPCA 106 or CIS 124 or CPCA 128 or appropriate score on a waiver test
CPCA 110	Spreadsheets I: MS Excel*.....1
	Prerequisite: CPCA 105 or CPCA 106 or CIS 124 or CPCA 128 or appropriate score on a waiver test
ENGL 121	Composition I*.....3
	Prerequisite: ENGL 106 or appropriate placement test score or EAP 113 and EAP 117
MATH 130	Technical Mathematics I*.....3
	Prerequisite: MATH 111 with a grade of "C" or higher or an appropriate score on the math assessment test
PHIL 124	Logic and Critical Thinking.....3
RRT 120	History of Railroadng.....3
	Total Semester Credit Hours.....15

Second Semester

	Technical Electives.....2
	Health and/or Physical Education Elective.....1
ENGL 123	Technical Writing I*.....3
	Prerequisite: ENGL 121
MATH 131	Technical Mathematics II*.....3
	Prerequisites: MATH 130 or MATH 133 with a grade of "C" or higher or an equivalent course with a grade of "C" or higher
PHYS 133	Applied Physics*.....5
	Prerequisite: MATH 135 or higher
RRT 121	Railroad Technical Careers.....3
	Total Semester Credit Hours.....17

Third Semester

BUS 121	Introduction to Business.....3
ECON 132	Survey of Economics.....3
	or
ECON 230	Economics I.....3
PHIL 138	Business Ethics.....1
RRT 150	Railroad Operations.....3
RRT 165	Railroad Safety, Quality and Environment.....3
SPD 125	Personal Communication.....3
	Total Semester Credit Hours.....16

Fourth Semester

RRTC 123	Introduction to Conductor Service*.....4
	Prerequisite: Admission to the JCCC railroad operations program, conductor option
	Prerequisite: BNSF/JCCC Training Director Approval
RRTC 175	Conductor Mechanical Operation*.....2
	Prerequisites: Admission to the JCCC railroad operations program, conductor option, and successful completion of RRTC 123 with a grade of "C" or higher and BNSF/JCCC Training Director Approval
RRTC 261	Conductor Service*.....2
	Prerequisite: Admission to the JCCC railroad operations program, conductor option, and successful completion of RRTC 175 with a grade of "C" or higher and BNSF/JCCC Training Director Approval

RRTC 263	General Code of Operating Rules*.....4
	Prerequisite: Admission to the JCCC railroad operations program, conductor option, and successful completion of RRTC 261 with a grade of "C" or higher and BNSF/JCCC Training Director Approval
RRTC 267	Conductor Field Application*.....4
	Prerequisite: Admission to the JCCC railroad operations program, conductor option, and successful completion of RRTC 263 with a grade of "C" or higher and BNSF/JCCC Training Director Approval
	Total Semester Credit Hours.....16
	TOTAL PROGRAM CREDIT HOURS.....64

Technical Electives

AUTO 125	Introduction to Automotive Shop Practices.....3
AUTO 165	Automotive Engine Repair*.....4
	Prerequisite or corequisite: AUTO 125 or department approval
CET 105	Construction Methods.....3
CET 129	Construction Management.....3
CPCA 138	Windows for Microcomputers*.....1
	Prerequisite: CPCA 105 or CPCA 106 or CPCA 128 or CIS 124 or an appropriate score on an assessment test
DRAF 123	Interpreting Machine Drawings*.....2
	Prerequisite or corequisite: DRAF 120 or department approval
DRAF 129	Interpreting Architectural Drawings.....2
ELEC 120	Introduction to Electronics.....3
ELEC 126	Microcomputer A+ Preparation.....4
ELEC 133	Programmable Controllers.....3
ELEC 150	Introduction to Telecommunications.....3
ENGR 180	Engineering Land Surveying I*.....3
	Corequisite: MATH 134 or MATH 172
GEOS 140	Physical Geography.....3
GEOS 141	Physical Geography Lab*.....2
	Prerequisite or corequisite: GEOS 140 or the equivalent
HVAC 123	Electromechanical Systems.....4
INDT 125	Industrial Safety.....3
MFAB 130	Introduction to Gas Metal Arc Welding I (GMAW I)*.....4
	Prerequisite or corequisite: MFAB 120 or MFAB 127
MFAB 152	Manufacturing Materials and Processes.....3
MFAB 240	Metallurgy.....2
	*Prerequisite/Corequisite required

Locomotive Electrical Certificate

This 12 hour Locomotive-Electrical Vocational Certificate program is designed to introduce the student to the basic electrical theory and concepts related to locomotive electrical systems, including the operation, maintenance, and troubleshooting of EMD Low Horsepower locomotive electrical systems. Also, it includes the basic operation, maintenance, repair requirements and trouble shooting of EMD diesel engines and support systems, and the GE Dash 8/9 locomotive systems.

For information visit the National Academy of Railroad Sciences

(Major Code 4370; CIP Code 49.0299)

Certificate of Completion

First Semester

RRTM 142	Locomotive Electricity*.....3
	Prerequisite: Approval of the railroad training administrator and the JCCC department approval
RRTM 143	Low Horsepower Electrical*.....3
	Prerequisite: Approval of the railroad training administrator and the JCCC program assistant dean
RRTM 144	EMD Basic Electrical*.....3
	Prerequisite: Approval of the railroad training administrator and the JCCC department approval
RRTM 145	GE Dash 8/9 Electrical Systems*.....3
	Prerequisite: Approval of the railroad training administrator and the JCCC department approval
	TOTAL PROGRAM CREDIT HOURS.....12

Locomotive Mechanical Certificate

This 12 hour Locomotive-Mechanical Vocational Certificate program is designed to introduce the student to the basic operation, maintenance, repair requirements and trouble shooting for EMD and GE diesel engines and support systems, as well as, 26L and 30 ACDW locomotive air brake systems. Also covered are applicable sections of Federal Railway Administration (FRA) and Department of Transportation (DOT) Regulations, industry (American Association of Railroads), and company (BNSF Railway) procedures.

For information visit the National Academy of Railroad Sciences

(Major Code 4380; CIP Code 49.0299)

Certificate of Completion

First Semester

RRTM 135	Basic EMD Mechanical*.....3
	Prerequisite: Approval of the railroad training administrator and JCCC department approval
RRTM 136	Basic GE Mechanical*.....3
	Prerequisite: Approval of the railroad training administrator and the JCCC department approval
RRTM 137	Locomotive Air Brake*.....3
	Prerequisite: Approval of the railroad training administrator and the JCCC department approval
RRTM 138	Locomotive FRA*.....3
	Prerequisite: Approval of the railroad training administrator and the JCCC department approval
	TOTAL PROGRAM CREDIT HOURS.....12

Railroad Freight Car Certificate

This nine hour Freight Car vocational certificate program is designed to provide the student training in the inspection, testing, and repair of freight cars. This is accomplished in accordance with established federal (Federal Railroad Administration), industry (American Association of Railroads), and company (Burlington Northern Santa Fe Railway) procedures, in a safe and professional manner.

For information visit the National Academy of Railroad Sciences. Hover your cursor over the "New Careers" tab and choose from the list.

(Major Code 4360; CIP Code 49.0299)

Certificate of Completion

First Semester

RRTM 130	Freight Car Yard Inspection*.....3
	Prerequisites: Approval of the railroad training administrator and the JCCC department approval
RRTM 131	Freight Car Repair Track Inspector*.....3
	Prerequisites: RRTM 130 and approval of the railroad training administrator and JCCC department approval
RRTM 122	Elements of Welding*.....3
	Prerequisites: Approval of the BNSF manager of track and roadway maintenance training and the JCCC department approval
	TOTAL PROGRAM CREDIT HOURS.....9

Railroad Conductor Certificate

The 16-credit hour railroad conductor certificate program prepares students for an exciting and well-paying career as a railroad conductor. The more than 500 companies that make up the United States railroad industry provide the country's freight and passenger transportation service on a network of some 300,000 route-miles of track. Railroads employ a substantial workforce.

For information visit the National Academy of Railroad Sciences. Hover your cursor over the "New Careers" tab and choose from the list.

(Major Code 4410; CIP Code 49.0299)

Career Certificate

Required Courses

RRTC 123	Introduction to Conductor Service*.....4
	Prerequisite: Admission to the JCCC railroad operations program, conductor option
RRTC 175	Conductor Mechanical Operation*.....2
	Prerequisites: Admission to the JCCC railroad operations program, conductor option, and successful completion of RRTC 123 with a grade of "C" or higher and BNSF/JCCC Training Director Approval
RRTC 261	Conductor Service*.....2
	Prerequisite: Admission to the JCCC railroad operations program, conductor option, and successful completion of RRTC 175 with a grade of "C" or higher and BNSF/JCCC Training Director Approval
RRTC 263	General Code of Operating Rules*.....4
	Prerequisite: Admission to the JCCC railroad operations program, conductor option, and successful completion of RRTC 261 with a grade of "C" or higher and BNSF/JCCC Training Director Approval
RRTC 267	Conductor Field Application*.....4
	Prerequisite: Admission to the JCCC railroad operations program, conductor option, and successful completion of RRTC 263 with a grade of "C" or higher and BNSF/JCCC Training Director Approval
	TOTAL PROGRAM CREDIT HOURS.....16

Railroad Operations - General Option, A.A.S.

JCCC's associate's degree program in railroad operations can prepare you for an exciting and well-paying career. The more than 500 companies that make up the U.S. railroad industry provide the country's freight and passenger transportation service on a network of some 300,000 route-miles of track. Railroads employ a substantial workforce to service, maintain and manage this extensive transportation network. JCCC's program offers five options. The general option requires 66 credit hours, the conductor option 65 credit hours, the mechanical option 65 credit hours and the maintenance of way welding option 65 credit hours.

In general, this option is designed to provide the student with general knowledge and skills for entry-level employment in the railroad industry. The student is introduced to the history of railroading and the various railroad crafts. Railroad operations, safety, environment and quality also are covered. The student will choose from a list of business and technical electives in order to provide a basis for possible employment and further post-employment training.

For information visit the National Academy of Railroad Sciences. Hover your cursor over the "New Careers" tab and choose from the list.

(Major Code 2800; CIP Code 49.0299)

Associate of Applied Science Degree

First Semester

CPCA 105	Introduction to Personal Computers: Windows.....1
CPCA 108	Word Processing I: MS Word*.....1
	Prerequisites: CPCA 105 or CPCA 106 or CIS 124 or CPCA 128 or appropriate score on a waiver test
CPCA 110	Spreadsheets I: MS Excel*.....1
	Prerequisite: CPCA 105 or CPCA 106 or CIS 124 or CPCA 128 or appropriate score on a waiver test
ENGL 121	Composition I*.....3
	Prerequisite: ENGL 106 or appropriate placement test score or EAP 113 and EAP 117
MATH 130	Technical Mathematics I*.....3
	Prerequisite: MATH 111 with a grade of "C" or higher or an appropriate score on the math assessment test
PHIL 124	Logic and Critical Thinking.....3
RRT 120	History of Railroading.....3
	Total Semester Credit Hours.....15

Second Semester

	Health and/or Physical Education Elective.....	1
ENGL 123	Technical Writing I*.....	3
	Prerequisite: ENGL 121	
MATH 131	Technical Mathematics II*.....	3
	Prerequisites: MATH 130 or MATH 133 with a grade of "C" or higher or an equivalent course with a grade of "C" or higher	
PHYS 133	Applied Physics*.....	5
	Prerequisite: MATH 135 or higher	
RRT 121	Railroad Technical Careers.....	3
	Total Semester Credit Hours.....	15

Third Semester

BUS 121	Introduction to Business.....	3
ECON 132	Survey of Economics.....	3
	or	
ECON 230	Economics I.....	3
PHIL 138	Business Ethics.....	1
RRT 150	Railroad Operations.....	3
RRT 165	Railroad Safety, Quality and Environment.....	3
SPD 125	Personal Communication.....	3
	Total Semester Credit Hours.....	16

Fourth Semester

	Business/Related Electives.....	6
	Technical/Related Electives.....	10
INDT 140	Quality Improvement Using SPC.....	2
	Total Semester Credit Hours.....	18
	TOTAL PROGRAM CREDIT HOURS.....	64

Business/Related Electives

ACCT 121	Accounting I.....	3
BUS 123	Personal Finance.....	3
BUS 140	Principles of Supervision.....	3
BUS 141	Principles of Management.....	3
BUS 225	Human Relations.....	3
BUS 230	Marketing.....	3
BUS 243	Human Resource Management.....	3
BUS 261	Business Law I.....	3
ENGL 210	Technical Writing II*.....	3
	Prerequisite: ENGL 123	
BOT 101	Computerized Keyboarding.....	1

Technical/Related Electives

AUTO 125	Introduction to Automotive Shop Practices.....	3
AUTO 165	Automotive Engine Repair*.....	4
	Prerequisite or corequisite: AUTO 125 or department approval	
CET 105	Construction Methods.....	3
CET 129	Construction Management.....	3
CPCA 138	Windows for Microcomputers*.....	1
	Prerequisite: CPCA 105 or CPCA 106 or CPCA 128 or CIS 124 or an appropriate score on an assessment test	
DRAF 123	Interpreting Machine Drawings*.....	2
	Prerequisite or corequisite: DRAF 120 or department approval	
DRAF 129	Interpreting Architectural Drawings.....	2
ELEC 120	Introduction to Electronics.....	3
ELEC 126	Microcomputer A+ Preparation.....	4
ELEC 133	Programmable Controllers.....	3
ELEC 150	Introduction to Telecommunications.....	3
ENGR 180	Engineering Land Surveying I*.....	3
	Corequisite: MATH 134 or MATH 172	
GEOS 140	Physical Geography.....	3
GEOS 141	Physical Geography Lab*.....	2
	Prerequisite or corequisite: GEOS 140 or the equivalent	
HVAC 123	Electromechanical Systems.....	4
INDT 125	Industrial Safety.....	3
MFAB 121	Intro to Shielded Metal Arc Welding I (SMAW I)*.....	4
	Prerequisite or corequisite: MFAB 120 or MFAB 127	
MFAB 130	Introduction to Gas Metal Arc Welding I (GMAW I)*.....	4
	Prerequisite or corequisite: MFAB 120 or MFAB 127	
MFAB 152	Manufacturing Materials and Processes.....	3
MFAB 240	Metallurgy.....	2

*Prerequisite/Corequisite required

Railroad Operations - Mechanical Option, A.A.S.

Mechanical services include a variety of responsibilities for the maintenance,

service and repair of locomotives, freight cars and other rolling stock. Skills include diesel engine repair, electrical and electronic system repair, freight car repair and inspection, and welding processes. The final phase of the program consists of training provided in cooperation with the National Academy of Railroad Sciences. Selective admission to the program is based upon various criteria. Interested students should meet with a JCCC counselor as early as possible.

For information visit the National Academy of Railroad Sciences. Hover your cursor over the "New Careers" tab and choose from the list.

(Major Code 2840; CIP Code 49.0299)

Associate of Applied Science Degree

Note: MFAB 120-MFAB Tools and Equipment or MFAB 127-Welding Processes are prerequisites/corequisites to MFAB 121. Students who may have the skills needed for MFAB 120 or MFAB 127 may contact the department for a waiver or may contact the Testing Center for prior learning credit.

First Semester

CPCA 105	Introduction to Personal Computers: Windows.....	1
CPCA 108	Word Processing I: MS Word*.....	1
	Prerequisites: CPCA 105 or CPCA 106 or CIS 124 or CPCA 128 or appropriate score on a waiver test	
CPCA 110	Spreadsheets I: MS Excel*.....	1
	Prerequisite: CPCA 105 or CPCA 106 or CIS 124 or CPCA 128 or appropriate score on a waiver test	
ENGL 121	Composition I*.....	3
	Prerequisite: ENGL 106 or appropriate placement test score or EAP 113 and EAP 117	
MATH 130	Technical Mathematics I*.....	3
	Prerequisite: MATH 111 with a grade of "C" or higher or an appropriate score on the math assessment test	
PHIL 124	Logic and Critical Thinking.....	3
RRT 120	History of Railroading.....	3
	Total Semester Credit Hours.....	15

Second Semester

	Technical Electives.....	2
	Health and/or Physical Education Elective.....	1
ENGL 123	Technical Writing I*.....	3
	Prerequisite: ENGL 121	
MATH 131	Technical Mathematics II*.....	3
	Prerequisites: MATH 130 or MATH 133 with a grade of "C" or higher or an equivalent course with a grade of "C" or higher	
PHYS 133	Applied Physics*.....	5
	Prerequisite: MATH 135 or higher	
RRT 121	Railroad Technical Careers.....	3
	Total Semester Credit Hours.....	17

Third Semester

BUS 121	Introduction to Business.....	3
ECON 132	Survey of Economics.....	3
	or	
ECON 230	Economics I.....	3
PHIL 138	Business Ethics.....	1
RRT 150	Railroad Operations.....	3
RRT 165	Railroad Safety, Quality and Environment.....	3
SPD 125	Personal Communication.....	3
	Total Semester Credit Hours.....	16

Fourth Semester

RRT 122	Elements of Welding*.....	3
	Prerequisites: Approval of the BNSF manager of track and roadway maintenance training and the JCCC department approval or	
MFAB 121	Intro to Shielded Metal Arc Welding I (SMAW I)*.....	4
	Prerequisite or corequisite: MFAB 120 or MFAB 127	
RRT 123	Basic Welding*.....	3
	Prerequisites: RRT 122 or approval of the BNSF manager of engineering and maintenance training and the JCCC department approval	
RRTM 124	Orientation to the Railroad Mechanical Craft*.....	2
	Prerequisite: Admission to the JCCC railroad operations program, mechanical option	
RRTM 170	Railroad Mechanical Safety and Health*.....	2
	Prerequisites: Admission to the JCCC's railroad operations program, mechanical option, and completion of RRTM 124 with a grade of "C" or higher	
RRTM 251	Locomotive Diesel Engine Fundamentals*.....	2
	Prerequisites: Admission to the JCCC railroad operations program, mechanical option, and completion	

	of RRTM 124 and RRTM 170 with a grade of "C" or higher	
RRTM 253	Freight Car Fundamentals*.....2	
	Prerequisites: Admission to the JCCC's railroad operations program, mechanical option, and completion of RRTM 124 and RRTM 170 with a grade of "C" or higher	
RRTM 254	Basic Locomotive Electricity and Electronics*.....2	
	Prerequisites: Admission to the JCCC's railroad operations program, mechanical option and completion of RRTM 124 and RRTM 170 with a grade of "C" or higher	
	Total Semester Credit Hours.....16	
	TOTAL PROGRAM CREDIT HOURS.....64	

Technical Electives

AUTO 125	Introduction to Automotive Shop Practices.....3
AUTO 165	Automotive Engine Repair*.....4
	Prerequisite or corequisite: AUTO 125 or department approval
CET 105	Construction Methods.....3
CET 129	Construction Management.....3
CPCA 138	Windows for Microcomputers*.....1
	Prerequisite: CPCA 105 or CPCA 106 or CPCA 128 or CIS 124 or an appropriate score on an assessment test
DRAF 123	Interpreting Machine Drawings*.....2
	Prerequisite or corequisite: DRAF 120 or department approval
DRAF 129	Interpreting Architectural Drawings.....2
ELEC 120	Introduction to Electronics.....3
ELEC 126	Microcomputer A+ Preparation.....4
ELEC 133	Programmable Controllers.....3
ELEC 150	Introduction to Telecommunications.....3
ENGR 180	Engineering Land Surveying I*.....3
	Corequisite: MATH 134 or MATH 172
GEOS 140	Physical Geography.....3
GEOS 141	Physical Geography Lab*.....2
	Prerequisite or corequisite: GEOS 140 or the equivalent
HVAC 123	Electromechanical Systems.....4
INDT 125	Industrial Safety.....3
MFAB 130	Introduction to Gas Metal Arc Welding I (GMAW I)*.....4
	Prerequisite or corequisite: MFAB 120 or MFAB 127
MFAB 152	Manufacturing Materials and Processes.....3
MFAB 240	Metallurgy.....2
	*Prerequisite/Corequisite required

Railroad Operations - Welding Option, A.A.S.

Maintenance of way welding involves maintenance and repair of rail and track components. The final phase of this program consists of course work provided in cooperation with the National Academy of Railroad Sciences. Selective admission to the program is based on various criteria. Interested students should meet with a JCCC counselor as early as possible.

For information visit the National Academy of Railroad Sciences. Hover your cursor over the "New Careers" tab and choose from the list.

(Major Code 2850; CIP Code 49.0299)

Associate of Applied Science Degree

First Semester

CPCA 105	Introduction to Personal Computers: Windows.....1
ENGL 121	Composition I*.....3
	Prerequisite: ENGL 106 or appropriate placement test score or EAP 113 and EAP 117
MATH 130	Technical Mathematics I*.....3
	Prerequisite: MATH 111 with a grade of "C" or higher or an appropriate score on the math assessment test
PHIL 124	Logic and Critical Thinking.....3
RRT 120	History of Railroad.....3
	Total Semester Credit Hours.....13

Second Semester

	Health and/or Physical Education Elective.....1
ENGL 123	Technical Writing I*.....3
	Prerequisite: ENGL 121
INDT 125	Industrial Safety.....3
PHYS 133	Applied Physics*.....5
	Prerequisite: MATH 135 or higher
RRT 121	Railroad Technical Careers.....3
	Total Semester Credit Hours.....15

Third Semester

	Technical/Related Elective.....3
ECON 132	Survey of Economics.....3
	or
ECON 230	Economics I.....3
RRT 150	Railroad Operations.....3
RRT 165	Railroad Safety, Quality and Environment.....3
SPD 125	Personal Communication.....3
	Total Semester Credit Hours.....15

Fourth Semester

RRT 122	Elements of Welding*.....3
	Prerequisites: Approval of the BNSF manager of track and roadway maintenance training and the JCCC department approval
RRT 123	Basic Welding*.....3
	Prerequisites: RRT 122 or approval of the BNSF manager of engineering and maintenance training and the JCCC department approval
RRT 132	Thermite Welding*.....3
	Prerequisites: Approval of the BNSF manager of engineering and maintenance training and the JCCC department approval
RRT 136	Rail and Switch Point Repair Welding*.....3
	Prerequisites: RRT 123 and approval of the BNSF manager of engineering and maintenance training and the JCCC department approval
RRT 145	Frog Welding*.....3
	Prerequisites: RRT 123 and approval of the BNSF manager of engineering and maintenance training and the JCCC department approval
RRT 271	Railroad Welding Internship*.....6
	Prerequisites: Admission to the JCCC railroad program, welding option, and successful completion of RRT 122 and RRT 123 and RRT 136 and RRT 145 and RRT 132 with a grade of "C" or higher
	Total Semester Credit Hours.....21
	TOTAL PROGRAM CREDIT HOURS.....64

Technical/Related Electives

AUTO 125	Introduction to Automotive Shop Practices.....3
AUTO 165	Automotive Engine Repair*.....4
	Prerequisite or corequisite: AUTO 125 or department approval
CET 105	Construction Methods.....3
CET 129	Construction Management.....3
CPCA 138	Windows for Microcomputers*.....1
	Prerequisite: CPCA 105 or CPCA 106 or CPCA 128 or CIS 124 or an appropriate score on an assessment test
DRAF 123	Interpreting Machine Drawings*.....2
	Prerequisite or corequisite: DRAF 120 or department approval
DRAF 129	Interpreting Architectural Drawings.....2
ELEC 120	Introduction to Electronics.....3
ELEC 126	Microcomputer A+ Preparation.....4
ELEC 133	Programmable Controllers.....3
ELEC 150	Introduction to Telecommunications.....3
GEOS 140	Physical Geography.....3
GEOS 141	Physical Geography Lab*.....2
	Prerequisite or corequisite: GEOS 140 or the equivalent
HVAC 123	Electromechanical Systems.....4
MFAB 130	Introduction to Gas Metal Arc Welding I (GMAW I)*.....4
	Prerequisite or corequisite: MFAB 120 or MFAB 127
MFAB 152	Manufacturing Materials and Processes.....3
MFAB 240	Metallurgy.....2
	*Prerequisite/Corequisite required

Respiratory Care, A.A.S.

The respiratory therapist is involved in a variety of lifesaving and life-supporting situations. Respiratory therapists treat patients ranging in age from newborns to senior citizens in the prevention, treatment, management and rehabilitation of lung problems. Employment is typically in hospitals but is available in several other health delivery venues. The health care needs of an aging population will play a role in the future of respiratory care.

JCCC's associate of applied science program is accredited by the Commission on Accreditation for Respiratory Care (CoARC www.coarc.com). Graduates are eligible to take the National Board for Respiratory Care examinations for both the certified (CRT) and registered (RRT) respiratory therapist.

Certain courses within this program require a professional liability insurance fee. Students will be notified via their JCCC student e-mail account if they are

required to pay a \$16 fee. The dollar amount for fees is subject to change.

Total Semester Credit Hours.....9

This is a selective admission program with limited enrollment. Prospective students are encouraged to visit the program Web site at <http://www.jccc.net/respiratorycare> or to contact JCCC program personnel for additional information and application materials at 913-469-2583.

Note: Metropolitan Community College students should seek specific counsel from the JCCC program personnel for the appropriate course plan and numbers.

Metropolitan Community College students should refer to Cooperative Program Information.

Students must "pass" all clinical courses and maintain a grade of "C" or higher in all non-clinical courses to remain in the program.

(Major Code 237A; CIP Code 51.0908)

Respiratory Care

Associate of Applied Science Degree

Summer

	Social Science/Economics Elective.....3
ENGL 121	Composition I**.....3
	Prerequisite: ENGL 106 or appropriate placement test score or EAP 113 and EAP 117
	Total Semester Credit Hours.....6

First Semester

	Humanities/Art Elective.....3
BIOL 140	Human Anatomy^.....4
CHEM 122	Principles of Chemistry^.....5
MATH 116	Intermediate Algebra**.....3
	Prerequisite: MATH 115 with a grade of "C" or higher or appropriate score on the math assessment test
Note:	MATH 116 or MATH 171 or higher
	Total Semester Credit Hours.....15

Second Semester

	Communications Elective.....3
BIOL 225	Human Physiology**.....4
	Prerequisites or corequisites: Either CHEM 122 or (CHEM 124 and CHEM 125) and either BIOL 140 or BIOL 144
BIOL 230	Microbiology**.....3
	Prerequisite: CHEM 122 or CHEM 124 and CHEM 125 or one year of high school chemistry
BIOL 231	Microbiology Lab.....2
	BIOL 231 students must be currently enrolled in BIOL 230 or have successfully completed BIOL 230 within the last three years.
Note:	BIOL 231 is optional but strongly suggested.
EMS 121	CPR I - Basic Life Support for Healthcare Provider...1
HC 101	Introduction to Health Care Delivery**.....3
	Total Semester Credit Hours.....11-16

Note: ^Indicates prerequisite courses that must be completed before the clinic-year. Electives not completed by the clinic-year will delay credentialing eligibility.

Note: **HC 101 is not a required course for the degree but is strongly encouraged. See the program application packet for details on how this course may be used to meet clinic-year eligibility requirements.

Summer (clinic-year)

RC 125	Beginning Principles of Respiratory Care*.....4
	Prerequisite: Admission to the respiratory care program
RC 130	Respiratory Care Equipment*.....4
	Prerequisite: Admission to the respiratory care program
RC 135	Cardiopulmonary Medicine I*.....1
	Prerequisite: Admission to the respiratory care program (Current BCLS for Health Care Provider required)

Third Semester

RC 220	Cardiopulmonary Physiology*.....2
	Prerequisite: Successful completion of the summer sequence of respiratory care courses
RC 230	Clinical Topics and Procedures I*.....4
	Prerequisite: Successful completion of the summer sequence of respiratory care courses
RC 235	Cardiopulmonary Medicine II*.....2
	Prerequisite: Successful completion of the summer sequence of respiratory care courses
RC 240	Cardiopulmonary Pharmacology*.....2
	Prerequisite: Successful completion of the summer sequence of respiratory care courses
RC 271	Clinical Practice I*.....6
	Prerequisite: Successful completion of the summer sequence of respiratory care courses
	Total Semester Credit Hours.....16

Fourth Semester

RC 231	Clinical Topics and Procedures II*.....4
	Prerequisite: Successful completion of the fall sequence of respiratory care courses
RC 233	Respiratory Care of Children*.....2
	Prerequisite: RC 230
RC 236	Cardiopulmonary Medicine III*.....2
	Prerequisite: Successful completion of the fall sequence of respiratory care courses
RC 272	Clinical Practice II*.....6
	Prerequisite: Successful completion of the fall sequence of respiratory care courses
	Total Semester Credit Hours.....14
	TOTAL PROGRAM CREDIT HOURS.....71-73
	WITH HC ELECTIVE COURSE.....74-76

*Prerequisite/Corequisite required

Veterinary Technology, A.A.S.

The Veterinary Technology, AAS degree program is granted by Metropolitan Community College, but coordinated at JCCC.

A degree in veterinary technology provides opportunities for employment with small and large animal veterinary clinics, emergency/referral hospitals, animal control agencies, biomedical research companies, zoos, pharmaceutical companies, and pet food companies.

The program features supervised intensive clinical study under the direction of a licensed veterinarian and is fully accredited by the American Veterinary Medical Association. Students study sanitation, animal care, equine medicine, laboratory animal medicine, food animal medicine, clinical diagnostic procedures, radiology, dentistry and surgical technology.

JCCC's veterinary technology program is offered to Johnson County residents in cooperation with MCC-Maple Woods Community College. You must be accepted as a student at JCCC and accepted into the program at MCC-Maple Woods Community College. Consult with a JCCC counselor for more information.

Program courses and credit hours are subject to change because of requirement changes at the degree-granting institution. Contact MCC-Maple Woods Community College at 816-437-3235 or www.mccck.edu/vettech for an application packet, which includes deadlines, program prerequisites, admission requirements and performance standards.

Note: Johnson County Community College students should seek specific counsel from the MCC program personnel for the appropriate course plan and numbers.

Johnson County Community College students should refer to Cooperative Program Information.

Associate of Applied Science Degree

Degree granted by Metropolitan Community College

General Education Requirements-must be taken at JCCC

ENGL 121	Composition I*	3
	Prerequisite: ENGL 106 or appropriate placement test score or EAP 113 and EAP 117	
SPD 121	Public Speaking	3
	General Education Electives	3-5
	Note: ENGL 122-Composition II is highly recommended.	

American Institutions

HIST 140	U.S. History to 1877	3
	or	
HIST 141	U.S. History Since 1877	3
	or	
POLS 122	Political Science	3
	or	
POLS 124	American National Government	3
	or	
POLS 126	State and Local Government	3

Specific Program Requirements-must be taken at JCCC

BIOL 127	General Zoology	5
BIOL 230	Microbiology*	3
	Prerequisite: CHEM 122 or CHEM 124 and CHEM 125 or one year of high school chemistry	
BIOL 231	Microbiology Lab*	2
	BIOL 231 students must be currently enrolled in BIOL 230 or have successfully completed BIOL 230 within the last three years.	
CHEM 122	Principles of Chemistry	5
CPCA 128	PC Applications: MS Office	3

Specific Program Requirements-taken at MCC-Maplewoods

KSS 153	The Missouri Constitution	1
KSAH 108	Clinical Mathematics for Veterinary Technicians	1
	Prerequisites: Admission into the Veterinary Technician Program	
KSAH 100	Introduction to Veterinary Technology	2
KSAH 101	Principles of Animal Science I	3
KSAH 110	Principles of Animal Science II*	3
	Prerequisite: KSAH 101	
KSAH 111	Sanitation and Animal Care	2
KSAH 200	Veterinary Hospital Technology I*	3
	Prerequisites: KSAH 101 and KSAH 110	
KSAH 201	Clinical Pathology Techniques I	4
KSAH 202	Veterinary Anatomy*	5
	Prerequisite: BIOL 101 (Maple Woods) or BIOL 127 and KSAH 101 and 110	
KSAH 203	Laboratory Animal Technology*	2
	Prerequisites: KSAH 101, KSAH 110 and KSAH 201	
KSAH 209	Equine Medicine and Management*	3
	Prerequisite: KSAH 212	
KSAH 210	Veterinary Hospital Technology II*	3
	Prerequisite: KSAH 200	
KSAH 211	Clinical Pathology Techniques II*	5
	Prerequisite: KSAH 201	
KSAH 212	Large Animal Technology*	4
	Prerequisites: KSAH 101 and KSAH 110	
KSAH 213	Radiology and Electronic Procedures	2
KSAH 214	Veterinary Technician Internship*	6
	Prerequisite: Two semesters of first-year veterinary technology courses	
	TOTAL PROGRAM CREDIT HOURS	79-81

*Prerequisite/Corequisite required

General Education Electives

ARTH 180	Art History: Ancient to Renaissance	3
ARTH 182	Art History: Renaissance to Modern	3
ARTH 184	Art History: Twentieth Century	3
ANTH 125	Cultural Anthropology	3
ANTH 126	Physical Anthropology	3
ANTH 130	World Cultures	3
ECON 132	Survey of Economics	3
ECON 230	Economics I	3
ECON 231	Economics II	3
ENGL 130	Introduction to Literature*	3
	Prerequisite: ENGL 121	
ENGL 230	Introduction to Fiction*	3
	Prerequisite: ENGL 122	
FL 130	Elementary Spanish I	5
FL 131	Elementary Spanish II*	5
	Prerequisite: FL 130 with a grade of "C" or higher or two years of high-school Spanish; or the appropriate score on the placement test	
FL 140	Elementary French I	5
FL 141	Elementary French II*	5
	Prerequisite: FL 140 or one year of high-school French	
FL 180	Elementary American Sign Language I	3
FL 181	Elementary American Sign Language II*	3
	Prerequisite: FL 180 or INTR 120 with a grade of "C" or higher	
HIST 125	Western Civilization: Readings and Discussion I	3

HIST 126	Western Civilization: Readings and Discussion II	3
HUM 122	Introduction to Humanities	3
MUS 121	Introduction to Music Listening	3
PHIL 121	Introduction to Philosophy	3
PHIL 124	Logic and Critical Thinking	3
PHIL 143	Ethics	3
PHIL 154	History of Ancient Philosophy	3
PHIL 176	Philosophy of Religion	3
POLS 132	Introduction to Comparative Government	3
POLS 135	International Relations	3
PSYC 121	Applied Psychology	3
PSYC 130	Introduction to Psychology*	3
	Prerequisite: Appropriate score on the COMPASS reading test OR appropriate score on the ACT reading test OR RDG 126 with a grade of "C" or higher	
SOC 122	Introduction to Sociology	3
SOC 125	Social Problems	3
SOC 131	Marriage and the Family	3
SPD 120	Interpersonal Communication	3

Credit Course Descriptions

The following course offerings at JCCC are listed alphabetically by subject area. Clicking on the subject in which you are interested will give you a list of all courses that fall under that subject and a course description (including credit hour value) for each of those courses. If you then click on a particular course (ANTH 125, for example), you will be directed to a copy of the course outline, which includes the objectives and competencies covered in the course.

- A -

Academic Achievement Center (AAC)

Accounting (ACCT)

Administration of Justice (ADMJ)

American Sign Language (ASL)

Animation (ANI)

Anthropology (ANTH)

Architecture (ARCH)

Art (ART)

Art History (ARTH)

Astronomy (ASTR)

Automotive Technology (AUTO)

- B -

Biology (BIOL)

Biotechnology (BIOT)

Business (BUS)

Business Logistics Management (KSCL)

Business Office Technology (BOT)

- C -

Chemistry (CHEM)

Civil Engineering Technology (CET)

Computer Desktop Publishing (CDTP)

Computer Digital Image Editing (CDIE)

Computer Forensics (CFOR)

Computer Information Systems (CIS)

Computer Personal Computer App (CPCA)

Computer Science (CS)

Computer Web (CWEB)

Cosmetology (AVCO)

Cosmetology - Esthetics (CO)

- D -

Dental Assisting (KDA)

Dental Hygiene (DHYG)

Drafting/CAD/AutoCAD (DRAF)

- E -

Economics (ECON)

Education and Early Childhood (EDUC)

Electrical Technology (ELTE)

Electronics (ELEC)

Emergency Medical Science/MICT (EMS)

Energy Perform & Resource Mgmt (EPRM)

Engineering (ENGR)

English (ENGL)

English for Academic Purposes (EAP)

Entrepreneurship (ENTR)

- F -

Fashion Merchandising/Design (FASH)

Fire Services Administration (FIRE)

Floriculture (FLR)

Foreign Language (FL)

- G -

Game Development (GAME)

Geographic Information Systems (KEOG)

Geoscience (GEOS)

Graphic Design (GDES)

- H -

Health Care (HC)

Health Care Interpreting (HCI)

Health Information Technology (KMRT)

Health Occupations (AVHO)

Heating,Vent.,Air Conditioning (HVAC)

History (HIST)

Home Economics (HMEC)

Honors Program (HON)

Horticulture (HORT)

Hospitality Management (HMGY)

Hospitality Mgt Pastry Baking (HMPB)

Humanities (HUM)

- I -

Industrial Technology (INDT)

Information Technology (IT)

Interactive Media (CIM)

Interior Design (ITMD)

Interpreter Training (INTR)

- J -

Journalism/Media Communication (JOUR)

- L -

Land Surveying (KSRV)

Leadership (LEAD)

Learning Communities (LCOM)

Learning Strategies (LS)

Legal Studies (LAW)

Library (LIBR)

- M -

Marketing Management (MKT)

Mathematics (MATH)

Metal Fabrication and Welding (MFAB)

Music (MUS)

- N -

Nursing (NURS)

- O -

Occupational Therapy Assistant (KOT)

- P -

Philosophy (PHIL)

Photography (PHOT)

Physical Ed, Health & Rec (HPER)

Physical Science (PSCI)

Physical Therapist Assistant (KPT)

Physics (PHYS)

Political Science (POLS)

Polysomnography/Sleep Tech (PSG)

Practical Nursing (PN)

Psychology (PSYC)

- R -

Radiologic Technology (KRAD)

Railroad Conductor (RRTC)

Railroad Dispatcher (RRTD)

Railroad Electronics (RREL)

Railroad Industrial Technology (RRIT)

Railroad Maintenance of Way (RRMW)

Railroad Operations (RRT)

Railroad Operations-Mechanical (RRTM)

Railroad Work Equipment (RRWE)

Reading (RDG)

Religion (REL)

Respiratory Care (RC)

- S -

Sociology (SOC)

Speech/Debate (SPD)

Surgical Technology (KST)

- T -

Theater (THEA)

- V -

Veterinary Technology (KSAH)

- W -

Women and Gender Studies (WGS)

Academic Achievement Center (AAC)

AAC 100

Study Skills (1 CR)

This self-instructional course is designed to improve students' ability to study efficiently. Based on the results of a study skills survey administered during the student's initial visit to the center, an individualized program is established. Using instructional material provided by the AAC, students will master a variety of concepts, including time management, goal setting, textbook reading, note taking from textbook and from lecture, stress management, test taking and using college resources. An Academic Achievement Center instructor is available to work with the student to establish specific instructional goals, administer tests, and provide individualized instruction as it is needed to complete the student's program. This course does not fulfill degree requirements.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$2 to \$5.

AAC 101

Study Skills Mini-Course (1 CR)

This class is a regularly scheduled class designed to improve students' ability to study efficiently. The focus is an array of skills the college student needs, i.e., test-taking skills and note-taking skills, using a textbook, critical reading and memory recall, and effective listening and classroom strategies. Also covered are services the college offers to facilitate the learning experience for the college student, i.e., the Writing Center, the Math Resource Center, the Academic Achievement Center, the Student Success Center and the Billington Library. The format includes reading, discussion and application activities. This course does not fulfill degree requirements.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$2 to \$5.

AAC 102

Basic Spelling (3 CR)

This self-instructional course is for students who wish to improve their spelling ability but who have not been successful in the traditional spelling program. This course provides a highly structured approach to spelling improvement through mastery of morphographs (units of meaning) and guidelines for combining morphographs. A limited number of spelling rules are taught in the course. This course is ideal for students for whom English is a second language. An Academic Achievement Center instructor is available to work with students to establish specific goals, administer tests, and provide individualized instruction as needed to complete the students' program. This course does not fulfill degree requirements.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$2 to \$5.

AAC 103

Advanced Spelling (1 CR)

This self-instructional course is for students who need to learn or review the basic spelling concepts and to improve their level of spelling mastery. Based on the results of a pretest administered during the student's initial visit, an individualized program is established. Using instructional material provided by the AAC, students will master a variety of concepts, including the final-e rule, the doubling rule, the y-to-i rule, forming the plurals and using possessives. In addition, students will monitor misspellings that occur in their own writing and will master the correct spelling of those words. A post-test will be administered at the end of the program to measure progress. An Academic Achievement Center instructor is available to work with students to establish specific instructional goals, administer tests and provide individualized instruction as needed to complete the students' program. This course does not fulfill degree requirements.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$2 to \$5.

AAC 104

Reading Comprehension (1 CR)

This self-instructional course is designed for students who wish to improve their understanding of written language. A pretest is administered to determine a baseline reading comprehension level. An individualized program of study will be developed for each student, which includes both instructional and practice material provided by the AAC. Textbooks, computer software and handouts are some of the materials used in this course. This course does not fulfill degree requirements. Students learn techniques for increasing reading comprehension, which include previewing, questioning, careful reading with note taking, reciting and reviewing. An Academic Achievement Center instructor is available to work with students to establish specific goals, administer tests and provide individualized instruction as needed to complete the student's program. This course does not fulfill degree requirements.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$2 to \$5.

AAC 105

Reading Rate (1 CR)

This self-instructional course is designed for students who demonstrate strong comprehension skills and wish to improve the rate at which they process written language. Students learn techniques for increasing reading rate and for improving skimming and scanning levels. A pretest will be administered to determine a baseline reading efficiency rate. An individualized program of study will be developed for each student, which includes both instructional and practice material provided by the AAC Textbooks, computer software and handouts are some of the materials used in this course. An Academic Achievement Center instructor is available to work with students to establish specific instructional goals, administer tests and provide individualized instruction as needed to complete each student's program. This course does not fulfill degree requirements.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$2 to \$5.

AAC 106

Vocabulary Development (1 CR)

This self-instructional course is designed for college students who wish to expand both their receptive and expressive vocabulary levels. College students are expected to be able to recognize and use vocabularies specific to specialized and changing contents, i.e., data processing, sociology and business. A vocabulary placement test will be administered to determine a starting level. Instructional material provided by the AAC includes Latin and Greek derivatives, specialized vocabulary, stated and implied meanings as well as the process of acquisition (context clues, etymology and derivatives). An Academic Achievement Center instructor is available to work with the student to establish specific instructional goals, administer tests and provide individualized instruction as needed to complete the student's program. This course does not fulfill degree requirements.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$2 to \$5.

AAC 112

Basic Math Review (1 CR)

This self-instructional course is designed for students who need to learn or review basic mathematical concepts. Based on the results of a pretest administered during the student's initial visit to the Center, an individualized program is established. While one student may begin the program with multiplication facts, another may begin with solving proportions or equations. Instructional material is provided by the AAC. An Academic Achievement Center instructor is available to work with the student to establish specific instructional goals, administer tests and to provide individualized instruction as needed to complete the student's program. This course does not fulfill degree requirements.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$2 to \$5.

AAC 113

Algebra Preparation (1 CR)

This self-instructional course is designed for students who possess basic math skills and want to learn basic concepts in algebra. Based on the results of a pretest administered during the student's initial visit to the center, an individualized program is established. Using instructional material provided by the AAC, students will master a variety of concepts, including the terminology of mathematics and algebra, simplifying open expressions, solving algebraic equations and other concepts. An Academic Achievement Center instructor will be available to work with the student to establish specific instructional goals, administer tests and provide individualized instruction as needed to complete the student's program. This course does not fulfill degree requirements.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$2 to \$5.

AAC 114

Chemistry Preparation (1 CR)

This self-instructional course is designed for students who need to learn or review the basic chemistry concepts. Based on the results of a pretest administered during the student's initial visit to the center, an individualized program is established. Using instructional material provided by the AAC, students will master a variety of concepts, including chemical symbols and formulas, valences, chemical equations, the metric system, units and dimensions, temperature, numbers in exponent form, significant figures, electrical charges, acids, bases, salts and solubility. An Academic Achievement Center instructor is available to work with the student to establish specific instructional goals, administer tests and provide individualized instruction needed to complete the student's program. This course does not fulfill degree requirements.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$2 to \$5.

AAC 115

College Skills Development (1 CR)

This course is designed to improve student self-awareness and institutional awareness. Focus is on strengthening the student's ability to use campus resources and services, as well as improving self-awareness in terms of communication skills, aptitudes, interests, values pertaining to career/life decisions, and self-advocacy. This course does not fulfill degree requirements.

AAC 120

Individualized Study (1 CR)

This self-instructional course is designed for students who want to improve in any of the following AAC areas: study skills, reading comprehension, reading rate, vocabulary improvement, advanced spelling, basic math, algebra

preparation or chemistry preparation. Once the area of study has been determined, a pretest will be administered by the instructor and a program of study will be developed using materials provided by the AAC. An Academic Achievement Center instructor is available to work with students to establish specific goals, administer tests, and to provide individualized instruction needed to complete the student's program. This course does not fulfill degree requirements.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$2 to \$5.

AAC 121

Individualized Study (2 CR)

This self-instructional course is designed for students who want to improve in one or two of the following AAC areas: study skills, reading comprehension, reading rate, vocabulary improvement, advanced spelling, basic math, algebra preparation or chemistry preparation. Once the areas of study have been determined, a pretest will be administered by the instructor in each of these areas, and a program of study will be developed using materials provided by the AAC. An Academic Achievement Center instructor is available to work with students to establish specific goals, administer tests, and to provide individualized instruction needed to complete the student's program. This course does not fulfill degree requirements.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$2 to \$5.

AAC 122

Individualized Study (3 CR)

This self-instructional course is designed for students who want to improve in two or three of the following A.A.C. areas: study skills, reading comprehension, reading rate, vocabulary improvement, advanced spelling, basic math, algebra preparation or chemistry preparation. Once the areas of study have been determined, a pretest will be administered by the instructor in each of these areas, and a program of study will be developed using materials provided by the A.A.C. An Academic Achievement Center instructor is available to work with students to establish specific goals, administer tests, and to provide individualized instruction needed to complete the student's program. This course does not fulfill degree requirements.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$2 to \$5.

AAC 125

College/Life Success (3 CR)

This is a course designed to introduce the skills necessary for college and career success. The purpose is to assist students in identifying and integrating strengths, individual personality type, learning style and study strategies into their college and life experiences. 3 hrs. lecture/wk.

AAC 130

Medical Terminology (3 CR)

This self-instructional course is designed for the student who wants to learn a systematic format for acquiring a medical vocabulary. The course begins with a study of suffixes and prefixes common to most of the body systems and guidelines for combining word parts and forming plurals. This is followed by a study of each body system and oncological terminology. Any student who is planning a career in any facet of the health care industry will find this course beneficial. An Academic Achievement Center instructor is available to work with students to establish specific goals, administer tests and provide individualized instruction as needed to complete the student's program.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$0 to \$15.

AAC 135

Career and Life Planning (3 CR)

This course helps students make decisions about their college majors, careers and other life goals. It emphasizes career research as a tool for making current career decisions and meeting changes in the future workplace. Students learn a systematic approach for making career and life decisions based on their personalities, interest, skills and values.

AAC 150

Job Search Skills (1 CR)

This class presents the skills students need to conduct an effective job search, including locating job leads, writing resumes, employment interviewing and job correspondence. Additionally, students will explore the importance of adapting to changes in the workplace to ensure their job survival and success. The class consists of lectures, activities, discussion and exercises in the career planning and job search process.

Accounting (ACCT)

ACCT 109

Basics of Income Taxes (1 CR)

This course teaches the student federal income tax rules and the procedures for reporting federal income tax. Upon completion of this course, the student should be able to keep records that will provide appropriate information for use in preparing federal income tax. The student should also be able to prepare the basic individual federal income tax return. 1 hr. lecture/wk., 16 contact hours.

ACCT 111

Small Business Accounting (3 CR)

This course will introduce the basic accounting procedures needed to maintain daily records for a small business and the use of such records in the decision-making process. Upon successful completion of the course, the student will be able to maintain a set of financial records with the occasional help of an outside accountant. This course does not prepare the student for Accounting II. 3 hrs./wk.

ACCT 121

Accounting I (3 CR)

This course is an introduction to accounting fundamentals. Upon successful completion of this course, a student should be able to analyze transactions, use various journals and ledgers, prepare financial statements and summarize results at the close of the fiscal period for the sole proprietorship. 3 hrs./wk.

ACCT 122

Accounting II (3 CR)

Prerequisite: ACCT 121

This course is a continuation of ACCT 121. Upon successful completion of this course, the student should be able to prepare and use financial statements with increased emphasis on interpretation and use of accounting data peculiar to partnerships, corporations and manufacturing firms. 3 hrs./wk.

ACCT 131

Federal Income Taxes I (3 CR)

This course teaches the student federal income tax rules and the procedures for reporting federal income tax. Upon completion of this course, the student should be able to do short- and long-range tax planning and keep records that will provide appropriate information for use in preparing federal income tax. The student should also be able to prepare the standard individual federal income tax return. 3 hrs./wk.

ACCT 135

Computerized Accounting Applications (3 CR)

Prerequisite: ACCT 121 or ACCT 111

Upon successful completion of this course, a student will be able to use the microcomputer to create a chart of accounts, accounts receivable and payable subsidiary ledgers, transaction journals, general ledgers, financial statements, reports and forecasts. 3 hrs./wk.

ACCT 140

Computerized Accounting Problems (3 CR)

Prerequisite or corequisite: ACCT 122

The course will teach students how to use spreadsheet and database software to set up and solve accounting problems. 3 hrs/wk.

ACCT 215

Accounting for Nonprofit Organizations (3 CR)

Prerequisite: ACCT 121

This course will teach students basic information of not-for-profit accounting and its primary users: federal, state and local governments; hospitals; and schools. Upon successful completion of the course, the student should be able to describe the primary funds and accounting groups, assist in the budget process, and practice variances among the major nonprofit organizations according to their authoritative pronouncements. 3 hrs./wk.

ACCT 221

Cost Accounting (3 CR)

Prerequisite: ACCT 122

Upon completion of this course, the student should be able to develop and use accounting information to plan and control operations, value inventory, determine income in a manufacturing environment, and evaluate subsequent results. 3 hrs./wk.

ACCT 222

Managerial Accounting (3 CR)

Prerequisite: ACCT 122

Upon completion of this course, the student should be able to develop and use accounting information as an instrument of management control. Students will recognize needed information, determine where it can be obtained and decide how this information can be used by managers to plan, control and make decisions. Material covered includes financial statement analysis, cost application and budgeting reports management. 3 hrs./wk.

ACCT 231

Intermediate Accounting I (3 CR)

Prerequisite: ACCT 122

The course will present the use of accounting theory in the preparation of financial reports. Upon successful completion of this course, the student should be able to solve problems that arise in the presentation of cash, receivables, inventories, tangible and intangible assets on the statement of financial position, and their related effect on the statement of income. 3 hrs./wk.

ACCT 232

Intermediate Accounting II (3 CR)

Prerequisite: ACCT 122

Accounting theory learned through the study of accounting concepts and technical procedures will be presented in this course. Upon completion, the

student should be able to solve problems in the presentation of capital structures, long-term investments, debts, leases, pensions, the analysis of financial statements, and price-level, and fair value accounting and reporting. 3 hrs./wk.

ACCT 240

Fraud Examination (3 CR)

Prerequisite: ACCT 121 and ACCT 122 and ACCT 222

This course teaches the principles involved in the detection and prevention of fraud as it pertains to financial matters. The course will explore the vast body of knowledge gained by accounting practitioners and will utilize critical thinking to apply these factors to the prevention of financial statement and employee fraud. Upon completion of this course, the student should be able to describe how and why fraud is committed, to use creative ways to detect and prevent fraudulent conduct, and to understand how allegations of fraud should be investigated and resolved. 3 hrs. lecture/wk.

ACCT 278

Accounting Internship (1 CR)

Prerequisites: ACCT 121 plus 12 additional ACCT hours beyond ACCT 121 and department approval

The student will be able to gain work experience in an approved training station under instructional supervision in an accounting or an accounting-related occupation. This internship is designed to give students the opportunity to apply the skills they have acquired in accounting specialty courses. The internship will require an average of 12 hours of job training per week by arrangement.

ACCT 285

Accounting Capstone (3 CR)

Prerequisites: ACCT 121 and ACCT 122 plus 15 hours of accounting courses and department approval

This course is designed as a capstone experience before entering the workplace. Students will maintain a complete set of books and related financial statements both manually and electronically through an accounting cycle. Students will use previously prepared financial statements to make informed judgments and solve problems, identify and apply ethical positions and effectively communicate this information to others both orally and in writing.

Administration of Justice (ADMJ)

ADMJ 121

Introduction to Administration of Justice (3 CR)

This course provides a detailed description of the components of the American criminal justice system: police, courts and corrections. Students utilize critical thinking skills to discern the balance between individual rights and public order as it pertains to the criminal justice process. Students demonstrate knowledge of criminal justice processes through examinations, assigned papers and reports. Additionally, students are required to participate in field and classroom experiences designed to explore the various career opportunities within the criminal justice system. 3 hrs. lecture/wk.

ADMJ 124

Criminal Justice and Corrections (3 CR)

This course will explore the correctional system and trace the evolution of criminal sanctions from early English common law to the present. An examination of local, state, and federal correctional systems will provide an overview of society's response to criminal behavior. Students will be

introduced to a detailed examination of jails, prisons, and community corrections. 3 hrs. lecture/ wk.

ADMJ 127

Criminology (3 CR)

This class will explore various explanations for criminal behavior including choice, biosocial, psychological, social structure and social process theories. Society's responses to crime will also be examined. 3 hrs. lecture/wk. ADMJ 127 and SOC 127 are the same course. Do not enroll in both.

ADMJ 130

Crime Prevention (3 CR)

Topics of special interest include the techniques public service agencies use to operate crime-prevention programs and provide technically accurate, cost-effective security recommendations to the community. 3 hrs. lecture/wk.

ADMJ 133

Juvenile Delinquency (3 CR)

This class will provide an analysis of detention procedures, disposition, custody and treatment of juvenile offenders throughout the United States with a specific interest in area systems. The origin and development of juvenile agencies, as well as the organization, functions, and jurisdiction of juvenile courts will be studied. 3 hrs. lecture/wk.

ADMJ 140

Constitutional Case Law (3 CR)

Constitutional Case Law is an exploration of those provisions of the U.S. Constitution that impact the way in which the criminal justice system operates. Students will learn through discussion of important U.S. Supreme Court cases that have shaped the way the Constitution is interpreted followed by analysis of hypothetical fact patterns that require the student to apply the knowledge they have gained. 3 hrs. lecture/wk.

ADMJ 141

Criminal Law (3 CR)

Prerequisite: ADMJ 121 or LAW 121

After taking this course, the student will be able to state the two basic elements necessary for any crime and the philosophy behind these two elements. After a detailed exploration of common law crimes and selected Kansas and Missouri statutes, the student will be able to classify common law crimes and state the difference between a felony and a misdemeanor. The student will understand the significance of the separation of powers doctrine and its application to criminal law and the constant interplay of the U.S. Constitution in criminal law. 3 hrs. lecture/wk.

ADMJ 143

Crime Analysis (3 CR)

Students will learn crime profiling skills and specialized techniques of conducting research, analyzing data and producing crime analysis products. Students will survey existing computer applications and learn practical use and evaluation of these applications. Students will become familiar with the common written reports, charts and graphs used to describe crime analysis products. Students will survey the variety of customers served by crime analysts and the integral part crime analysis plays within the community. 3 hrs. lecture/wk.

ADMJ 145

Fundamentals Private Security (3 CR)

In addition to understanding the general field of private security, the student will be able to differentiate between the security needs of industry, private

business, government and selected educational institutions. 3 hrs. lecture/wk.

ADMJ 146

Retail Security (3 CR)

This is a study of retail security supervision and management. Topics will include employment practices, employee dishonesty, controlling shoplifters, and building and perimeter protection. 3 hrs. lecture/wk.

ADMJ 148

Family Violence/Sexual Abuse (3 CR)

A description and causal analysis of the different physical, psychological, and sexual abuse acts that may occur within the primary family unit will be provided in this course. The study will include possible causative factors; psychological and social effects on the various family members; psychological, social and legal implications; treatments; and the relationship between abuse and crime. 3 hrs. lecture/wk.

ADMJ 154

Fundamentals of Criminal Investigation (3 CR)

Prerequisite: ADMJ 124 or attain waiver from program chair

This course is designed to give fundamental information that serves as an overview of the entire field as well as a solid foundation for specialized course work. The course focuses on investigation of property crimes, homicide investigation, crimes against children and sex-related offenses. 3 hrs. lecture/wk.

ADMJ 170

Introduction to Substance Use and Abuse (3 CR)

This course explores the relationship between drugs and crime. Students will become familiar with the effects of drugs on the body. Interventions for individuals harmfully involved with drug use will be explored. Local and federal laws regulating substance use will also be examined. 3 hrs. lecture/wk.

ADMJ 180

Correctional Casework (3 CR)

This course helps prepare students for positions in correctional agencies. Students will learn how parole officers, probation officers, facility based caseworkers and para-professional treatment providers perform their roles. Students will review casework in the classroom for all types of offenders, including adults and juveniles in facility and community-based environments. 3 hrs. lecture/wk.

ADMJ 201

Police Interrogation (3 CR)

Prerequisite: Suggested course: ENGL 121

This class will assist students in developing the specific verbal and written communication skills used in the criminal justice field. Emphasis will be placed on the development of interviewing, interrogation, and report writing skills. Course content will focus on interviewing victims, witnesses and suspects and utilizing the information to write accurate and complete narrative reports. 3 hrs. lecture/wk.

ADMJ 220

Writing for Criminal Justice (1 CR)

Prerequisites: ENGL 121 and ENGL 122

Writing for Criminal Justice is designed to complement the Administration of Justice program by emphasizing the types of writing required in a criminal justice career. Students are required to gather pertinent information and then record that information by writing a variety of report narratives representative

of those prepared by individuals working in a profession within the criminal justice system. Students document criminal incidents depicted in videotaped scenarios as well as participate in active information gathering during incidents simulated in class. 1 hr. lecture/wk.

ADMJ 221

Introduction to Forensics (3 CR)

This course provides an overview of forensic science by focusing on the current technologies police rely on to apprehend criminal perpetrators and to link them through trace evidence to crime scenes. Emphasis is on crime scene investigation, physical evidence, organic and inorganic analysis, forensic toxicology and use of DNA in investigations. 3 hrs. lecture/wk.

ADMJ 224

Introduction to Terrorism (3 CR)

This course defines and describes for students and current police officers the following terms: terrorism, current terrorist organizations, which includes their history, their personnel and their capacity to threaten the security and interests of the United States. Within this context, students learn how law enforcement officials can predict patterns of terrorist activities. The course focuses especially on law enforcement's methods for combating terrorism within multiple arenas, including deterrence, detection, prevention, and swift response. The course further addresses the challenges facing law enforcement and intelligence agencies in developing a coordinated response to terrorism. 3 hrs. lecture/wk. This course may be offered as a Learning Communities (LCOM) section, see current credit schedule for LCOM details.

ADMJ 230

Criminal Behavior (3 CR)

Prerequisite: PSYC 130

This course explores the relationship between psychology, criminal behavior, and the criminal justice system. The foundation of the course will be a detailed examination of the various theories used to explain the causation of criminal behavior. Special emphasis will be placed on exploring how this understanding is applied in various settings within the criminal justice system; including police departments, the courts, and corrections. 3 hrs. lecture/wk.

ADMJ 235

Community Based Corrections (3 CR)

This course is a comprehensive examination of community based corrections. The history of probation and parole is discussed as a foundation for the expanded coverage of correctional services offered in the community. Emphasis is given to modern correctional paradigms including diversion, intermediate sanctions and restorative justice. Practical field experience will broaden the students' understanding of this population and successful best practices of existing federal, state and county agencies will be examined. 3 hrs. lecture/wk.

ADMJ 265

Advanced Police Training

Prerequisite: Selective Admissions - open only to currently employed full-time police officers attending the Police Academy under sponsorship of a law enforcement agency

This course consists of 60 clock hours of law enforcement training provided in addition to the 540 hours required by the Kansas Minimum Standards Training Act for recruits attending the Police Academy. While the required 600-hour curriculum is provided without fee, enrollment in advanced training is required of all those attending the academy. The curriculum covers law, criminal investigations, patrol procedures, defensive tactics, report writing and specialized training required by local law enforcement agencies.

ADMJ 280

Criminal Justice and the Public (3 CR)

Prerequisites: ADMJ 121 and ADMJ 124 and ADMJ 127 and ADMJ 220 and at least five (5) additional credit hours of Administration of Justice course work

This capstone course for Administration of Justice majors assists students in preparing for a career in the field of criminal justice or an advanced program of study. The course is designed to integrate knowledge and skills acquired from prior ADMJ coursework. Additionally, students study concepts of ethics and professionalism as they relate to criminal justice professionals and the communities they serve. 3 hrs. lecture/wk.

ADMJ 281

Readings in Police Science (3 CR)

Prerequisite: 15 credit hours in ADMJ courses

The class will consist of selected readings in police science on topics such as police administration, criminal investigation, criminology, corrections, juvenile problems and evidence. By arrangement.

ADMJ 285

Administration of Justice Internship (3 CR)

Prerequisites: Fifteen credit hours in ADMJ courses or department approval and a grade point average of 2.0 or higher

Students augment their academic course work with an internship in an appropriate setting under instructional supervision. Internship projects are cooperative efforts between appropriate federal, state or local criminal justice agencies or not-for-profit organizations, and college staff and students. Internships give students the opportunity to participate in the real-world application of their academic studies. In addition, this synthesis of classroom study with practical experience provides students with skills and insights useful in selecting a career in the field of criminal justice. The student spends the equivalent of 12 hours per week for 14 weeks performing internship duties over the course of the semester or a total of 168 hours.

American Sign Language (ASL)

ASL 120

Elementary American Sign Language I (3 CR)

This class will focus on the development of beginning American Sign Language communication skills. Comprehension skills and linguistic features of the language taught in context will be emphasized. A minimum grade of "C" is required to continue in the ASL program. 1 hr. lecture 4 hrs instructional lecture-lab/wk. ASL 120 and FL 180 are the same course. Do not enroll in both.

ASL 121

Elementary American Sign Language II (3 CR)

Prerequisite: INTR 120 or ASL 120 or FL 180. All prerequisites require a grade of "C" or higher

This course will focus on continued development of elementary American Sign Language skills beyond those taught in Elementary ASL I. Students will work on developing communication competencies, concentrating on comprehension and production skills. Information about the linguistic and cultural features will be included in the context of language learning experiences. 1 hr. lecture and 4 hrs. instructional lecture-lab/wk. ASL 121 and FL 181 are the same course. Do not enroll in both.

ASL 122

Intermediate American Sign Language I (3 CR)

Prerequisites: INTR 121 or ASL 121 or FL 181. All prerequisites require a grade of "C" or higher

This course will focus on the development of intermediate American Sign Language communication skills. Comprehension skills and linguistic features of the language taught in context will be emphasized. 6 hrs.lecture-lab/wk. The daytime sections only are open to students in the interpreter training program. INTR 122, FL 270 and ASL 122 are the same courses; only enroll in one. Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$10 to \$20.

ASL 123

Intermediate American Sign Language II (3 CR)

Prerequisites: INTR 122 or ASL 122 or FL 270. All prerequisites require a grade of "C" or higher

The course will continue study of intermediate American Sign Language. It is designed to develop further intermediate communication skills in American Sign Language. Information about the linguistic and cultural features will be included in the context of language learning experiences. 6 hrs. integrated lecture-lab/ wk. The daytime sections are open only to students in the interpreter training program. INTR 123, FL 271 and ASL 123 are the same courses; only enroll in one. Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$10 to \$20.

ASL 135

Intro to American Sign Language Linguistics (3 CR)

Prerequisites: INTR 122 or ASL 122 or FL 270. All prerequisites require a grade of "C" or higher

This course introduces students to the structural and grammatical principles of ASL. Students will explore concepts of equivalency between English and ASL 3 hrs. lecture/wk. The daytime sections are open only to students in the interpreter training program. INTR 135 and ASL 135 are the same course; do not enroll in both. Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$10 to \$50.

ASL 145

Introduction to the Deaf Community (3 CR)

Prerequisites or Corequisite: INTR 120 or ASL 120 or FL 180 with a grade of "C" or higher

This course will prepare students to develop and recognize the diversity within the Deaf Community, significant events and figures in Deaf History, and basic norms and values of Deaf Culture. Students will examine and compare Deaf Culture and hearing culture in America. The daytime sections are open only to students in the interpreter training program. 3 hrs./wk. INTR 145 and ASL 145 are the same course; do not enroll in both. Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$10 to \$50.

ASL 147

Fingerspelling I (2 CR)

Prerequisites: INTR 121 or ASL 121 or FL 181. with a grade of "C" or higher

Students will work on developing beginning expressive and receptive fingerspelling skills based on word recognition principles. 1 hr. lecture, 2 hrs. lab/wk. The daytime sections are open only to students in the interpreter

training program. INTR 147 and ASL 147 are the same course; do not enroll in both.

ASL 150

American Sign Language Literature (3 CR)

Prerequisite: INTR 122 or ASL 122 with a grade of "C" or higher

This course will provide introduction, discussion, and demonstration of literature in American Sign Language (ASL). The literature involves ASL Poetry, ASL Storytelling/Narratives, Deaf Humor, Deaf Folklore and other genres that have been passed on from one generation to another by culturally deaf people. Students will receive, analyze and retell a variety of ASL literature. 3 hrs. lecture/wk. INTR 150 and ASL 150 are the same course; do not enroll in both.

Animation (ANI)

ANI 123

Concept Art for Animation (3 CR)

This basic concept art course is designed for graphic artists, animators, and game artists. Students will study basic and advanced drawing elements and principles. Students will produce conceptual artwork used in animation, graphic arts and gaming, including realistic and cartoon character design, vehicles, architecture, and landscape environments. 6 hrs. integrated lecture-studio/wk.

ANI 125

Introduction to 2D Animation (3 CR)

Prerequisite: ANI 123

In this course students will learn all aspects of traditional 2D animation, including flipbook, cell, puppet and claymation. Students will create a 2D character, write a story, fabricate a puppet and take it through a series of exercises. Experimental animation will be integrated into the course using paper cutouts, replacement animation and stop motion. 6 hrs. integrated lecture-studio/wk.

ANI 145

Introduction to 3D Animation (3 CR)

Prerequisite or corequisite: ANI 123

This introductory course will provide a historical background and general design and production issues for 3D animation and game art creation. The details of modeling dimensional objects and environments and a range of simple to complex rendering techniques will be covered. Issues associated with telling a story through moving pictures such as screenplay writing, storyboarding and techniques for bringing an animated character to life will be explored. 6 hrs. integrated lecture-studio/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$10 to \$20.

ANI 245

Character Animation (3 CR)

Prerequisite: ANI 145

Students will continue to refine their skills in a variety of character animation media. The computer and cutting edge software has become an increasingly important tool in creating character animatics, 2D and 3D character animations. More principles and elements of character animation will be introduced to create more realistic, believable and engaging stories. Continued focus on the importance of plot, character development, key principles of animation and artistic skill will push students into realms of endless creativity

and imagination. 6 hrs. integrated lecture-studio/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$10 to \$20.

ANI 250

Game Art Assets (3 CR)

Prerequisite: ANI 145

This course provides an introduction to making game art assets and animations for next generation games. Students create gaming models of characters, land and air based vehicles, weapons, ammunition, health items, armor, power-ups and other model assets used in game play. Students create textures, light assets, and export them into an existing game. 6 hrs. integrated lecture-studio/wk.

ANI 255

Advanced Animation and Effects (3 CR)

Prerequisite: ANI 245

The Advanced Animation and Effects course exposes students to various Hollywood style effects, from viscous liquid to open ocean effects. Through hands-on tutorials students will simulate and render a variety of visual effects including fire, explosions, smoke, steam, lightning, rain, snow storms and tornados. These are just a few of the many limitless possibilities that are required by today's demanding visual effects companies. The students will also explore compositing, combining CG (computer generated) and live video together to create stunning imagery. 6 hrs. integrated lecture-studio/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$10 to \$20.

ANI 258

Game Level Design (3 CR)

Prerequisite: ANI 145

This course provides an introduction to game level design and how to create interior and exterior levels using the same state of the art editing tools that are used in ultra high-end video games. Students build terrain maps, create textures and interactively place static meshes into the game editor to enhance the visual aspects of the level. Students explore how to build a map that is purposeful and exciting to play. 6 hrs. integrated lecture-studio/wk.

ANI 260

Animation Capstone (3 CR)

Prerequisite: ANI 255

In this course, the student will use all the knowledge attained in previous core animation courses and develop a finished 1-2 minute independent movie following a predetermined animation production process and schedule. Students will develop a portfolio including an auto-run DVD or VHS tape, and a hard copy portfolio including illustrations of characters, model sheets, storyboards, props, environments, textures and final rendered scenes created for the movie. 6 hrs. integrated lecture-studio/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$10 to \$20.

ANI 270

Visual Effects and Compositing (3 CR)

Prerequisite: ANI 145

This course emphasizes the importance of breaking down visual effects shots for effective compositing. Advanced topics will include correct use of garbage mattes, 2D/3D visual effects, blue screen or green screen removal, traveling mattes, image correction, lighting and shading. An introduction to the production pipeline used in professional film and TV work will also be

covered. 6 hrs. integrated lecture-studio/wk.

ANI 272

Animation Internship (1 CR)

Prerequisite: Department approval required

Students will work in an approved training situation under instructional supervision. The internship is designed to give the student the opportunity to use the skills learned in the animation program. Student interns will be required to complete a minimum of 180 hours of on-the-job training. ANI 272 is the same course as CIM 272; do not enroll in both.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$10 to \$20.

ANI 273

Career Preparation (4 CR)

Prerequisite or corequisite: ANI 260

This course will provide interactive media majors instruction in the presentation of his or her work in a digital portfolio format of professional quality. A printed and written resume will be produced. Self-promotion, networking, job searches and interview skills will also be covered. 3 hrs. lecture, 2 hrs. lab/wk. CIM 273 is the same course as ANI 273; do not enroll in both. This course is taught in the spring semester.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$10 to \$20.

Anthropology (ANTH)

ANTH 125

Cultural Anthropology (3 CR)

This introductory course will employ various anthropological theories, perspectives, and methodologies to critically and comparatively examine an array of cultural and social topics as they relate to selected Western and Non-Western cultures and societies. 3 hrs./wk.

ANTH 126

Physical Anthropology (3 CR)

This course is an introduction to selected concepts and principles important to an understanding of evolutionary forces and their influence on the physiology and behavior of humans. The importance of the scientific method will be explored. Awareness of humans and their place in nature will be achieved by examining basic genetics, micro- and macroevolution, primate ecology and behavior, the paleoanthropological evidence for human evolution, and modern human adaptation and variation. 3 hrs./wk.

ANTH 130

World Cultures (3 CR)

This introductory course will utilize an ethnographic approach to introduce students to various cultural and social practices of Westernized and non-Westernized cultures and societies from around the world. This course will examine a wide range of topics including economic production, religion, world view, kinship patterns and political and economic institutions. 3 hrs./wk.

ANTH 134

Native Americans (3 CR)

This ethnographic course will introduce students to the indigenous peoples and First Nations of North, Central and South America, with particular attention

being paid to North America. This course will focus on selected First Nations cultures and societies to examine a wide range of topics including arts, oral traditions, religions, and Indian-White relations. 3 hrs. lecture/wk.

ANTH 135

American Indian Artistic Tradition (3 CR)

This course introduces students to many art forms of the various American Indian nations of the United States, Canada, and Mexico. Mediums to be explored include traditional and contemporary visual art, traditional and contemporary music and dance, oral tradition, and film. In addition, social, political, economic, and legal influences on art will be discussed. Lectures, discussions, readings, and films will be utilized to accomplish this. 3 hrs. lecture/wk.

ANTH 142

World Prehistory (3 CR)

This course is an introduction to the variety and continuity of the prehistoric human past. Through the archaeological record we will consider the evolution of humans, the transition of foraging to farming economies, the rise of complex societies, secondary state formation, and the collapse of complex societies. 3 hrs. lecture/wk.

ANTH 144

Archaeology (3 CR)

This course is an introduction to the basic concepts, methods, and findings in archaeology. The historical origins of the discipline and modern approaches to understanding the past will be presented. The course will describe the range of archaeological evidence and techniques for locating, analyzing, and interpreting these remains. 3 hrs. lecture/wk.

ANTH 150

People and Cultures of Mesoamerica (3 CR)

This course is a survey of Mesoamerican cultural beliefs, traditions, and practices from the prehistoric era to the present day. Through the archaeological, historical, and ethnographic record we will adopt an anthropological perspective on the global, national, regional, and local forces on everyday life in Mesoamerica. 3 hrs.lecture/wk.

ANTH 153

The Anthropology of the Paranormal & Supernatural (3 CR)

This introductory course will employ various Western and non-Western perspectives, including scientific and popular culture theories, to critically and comparatively examine a wide array of phenomena classified as paranormal or supernatural. Topics to be covered include extra-sensory perception, witchcraft and magic, ghosts, extra-terrestrial beings, and cryptozoological organisms. Lectures, discussions, readings, and films will be used to accomplish the aforementioned, as well as optional trips to local locations associated with the paranormal and supernatural. 3 hrs. lecture/wk.

ANTH 205

Archaeological Field Methods (5 CR)

This course is a practicum of archaeological field methods and techniques. The fundamental principles of archaeological research will be considered. Students will create and implement their own research design in the context of on-going investigations. Emphasis will be placed on practicing the essential skills needed to conduct archaeological research. 160 integrated lecture lab hrs./semester

Architecture (ARCH)

ARCH 120

Introduction to Architecture (3 CR)

This course is an introduction to the profession of architecture through a study of its history, vocabulary, theories and practices. The facets that make up the total architectural curriculum as well as the various professional roles that architects can be expected to perform will be covered. Architectural study is seen as both an art and a science. The interdisciplinary character of architectural practice is emphasized. 3 hrs. lecture/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$50 to \$100.

ARCH 123

Architectural Principles (3 CR)

Prerequisite: ARCH 120

This course will elaborate on the concepts first presented in introduction to architecture. General focus will be on the modern profession and architects dealing with past, present and emerging ideas as they relate to physical and social context including landscaping, buildings and cities. Unifying themes will be presented of formal architectural principles in relation to modernism and the impact on design, the site, landscaping, and site planning issues. 3 hrs. lecture/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$10 to \$30.

ARCH 127

Introduction to Architectural Graphics (4 CR)

This course is designed to build a conceptual and manual foundation for professional architectural education. Students will learn to apply a variety of media and drawing systems such as freehand drawing, architectural lettering and equipment usage. Students will also learn applied geometry including line, tone, texture and utilizing sun, shade and shadows. Multi-view, paraline, axonometric and oblique drawings will be taught and students will build models related to architectural forms. Emphasis will be on learning to think in spatial terms while introducing professional, conceptual and visual vocabulary. Graphic presentation skills will be developed using standard graphic conventions, basic computer skills, and basic material investigations. 8 hrs. integrated lecture, studio/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$125 to \$200.

ARCH 131

Architectural Graphics (3 CR)

Prerequisites: ARCH 127 or ARCH 130

This course builds upon the conceptual and manual skills acquired in Introduction to Architectural Graphics. Students will expand their ability by learning to apply a variety of media and advanced drawing systems, such as design drawing techniques, model building, graphic diagramming, grid perspective drawing, projection perspective drawing, and shade and shadow studies. Emphasis will continue to be on learning to think in spatial terms as well as developing a new repertoire of graphic presentation skills. 6 hrs. integrated lecture, studio/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$100 to \$300.

ARCH 140

Architectural Design (3 CR)

Prerequisites: ARCH 127 or ARCH 130

This course introduces the student to the process and vocabulary of design. The purpose of the content is to develop the ability to solve two- and three-dimensional design problems with basic methods, vocabulary and media appropriate to the architectural profession. 6 hrs. integrated lecture, studio/wk. Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$100 to \$300.

ARCH 152

Architectural Professional Practice (1 CR)

Prerequisites: ARCH 120 and ARCH 123

Architectural Professional Practice will elaborate on the concepts presented in ARCH 120 Introduction to Architecture and ARCH 123 Architectural Principles. This course will expand on the concepts of ethics in professional practice and how they relate to all aspects of design and construction. Topics will include the architectural practice as it relates to education, internship, emerging professionals, licensure and registration. 1 hr. lecture/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$25 to \$100.

ARCH 240

Architectural History: Ancient to Middle Ages (3 CR)

This course will trace the development of the built environment from Antiquity to the Middle Ages and explore pre-Columbian and Islamic architecture. Emphasis will be placed on how materials, technological advances and natural environment influence architecture. The shaping of architecture through cultural forces will be stressed. Fundamental design principles and analyses of the built form will also be covered. 3 hrs. lecture/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$25 to \$100.

ARCH 241

Architectural History: Renaissance to Enlightenment (3 CR)

This course will investigate the architecture of the Renaissance, Baroque and Enlightenment periods. A brief exploration into non-Western architecture will also be presented. The focus of this course will be on the principles of design, cultural forces and concept of the built environment within its historical context. The work of prominent architects from each period will be highlighted and analyzed. 3 hrs. lecture/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$25 to \$50.

ARCH 245

Architectural History: Modern (3 CR)

This course will investigate the architecture of the Modern Era. The focus of this course is on the principles of design, education of the architect, artistic forces and concepts of the built environment within its historical context. The work of prominent architects and their architectural theories will be covered and analyzed. 3 hrs. lecture/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$25 to \$50.

Art (ART)

ART 124

Design 2D (3 CR)

Prerequisite or corequisite: CDTP 145

This is an introductory study of the principles of visual perception, two-dimensional space organization and the visual elements of line, shape, texture and space. Concepts, materials and processes necessary to an understanding of two-dimensional form are explored using traditional and digital tools and techniques. Working knowledge of Adobe Illustrator is required. 6 hrs. lecture and studio/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$200 to \$400.

ART 127

Design 3D (3 CR)

Prerequisite: ART 124

This is a study of the function of three-dimensional organization in the development of visual ideas. Concepts, materials and processes necessary to an understanding of the three-dimensional relationships of space, form, form evolution and the dynamics of structure are explored. 6 hrs. lecture and studio/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$200 to \$400.

ART 129

Design Color (3 CR)

Prerequisite or corequisite: CDTP 135

This is a study of the nature of color, its physical properties and visual qualities. Basic theories, phenomena and their applications will be explored using pigment, colored paper and digital color systems. Working knowledge of Adobe Photoshop is required. 6 hrs. lecture and studio/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$200 to \$400.

ART 130

Drawing I (3 CR)

This is an introductory course with an emphasis on the development of fundamental drawing skills, increased power of observation and an awareness of the personally expressive and compositional aspects of drawing. 6 hrs./wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$100 to \$200.

ART 131

Drawing II (3 CR)

Prerequisite: ART 130

This course involves intermediate problems in drawing with emphasis on individual expression based on historical as well as contemporary concerns and approaches in art. Students will work from models, still-life, and conceptual presentations. A variety of media will be explored. 6 hrs./wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$100 to \$200.

ART 135

Painting I (3 CR)

This course is an introduction to the basic elements of painting. Students will learn basic painting skills, color properties, color mixing, color relationships, applications and proper use of tools and equipment. 6 hrs./wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$100 to \$200.

ART 136

Painting II (3 CR)

Prerequisite: ART 135

This course involves intermediate problems in painting with emphasis on individual expression based on historical as well as contemporary concerns and approaches in art. 6 hrs./wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$100 to \$200.

ART 138

Digital Imaging for Artists (3 CR)

This course is an introduction to the use of the computer as a medium for making fine art. The course will emphasize developing the student's skill in making expressive visual statements using computer technology. 6 hrs./wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$100 to \$200.

ART 142

Ceramics I (3 CR)

This course is designed to build a conceptual and manual foundation for future ceramics education. Students will study the properties of clay, its preparation, hand and wheel techniques, surface design, firing methods, fundamental ceramic terms, principles of design, introductory ceramic history and orientation to safe practices for the ceramic artist. Emphasis will be on developing skills appropriate to the beginning student for the purpose of creative and technical expression. 6 hrs./wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$100 to \$250.

ART 143

Ceramics II (3 CR)

Prerequisite: ART 142

This course covers more advanced methods and studio practices in creative ceramic wheel expression and glaze formation. Emphasis is on development of a sense of thrown form and creative decoration or optional creative non-wheel ceramic form development. The course focuses on advanced ceramic form production, aesthetic issues, investigative study and practice. Clay, glaze and firing techniques are investigated in depth. The student acquires a repertoire of studio skills, a deeper awareness of ceramic history and articulated criteria of judgment. Individual interpretation and conceptual development are expected. The study of aesthetics of ceramic form is undertaken. 6 hrs./wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$100 to \$250.

ART 145

Sculpture I (3 CR)

Students will explore and study natural and synthetic sculptural forms as they create work using traditional or contemporary media and techniques.

Assignments require work in limestone, clay, wax, bronze, aluminum and steel, and involve carving, modeling and building up. 6 hrs./wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$50 to \$200.

ART 146

Sculpture II (3 CR)

Prerequisite: ART 145

This continuation of ART 145 will focus on advanced methods and techniques with emphasis on materials, forms and the student's selection of an individual direction with individual material choices. 6 hrs./wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$50 to \$200.

ART 148

Metal and Silversmithing I (3 CR)

This course is a basic introduction to the terms, tools and techniques involved in creating jewelry and other wearables as they relate to the human figure. Casting, fabrication and construction will be explored. 6 hrs./wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$50 to \$200.

ART 149

Metal and Silversmithing II (3 CR)

Prerequisite: ART 148

Students will study advanced casting and construction techniques. Projects should show a higher degree of design and function. 6 hrs./wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$50 to \$200.

ART 172

Watercolor Painting (3 CR)

This course is an introduction to transparent water media with emphasis on learning fundamental painting skills, the visual elements, composition, visual perception and an awareness of personal expression. 6 hrs./wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$100 to \$200.

ART 231

Life Drawing I (3 CR)

Prerequisite: ART 130

This course is an introduction to the basic elements of drawing for students wanting a concentration in drawing the human figure. Students will acquire basic competence in developing drawings involving the human form. 6 hrs./wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$100 to \$200.

ART 232

Life Drawing II (3 CR)

Prerequisite: ART 231

This course is an intermediate investigation of drawing from the human form. This class is for students wanting to concentrate on figure drawing beyond Life Drawing I. 6 hrs./wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$100 to \$200.

ART 235

Studio Workshop I (3 CR)

Prerequisite: ART 131 or ART 136

This course involves advanced problems in painting (or drawing) with emphasis on individual expression based on historical as well as contemporary

concerns and approaches in art. 6 hrs./wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$100 to \$200.

ART 236

Studio Workshop II (3 CR)

Prerequisite: ART 235

This course involves advanced problems in painting (or drawing), above and beyond those experienced in Workshop I, with emphasis on individual expression. 6 hrs./wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$100 to \$200.

ART 244

Ceramics Workshop I (3 CR)

Prerequisites: ART 143 and department approval

Students will have the opportunity to pursue advanced individual research under the direction of the instructor. Emphasis is on creative expression and development of technical skills as well as the further pursuit of technical studies that have relevance for emerging personal specializations. Students will conduct a personal program of study on one aesthetic issue that emerges as personally significant and present the outcomes in an appropriate and acceptable manner at the close of the semester. Students should initiate and pursue studies in directions that inform and further their individual professional and creative growth, which leads to invention, innovation and refinement of their personal semester work, as agreed upon with the instructor. This course enables further pursuit of technical studies that have relevance for these emerging personal specializations. Skill refinement, three-dimensional imagination, with increased creative expression and creative product generation are anticipated. 6 hrs. lecture, lab/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$100 to \$250.

Art History (ARTH)

ARTH 180

Art History: Ancient to Renaissance (3 CR)

This course will acquaint students with the arts and ideas of world civilizations from the prehistoric period to the beginning of the Italian Renaissance. The course will examine the aesthetic elements that mark the styles of major periods in two-dimensional, three-dimensional and architectural works. Particular attention will be paid to the relationship between artistic elements and their various cultural and historical contexts. 3 hrs./wk.

ARTH 182

Art History: Renaissance to Modern (3 CR)

This course will acquaint students with the arts and ideas of Western cultures from the beginning of the Italian Renaissance to the present. The course will examine the aesthetic elements that mark the styles of major periods in two-dimensional, three-dimensional and architectural works. Particular attention will be paid to the relationship between artistic elements and their various cultural and historical contexts. 3 hrs./wk. This course may be offered as a Learning Communities (LCOM) section, see current credit schedule for LCOM details.

ARTH 184

Art History: Twentieth Century (3 CR)

This course introduces the student to the arts and ideas of Western Europe and the United States from the late 19th century to the present. The course will examine the aesthetic elements that mark the styles of major movements in two-dimensional, three-dimensional and architectural works. Particular attention will be paid to the relationship between artistic elements and their various cultural and historical contexts. 3 hrs. lecture/wk.

ARTH 186

Art History: Introduction to Asian Art (3 CR)

This course will acquaint students with the arts and ideas that arose in India, China and Japan from the prehistoric to the early modern periods. The course will examine the aesthetic elements that mark the styles of major periods in two-dimensional, three-dimensional and architectural works. Particular attention will be paid to the relationship between artistic elements and their various cultural and historical contexts. 3 hrs. lecture/wk.

ARTH 188

History of Photography (3 CR)

This course provides an introduction to the history of photography. Students will examine the aesthetic and technological evolution of photography as an art form, as a visual tool for and influence upon other artistic disciplines, and as a statement of perceived reality. The course will examine the elements that distinguish various aesthetic movements, the styles of major periods and the influences of individual photographers. Attention will be paid to the relationship between photographic imagery and various cultural and historical contexts. Recommended prior course is PHOT 121. 3 hrs. lecture/wk.

Astronomy (ASTR)

ASTR 120

Fundamentals of Astronomy (3 CR)

This course is a study of the universe from the earth, moon and planets to the stars and the most distant galaxies. Topics include black holes, quasars, and the origin of the universe and the possibility of life on other planets. Current astronomical discoveries are discussed in class as they occur. Access to astronomical Web sites is available to students in this course. 3 hrs. lecture/wk.

ASTR 122

Astronomy (4 CR)

This course is a study of the universe from the earth, moon, and planets to the stars and the most distant galaxies. Topics include black holes, quasars, and the origin of the universe and the possibility of life on other planets. Current astronomical discoveries are discussed in class as they occur. Access to astronomical Web sites is available to students in this course. 3 hrs. lecture, 2 hrs. lab/wk., 5 nighttime telescope sessions are required.

Automotive Technology (AUTO)

AUTO 120

Basic Automobile Operation and Maintenance (3 CR)

This is a beginning level class for non-automotive majors, designed to introduce students to the basic function, operation and care of modern automobiles. Upon completion they should be able to discuss safe operation of a passenger car in everyday circumstances in including emergency situations. Students should be able to locate and understand information regarding repair and maintenance of modern automobiles. Safe practices while using basic hand tools, chemicals and jacks will be included in this course. After determining fair market costs and economic feasibility students will be able to

determine whether to repair or replace an automobile. Students should be able to decide whether to attempt repairs themselves or to have them performed by a professional. Also, the basic costs of insuring and operating an automobile will be discussed. 3 hrs. lecture/wk.

AUTO 121

Small Engine Service (3 CR)

Upon successful completion of this course, the student should be able to compare and contrast operating principles of two-stroke and four-stroke cycle engines. The student should be able to describe lubricating, cooling, fuel and governor systems; troubleshoot engine problems; inspect engine components; and service the fuel, cooling and exhaust systems. The student will be required to provide ANSI Z87 safety glasses and may be expected to provide other basic hand tools and/or equipment. 2 hrs. lecture, 3 hrs. lab/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$40 to \$300.

AUTO 122

Introduction to Automotive Glass (3 CR)

Upon successful completion of this course, the student should be able to diagnose, service and repair various automotive glass problems, provide professional service to customers, and manage and supervise jobs and employees. The student will be required to provide ANSI Z87 safety glasses and may be expected to provide other basic hand tools and/or equipment. 2 hrs. lecture, 1 1/2 hrs. lab/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$40 to \$300.

AUTO 123

Motorcycle Maintenance and Repair (2 CR)

Upon successful completion of this course, the student should be able to demonstrate the proper use of tools and equipment used in servicing motorcycles. Two-stroke and four-stroke cycle designs will be studied. Overhaul procedures will be demonstrated. The student will be required to provide ANSI Z87 safety glasses and may be expected to provide other basic hand tools and/or equipment. 1 hr. lecture, 3 hrs. lab/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$40 to \$300.

AUTO 125

Introduction to Automotive Shop Practices (3 CR)

This is a beginning course that is appropriate for both the automotive major and other interested students. Upon successful completion of this course, the student should be able to develop shop safety habits and become proficient in tire, battery, cooling system, lubrication service and minor electrical diagnosis. This course is an introductory course required for all students in the Automotive Technology program. Emphasis will be placed on learning basic skills needed to enter advanced automotive classes. The student will be required to provide ANSI Z87 safety glasses and may be expected to provide other basic hand tools and/or equipment. 2 hrs. lecture, 3 hrs. lab/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$40 to \$300.

AUTO 128

Automotive Parts Specialist (2 CR)

Upon successful completion of this course, the student should be able to demonstrate good communication and basic math skills. Ordering and maintaining correct inventory, as well as displaying and selling automotive parts for a fair profit, will be studied. Lectures will be supported by parts specialists in the industry. 2 hrs. lecture/wk.

AUTO 130

Diesel Fundamentals (2 CR)

Prerequisite or corequisite: AUTO 125

Upon successful completion of this course, the student should be able to identify diesel engine components and parts and troubleshoot and service all external components with emphasis on glow plugs, injectors and injector pumps. The student will be required to provide ANSI Z87 safety glasses and may be expected to provide other basic hand tools and/or equipment. 1 hr. lecture, 3 hrs. lab/wk. This course is taught in the spring semester.

AUTO 163

Automotive Steering and Suspension (3 CR)

Prerequisite or corequisite: AUTO 125 or department approval

Upon successful completion of this course, the student should be able to describe manual and power steering component operation, summarize construction and operation of front and rear suspension systems, perform four-wheel alignment on current vehicles and service steering and suspension components. The student will be required to provide ANSI Z87 safety glasses and may be expected to provide other basic hand tools and/or equipment. 2 hrs. lecture, 3 hrs. lab/wk. This course is taught in the fall semester.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$40 to \$300.

AUTO 165

Automotive Engine Repair (4 CR)

Prerequisite or corequisite: AUTO 125 or department approval

Upon successful completion of this course, the student should be able to demonstrate an understanding of the four-stroke cycle internal combustion engine. Students should be able to diagnose and repair cylinder heads and cylinder block assemblies to include lubrication and cooling systems. The student will be required to provide ANSI Z87 safety glasses and may be expected to provide other basic hand tools and/or equipment. 2 hrs. lecture, 6 hrs. lab/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$0 to \$1500.

AUTO 167

Automotive Brake Systems (2 CR)

Prerequisite or corequisite: AUTO 125 or department approval

Upon successful completion of this course, the student should be able to summarize disc and drum brake construction and operation, service all brake system components and describe anti-lock brake system services. The student will be required to provide ANSI Z87 safety glasses and may be expected to provide other basic hand tools and/or equipment. 1 hr. lecture, 3 hrs. lab/wk. This course is taught in the spring semester.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$0 to \$300.

AUTO 168

Automotive Manual Drivetrain and Axles (3 CR)

Prerequisite or corequisite: AUTO 125 or department approval

Upon successful completion of this course, the student should be able to work safely in the shop; service the typical manual transmission/transaxle; service typical transfer cases; inspect, adjust and replace all clutch components; disassemble, reassemble and set up a differential; and service all front- and rear-wheel drive shaft components. The student will be required to provide ANSI Z87 safety glasses and may be expected to provide other basic hand tools and/or equipment. 2 hr. lecture, 3 hrs. lab/wk. This course is taught in the

spring semester.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$0 to \$300.

AUTO 201

ASE Certification Seminar (1 CR)

This course will prepare students to take any of the eight basic National Institute for Automotive Service Excellence (ASE) automotive certification tests. 1 hr. lecture/wk.

AUTO 206

Automotive Retailing Sales (3 CR)

Prerequisite: MKT 133 or MKT 134

Upon successful completion of this course, the student should be able to demonstrate the skills necessary for competency in automotive retailing. Student awareness and understanding will be directed toward an introduction to automotive retailing, past, present and future; professionalism in sales; the components of sales transactions; a structured sales program and product knowledge; customer satisfaction and follow-up; building a clientele; and success through self-improvement. 3 hrs. lecture/wk.

AUTO 210

Advanced Engine Repair (3 CR)

Prerequisite: AUTO 165

Upon successful completion of this course, the student should be able to plan, design, and build a performance engine. The student will also demonstrate knowledge of the relationships between displacement, horsepower and torque; regulations governing performance engines; and current trends in engine modification. The student will be required to provide ANSI Z87 safety glasses and may be expected to provide other basic hand tools and/or equipment. 1 hr. lecture, 6 hrs. lab/wk. This course is taught in the fall semester.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$0 to \$3000.

AUTO 230

Automotive Heating and Air Conditioning (3 CR)

Prerequisite or corequisite: AUTO 125 or department approval

Upon successful completion of this course, the student should be able to operate, service and diagnose automotive heating, ventilation and air conditioning systems. The course will cover the theory and operation of these systems, major components, testing, recycling and other service procedures. The student will be required to provide ANSI Z87 safety glasses and may be expected to provide other basic hand tools and/or equipment. 2 hrs. lecture, 3 hrs. lab/wk. This course is taught in the spring semester.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$0 to \$300.

AUTO 234

Automotive Electrical Systems (4 CR)

Prerequisite or corequisite: AUTO 125 or department approval

Upon successful completion of this course, the student should be able to service starting and charging system components; describe the operation and construction of starters, alternators and controlling devices; describe various lighting systems used in current automotive vehicles; and repair electrical lighting and accessory systems. The student will be required to provide ANSI Z87 safety glasses and may be expected to provide other basic hand tools and/or equipment. 3 hrs. lecture, 3 hrs. lab/wk. This course is taught in the fall semester.

Associated Costs: In addition to the course tuition, fees, and textbooks, this

course has additional expense considerations that are estimated to be \$0 to \$300.

AUTO 250

Automatic Transmissions and Transaxles (4 CR)

Prerequisite or corequisite: AUTO 125 or department approval

Upon completion of this course, the student should be able to diagnose, service and repair various automatic transmissions and automatic transaxles, including computer-controlled systems. The student will be required to provide ANSI Z87 safety glasses and may be expected to provide other basic hand tools and/or equipment. 3 hrs. lecture/demonstration, 3 hrs. lab/wk. This course is taught in the fall semester.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$0 to \$300.

AUTO 254

Automotive Engine Performance (5 CR)

Prerequisites or corequisites: AUTO 165 and AUTO 234

Upon successful completion of this course, the student should be able to describe the operation of engine management systems to include: fuel systems, ignition systems, and emission control systems. The student should be able to diagnose and repair all drive ability and emission control systems on the automobile. The student will be required to provide ANSI Z87 safety glasses and may be expected to provide other basic hand tools and/or equipment. 3 hrs. lecture, 6 hrs. lab/wk. This course is taught in the fall semester.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$0 to \$300.

AUTO 260

Automotive Service Management (3 CR)

Prerequisite: AUTO 254

Upon successful completion of this course, the student should understand the automotive service manager's job. The manager's job includes planning for inevitable change, maintaining flexibility, site planning, customer satisfaction, employee practices, meeting financial goals, and managing time, conflict and stress. The student will be required to provide ANSI Z87 safety glasses and may be expected to provide other basic hand tools and/or equipment. 2 hrs. lecture, 3 hrs. lab/wk. This course is taught in the spring semester.

AUTO 261

Automotive Service Techniques (3 CR)

Prerequisite: AUTO 254

Upon successful completion of this course, the student should become proficient in ordering of parts, writing repair orders, presenting work orders to customers, questioning customers about automobile service problems, answering the telephone, and supervising workloads. Students will also diagnose and perform service work on student and staff vehicles. The student will be required to provide ANSI Z87 safety glasses and may be expected to provide other basic hand tools and/or equipment. 1 hr. lecture, 6 hrs. lab/wk. This course is taught in the spring semester.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$40 to \$300.

AUTO 271

Automotive Technology Internship (3 CR)

Prerequisite: Department approval required

Upon successful completion of this course, the student should be able to apply classroom knowledge to an actual work situation. The internship will provide

advanced students on-the-job experience under the supervision of professionals in the industry. The work will be developed cooperatively with area employers, college staff and each student to provide a variety of actual job experiences directly related to the student's career goals. 1 hr. lecture, 15 hrs. work min./wk

Biology (BIOL)

BIOL 110

Nutrition for Life (2 CR)

Designed for students who wish to apply nutrition information to their lives, this course explores how food selection affects body size, body composition, performance, disease resistance and longevity. Students will analyze the composition of their diets and develop a plan of action to improve their eating behaviors. 2 hrs. lecture/wk.

BIOL 115

Natural History of Kansas (3 CR)

Natural History of Kansas describes physical and biological processes that have led to the present Kansas landscape. Physical science topics include geology, climate patterns and soil formation. Biological science topics include ecology and a survey of the plants and animals of Kansas. The course will consider how the physical and biological environment relates to past and present human resource uses. 3 hrs. lecture/wk. Two 7-hr. Saturday labs required.

BIOL 121

Introductory Biology for Non-Majors (4 CR)

This course introduces non-majors to selected concepts and principles that form the foundation of an understanding of how biological systems operate. The importance of scientific methods and processes will be explored. Biological systems will be investigated at a variety of levels, from the chemical to the biosphere, and the unity of diversity of life will be examined in light of evolutionary and genetic processes. 3 hrs. lecture & 2 hrs. instructional lab/wk. Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$0 to \$15.

BIOL 122

Principles of Biology (3 CR)

This course is an introduction to selected concepts and principles important to an understanding of how biological systems operate. The importance of scientific methods and processes will be explored. Biological organization will be studied by examining the chemical, cellular, organismal and ecological properties that are unique to life. The diversity and unity of life will be explained in terms of classical and molecular genetics. PLEASE SEE BIOL 121 FOR FALL 2010.

BIOL 123

Principles of Biology Lab (1 CR)

Prerequisite or corequisite: BIOL 122 or department approval

This introductory lab examines basic biological concepts by focusing on the structures and functions of plants and animals. 2 hrs./wk. BIOL 123 students must be currently enrolled in BIOL 122 or have successfully completed BIOL 122 within the last three years.

BIOL 124

Oceanus: Essentials of Oceanography (3 CR)

This course for beginning students focuses on the marine environment as a unique feature of the planet earth and investigates areas of intense scientific

and public concern: the pervasiveness of the ocean and its effect on the earth's weather, its stunning physical size and diversity of contained life forms, its contributions to the physical and historical development of man, its impact on geopolitical and economic matters, and the impact of oceanic pollutants and the potential exploitation of marine resources. 3 hrs. lecture/wk.

BIOL 125

General Botany (5 CR)

This is a survey of the life, growth and structure of plants. Divisions of the plant kingdom will be presented with emphasis on life cycles, anatomy, physiology and ecology of major groups. Students will do microscopic and macroscopic analysis of the major division. 3 hrs. lecture, 4 hrs. lab/wk.

BIOL 127

General Zoology (5 CR)

This is a survey of the life, structure, and growth of animals. Students will concentrate on identifying animals by their structural characteristics and looking at the role adaptation plays in anatomical and physiological features. Students will do dissections and microscopic analysis of the major phyla. 3 hrs. lecture, 4 hrs. lab/wk.

BIOL 130

Environmental Science (3 CR)

Environmental Science seeks to describe problems and solutions associated with human use of natural resources. Students will study the major physical and biological processes that govern the complex interactions in natural ecosystems. Major course topics include human population growth, resource use and pollution. Practical solutions aimed at sustainability will be identified and examined. This is an introductory, nonscience-major survey course. 3 hrs./wk. BIOL 131 students must be currently enrolled in BIOL 130 or have successfully completed BIOL 130 within the last three years. This course may be offered as a Learning Communities (LCOM) section, see current credit schedule for LCOM details.

BIOL 131

Environmental Science Lab (1 CR)

Prerequisite or corequisite: BIOL 130

In this lab, students will learn ecological principles that are necessary for understanding and solving environmental problems. Students will sample the local environment for various types of environmental pollution, conduct lab projects and computer simulations, and attend field trips. Field trips may include a visit to a local wastewater treatment plant, a stream ecosystem and a prairie ecosystem. 2 hrs.lab/wk. plus up to three field trips. BIOL 131 students must be currently enrolled in BIOL 130 or have successfully completed BIOL 130 within the last three years.

BIOL 132

Introduction to Public Health (3 CR)

This is an introductory course in public health. It provides a background in many areas of public health with an emphasis on the health system and understanding and measuring health, disease and illness. Epidemiology, food safety and animal health will also be examined. Public health emergency preparedness, the public health workforce and public health administration will also be studied. Students will learn about public health nursing, public health education and the role of law and government in public health. Students will also examine environmental and occupational health. The different types of public health professional occupations and future challenges for public health will be examined. 3 hrs lecture/wk.

BIOL 135

Principles of Cell and Molecular Biology (4 CR)

This is an integrated lecture and laboratory course for biology majors and

students planning to take additional courses in biology. Subjects covered include basic biochemistry, cell structure and function, cellular metabolism, Mendelian and molecular genetics, natural selection and evolution, cell physiology and development of plants and animals from the single-celled stage to the embryonic stage. 3 hrs. lecture, 2 hrs. lab/wk.

BIOL 140

Human Anatomy (4 CR)

Students will study gross and microscopic aspects of cells, tissues and organ systems of the human body. They will concentrate on a detailed analysis of the structure of each body system. 3 hrs. lecture, 3 hrs. lab/wk. The Open Anatomy Lab, 311 CLB, is available for students enrolled in Human Anatomy and Human Anatomy and Physiology classes at JCCC. Contact your professor, check the schedule outside of 311 CLB or call 913-469-8500, ext. 4124, for hours. A current student ID is required for using the Open Anatomy Lab.

BIOL 144

Human Anatomy and Physiology (5 CR)

This course provides basic knowledge on human structures and their function. Students will study the relationship of structures to function in the organ systems of the human body. Emphasis will be on the identification of the anatomical features and their functions. This course is integrated lecture and laboratory. 3 hrs. lecture, 4 hrs. lab/wk. The Open Anatomy Lab, 311 CLB, is available for students enrolled in Human Anatomy and Human Anatomy and Physiology classes at JCCC. Contact your professor, check the schedule outside of 311 CLB or call 913-469-8500, ext. 4124, for hours. A current student ID is required for using the Open Anatomy Lab.

BIOL 145

Human Anatomy and Physiology Dissection (1 CR)

Prerequisites: BIOL 144 and department approval

Students will dissect the cat and study the relationship of structures to function in the organ systems of the cat. In this laboratory course, they will also dissect the cow kidney, heart, brain and eye. Students will compare and contrast these structures and functions with the organ systems of the human body. 2 hrs. lab/wk. Students enrolling in BIOL 145 should have completed BIOL 140 or BIOL 144 and have the approval of the assistant dean.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$35.

BIOL 150

Biology of Organisms (5 CR)

Prerequisite: BIOL 135 or department approval

This is a survey of the five kingdoms of life. Monera, fungi, protista, plant and animal kingdoms will be presented, with emphasis on life cycles, anatomy, physiology and ecology of the major groups. 4 hrs. lecture, 3 hrs. lab/wk.

BIOL 155

Introduction to Bioethics (3 CR)

Prerequisite: BIOL 122 or BIOL 135 or equivalent, or department approval

This course is an introductory course in ethics with an emphasis on the ethical content raised by the discipline of biology. The student will examine the major ethical theories, including deontology, act utilitarianism, rule utilitarianism, along with select others. Study of the theories will enable the analysis of case studies involving such issues as human populations problems, reproductive technologies, genetic engineering of humans and other organisms, stem cells and their use, beginning/ending of life, the human genome project, environmental impact of humans, cloning, medical and non-medical genetic interventions, and biological ethics. 3 hrs. lecture/wk.

BIOL 205

General Genetics (4 CR)

Prerequisite: BIOL 135 or BIOL 122 or the equivalent introductory college-level course. All prerequisites require a grade of "C" or higher

This introductory course emphasizes human heredity using concepts from classical and modern genetics. Themes of advancing technologies and bioethical issues are interwoven in the basic background fabric of the course. 3 hrs. lecture, 2 hrs. lab/wk.

BIOL 225

Human Physiology (4 CR)

Prerequisites or corequisites: Either CHEM 122 or (CHEM 124 and CHEM 125) and either BIOL 140 or BIOL 144

This is an introduction to the dynamic functions of the human organism from the chemical and molecular mechanisms that sustain cellular processes through the control systems responsible for homeostasis and the influence of these systems on the cellular function of organ and systems operation. Laboratory investigation using selected biochemical and physiological preparations allows correlation of theory with experimental observations. 3 hrs. lecture, 3 hrs. lab/wk.

BIOL 227

Human Pathophysiology (4 CR)

Prerequisite: BIOL 144 or BIOL 225

This introduction to the physiology of disease covers common disorders of the body from the cellular to the systemic level. Topics include causes, symptoms, diagnostic tests and treatments of disease. 4 hrs. lecture/wk.

BIOL 230

Microbiology (3 CR)

Prerequisite: CHEM 122 or CHEM 124 and CHEM 125 or one year of high school chemistry

This is a general introductory course in microbiology. It provides a background in many areas of microbiology with an emphasis on medical aspects. The structure, physiology, antimicrobial agents, immunology and host-parasite relationship of microorganisms will be studied, with an emphasis on bacteria. 3 hrs./wk.

BIOL 231

Microbiology Lab (2 CR)

BIOL 231 students must be currently enrolled in BIOL 230 or have successfully completed BIOL 230 within the last three years.

Students will learn aseptic techniques and apply them in the isolation of pure cultures of bacteria. Students will also perform various staining techniques and chemical tests to identify these bacteria. The response of bacteria to changes in environmental conditions will also be examined. Various life stages of medically important parasites will also be observed. 4 hrs./wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$35.

BIOL 235

General Nutrition (3 CR)

Prerequisites: Choice CHEM 122 or (CHEM 124 and CHEM 125) and (BIOL 144 or BIOL 140). If BIOL 140 is used as the prerequisite, BIOL 225 must also be taken as a prerequisite or corequisite with department approval

This introductory course provides a basic knowledge of human nutrition. Students will learn the sources and functions of the various nutrients. They will also explore the interaction of diet, disease prevention and treatment. Through the use of a computerized nutrition program, students will analyze their diets

for nutritional deficiencies and excesses. 3 hrs. lecture/wk.

BIOL 240

General Pharmacology (3 CR)

Prerequisite: BIOL 225

This course provides a basic understanding of the science of drugs-how they work and what they do. Students will study various drug concepts including mechanism of action, pharmacologic class, pharmaco-kinetics, pharmacodynamics and clinical implications. 3 hrs. lecture/wk. Spring.

BIOL 250

Ecology (4 CR)

Prerequisites: BIOL 122 and BIOL 123 or BIOL 130 and BIOL 131 or equivalent courses or department approval

Major topics in this course will include population dynamics, competition, predation, mutualism, community structure, ecological succession, energy flow, nutrient cycling, and biogeography. Students will also review the major features of terrestrial, freshwater, and marine ecosystems. Field and laboratory experiments will introduce students to several different habitat types; various techniques commonly used in ecology; and engage students in collecting, analyzing and evaluating ecological data. Lab reports emphasize critical evaluation of ecological concepts and data and effective scientific communication. 3 hrs. lecture, 3 hrs. lab/wk.

Biotechnology (BIOT)

BIOT 160

Introduction to Biotechnology (2 CR)

Prerequisites: CHEM 122 and prerequisite or corequisite BIOL 135 or CHEM 124 and CHEM 125 and prerequisite or corequisite: BIOL 135 All prerequisites and corequisites require a grade of "C" or higher

This course is an introduction to biotechnology, including career exploration, history and applications of DNA/RNA technology, molecular biology, and bioethics. Topics include cloning, DNA, antibodies, gene therapy, plant biotechnology, the human genome project, DNA fingerprinting, genetic testing, diverse products made through biotechnology, and the ethical implications of this technology. The course is intended for those interested in pursuing a career in an industrial, academic, or biomedical research laboratory. 2 hrs. lecture/wk.

BIOT 165

Laboratory Safety (1 CR)

Prerequisite: CHEM 122 and prerequisite or corequisite BIOL 135 or CHEM 124 and CHEM 125 and prerequisite or corequisite BIOL 135 All prerequisites and corequisites require a grade of "C" or higher

This course will emphasize laboratory safety and procedures. Additionally, regulations that govern the biotechnology laboratory will be discussed. Biological, chemical and radiation safety will all be handled through lectures, videotapes, demonstrations and field trips. There will also be exposure to good manufacturing practices (GMP), quality assurance and control procedures (QA/QC), and OSHA and FDA regulations. 1 hr. lecture/wk.

BIOT 230

Microbiology for Biotechnology (5 CR)

Prerequisites: BIOL 135 and BIOT 160 and BIOT 165 All prerequisites require a grade of "C" or higher

This is an introductory course in microbiology for biotechnology students. It provides a background in many areas of microbiology with an emphasis on

molecular aspects and applications for biotechnology. Industrial and food microbiology will also be examined. The structure, physiology, antimicrobial agents, immunology and host-parasite relationship of microorganisms will also be studied, with an emphasis on bacteria. Students will learn aseptic techniques and apply them in the isolation, growth and maintenance of pure cultures of bacteria. Students will also perform various molecular and genetic techniques as well as chemical tests to identify these bacteria. The growth phases of bacteria and response of bacteria to changes in environmental conditions will be examined. 3 hrs lecture, 4 hrs lab /wk.

BIOT 260

Biotechnology Methods (5 CR)

Prerequisites: Either BIOT 160 or BIOL 160 and either BIOT 165 or BIOL 165 and Prerequisite or corequisite: BIOL 230 or BIOT 230 All prerequisites and corequisites require a grade of "C" or higher

This course is an introduction to the theory and laboratory techniques in molecular biology, protein biochemistry and immunology with an emphasis on gene expression and regulation, recombinant DNA, RNA transcription, and protein translation. Laboratory emphasis will be on molecular biological techniques utilized in modern research and industrial laboratories. Techniques include growth and maintenance of *E. coli*, gene cloning, DNA and protein electrophoresis protein purification and enzymatic and immunology assays. Lecture and laboratory exercises on the principles and practices of initiation, cultivation, maintenance, preservation of cell culture lines and applications will also be covered. 6 hrs. lab/wk.

BIOT 265

Biotechnology Internship (4 CR)

Prerequisites: BIOT 260 and either BIOT 160 or BIOL 160 and either BIOT 165 or BIOL 165 and department approval

The internship will provide advanced students the opportunity to develop job and career-related skills while in a work setting. Upon successful completion of this course, the student should be able to apply classroom knowledge to an actual work situation. The work will be developed cooperatively with academic, industrial and private institutional biotechnology laboratories. 20 lab hrs./wk.

Business (BUS)

BUS 120

Management Attitudes and Motivation (3 CR)

Upon successful completion of this course, the student should be able to assess personal strengths and weaknesses and set goals for personal and professional life, define communication and listening skills, analyze human relations problems, apply problem-solving strategies to human relations issues in the workplace, and define and compare management styles. Class meets for 48 hrs.

BUS 121

Introduction to Business (3 CR)

Upon successful completion of this course, the student should be able to explain the basic principles of the American free enterprise economic system. In addition, the student should be able to explain the fundamentals of starting a business and the interrelationship among the four functional areas: accounting, finance, management and marketing. 3 hrs./wk.

BUS 123

Personal Finance (3 CR)

Upon successful completion of this course, the student should be able to define the role of a consumer in the economy; develop a basic financial plan; apply budgeting procedures in a daily and monthly spending plan; calculate principal

and interest; define the types of consumer credit; identify the types of housing mortgages; and explain the important considerations in buying, selling and renting. In addition, the student should be able to calculate individual insurance needs in the areas of life insurance, health insurance, property and liability insurance, automobile insurance and other types of special insurance and be able to explain employee and retirement benefits, including tax-sheltered plans. 3 hrs./wk.

BUS 140

Principles of Supervision (3 CR)

Upon successful completion of this course, the student should be able to define the supervisor's role within a company and identify the skills necessary to successfully fulfill that role. In addition, the student should be able to determine the supervisor's role in supervising employees on an individual basis and as a group. The student should also be able to apply the principles of supervision in simulated work situations. 3 hrs./wk.

BUS 141

Principles of Management (3 CR)

Upon successful completion of this course, the student should be able to state the basic functions of management, explain the nature of organizations and organizational theories and types, explain the importance of effective communication within the organizational structure, develop and define the techniques for directing and motivating employees, explain the effects of change on an organization, and develop techniques for coping with those effects. In addition, the student should be able to explain and discuss the application of business ethics in managerial decision-making. 3 hrs./wk.

BUS 145

Small Business Management (3 CR)

Upon successful completion of this course, the student should be able to demonstrate an understanding of management techniques vital to small business. In addition, the student should be able to apply decision making skills in the areas of business start-up choosing the form of ownership, marketing, financial planning and managing the small business.

BUS 150

Business Communications (3 CR)

Prerequisite: ENGL 121

Upon successful completion of this course, the student should be able to explain the role of communication in the business environment and identify the most effective methods for creating, sending and receiving messages. In addition, the student should be able to use effective oral and written communication skills in business; write and evaluate business documents, including letters, memos, and reports using the principles of correct style, organization and format; and prepare an effective oral business presentation. 3 hrs./wk.

BUS 215

Savings and Investments (3 CR)

Upon successful completion of this course, the student should be able to define, analyze and evaluate types of savings instruments and other investments. In addition, the student should be able to determine which instruments are desirable for a personal financial plan. The student should also be able to demonstrate an understanding of basic financial-planning concepts and tax-planning procedures. 3 hrs./wk.

BUS 225

Human Relations (3 CR)

Upon successful completion of this course, the student should be able to evaluate the impact of human relations as it relates to the social system, technical system and administrative system of a work environment. In

addition, the student should be able to analyze these systems and their effects on individual group and organizational performance. 3 hrs./wk.

BUS 230

Marketing (3 CR)

Upon successful completion of this course, the student should be able to explain the concepts of production, consumption and distribution in relation to a free enterprise economy; list the basic channels of distribution available to the manufacturer of consumer and industrial products; explain and compare the distribution functions of the manufacturer, wholesaler and retailer; and state the procedures necessary to develop a total marketing plan for a given product, service or product line. In addition, the student should be able to discuss the fundamental principles of consumer behavior in the buying process and apply those principles to target market strategies. 3 hrs./wk. BUS 230 is the same course as MKT 230; do not enroll in both.

BUS 235

Introduction to International Business (3 CR)

This course is designed to introduce the student to the global economy. Differences in political, economic and cultural forces within countries will be analyzed and national competitiveness assessed. Cross-border trade and investment and the global monetary system will be introduced and analyzed. Competition and a firm's international business strategy in the global marketplace will be examined. Ethical issues in international business will also be discussed. 3 hrs./wk.

BUS 240

Legal Environment of International Business (3 CR)

Prerequisites: BUS 235 and BUS 261 and BUS 263

This course provides an introduction to the legal aspects of contracts for international sale of goods. Topics include multinational enterprises, sovereignty, international finance, international transportation, international marketing, protection of intellectual property, international dispute resolution, negotiation and diplomacy. 3 hrs. lecture/wk.

BUS 243

Human Resource Management (3 CR)

Upon successful completion of this course, the student should be able to state the principles of human resource management; describe the human resource function as an integral part of management; differentiate between roles of the personnel and line manager in the management of human resources; define and evaluate strategic planning, recruitment, selection and training; define the primary methods of human resource development; employ methods of employer appraisal; and state the major components and coverages of the Equal Employment Opportunity Act and other personnel/human resource-related laws. 3 hrs./wk.

BUS 261

Business Law I (3 CR)

This course is designed to introduce the students to the American legal system. Principles of legal ethics in business will be introduced. Principles of common law of contracts will be discussed. Sections of Uniform Commercial Code as applied to the law of sales and law of negotiable instruments will be introduced. 3 hrs./wk.

BUS 263

Business Law II (3 CR)

Prerequisite: BUS 261

A continuation of Business Law I, this course will introduce the student to the principles of Uniform Commercial Code as applied to secured transactions. The law of bankruptcy, principles of agency and business organizations such

as partnerships, limited partnerships, joint ventures, corporations, and sole proprietorships will be discussed. Principles of real property, personal property, bailments, estate and trusts will be introduced. 3 hrs./wk.

Business Logistics Management (KSCL)

KSCL 210

Logistics Management (3 CR)

Logistics management is an integrated systems approach involving a variety of environments within a global marketplace. The course explores the logistic system from inbound movement of material and freight into the organization through physical distribution of the completed product to the consumer. Hands-on applications, activities and simulations. IAW Council of Logistics Management's guidelines will be emphasized. 3 hrs. lecture/wk. Course taught at MCC-Blue River Community College, 20301 East 78 Highway, Independence, MO. Students should contact the Blue River coordinator of supply chain logistics about the class meeting times and beginning and ending dates of classes. Call 816-220-6532.

KSCL 211

Operations Management (3 CR)

This course covers the central role and importance of the operations function in both service and product organizations. Strategy, design, scheduling, materials handling, inventory, production, MRP and distribution are covered. 3 hrs. lecture/wk. Course taught at MCC-Blue River Community College, 20301 East 78 Highway, Independence, MO. Students should contact the Blue River coordinator of supply chain logistics about the class meeting times and beginning and ending dates of classes. Call 816-220-6532.

KSCL 212

Transportation Operations and Management (3 CR)

This course covers the significance of an integrated, well-organized transportation system to a market-driven economy. The development of the transportation system of the United States from both historic and economic perspectives is included. 3 hrs. lecture/wk. Course taught at MCC-Blue River Community College, 20301 East 78 Highway, Independence, MO. Students should contact the Blue River coordinator of supply chain logistics about the class meeting times and beginning and ending dates of classes. Call 816-220-6532.

KSCL 213

Warehousing and Distribution Centers (3 CR)

This is an integrated systems approach involving a variety of environments within a global marketplace. The course covers the organization and operations of warehouses and distribution centers. The major components are warehousing and distribution center paradigms, system design, locations, technology and financial dimensions. 3 hrs. lecture/wk. Course taught at MCC-Blue River Community College, 20301 East 78 Highway, Independence, MO. Students should contact the Blue River coordinator of supply chain logistics about the class meeting times and beginning and ending dates of classes. Call 816-220-6532.

Business Office Technology (BOT)

BOT 101

Computerized Keyboarding (1 CR)

Upon successful completion of this course, the student should be able to

operate a computer keyboard by touch to enter data with speed and accuracy. 1 hr./wk.

BOT 103

Business English (3 CR)

Upon successful completion of this course, the student should be able to demonstrate the basic rules of English, develop correct sentence structure and use accurate English grammar and mechanics when writing documents. Students also will be able to proofread written work using standard proofreading symbols. 3 hrs. lecture/wk.

BOT 105

Keyboarding and Formatting I (3 CR)

Upon successful completion of this course, the student should be able to develop speed and accuracy by learning to use the alphabetic, numeric and symbol keys by touch; identify and operate the basic machine parts and special purpose keys; and format and type personal correspondence and business documents - letters, reports, tables and memos. Microsoft Word will be used in this class to complete and format documents. 3 hrs./wk.

BOT 106

Intro to Business Computer Applications (3 CR)

Prerequisite or corequisite: BOT 105

Upon successful completion of this course, the student should be able to use the beginning features of an operating system and word processing, spreadsheet, database management, presentation graphics, and e-mail programs to prepare and manage documents simulating legal, medical and general business office applications. Proficiency will also be attained in selecting appropriate applications to use and to integrate all of the business computer application programs to complete projects. Document formatting and proofreading will also be introduced. Hands-on, practical projects will be performed to reinforce the concepts taught. 3 hrs. lecture/wk.

BOT 110

Skillbuilding I (1 CR)

Prerequisite: BOT 105

Upon successful completion of this course, the student should be able to use a diagnostic approach to develop typing speed and accuracy. Specific problems will be identified, and the student should be able to complete specialized drills and activities tailored to the student's own typing needs to improve or eliminate deficiencies. 1 hr./wk. Students attempting to take the short-term classes BOT 110 Skillbuilding I and BOT 118 Skillbuilding II in the same semester, should contact Kathy at 913-469-8500 ext 3145, and provide their student ID number and the CRN for the specific BOT 118 section

BOT 115

Electronic Calculators (1 CR)

Upon successful completion of this course, the student should be able to review basic arithmetic, operate the electronic calculator by touch to build speed and accuracy, use basic calculator functions and operating controls, and solve business application problems. 1 hr./wk.

BOT 118

Skillbuilding II (1 CR)

Prerequisite: BOT 110

Upon successful completion of this course, the student should further develop speed and accuracy. The student should be able to improve keyboard skills through diagnostic evaluation and by completing individualized drills and activities. 1 hr. lecture/wk. Students attempting to take the short-term classes BOT 110 Skillbuilding I and BOT 118 Skillbuilding II in the same semester, should contact Kathy at 913-469-8500 ext 3145, and provide their student ID

number and the CRN for the specific BOT 118 section

BOT 122

Medical Keyboarding (1 CR)

Prerequisite: BOT 105

Upon successful completion of this course, the student should be able to develop keyboarding speed and accuracy in medical formats. The student should also be able to improve keyboard skills by completing drills and activities pertaining to the transcription of medical reports. 1 hr. lecture/wk.

BOT 125

Document Formatting (1 CR)

Prerequisite: BOT 155

Upon successful completion of this course, the student should be able to type business letters with special features, memorandums, reports, tables and a variety of administrative documents. The student should also be able to use Microsoft Word to complete these activities. 1 hr./wk.

BOT 130

Office Systems Concepts (3 CR)

Upon successful completion of this course, the student should be able to understand and apply technological factors of contemporary office systems. Implementation of office automation concepts will be examined as they relate to people, technology and organizations. These concepts will be applied to organizational and strategic planning to enhance productivity in the office. 3 hrs./wk.

BOT 150

Records Management (3 CR)

Prerequisite: BOT 106 or experience using Microsoft Access

Methods for developing and controlling an office records management program will be discussed. Selection of equipment for active and inactive records will be covered, along with procedures for document, card and special records; microrecords; mechanized and automated records; and records storage, retention and transfer. Upon successful completion of this course, the student should be able to file documents using alphabetic, subject, consecutive numeric, terminal digit numeric and geographic filing systems using requisition charge out and transfer procedures. The student should be able to create a computer database for records management; enter, modify and delete records; print reports; and determine disposition of records filed alphabetically, numerically, by subject and geographically. The course will cover the identification of evaluation methods and standards for both staff and programs in a records management department. 3 hrs./wk.

BOT 155

Word Processing Application I (2 CR)

Prerequisites: BOT 105 and BOT 106

Upon successful completion of this course, the student should be able to demonstrate skill in creating, saving, opening, closing, printing and editing documents. The student should be able to use beginning and intermediate features of Microsoft Word. The student should be able to demonstrate file maintenance procedures. 2 hrs. lecture/demonstration/wk.

BOT 160

Legal Transcription (3 CR)

Prerequisite: BOT 155

Upon successful completion of this course, the student should be able to demonstrate skill in spelling, defining, pronouncing and using legal terms in proper context. The student should also be able to use legal reference resources

and transcribe legal documents from dictation using proper formatting rules. 3 hrs./wk.

BOT 165

Medical Transcription (3 CR)

Prerequisites: AAC 130 and BOT 155

Upon successful completion of this course, the student should be able to transcribe medical reports using proper formats and transcription rules. These reports concern in-patients with a specific medical problem. Reports include history and physical examinations, radiology reports, operative reports, pathology reports, requests for consultation, death summaries, discharge summaries and autopsy reports. Students should be able to spell, define, pronounce and use medical terms in proper context and be able to use medical reference books. 3 hrs./wk.

BOT 170

Medical Coding and Billing (3 CR)

Prerequisite: AAC 130

This course is designed to give the student an overview of the medical insurance billing process. This includes becoming acquainted with ICD-9, HCPCS and CPT procedural coding systems as well as Blue Cross/Blue Shield, Medicaid, Medicare and Champus/Champva programs. Students will be given hands-on coding advice for optimal insurance reimbursement. 3 hrs. lecture/wk.

BOT 180

Business Spreadsheet Applications (1 CR)

Prerequisite: BOT 106

Upon successful completion of this course, the student should be able to demonstrate competencies in using advanced formatting techniques, advanced features and advanced functions of Microsoft Excel. The following topics will be covered: working with templates, workbooks and lists; using Excel's analysis tools; managing and auditing worksheets; collaborating with workgroups; creating and editing macros; and importing and exporting data. 1 hr. lecture/wk.

BOT 185

Business Database Applications (1 CR)

Prerequisite: BOT 106

Upon successful completion of this course, the student should be able to demonstrate database development skills by effectively identifying the types of projects that should be developed using Microsoft Access rather than a spreadsheet; build tables that can be related to each other in order to eliminate data entry duplication; customize forms and reports; create basic and advanced queries; and define relational integrity between tables. The student should also be able to create basic and advanced queries with single and multiple tables using Boolean logic. The student should be able to identify and implement methods of troubleshooting and explain ways of getting additional help. 1 hr. lecture/wk.

BOT 205

Professional Image Development (1 CR)

Upon successful completion of this course, the student should be able to develop work habits and self-management skills that will affect performance on the job by reducing stress, conflict and miscommunication. 1 hr. lecture/wk.

BOT 220

Pharmacology Terminology (2 CR)

Prerequisite: AAC 130

Upon successful completion of this course, the student should be able to use pharmacological terminology in an appropriate context. This course includes an investigation of medication actions, dosage forms, routes of administration and uses. The course emphasizes the terminology necessary for transcription of medical reports. This course is taught in the spring semester only. 2 hrs. lecture/wk.

BOT 255

Word Processing Applications II (2 CR)

Prerequisite: BOT 155

Upon successful completion of this course, the student should be able to demonstrate word processing skills using such features as macros, styles, tables of contents and indexes, graphics, master and subdocuments, and other advanced features of Microsoft Word. 2 hrs. lecture-demonstration/wk.

BOT 260

Desktop Publishing for the Office (3 CR)

Prerequisite: BOT 155

Upon successful completion of this course, the student should be able to use desktop publishing skills using Microsoft Publisher to produce publications such as fliers, newsletters, brochures, operating manuals, price lists and bulletins. 3 hrs. lecture/demonstration/wk.

BOT 265

Computerized Office Applications (3 CR)

Prerequisites: BOT 106 and BOT 130 and BOT 255 (This capstone course should be taken near the end of the degree or certificate program)

Upon successful completion of this course, the student will be able to use the basic features of word processing, database, spreadsheet and presentation applications. The student will also use advanced features to complete simulated office applications and to perform multitasking projects. This course is taught in the spring semester only. 3 hrs./wk.

BOT 270

Advanced Medical Transcription (3 CR)

Prerequisite: BOT 165

Upon successful completion of this course, the student will develop medical transcription skills with emphasis on additional speed and accuracy. Students will apply language skills, decision-making skills and "common-sense" skills during the transcription process. Students will become familiar with the medical transcription profession, employment opportunities, the important role of the medical transcriptionist in the health care team, and personal attributes, knowledge and skills required to produce error-free documents according to the employer's and AAMT standards. 3 hrs. lecture/wk.

BOT 275

Office Internship I (1 CR)

Prerequisite: Admission to the business office technology program. This course should be taken near the end of the BOT degree or certificate program.

The student should be able to gain work experience in an approved training station under instructional supervision in Administrative Assistant, Medical, Legal, or Certificate Programs. The course will provide practical experience in the use of skills acquired in Business Office Technology specialty courses. The internship will require a minimum of 185 hours of job training.

BOT 280

Office Internship II (1 CR)

Prerequisite: BOT 275

The student should be able to gain work experience in an approved training station under instructional supervision in Administrative Assistant, Medical, Legal, or Certificate Programs. The course will provide practical experience using skills acquired in Business Office Technology courses. The internship will require a minimum of 185 hours per semester job training.

Chemistry (CHEM)

CHEM 120

Chemistry in Society (4 CR)

This course is designed for non-science majors who seek an understanding of the concepts of chemistry. Historical foundations of chemistry, applications to society and daily life, controversies of contemporary concern and current research topics are explored. Inquiry-based laboratory experiments will illustrate chemical principles. 3 hrs. lecture, 2 hrs. lab/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$60.

CHEM 122

Principles of Chemistry (5 CR)

This course is an introduction to the fundamentals of chemistry, with emphasis on general concepts of inorganic chemistry and sufficient study of organic chemistry to introduce the student to biochemistry. The student will learn basic definitions and theories of chemistry, solve numerical problems related to chemical principles and apply chemical concepts in laboratory work. 4 hrs. lecture, 3 hrs. lab/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$60.

CHEM 124

General Chemistry I Lecture (4 CR)

Prerequisite or corequisite: MATH 171 or assessment test and Corequisite: CHEM 125

Students will relate atomic structure to chemical systems, calculate the amount of material used in chemical reactions, use the periodic table as an aid to understanding chemical systems and interpret chemical reactions. 5 hrs. lecture/wk.

CHEM 125

General Chemistry I Lab (1 CR)

Corequisite: CHEM 124 Students who withdraw from GENERAL CHEMISTRY I LECTURE must also withdraw from the corresponding laboratory GENERAL CHEMISTRY I LABORATORY Students may not withdraw from the laboratory course GENERAL CHEMISTRY I LABORATORY without withdrawing from CHEMISTRY I LECTURE.

Experiments of a qualitative and quantitative nature that support topics from General Chemistry I Lecture will be carried out. 3 hrs./wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$60.

CHEM 131

General Chemistry II Lecture (4 CR)

Prerequisites: CHEM 124 and CHEM 125 and Corequisite: CHEM 132

Chemistry 131 is the second semester of a two-semester course in general chemistry in which the student will develop a working knowledge of some of the fundamental concepts and quantitative relationships involved in the study of chemical reactivity. Topics include solutions, chemical kinetics, chemical equilibrium, acid-base chemistry, chemical thermodynamics, electrochemistry, and nuclear chemistry. 4 hrs./wk. CHEM 131 students are required to enroll

concurrently in CHEM 132.

CHEM 132

General Chemistry II Lab (1 CR)

Prerequisites: CHEM 124 and CHEM 125 and Corequisite: CHEM 131 Students who withdraw from GENERAL CHEMISTRY II LECTURE must also withdraw from the corresponding laboratory GENERAL CHEMISTRY II LABORATORY. Students may not withdraw from the laboratory course GENERAL CHEMISTRY II LABORATORY without withdrawing from CHEMISTRY II LECTURE.

The laboratory consists of qualitative and quantitative experiments designed to parallel and support General Chemistry II Lecture. 3 hrs./wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$60.

CHEM 140

Principles of Organic & Biological Chemistry (5 CR)

Prerequisites: BIOL 135 and either CHEM 122 or (CHEM 124 and CHEM 125) or department approval

This course covers nomenclature, theory and applications of basic organic chemistry and biochemistry in the area of carbohydrates, lipids, proteins and enzymes. The lab activities reinforce the topics presented in the lecture. 4 hrs. lecture, 3 hrs. lab/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$80.

CHEM 220

Organic Chemistry I (5 CR)

Prerequisites: CHEM 131 and CHEM 132

Organic Chemistry I is an introduction to the theories and principles of the chemistry carbon compounds. The student will develop an understanding of organic chemistry, which will be useful in the studies of chemistry and related fields such as medicine, engineering and pharmacy. The laboratory is supportive in nature, with a strong emphasis on developing laboratory techniques. Representative compounds will be prepared and used to introduce the student to instrumental analysis. 3 hrs. lecture, 6 hrs. lab/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$80.

CHEM 221

Organic Chemistry II (5 CR)

Prerequisite: CHEM 220

Organic Chemistry II is a continuation of Organic Chemistry I, the nomenclature, principles and theories of organic chemistry, with emphasis on electronic theories and reaction mechanisms. Laboratory is supportive in nature with emphasis on developing laboratory techniques and preparation of representative compounds. Organic Chemistry II completes the study of organic chemistry designed to prepare the student for continued work in chemistry and related fields. 3 hrs. lecture, 6 hrs. lab/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$80.

CHEM 250

Biochemistry (4 CR)

Prerequisites: CHEM 131 and CHEM 132 and CHEM 140 or CHEM 220

This course is an introduction to the major topics in biochemistry. Topics include the major classes of biological molecules, such as proteins, lipids and nucleic acid; an overview of the major metabolic pathways; and developments and topics relating to molecular biology. 4 hrs. lecture/wk.

CHEM 251

Biochemistry Laboratory (2 CR)

Prerequisites: CHEM 131 and CHEM 132 and CHEM 140 or CHEM 220
Corequisite: CHEM 250

The laboratory will consist of qualitative and quantitative experiments using biological molecules. Particular emphasis upon biochemistry laboratory techniques, including chromatography and spectroscopy, will be used. 3 hrs. lab, 1 hr. recitation/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$60.

Civil Engineering Technology (CET)

CET 105

Construction Methods (3 CR)

This course introduces the student to the terms, methods, procedures, sequences of operation, and types of construction and planning in civil and building construction. This course is typically offered the first half of each semester. 3 hrs./wk.

CET 120

Engineered Plumbing Systems I (3 CR)

Upon successful completion of this course, the student should be able to use codes and engineering principles and design engineering practices to analyze and design basic plumbing systems. Topics covered include codes, materials, hangers, supports, and expansion and contraction. Plumbing systems covered include fuel gas, domestic water and soil waste/vent. The student should also be able to interpret drawings related to plumbing technology. 3 hrs. lecture/wk.

CET 122

Engineered Plumbing Systems II (3 CR)

Upon successful completion of this course, the student should be able to describe storm water, industrial wastes, compressed air and irrigation and fire sprinkler systems. Topics include water treatment, noise control, decorative pools, pumps, estimating, specifications and field inspection. 3 hrs. lecture/wk.

CET 125

Construction Specifications (2 CR)

Prerequisite or corequisite: CET 105 or equivalent

Upon successful completion of this course, the student will be able to describe the phases of a project, identify the bidding requirements, explain contractual relationships between parties, categorize the drawings, write specifications, list warranties and explain contract modifications. 2 hrs. lecture/wk.

CET 129

Construction Management (3 CR)

This course is intended for students interested in learning management principles for construction projects. Upon successful completion of this course, the student should be able to perform many processes associated with construction projects and complete forms typically used in project management. Topics include contract documents, scheduling, job costs and management issues. Project management software will be used to schedule and track project resources and progress. 2 hrs. lecture, 3 hrs. lab/wk.

CET 133

Concrete Testing (2 CR)

This course covers the principles of making and testing concrete. The

emphasis will be on allowing concrete to reach the highest level of durability through proper mix design, placing and finishing techniques, and curing methods. This course will help prepare the student for ACI National Certification exam. 1.5 hrs. lecture, 1 hrs. lab/wk.

CET 140

Civil Engineering Materials (3 CR)

Prerequisite or corequisite: MATH 133

Upon successful completion of this course, the student will be able to analyze materials commonly used in civil engineering construction projects. Common properties of soil, concrete and asphalt will be studied for classification as engineering materials. Students will learn to perform typical materials tests in accordance with ASTM guidelines. This course is typically offered in the spring semester. 2 hrs. lecture, 3 hrs. lab/wk.

CET 150

Construction Safety (3 CR)

This course introduces the student to construction safety policies, procedures, and standards. Topics include safety theories and concepts, OSHA (Occupational Safety and Health Administration) construction standards for safety and health, and safety application on the job site. Special emphasis is placed on those areas that are the most hazardous, using OSHA standards as a guide. Upon successful completion of the course, the student will receive the 30-hour OSHA Construction Safety Completion certificate. 3 hr. lecture/wk.

CET 160

Green Building Fundamentals (3 CR)

This course introduces the student to sustainable design and green building practices used in the construction industry. The goal of the course is to improve the energy and environmental performance of buildings through a better understanding of standard practices used by industry professionals, as well as, to provide students preparation for the Leadership in Energy and Environmental Design (LEED) Professional Accreditation Exam. Course content will focus on sustainable practices as prescribed in the LEED Green Building Rating System. 3 hrs. lecture/wk. This course is typically offered in the fall semester.

CET 211

Technical Statics and Design (3 CR)

Prerequisite: MATH 134 or MATH 172 or MATH 173 or MATH 241

Upon successful completion of this course, the student should be able to evaluate and design force systems in equilibrium. Topics include truss analysis, stress and strain, shear, loading conditions, steel member selection, and connection design. Computer applications are included. This course is typically offered in the fall semester. 3 hrs. lecture/wk.

CET 227

Construction Cost Estimating (3 CR)

Prerequisites: CET 105 and CET 125 or department approval
Prerequisite or corequisite: DRAF 129 or department approval

This course adds to the student's knowledge of the construction process by covering the principles of construction estimating. Topics include estimating quantities of material using reference books, tables and the Construction Specifications Institute (C.S.I.) format and preparing estimating reports. Students will use industry-standard software for construction estimating. The student needs a basic knowledge of spreadsheet software to be successful in this course. 2 hrs. lecture & 3 hrs lab/wk.

CET 270

Fluid Mechanics (3 CR)

Prerequisites: MATH 172 or MATH 134

Upon successful completion of this course, the student should be able to analyze fluid systems using the fundamental properties of pressure, hydrostatic force, buoyancy, flow in pipes, open channel flow and hydrology. The student should also be able to solve practical problems related to engineering technology. Computer applications will be included. This course is typically offered in the spring semester. 3 hrs. lecture/wk.

Computer Desktop Publishing (CDTP)

CDTP 135

Desktop Photo Manipulation I: Photoshop (1 CR)

In this career-related short course, students will manipulate digital photographs and images using a variety of basic techniques on either the Macintosh or PC computer platform. Students will apply techniques to correct, repair, retouch, create selections, and work with layers on a variety of digital photographs and images, including basic scanning techniques. 1 hr. lecture/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$15 to \$20.

CDTP 140

Desktop Publishing I: InDesign (1 CR)

In this career-related course, students will create page layout documents using a variety of basic techniques on either the Macintosh or PC computer platform. Students will produce text material with complex tabs and indents and style attributes. Upon successful completion of the course, students will also be able to group and distribute multiple elements and demonstrate a basic proficiency with drawing tools, multiple document work, drop caps, text rotation, locking items and threading text blocks. 1 hr. lecture/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$15 to \$90.

CDTP 145

Desktop Illustration I: Illustrator (1 CR)

In this career-related course, students will create basic computer-generated illustrations using a variety of techniques on either the Macintosh or Windows PC computer platform. Students will draw simple paths and shapes, create layers, import graphics and add typographic elements in rows and columns with runarounds, baseline shifts and conversion to outlines. 1 hr. lecture/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$15 to \$90.

CDTP 155

Desktop Photo Manipulation II: Photoshop (1 CR)

Prerequisite: CDTP 135

In this career-related short course, students will manipulate digital photographs and images using a variety of introductory to intermediate techniques on either the Macintosh or PC computer platform. Students will apply techniques to edit masks and channels, process and enhance multiple image file formats, group and apply adjustments to layers, automate common tasks, create composite images, learn and apply intermediate scanning techniques, and apply multiple creative and adjustment filters on a variety of digital photographs and images. 1 hr. lecture/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$10 to \$20.

CDTP 160

Desktop Publishing II: InDesign (1 CR)

Prerequisite: CDTP 140

In this career-related course, students will create intermediate-level page layout documents using a variety of techniques on either the Macintosh or PC computer platform. Students will learn how to work with type styles, threads, columns, special characters, hanging indents, vertical spacing and tables as well as exploring PDF files. Students will also be able to master several aspects of working with graphic images: placing images, linking, clipping paths, libraries, grids, Bezier drawing, compound paths and reflections. Finally, students will work with advanced framing techniques to nest frames within shapes. 1 hr. lecture/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$15 to \$90.

CDTP 165

Desktop Illustration II: Illustrator (1 CR)

Prerequisite: CDTP 145

In this career-related course, students will create intermediate-level computer-generated illustrations using a variety of techniques on either the Macintosh or PC computer platform. Students will trace an object, create complex gradients with custom blends, create complex objects receding toward a vanishing point, and create an orthogonal projection to simulate depth. 1 hr. lecture/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$15 to \$90.

CDTP 168

Desktop Publishing III: InDesign (1 CR)

Prerequisite: CDTP 160

In this career-related course, students will create advanced-level page layout documents using a variety of techniques on either the Macintosh or PC computer platform. Students will learn how to work with advanced color specifications, transparency blending modes, long document organization, and brochure layout production art. 1 hr. lecture/wk.

CDTP 175

Desktop Photo Manipulation III: Photoshop (1 CR)

Prerequisite: CDTP 155

In this career-related short course, students will manipulate digital photographs and images using a variety of beginning, intermediate and advanced techniques on either the Macintosh or PC computer platform. Students will apply techniques to create and design typographic elements, use vector drawing techniques, prepare images for print, optimize images for web output, and use a digital photo preparation workflow on a variety of digital photographs and images, including scanned images. 1 hr. lecture/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$10 to \$20.

CDTP 180

Photoshop for the Web: Photoshop (1 CR)

Prerequisite: CDTP 155

This course is designed to explore the preparation of digital photographs and images for the Web using a variety of techniques and tools. Optimizing images for the Web, creating Web graphics using slices and rollovers, and creating animated images for the Web will be covered. 1 hr. lecture/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$15 to \$90.

CDTP 185

Desktop Illustration III: Illustrator (1 CR)

Prerequisite: CDTP 165

In this career-related course, students will create advanced computer-generated illustrations using a variety of techniques on either the Macintosh or PC computer platform. Students will create charts, autotrace scanned images, fill objects with various pen-and-ink filter effects and create an image map for the Web. 1 hr. lecture/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$15 to \$90.

Computer Digital Image Editing (CDIE)

CDIE 145

Digital Image Editing I (3 CR)

Prerequisites: CPCA 105 or CPCA 106 or CIS 124 or CPCA 128 or an appropriate score on an assessment test

This course is designed to present the skills and provide the hands-on experience required for digital image production and manipulation using the industry-standard Adobe Photoshop for both Macintosh and Windows OS users. Topics covered include: image correction, repair and adjustment; composite images; raster and vector graphics and type; print and screen graphical file formats; basic color management; layer, channel and mask manipulation; Web graphic preparation; editing 3D and motion-based content; image analysis; actions and other presets; and filters. In this course, students will complete several complex original Photoshop documents that demonstrate skills to effectively scan images, restore and repair photographs; correct image tone and color, optimize the quality of onscreen and printed materials and study the topics covered on the Adobe Photoshop certified expert exam in Adobe Photoshop (ACE). 3 credit hours lecture, discussion, demonstration per week.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$10 to \$20.

Computer Forensics (CFOR)

CFOR 150

Introduction to Computer Forensics (3 CR)

Prerequisites: CIS 134 and CPCA 139 and department approval

In this course, students are introduced to computer forensics and incident response essentials. This course shows the student how to collect and analyze the digital evidence left behind in a digital crime scene. Computer forensics, the newest branch of computer security, focuses on the aftermath of a computer security incident. The goal of computer forensics is to conduct a structured investigation to determine exactly what happened and who was responsible and to perform the investigation in such a way that the results are useful in a criminal proceeding and to lay the foundation for further study of computer forensics. 3 hrs. lecture/wk.

CFOR 180

File Structure & Residual Artifacts (3 CR)

Prerequisite: CFOR 150

This course provides the basic understanding of how computers 'see' data and manage its storage. While covering physical device concepts, students will

learn the boot process of a computer. The FAT file system will then be described in terms of system areas created during the format process, the File Allocation Table and its function and detailed information regarding saving files and directories - to include a full breakdown of directory entries. In addition, concepts of clusters and file slack space will be covered and led into how to identify the affects of deleting files and forensic issues surrounding their recovery. The students will learn how to use hardware and software write protection tools to create duplicate images of hard disk drives, USB thumb drives and other alternate media. Mastery of technical knowledge will be combined with problem-solving skills to aid students in developing creative and adaptive responses to future changes in technology. This course meets for two hours of lecture and two hours of laboratory each week. 2 hrs. lecture 2 hrs. lab/wk.

Computer Information Systems (CIS)

CIS 124

Introduction to Computer Concepts and Applications (3 CR)

In this introductory, nontechnical computer course, students study computing concepts, terminology, issues and uses. Extensive hands-on experience with the microcomputer is provided using business applications and the operating system to reinforce the concepts. 3 hrs. lecture/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$10 to \$15.

CIS 134

Programming Fundamentals (4 CR)

At the completion of this course, the student should be able to use the elementary concepts of computers, including several number systems. In addition, students will design, develop and write modular programs on a microcomputer in a structured programming language using standard structured concepts. 3 hrs. lecture, 2 hrs. lab by arrangement/wk.

CIS 138

Visual Basic .Net (4 CR)

Prerequisite: CIS 134

Upon successful completion of this course, students should be able to describe the Visual Basic programming environment, identifying the controls and objects available for creating .NET applications. Students should be able to define the basic terminology used by Visual Basic. They will create forms, draw the controls for each form, design menu bars, set form and control properties, write event and general procedures, and test and debug their applications. 3 hrs. lecture, 2 hrs. lab by arrangement/wk.

CIS 162

Database Programming (4 CR)

Prerequisite: CIS 134 or the equivalent

This course covers the use of an interactive environment and programming language to create, maintain and manipulate databases using Access as the RDBMS. The use of a command-level database programming language to customize business systems and selectively retrieve information using single or multiple database tables also will be studied. 3 hrs. lecture, 2 hrs. lab by arrangement/wk.

CIS 201

Introduction to Information Systems (3 CR)

Prerequisite: ACCT 121

This course is an introduction to the use of computers in management,

concepts of computer software, hardware, and systems analysis. Applications will include electronic spreadsheets, database management software, graphics and presentation tools, and other special purpose tools. Word processing tools will be used for most graded assignments. Programming will be studied in the context of spreadsheet macros. 3 hrs. lecture/wk.

CIS 204

UNIX Operating System (3 CR)

Prerequisites: CS 200 or CS 205 or CS 201 and CPCA 139

This course will cover the concepts and principles of the multi-user, multi-tasking UNIX operating system. Students will complete projects in UNIX ranging from using simple commands to writing shell scripts automating repetitive tasks. 3 hrs. lecture/wk.

CIS 206

Programming in PERL (4 CR)

Prerequisites: CS 200 or CS 205 or CS 201 and CPCA 139

This course is an in-depth introduction to the Perl scripting language. Students successfully finishing the course should be familiar with the most common operations and language idioms used in Perl programs and should be able to produce useful Perl scripts. In addition, students will have been introduced to the more powerful and rich elements of the language. Lectures and lab projects will cover the many features of the Perl language. 3 hrs. lecture, 1.5 hrs. lab/wk.

CIS 235

Object-Oriented Programming Using C++ (4 CR)

Prerequisite: CS 200 using C++

This course is intended to prepare students to apply the object-oriented programming paradigm to solve typical business problems. The student should work with container classes such as Linked Lists, Trees, Stacks and Queues as tools in their program solutions. Students will be building application-oriented objects using the concepts of inheritance, function overloading and polymorphism. Students will also apply techniques of dynamic memory to build arrays and objects that can adjust memory requirements at run time. Students will be exploring the object-oriented and I/O capabilities as well as the string processing capabilities of the object-oriented language. 3 hrs. lecture, 2 hrs. lab by arrangement/wk.

CIS 238

Visual Basic Intermediate Topics (4 CR)

Prerequisite: CIS 138

Upon successful completion of this course, students should be able to write and test a Visual Basic program that uses the ADO.NET to access a local database. They will identify the commands necessary to open, display and maintain the database. They will correctly use Visual Basic keystroke events to edit and control input to the database. Students will use the Try Catch Error trapping structures to create robust projects. Students will generalize code for reuse. They will create a .Net component to coordinate a TextBox and ListBox that can be deployed from the Toolbox. 3 hrs. lecture, 2 hrs. lab by arrangement/wk.

CIS 240

Advanced Topics in JAVA I (4 CR)

Prerequisite: CS 250 or CIS 235 or CS 255

At the completion of this course, the student should be able to create Java applications and applets appropriate for implementation on the Internet and World Wide Web. The student will complete projects using Java's built-in features. The course will include graphics, graphical user interfaces, exception handling, multi-threading and interactive media. 3 hrs. lecture, 2 hrs. lab/wk.

CIS 242

Introduction to System Design and Analysis (3 CR)

Prerequisite: CIS 138 or CS 200 or CS 201 or CS205

Students will study the basic philosophy and techniques of developing and using business information systems. The emphasis will be on the human involvement necessary in systems design and implementation. The course will address the use of specific technical approaches available in information processing. 3 hrs. lecture/wk.

CIS 243

Object-Oriented Analysis and Design (4 CR)

Prerequisite: One programming course using an object-oriented programming language or equivalent experience

This course includes information and materials that will introduce the student to an object-oriented analysis and design methodology suitable for designing systems that can be implemented in any object-oriented programming language. Experience in using specific techniques and tools will be gained through the completion of real-world projects. 3 hrs. lecture, 2 hrs. lab by arrangement/wk.

CIS 244

Advanced Topics in C# I (4 CR)

Prerequisite: CS 250 or CIS 235 or CS 255

At the completion of this course, the student should be able to create C# applications appropriate for implementation on the .NET platform. The student will complete projects using C#'s built-in features. The course will include graphics, graphical user interfaces, exception handling, multi-threading and database access. 3 hrs. lecture and 1.5 hrs lab/wk.

CIS 254

UNIX System Administration (4 CR)

Prerequisite: CIS 204

This course is designed to present the skills and provide the hands-on experience required to be a Unix system and Web administrator. Typical system administration duties to be covered include installation, backup, restoration and routine maintenance, including adding/removing users, managing system resources, monitoring and optimizing system activity, and automating activities. Typical Web administration duties to be covered include installation and management of a relational database management system, installation and management of a Web server and an FTP server, kernel recompiling relevant to Web technology, and audio/video streaming. 3 hrs. lecture, 2 hrs. lab/wk.

CIS 258

Operating Systems (3 CR)

Prerequisite: CIS 138 or CIS 162 or CS 200 or CS 201 or CS 205

The basic concepts and principles of a digital computer operating system will be explained. Also explored through a study of a typical digital computer operating system will be the relationships between hardware and software. 3 hrs. lecture/wk.

CIS 260

Database Management (4 CR)

Prerequisite: CS 250 or CS 255 or CIS 235 or CIS 238 or CIS 248

Characteristics and objectives of database management systems (DBMS) versus traditional file management systems are discussed. Topics include database environments, data modeling using the entity-relational model, normalization, logical and physical design, SQL, data quality, database administration, and various advanced topics. Students will use a relational

DBMS (currently Microsoft SQL Server). 3 hrs. lecture, 2 hrs. lab/wk.

CIS 262

Project Management (3 CR)

Prerequisite: CIS 242

This course will prepare students to effectively manage projects, with a focus on information systems (IS) projects. Topics include project management terminology, project manager roles, project success factors, integration, scope, time, cost, quality, human resources, communications, risk, professional responsibility and procurement management. Using case studies, students will plan, schedule, execute and control projects, modifying their timelines and resource allocations as required. 3 hrs. lecture/wk.

CIS 264

Application Development and Programming (4 CR)

Prerequisites: CIS 242 and either CIS 260 or CIS 162 *Prerequisites or Corequisites:* CIS 238 or CIS 253 or CIS 269 or CIS 240 and CIS 262

This course is designed for students to apply the foundations of systems analysis and design, database design and programming to a significant information system. Students should work within a team to analyze a problem, develop and present a proposed information system solution, build a demonstrable prototype of the system and develop a significant portion of the system. Students should also develop a project schedule and present progress information to the class. Students should also develop job search skills and both written and oral communication skills. 3 hrs. lecture, 2 hrs. lab by arrangement/wk.

CIS 269

GUI Programming (4 CR)

Prerequisites: CIS 235 or CS 250

Upon completion of this course, students should be able to demonstrate applications in the graphical user interface (GUI) programming language and use the appropriate GUI library. Techniques of object-oriented programming developed in CIS 235 will be applied to problems involving user interaction. The common user access (CUA) standards of GUI programming will be used throughout the course. The message queue and ordered linked lists objects used in CIS 235 will be applied to problems involving user selection and updating information in a database. Students will make extensive use of the application framework for the GUI environment provided by the GUI language compiler. It is strongly recommended that students be familiar with common user programs that run under the chosen operating system (Windows, OS/2, X-Windows) before taking this course. 3 hrs. lecture, 2 hrs. lab by arrangement/wk.

CIS 270

Information Systems Internship (3 CR)

Prerequisites: CS 250 or CS 255 or CIS 235 or CIS 238 or CIS 248 and department approval

Students will work in an approved training situation under instructional supervision. The internship is designed to give the student the opportunity to use the skills learned in information systems courses. Fifteen hours on-the-job training per week will be the usual workload for the student.

CIS 275

Web-Enabled Database Programming (4 CR)

Prerequisites: CS 200 or CS 201 or CS 205 or CIS 162 and either CPCA 139 or CIS 204 and either CPCA 161 or CPCA 158

At the completion of this course, the student should be able to create dynamic Web pages containing information accessed from a database for implementation on the Internet and World Wide Web. The student will complete projects using Dynamic HTML and a scripting language that can

interface with a database. The course will include graphics, graphical user interfaces, exception handling, database and interactive media. 3 hrs. lecture, 2 hrs. lab/wk.

CIS 277

Active Server Pages.Net (4 CR)

Prerequisites: CS 200 or CS 201 or CS 205 or CIS 162 and either CPCA 139 or CIS 204 and either CPCA 161 or CPCA 158

At the completion of this course, the student should be able to create dynamic Web pages containing information accessed from a database for implementation on the Internet and World Wide Web. The student will complete projects using ASP.Net objects, dynamic HTML and a scripting language that can interface with a database. The course will include graphics, graphical user interfaces, exception handling, database and interactive media. 3 hrs. lecture, 2 hrs. lab/wk.

CIS 279

Enterprise GUI Programming in C++ (4 CR)

Prerequisite: CIS 243 and CIS 269 and CIS 260

Students will learn advanced programming techniques for Windows, including enterprise software tools, advanced user-interface techniques, multimedia, ActiveX and Internet programming. The course project provides students with real-world development experience covering analysis, design and implementation of a large-scale development project using an object-oriented software development methodology, version control technique, advanced testing techniques, defect-tracking and technical documentation. 3 hrs. lecture, 2 hrs. lab/wk.

CIS 280

Advanced Topics in JAVA II (4 CR)

Prerequisite: CIS 240

At the completion of this course, the student should be able to create Java applications and applets that link to databases and provide the security and advanced GUI features appropriate for implementation on the Internet and World Wide Web. The student will complete projects using Java's built-in features. The course will include techniques for graphics optimization, building components for graphical user interfaces, client-server database connections in Java, handling security managers, building JAR files, using Java's remote objects and linking to other applications. 3 hrs. lecture, 2 hrs. lab/wk.

Computer Personal Computer App (CPCA)

CPCA 105

Introduction to Personal Computers: Windows (1 CR)

This introductory course is designed to give the beginning computer user an overview of the personal computer. The student will gain confidence in basic computing skills and concepts through a hands-on approach. Topics include an introduction to computer terminology, hardware, system software, application software, e-mail, and the Internet. 1 hr. lecture /wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$10 to \$20.

CPCA 106

Introduction to Personal Computers: Macintosh (1 CR)

This introductory course is designed to give the beginning computer user an overview of the Macintosh personal computer. The student will gain

confidence in basic computer skills and concepts through a hands-on approach while becoming familiar with a Macintosh computer and its primary uses. Topics include computer software, hardware and terminology; as well as an introduction to the Macintosh operating system, word processing, drawing, spreadsheets and database management. 1 hr. lecture/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$10 to \$20.

CPCA 108

Word Processing I: MS Word (1 CR)

Prerequisites: CPCA 105 or CPCA 106 or CIS 124 or CPCA 128 or appropriate score on a waiver test

This course provides an introduction to the concepts and real-world applications of microcomputer word processing software. Foundational word processing competencies, including creating, saving, printing and editing word processing files; searching and replacing text; creating headers and footers; inserting and resizing graphic images; setting up tables; creating and applying styles, and creating mail merge letters, will be covered. Students will also create multiple-page reports and incorporate desktop publishing concepts and features. 1 hr. lecture/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$10 to \$20.

CPCA 110

Spreadsheets I: MS Excel (1 CR)

Prerequisite: CPCA 105 or CPCA 106 or CIS 124 or CPCA 128 or appropriate score on a waiver test

Students will learn concepts and uses of spreadsheet software on the personal computer. Business decision-making worksheet models will be created and modified by entering labels, functions and formulas. Various formatting techniques will be applied to enhance the appearance of printed worksheets. Students will also learn to display the worksheet data graphically with the charting capabilities of the software. 1 hr. lecture/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$10 to \$20.

CPCA 111

Spreadsheets II: MS Excel (1 CR)

Prerequisite: CPCA 110 or CPCA 128

This course is a continuation of CPCA 110, Spreadsheets on the Microcomputer I, and will provide the student with intermediate level of spreadsheet concepts. Using typical business scenarios, the student will perform manual and automated "what-if" analyses, manage data in worksheets with tables and database functions, and use multiple worksheets to build consolidated statements. Basic macros will be introduced. 1 hr. lecture/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$10 to \$20.

CPCA 114

Databases I: MS Access (1 CR)

Prerequisite: CPCA 105 or CPCA 106 or CPCA 128 or CIS 124 or an appropriate score on a waiver test

This course provides an introduction to the concepts and real-world applications of microcomputer relational database software. Foundational database competencies, including building tables, defining fields, relating tables, entering and editing data, filtering, and sorting will be covered. Students will query the database to select, calculate and summarize information. Students will build and customize forms and reports. 1 hr. lecture/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$10 to \$20.

CPCA 115

Databases II: MS Access (2 CR)

Prerequisite: CPCA 114

Upon completion of this course, the student should be able to design and define a relational database; create custom forms and reports for data entry, updating and presentation; and build the necessary queries to support these objects. The student should be able to transfer data into and out of the database from various file formats; use database software to develop Web pages and hyperlinks; and manipulate the data and database with introductory macro, query language and programming skills. The course contains a capstone project in which the student uses all the skills learned to create a working database for a client based on a real-world situation. 2 hrs. lecture/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$10 to \$20.

CPCA 117

Databases III: MS Access (1 CR)

Prerequisite: CPCA 115

Upon successful completion of this course, the student should be able to analyze an existing database solution that is not working properly, import the data into Access and use action queries and SQL to normalize the database into an effective relational database. A case study emphasis will cover different database design and documentation issues. Students will also build complex forms and reports using Visual Basic for Applications programming code. 1 hr. lecture /wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$10 to \$20.

CPCA 118

Groupware: Outlook (1 CR)

Prerequisite: CPCA 105 or CPCA 106 or CPCA 128 or CIS 124 or an appropriate score on a waiver test

This course provides an introduction to the concepts and applications of today's robust email systems. Students will use the application to compose, send and receive e-mail; post and organize discussion messages; manage calendars, appointments, tasks, to-do lists; use contact management features; and work with instant messaging. 1 hr. lecture/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$10 to \$20.

CPCA 121

Introduction to Project Management (1 CR)

Prerequisite: CPCA 105 or CPCA 106 or CPCA 128 or CIS 124 or an appropriate score on a waiver test

Upon completion of this course, the student should be able to effectively manage projects using project management software. Students will learn about project management goals and terminology, create a project schedule and use project management methodologies and tools such as the Gantt chart, critical path method (CPM) and program evaluation review technique (PERT) chart to update a project and communicate project progress to others. Students will use other project management techniques such as applying resources, leveling overallocations, evaluating constraints and analyzing planned versus projected schedule and budget variables. 1 hr. lecture/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$10 to \$20.

CPCA 122

Assistive Technology (1 CR)

This introductory course is designed to give the student with or without disabilities an overview of the personal and the adaptive hardware and software available. The student will gain confidence in basic computer skills and concepts through a hands-on approach while becoming familiar with the adaptive software and hardware available on the campus. 1 hr. lecture/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$10 to \$20.

CPCA 123

E-Presentation: MS PowerPoint (1 CR)

Prerequisite: CPCA 105 or CPCA 106 or CIS 124 or CPCA 128 or an appropriate score on a waiver test

Upon completion of this course, students should be able to organize and produce an effective on-computer or slide-generated presentation, complete with printed speaker notes and handouts plus overhead transparencies, using the basic features of a presentation graphics program. Students will use master pages, template files, text formatting, color schemes, various drawing tools, the automated outline feature and animation dissolve sequence and incorporate photographs. 1 hr. lecture/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$10 to \$20.

CPCA 125

Word Processing II: MS Word (1 CR)

Prerequisite: CPCA 108

This is a continuation of CPCA 108, Word Processing on Micros I. After completing this course students should be able to use advanced concepts and applications of word processing software. The applications will include working with templates, creating and modifying styles, customizing themes, creating a table of contents, using mail merge, linking and embedding objects, creating web pages, creating and editing macros, and customizing Word and automating parts of a document. 1 hr. lecture/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$10 to \$20.

CPCA 128

PC Applications: MS Office (3 CR)

Upon successful completion of this course, the student should be able to use Windows to create and organize files and folders and perform essential file management procedures such as copying, moving, deleting and renaming files and folders. An in-depth proficiency will also be attained with the use of word processing, spreadsheet, presentation graphics and Internet browser applications. Hands-on, practical projects will be performed to reinforce the concepts taught. 3 hrs./wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$10 to \$20.

CPCA 134

Managing Your Macintosh (1 CR)

Prerequisite: CPCA 106 or an appropriate score on an assessment test. Course offered in spring only.

In this career-related course, students will be introduced through lecture material and hands-on practical projects to the essential concepts of file organization, utility software installation and use, font management and backup techniques. 1 hr. lecture/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$10 to

\$20.

CPCA 138

Windows for Microcomputers (1 CR)

Prerequisite: CPCA 105 or CPCA 106 or CPCA 128 or CIS 124 or an appropriate score on an assessment test

At the completion of this course, the student will be able to discuss the components of the Windows desktop, use the Windows Help system, create and organize a folder system on a disk, perform file management commands, customize the Windows desktop environment, use the Search tool to locate files and folders, and perform file backup and disk maintenance procedures. The student will also be able to use performance monitoring tools, add hardware and software to the system, and use basic MS DOS directory and file management commands.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$10 to \$20.

CPCA 139

UNIX (1 CR)

Prerequisite: CPCA 105 or CPCA 106 or CPCA 128 or CIS 124 or assessment test

This course will introduce students to the major commands of the Unix operating system. E-mail, the VI editor and Telnet will be covered. Basic file and disk management projects will be completed in this course. 1 hr. lecture/wk.

CPCA 141

Internet I (1 CR)

Prerequisite: CPCA 105 or CPCA 106 or CPCA 128 or CIS 124 or appropriate score on an assessment test

This course will introduce the student to the commands and techniques required to effectively access the resources of the Internet. Windows applications to browse the Internet, locate and retrieve information and send and receive electronic mail will be covered. 1 hr. lecture/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$10 to \$20.

CPCA 151

Internet II (1 CR)

Prerequisite: CPCA 141 or an appropriate score on an assessment test

This course will cover the commands and techniques required to effectively use various Internet application tools. The student will also use Windows and non-Windows applications to locate information, download and upload files, and create a Web page. Additionally the course will cover basic LINUX commands and publish a Web page to a Web server. 1 hr. lecture/wk.

CPCA 158

Internet Application and Utilities (3 CR)

Prerequisite: CPCA 141 or an appropriate score on an assessment test

This course will introduce the student to the commands and techniques required to effectively access the resources of the Internet. Windows and non-Windows applications will be used to locate, retrieve and disseminate essential information. This course will cover the techniques required to create and publish World Wide Web pages using HTML. 3 hrs. lecture-demonstration/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$10 to \$20.

CPCA 161

Introduction to Web Pages using HTML (1 CR)

Prerequisite: CPCA 151 or an appropriate score on an assessment test

This course will cover the commands and techniques required to create and publish World Wide Web pages using HyperText Markup Language. Topics covered will include basic text layout, background colors, formatting, ordered and unordered lists, tables, frames that include graphic images in a page and linking to other Web pages. 1 hr./wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$10 to \$20.

Computer Science (CS)

CS 180

Introduction to Artificial Intelligence (3 CR)

Prerequisite: CIS 145 or CIS 148 or CIS 150 or CS 200

Upon successful completion of this course, students should be able to understand simple computer programs illustrating introductory concepts in artificial intelligence, define terms and application areas in the field and describe knowledge representation and problem-resolution techniques used in artificial intelligence. 3 hrs. lecture/wk.

CS 200

Concepts of Programming Algorithms Using C++ (4 CR)

Prerequisite: CIS 134 or ENGR 171 or equivalent experience

This course emphasizes programming methodology and problem solving. Algorithm design and development, data abstraction, good programming style, testing and debugging will be presented. An appropriate block-structured high-level programming language will be studied and used to implement algorithms. 3 hrs. lecture, 2 hrs. lab by arrangement/wk. Four-credit-hour CS courses have two hours of open lab per week.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$20 to \$50.

CS 201

Concepts of Programming Algorithms using C# (4 CR)

Prerequisite: CIS 134 or ENGR 171 or equivalent experience

This course emphasizes programming methodology and problem-solving using C#. Algorithm design and development, data abstraction, good programming style, testing and debugging will be presented. 3 hrs. lecture, 1.5 hrs. lab/wk. Four credit hours CS courses have two hours of open lab per week.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$20 to \$50.

CS 205

Concepts of Programming Algorithms using JAVA (4 CR)

Prerequisite: CIS 134 or ENGR 171 or equivalent experience

This course emphasizes programming methodology and problem-solving using Java. Algorithm design and development, data abstraction, good programming style, testing and debugging will be presented. 3 hrs. lecture, 1.5 hrs. lab/wk. Four-credit-hour CS courses have two hours of open lab per week.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$20 to \$50.

CS 210

Discrete Structures I (3 CR)

Prerequisites: MATH 171 or both MATH 116 and CIS 134 or appropriate math assessment scores

Upon successful completion of this course, the student should be able to use fundamental discrete mathematics as it relates to computers and computer applications. The student will be exposed to a variety of discrete mathematical topics. The course will include fundamental mathematical principles, combinatorial analysis, mathematical reasoning, graphs and trees, and Boolean logic circuits. 3 hrs. lecture/wk.

CS 211

Discrete Structures II (3 CR)

Prerequisite: CS 210

Upon successful completion of this course, the student should be able to use fundamental discrete mathematics as it relates to computers and computer applications. The student will experiment with a variety of discrete mathematical topics. The course will include fundamental mathematical principles, combinatorial analysis, mathematical reasoning, graphs and trees, and Boolean logic circuits. 3 hrs. lecture/wk.

CS 250

Basic Data Structures using C++ (4 CR)

Prerequisite: CS 200 - Prerequisite or corequisite: CS 210 for students transferring to most four-year computer science programs

This course will cover advanced programming topics using C++. Files, recursion, data structures and large program organization will be implemented in projects using object-oriented methodology. Students will write programs using the concepts covered in the lecture. 3 hrs. lecture, 2 hrs. lab/wk. Four-credit-hour CS courses have two hours of open lab per week.

CS 255

Basic Data Structures using JAVA (4 CR)

Prerequisite: CS 205

This course will cover advanced programming topics using Java. Files, recursion, data structures and large program organization will be implemented in projects using object-oriented methodology. Students will write programs using queues, stacks, lists and other concepts covered in the lecture. 3 hrs. lecture, 1.5 hrs. lab/wk. Four-credit-hour CS courses have two hours of open lab per week.

Computer Web (CWEB)

CWEB 101

Introduction to the Web using Internet Explorer (1 CR)

Prerequisites: CPCA 105 or CPCA 106 or CPCA 128 or CIS 124 or appropriate score on an assessment test

This course will introduce the student to commands and techniques required to effectively use the resources of the World Wide Web. Topics to be covered will include how to browse, search and retrieve information on the Internet using Internet Explorer, how to create and manage "favorites", how to protect computers from viruses, how to send and receive electronic mail, and how to create a basic home page. 1 hr. lecture/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$10 to \$20.

CWEB 105

Introduction to Web Pages: Dreamweaver (1 CR)

Prerequisite: CWEB 101

This course will cover the commands and techniques required to create and revise Web pages using Dreamweaver. Topics to be covered will include basic text layout, viewing and identifying basic HTML tags, creating a site map, formatting a Web page, applying background color, inserting images and sounds, creating ordered and unordered lists, inserting files, and creating links on Web pages. 1 hr. lecture/wk. This course may be offered as a Learning Communities (LCOM) section, see current credit schedule for LCOM details. Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$10 to \$20.

CWEB 106

Introduction to Microsoft FrontPage (1 CR)

Prerequisite: CWEB 101

This course will cover the commands and techniques required to create and revise World Wide Web pages using Microsoft FrontPage. Topics to be covered will include basic text layout, viewing and identifying basic HTML tags, formatting a Web page, inserting background color, adding pictures and sounds, creating ordered and unordered lists, inserting files and creating links to other Web pages. 1 hr. lecture/wk. Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$10 to \$20.

CWEB 107

Web Tools: Microsoft Office (1 CR)

Prerequisites: CWEB 101 and CPCA 110 or CPCA 114

Upon successful completion of this course, the student should be able to create static and dynamic Web-based documents, Excel spreadsheets, PowerPoint presentations and Access databases. 1 hr. lecture/wk. Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$10 to \$20.

CWEB 110

XHTML and CSS (3 CR)

This course will cover the essential skills needed to create Web sites, with a focus on using Extensible Hypertext Markup Language (XHTML) and Cascading Style Sheets (CSS). Students will be introduced to the concepts, foundations, syntax and structure of XHTML. Additional topics include the use of File Transfer Protocol (FTP) as a way to publish a web site, validation, and Web standards established by the World Wide Web Consortium (W3C) and other organizations. 3 hrs. lecture/wk. Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$35.

CWEB 111

Intermed Web Concepts/Techniques using Explorer (1 CR)

Prerequisite: CWEB 101

This course is a continuation of CWEB 101, Introduction to the Web using IE, and will cover intermediate commands and techniques required to use various Web-based tools and programs. Topics to be covered will include using complex search strategies; finding people, businesses and e-mail addresses on the Web; accessing and using Newsgroups; joining and leaving mailing lists; using a Web-based chat facility; locating and downloading freeware and shareware programs; and identifying online backup and storage options. 1 hr. lecture/wk. Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$10 to

\$20.

CWEB 115

Intermediate Web Pages: Dreamweaver (1 CR)

Prerequisite: CWEB 105

This course will cover intermediate-level commands and techniques required to create and enhance a Web page using Dreamweaver. Topics to be covered will include tracing images, layers, converting layers to tables, custom tables, cascading style sheets, templates and libraries, and publishing a Web site. 1 hr. lecture/wk. This course may be offered as a Learning Communities (LCOM) section, see current credit schedule for LCOM details. Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$10 to \$20.

CWEB 116

Intermediate Microsoft FrontPage (1 CR)

Prerequisite: CWEB 106

This course is a continuation of CWEB 106, Introduction Web Pages: FrontPage, and will cover intermediate-level commands and techniques required to create and enhance a FrontPage Web site. Topics to be covered will include shared borders and themes, publishing a Web site, new Web site creation on a Web server, database integration and using office components and styles. 1 hr. lecture/wk. Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$10 to \$20.

CWEB 120

Internet Applications: Fireworks I (1 CR)

Prerequisite: CPCA 105 or CPCA 106 or waiver test scores

This course is an introduction to the fundamentals, tools and techniques of Web imaging using Macromedia Fireworks. Students will gain an understanding how to import, manipulate, optimize and animate Web graphics. Students will combine graphics with HTML and JavaScript creating image slices, navigation menus and hotspots. 1 hr. lecture/wk. Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$10 to \$20.

CWEB 125

Introduction to Dynamic Web Pages: Dreamweaver (1 CR)

Prerequisites: CWEB 115 and CPCA 114

This course explores the Dreamweaver database environment and dynamic site concepts. Students will learn how to create, sort and display recordset content in a Web page. Students will create search applications, allowing movement between master and detail record pages, and to display the results of database searches. 1 hr. lecture/wk. Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$10 to \$20.

CWEB 130

Introduction to Flash (1 CR)

Prerequisite: CPCA 161 or CWEB 105 or CWEB 106

This course will cover the commands and techniques available to add Flash content to Web pages and CD-ROMs. Topics covered will include using drawing tools, manipulating text with text tools, adding and modifying sound, creating animation and publishing work. This class will be taught in a classroom with both Macintosh and Windows computers. 1 hr. lecture/wk. This course may be offered as a Learning Communities (LCOM) section, see

current credit schedule for LCOM details.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$10 to \$20.

CWEB 136

Introduction to PHP (1 CR)

Prerequisites: CWEB 101 and CPCA 114

This course covers the commands and techniques available to add functionality to Web pages using PHP (Hypertext Preprocessor). Students will build client-side PHP scripts with variables, functions, expressions, methods, and events to validate forms and enhance Web page functionality. The basics of server-side scripting are introduced. 1 hr. integrated lecture/lab wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$10 to \$20.

CWEB 140

Intermediate Flash (1 CR)

Prerequisite: CWEB 130

This course will build on the fundamental skills learned in CWEB 130, Introduction to Flash. Topics will include complex animation techniques; interactivity with simple frame actions; and interactivity using objects such as buttons, hot spots and movie clips. 1 hr. lecture/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$10 to \$20.

CWEB 146

PHP with MySQL (1 CR)

Prerequisite: CWEB 136

This course covers the commands and techniques required to connect a Web page to a relational database using PHP (Hypertext Preprocessor) and MySQL (database management system). Students define and build a relational database using MySQL, then use PHP scripts as well as SQL in a Web page to connect to the database to edit, delete, and enter records. 1 hr. integrated lecture lab/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$10 to \$20.

CWEB 150

Advanced Flash (1 CR)

Prerequisite: CWEB 140

This course will build on the skills learned in CWEB 131, Intermediate Flash. Students will do projects to control movie clips, sound, external data, multiple timelines and text fields. Some ActionScripting will be introduced. 1 hr. lecture/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$10 to \$20.

CWEB 160

Introduction to JavaScript (1 CR)

Prerequisite: CWEB 105 or CWEB 106 or CPCA 161

This course will cover the commands and techniques available to add functionality to Web pages using JavaScript. Topics to be covered include integrating JavaScript into an HTML file, creating pop-up windows, adding scrolling messages, validating forms and enhancing the use of image and form objects. 1 hr. lecture/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this

course has additional expense considerations that are estimated to be \$10 to \$20.

CWEB 165

Introduction to Adobe Acrobat (1 CR)

This course will introduce students to the Adobe Acrobat software program. Students will be presented with the basics of Adobe Acrobat and will be shown how to create and edit PDF files using Acrobat and Distiller. Topics will include how to gather Web page content for off-line viewing and how to use JavaScript inside a PDF document to make it interactive. Projects will include how to add navigation, multimedia elements and data forms to PDF files. 1 hr. lecture/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$10 to \$20.

CWEB 170

Intermediate JavaScript (1 CR)

Prerequisite: CWEB 160

This course builds on the skills learned in CWEB 160, Introduction to Web Scripting: JavaScript. Students will learn to use JavaScript in their Web pages to build menus and navigational structures. They will also learn to use intermediate techniques for cookie manipulation and storage. Complex use of operators (Bitwise, Assignment, Comparison, Arithmetic and Boolean) will be explained. 1 hr. lecture/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$10 to \$20.

CWEB 180

E-Commerce Using JavaScript (1 CR)

Prerequisite: CWEB 170

This course builds on the skills learned in CWEB 160, Introduction to Web Scripting: JavaScript, and CWEB 161, Intermediate JavaScript. The student will build a complete e-commerce site that will support online ordering and payment with JavaScript. 1 hr. lecture/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$10 to \$20.

CWEB 190

ActionScript for Flash (1 CR)

Prerequisite: CWEB 150

This course will teach the basic skills needed to use ActionScripts in Flash movies. Students will build interactivity into their movies using ActionScript. They will also manipulate data and control Flash objects such as movie clips. ActionScript logic and functions will be explained. 1 hr. lecture/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$10 to \$20.

CWEB 200

Podcasting I (3 CR)

Prerequisite: CWEB 101

Podcasting is a web-based broadcast medium. Audio files (most commonly in MP3 format) are made available online in a way that allows software to automatically detect the availability of new files (generally through RSS [Really Simple Syndication]), and download the files for listening at the user's convenience. This course will cover how to create sound, use the appropriate software, develop a show, distribute a podcast, and build an audience. Students will begin by learning the basics of blogging and develop their blogs into audio and/or video podcasts. More advanced topics include audio editing, podcasting

on the go, and videocasting. 3 hrs. lecture/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$35.

CWEB 205

Search Engine Optimization (1 CR)

Prerequisites: CWEB 105 or CWEB 106

This course will cover how to optimize a Website to maximize search engine ranking. Upon completion of the course students will be able to identify and implement effective Web site designs and strategies for search engine optimization. 1 hr. lecture/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$10 to \$20.

CWEB 230

Introductory E-Commerce Applications (1 CR)

Prerequisite: CWEB 101 or CPCA 141

This course will introduce students to e-commerce in a software-driven, hands-on way. It will use software tools to discuss and explore a variety of e-commerce activities. Students will examine an extensive list of e-commerce sites, such as those that support purchasing, delivery, support, auction, business-to-business, virtual community and Web-portal business goals. They will examine e-commerce stores that incorporate advertising, marketing, branding, and business efficiency goals. They will explore how to populate a store catalog, create site-wide navigation links and publish a store. 1 hr. lecture/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$10 to \$20.

CWEB 240

Intermediate E-Commerce Applications (1 CR)

Prerequisite: CWEB 230

This course will use software tools such as Internet Explorer and Netscape Communicator to discuss and explore a variety of intermediate e-commerce activities. For example, students will examine e-commerce security issues, such as cookies, privacy risks and property threats, including copyright issues, viruses, security policies, encryption, digital signatures and transaction integrity. Students will study electronic payment systems, including script, electronic checks, credit card purchases, electronic wallets, smart cards and electronic cash. Students will explore international and legal issues, such as language and custom barriers, laws and regulations, and tax considerations. They will also explore ethical issues, such as trust and defamation issues. Finally, they will explore careers in electronic commerce. 1 hr. lecture/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$10 to \$20.

CWEB 250

Rich Internet Applications I: Adobe Flex (3 CR)

Prerequisite: CIS 134

Adobe Flex is a collection of technologies released by Adobe Systems for the development and deployment of cross platform, rich Internet applications based on their Adobe Flash platform. This course introduces students to Adobe Flex and provides them with hands-on, practical experience to create cross-platform, data-centric applications. Students will explore the intricacies of the development platform and the Flex Builder integrated development environment. Students will create, design, customize, and publish dynamic web and desktop applications using Flex. 3 hrs. lecture/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$35.

Cosmetology (AVCO)

AVCO 102

Nail Technology (17 CR)

This course provides skill instruction in determining nail disorders and care as well as the artistic application of tips, overlays and sculptured nails. Upon successful completion, students are prepared to take the Kansas State Board of Cosmetology onychology examination. The in-state tuition totals \$986 and the out-of-state tuition totals \$3,723. 350 contact hrs. For enrollment and tuition information, call 913-469-8500 ext. 2390. The credit reflected in this course is for transcript reporting, recording and transfer only. Enrollment in certain courses may require a professional liability fee of \$16.00. Students will be notified via their JCCC student e-mail account if the fee is due and instructions on how to pay the fee.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$145 to \$150.

AVCO 110

Introduction to Cosmetology (21 CR)

Prerequisite: Selective Admission Approval

This course provides skill instruction in shampooing, cutting, shaping, curling and coloring. Also included is curriculum from Nail Technology and Cosmetology Technician I and II. The first 500 contact hours are in the basic lab and the classroom without client contact. The in-state tuition and fees total \$1,268, and the out-of-state tuition and fees total \$4,649. 500 contact hrs. For enrollment and tuition information, call 913-469-8500 ext. 2390. The credit reflected in this course is for transcript reporting, recording and transfer only. Enrollment in certain courses may require a professional liability fee of \$16.00. Students will be notified via their JCCC student e-mail account if the fee is due and instructions on how to pay the fee.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$28 to \$38.

AVCO 112

Clinical Cosmetology (12 CR)

Prerequisite: Selective Admission Approval

This course provides continuing skill instruction in shampooing, cutting, shaping, curling and coloring. Included is an introduction to client relations skills and sales promotion techniques. Instruction includes classroom and salon. In-state tuition and fees \$1,146 total. Out-of-state tuition and fees \$3,078 total. 500 contact hrs. For enrollment and tuition information, call 913-469-8500, ext.2390 The credit reflected in this course is for transcript reporting, recording and transfer only. Enrollment in certain courses may require a professional liability fee of \$16.00. Students will be notified via their JCCC student e-mail account if the fee is due and instructions on how to pay the fee.

AVCO 114

Advanced Cosmetology (12 CR)

Prerequisites: AVCO 110 with a min grade of "C" or higher and selective admission approval

This course provides advanced instruction in shampooing, cutting, shaping, curling and coloring. This course prepares the student for the Kansas State Board of Cosmetology examination. In-state tuition and fees \$1,146 total. Out-of-state tuition and fees \$3,078 total. 500 contact hrs. For enrollment and tuition information, call 913-469-8500, ext. 2390. The credit reflected in this course is for transcript reporting, recording and transfer only. Enrollment in certain courses may require a professional liability fee of \$16.00. Students will be notified via their JCCC student e-mail account if the fee is due and instructions on how to pay the fee.

Associated Costs: In addition to the course tuition, fees, and textbooks, this

course has additional expense considerations that are estimated to be \$159.

AVCO 115

Cosmetology with Nail Technology License (12 CR)

Prerequisites: AVCO 110 and current Kansas nail technology license

This course provides continuing skill instruction in shampooing, cutting, shaping, curling and coloring hair, as well as skin care and nail technology. Included is an introduction to client relations skills and sales promotion techniques. Instruction includes classroom and salon. Current Kansas Nail Technology license required. In-state tuition and fees \$796. Out-of-state tuition and fees \$2,728. lecture hrs, 30 lab hrs, 205 clinical hrs. Enrollment in certain courses may require a professional liability fee of \$16.00. Students will be notified via their JCCC student e-mail account if the fee is due and instructions on how to pay the fee.

AVCO 116

Cosmetology with Esthetics License (12 CR)

Prerequisites: AVCO 110 and current Kansas esthetics license

This course provides continuing skill instruction in shampooing, cutting, shaping, curling and coloring, as well as skin care and nail technology. Included is an introduction to client relations skills and sales promotion techniques. Instruction includes classroom and salon. Current Kansas Esthetics license required. In-state tuition and fees \$846. Out-of-state tuition and fees \$2,778. 85 hrs. lecture, 30 lab, 235 clinical. Enrollment in certain courses may require a professional liability fee of \$16.00. Students will be notified via their JCCC student e-mail account if the fee is due and instructions on how to pay the fee.

AVCO 212

Cosmetology Instructor Training (9 CR)

Prerequisites: Current Kansas Cosmetology and Esthetics or Nail Technology License. Minimum of one year of practice in trained area and selective admission approval

This 300 contact hour course is design to meet the educational requirements for licensure by Kansas Board of Cosmetology for instructors in the cosmetology sciences. Students will attend 40 hours of lecture and participate in 260 hours of observation, clinic supervision, and classroom teaching. Topics covered include instructor characteristics, student motivation, methods and evaluation. In-state tuition \$672 total. Out-of-state tuition \$2,121 total. 300 contact hrs. For enrollment information call 913-469-8500 ext. 2390. The credit reflected in this course is for transcript reporting, recording and transfer only. Enrollment in certain courses may require a professional liability fee of \$16.00. Students will be notified via their JCCC student e-mail account if the fee is due and instructions on how to pay the fee.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$90 to \$100.

Cosmetology - Esthetics (CO)

CO 120

Esthetics (7 CR)

Prerequisite: Admission to the esthetics program and Corequisites for part- and full-time students: CO 121 and CO 122.

This course provides class instruction in skin care. Topics include sanitation, skin sciences, waxing, skin treatments, makeup, business practices and state law. The in-state tuition totals \$406, and the out-of-state tuition totals \$1,533. This class meets 100 lecture hours of the 1,000 contact hours required by the Kansas State Board of Cosmetology. Enrollment in these courses require a professional liability fee of \$16.00. Students will be notified via their JCCC

student e-mail account if the fee is not paid.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$15 to \$30.

CO 121

Esthetics Lab (6 CR)

Prerequisite: Selective admission approval and Corequisites for part- and full-time students: CO 120 and CO 122.

This course provides skill instruction of skin care in a lab setting. Topics include sanitation, skin sciences, waxing, skin treatments, makeup, business practices and state law. The in-state tuition is \$348, and the out-of-state tuition is \$1,314. This class meets 135 hours of instructional laboratory. Enrollment in these courses require a professional liability fee of \$16.00. Students will be notified via their JCCC student e-mail account if the fee is not paid.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$30 to \$60.

CO 122

Esthetics Clinical (2 CR)

Prerequisite: Selective admission approval and Corequisites for part- and full-time students: CO 120 and CO 121.

This course provides skill instruction and practical application of skin care in a clinical setting. Topics include sanitation, skin sciences, waxing, skin treatments, makeup, business practices and state law. The in-state tuition is \$116, and the out-of-state tuition is \$438. This class meets 64 clinical hours. Enrollment in these courses require a professional liability fee of \$16.00. Students will be notified via their JCCC student e-mail account if the fee is not paid.

CO 127

Intermediate Esthetics (7 CR)

Prerequisite for part- and full-time students: CO 120. Corequisites for part- and full-time students: CO 128 and CO 129. All courses must have a grade of "C" or higher.

This course provides class instruction in skin care. Topics include sanitation, skin sciences, waxing, skin treatments, makeup, business practices and state law. The in-state tuition is \$406, and the out-of-state tuition is \$1,533. This class meets 93 lecture hours. Enrollment in these courses require a professional liability fee of \$16.00. Students will be notified via their JCCC student e-mail account if the fee is not paid.

CO 128

Intermediate Esthetics Lab (6 CR)

Prerequisite for part- and full-time students: CO 121. Corequisites for part- and full-time students: CO 127 and CO 129. All courses must have a grade of "C" or higher.

The in-state tuition is \$348, and the out-of-state tuition is \$1,314. This class meets 136 laboratory hours of the 1,000 contact hours required by Kansas State Board of Cosmetology. Enrollment in these courses require a professional liability fee of \$16.00. Students will be notified via their JCCC student e-mail account if the fee is not paid.

CO 129

Intermediate Esthetics Clinical (2 CR)

Prerequisite for part- and full-time students: CO 122. Corequisites for part- and full-time students: CO 127 and CO 128. All courses must have a grade of "C" or higher.

This course provides skill instruction and practical application of skin care in a clinical setting. Topics include sanitation, skin sciences, waxing, skin

treatments, makeup, business practices and state law. The in-state tuition is \$116, and the out-of-state tuition is \$438. This class meets 112 clinical hours of the 1,000 contact hours required by the Kansas State Board of Cosmetology. Enrollment in these courses require a professional liability fee of \$16.00. Students will be notified via their JCCC student e-mail account if the fee is not paid.

CO 134

Esthetics Essentials (2 CR)

Prerequisite for part- or full-time students: CO 127. Corequisites for part-time students: CO 135 and CO 136. Corequisites for full-time students: CO 135 and CO 136 and CO 141 and CO 142 and CO 143. All courses must have a grade of "C" or higher.

This course provides class instruction in skin care. Topics include sanitation, skin sciences, waxing, skin treatments, makeup, business practices and state law. The in-state tuition totals \$116, and the out-of-state tuition totals \$438. This class meets 35 lecture hours of the 1,000 contact hours required by the Kansas State Board of Cosmetology. Enrollment in these courses require a professional liability fee of \$16.00. Students will be notified via their JCCC student e-mail account if the fee is not paid.

CO 135

Esthetics Essentials Lab (2 CR)

Prerequisite for part- or full-time students: CO 128. Corequisites for part-time students: CO 134 and CO 136. Corequisites for full-time students: CO 134 and CO 136 and CO 141 and CO 142 and CO 143. All courses must have a grade of "C" or higher.

This course provides skill instruction of skin care in a lab setting. Topics include sanitation, skin sciences, waxing, skin treatments, makeup, business practices and state law. The in-state tuition is \$116, and the out-of-state tuition is \$438. This class meets 35 laboratory hours of the 1,000 contact hours required by Kansas State Board of Cosmetology. Enrollment in these courses require a professional liability fee of \$16.00. Students will be notified via their JCCC student e-mail account if the fee is not paid.

CO 136

Esthetics Essentials Clinical (1 CR)

Prerequisite for part- or full-time students: CO 129. Corequisites for part-time students: CO 134 and CO 135. Corequisites for full-time students: CO 134 and CO 135 and CO 141 and CO 142 and CO 143. All courses must have a grade of "C" or higher.

This course provides skill instruction and practical application of skin care in a clinical setting. Topics include sanitation, skin sciences, waxing, skin treatments, makeup, business practices and state law. The in-state tuition is \$58, and the out-of-state tuition is \$219. This class meets 48 clinical hours of the 1,000 contact hours required by Kansas State Board of Cosmetology. Enrollment in these courses require a professional liability fee of \$16.00. Students will be notified via their JCCC student e-mail account if the fee is not paid.

CO 141

Advanced Esthetics (5 CR)

Prerequisite for part- or full-time students: CO 134. Corequisites for part-time students: CO 142 and CO 143. Corequisites for full-time students: CO 134 and CO 135 and CO 136 and CO 142 and CO 143. All courses must have a grade of "C" or higher.

This course provides class instruction in skin care. Topics include sanitation, skin sciences, waxing, skin treatments, makeup, business practices and state law. The in-state tuition is \$290, and the out-of-state tuition is \$1,095. This class meets 61 lecture hours of the 1,000 contact hours required by the Kansas State Board of Cosmetology. Enrollment in these courses require a professional liability fee of \$16.00. Students will be notified via their JCCC student e-mail account if the fee is not paid.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$200 to \$250.

CO 142

Advanced Esthetics Lab (2 CR)

Prerequisite for part- or full-time students: CO 135. Corequisites for part-time students: CO 141 and CO 143. Corequisites for full-time students: CO 134 and CO 135 and CO 136 and CO 141 and CO 143. All courses must have a grade of "C" or higher.

This course provides skill instruction of skin care in a lab setting. Topics include sanitation, skin sciences, waxing, skin treatments, makeup, business practices and state law. The in-state tuition is \$116, and the out-of-state tuition is \$438. This class meets 53 laboratory hours of the 1,000 contact hours required by the Kansas State Board of Cosmetology. Enrollment in these courses require a professional liability fee of \$16.00. Students will be notified via their JCCC student e-mail account if the fee is not paid.

CO 143

Advanced Esthetics Clinical (2 CR)

Prerequisite for part- or full-time students: CO 136. Corequisites for part-time students: CO 141 and CO 142. Corequisites for full-time students: CO 134 and CO 135 and CO 136 and CO 141 and CO 142. All courses must have a grade of "C" or higher.

This course provides skill instruction and practical application of skin care in a clinical setting. Topics include sanitation, skin sciences, waxing, skin treatments, makeup, business practices and state law. The in-state tuition is \$116, and the out-of-state tuition is \$438. This class meets 128 clinical hours of the 1,000 contact hours required by the Kansas State Board of Cosmetology. Enrollment in these courses require a professional liability fee of \$16.00. Students will be notified via their JCCC student e-mail account if the fee is not paid.

CO 218

Esthetics Essential Update (6 CR)

Prerequisite: Must possess current esthetics license granted by the Kansas Board of Cosmetology, a current cosmetology license, or the minimum of 650 hours of esthetics training from an education institution.

This 100-contact-hour course is designed to meet the updated techniques for estheticians in the cosmetology sciences and the needs of students who desire exposure to advanced esthetics techniques. Students will attend 100 hours of lecture/demonstration and lab practice. Topics covered include body treatments, theory on the day spa, advanced makeup techniques, microdermabrasion and manual lymphatic drainage. For enrollment information, call 913-469-2390. The in-state tuition and fees total \$348. The out-of-state tuition and fees total \$1,314. Enrollment in certain courses may require a professional liability fee of \$16.00. Students will be notified via their JCCC student e-mail account if the fee is due and instructions on how to pay the fee.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$15 - 25.

Dental Assisting (KDA)

KDA 100

Introduction to Dental Assisting (1 CR)

This course is a prerequisite for admission to the dental assisting program. Dental terminology, roles of dental assistant and scope of dentistry. 1 hr. lecture/wk. Course taught at Penn Valley Community College, 3201 Southwest Trafficway, Kansas City, MO. Students should contact the Penn Valley coordinator of dental assisting about the class meeting and beginning and

ending dates of classes. Call 816- 759-4000.

KDA 101

Body Structure and Function (2 CR)

Prerequisite: Admission to dental assisting program

Admission to dental assisting program is required. Basic anatomy and physiology for the dental assistant. 2 hrs. lecture/wk. Course taught at MCC-Penn Valley Community College, 3201 Southwest Trafficway, Kansas City, MO. Students should contact the Penn Valley coordinator of dental assisting about the class meeting and beginning and ending dates of classes. Call 816-759-4000.

KDA 102

Head & Neck Anatomy (2 CR)

Prerequisite: Admission to the dental assisting program

Admission to dental assisting program is required. Utilizes a systems approach to the gross anatomy of the head and neck with emphasis on the maxilla and mandible and oral tissues, neuromuscular and circulatory function, supporting structures and the temporomandibular joint also study of oral embryology and histology. 1.5 hr lecture and 1 hr. lab/wk. Course taught at MCC-Penn Valley Community College, 3201 Southwest Trafficway, Kansas City, MO. Students should contact the Penn Valley coordinator of dental assisting about the class meeting and beginning and ending dates of classes. Call 816-759-4000.

KDA 103

Dental Anatomy (2 CR)

Admission to dental assisting program is required. Introduces to students a detailed study of crown and root morphology of both primary and permanent dentition. Eruption Schedule and Numbering System. 4 hrs. lab/wk. Course taught at Penn Valley Community College, 3201 Southwest Trafficway, Kansas City, MO. Students should contact the Penn Valley coordinator of dental assisting about the class meeting and beginning and ending dates of classes. Call 816-759-4000.

KDA 104

Dental Emergencies & Pharmacology (1 CR)

Admission to dental assisting program is required. An overview of emergencies common to the dental office setting. Students will gain knowledge in emergency drugs, allergic reactions and drug related emergencies. Also emphasized are specific medical conditions related to treatment, management of medical emergencies, pharmacology related to dental. 1 hr. lecture/wk. Course taught at Penn Valley Community College, 3201 Southwest Trafficway, Kansas City, MO. Students should contact the Penn Valley coordinator of dental assisting about the class meeting and beginning and ending dates of classes. Call 816-759-4000.

KDA 105

Dental Materials I (2 CR)

Admission to dental assisting program is required. Basic knowledge and manipulation of waxes, temporary crowns, custom trays, alginate materials, impression materials, bite registration materials, cements, varnishes, bases and liners. 2 hr. lecture, 4 hrs. lab/wk. Course taught at MCC-Penn Valley Community College, 3201 Southwest Trafficway, Kansas City, MO. Students should contact the Penn Valley coordinator of dental assisting about the class meeting times and beginning and ending dates of classes. Call 816-759-4000.

KDA 108

Oral Microbiology & Infection Control (2 CR)

Admission to dental assisting program is required. An overview of microbiological aspects of health and disease with emphasis on sterile process and disinfection techniques. 1 hr lecture, 2 hrs. lab/wk. Course taught at Penn

Valley Community College, 3201 Southwest Trafficway, Kansas City, MO. Students should contact the Penn Valley coordinator of dental assisting about the class meeting times and beginning and ending dates of classes. Call 816-759-4000.

KDA 110

Chairside Assisting I (5 CR)

Admission to dental assisting program is required. Dental terminology and responsibilities of the dental assistant in the dental operatory to include patient preparation and utilization of rubber dam, matrix, anesthetics, fluoride, wedge, amalgam and composite procedure and coronal polishing techniques. 3 hrs. lecture, 4 hrs. lab/wk. Course taught at MCC-Penn Valley Community College, 3201 Southwest Trafficway, Kansas City, MO. Students should contact the Penn Valley coordinator of dental assisting about the class meeting times and beginning and ending dates of classes. Call 816-759-4000.

KDA 115

Dental Radiology I (4 CR)

Prerequisite: KDA 102

Admission to dental assisting program is required. Radiography history, characteristics of radiation production, film composition, x-radiation terminology, effects of radiation exposure, and protection. Exposing, processing, and mounting of radiographs taken on a radiographic manikin. 2 hr. lecture, 4 hrs. lab/wk. Course taught at MCC-Penn Valley Community College, 3201 Southwest Trafficway, Kansas City, MO. Students should contact the Penn Valley coordinator of dental assisting about the class meeting times and beginning and ending dates of classes. Call 816-759-4000.

KDA 125

Clinical Experience I (2 CR)

Prerequisite: Admission to the Dental Assisting Program and completion of CPR for healthcare workers.

Admission to dental assisting program is required. Clinical experience in operative and preventive dental procedures utilizing four-handed dentistry in the clinic at the University of Missouri-Kansas City School of Dentistry. 6 hrs. clinic/wk. Course taught at MCC-Penn Valley Community College, 3201 Southwest Trafficway, Kansas City, MO. Students should contact the Penn Valley coordinator of dental assisting about the class meeting times and beginning and ending dates of classes. Call 816-759-4000.

KDA 205

Dental Materials II (3 CR)

Prerequisite: KDA 105

Advanced manipulation of dental cements, amalgam, esthetic restoratives (composites), alginate and gypsum products, sealants and various impressions materials. 6 hrs. lab/wk. Course taught at MCC-Penn Valley Community College, 3201 Southwest Trafficway, Kansas City, MO. Students should contact the Penn Valley coordinator of dental assisting about the class meeting times and beginning and ending dates of classes. Call 816-759-4000.

KDA 210

Chairside Assisting II (5 CR)

Prerequisite: KDA 110

Specialty area of dentistry to include orthodontics, periodontics, prosthodontics, oral surgery, endodontics, pediatric dentistry and geriatric dentistry. Includes procedures, instruments and current concepts of assisting in these areas. 1 hr. lecture, 8 hrs. lab/wk. Course taught at MCC-Penn Valley Community College, 3201 Southwest Trafficway, Kansas City, MO. Students should contact the Penn Valley coordinator of dental assisting about the class meeting times and beginning and ending dates of classes. Call 816-759-4000.

KDA 215**Dental Radiology II (2 CR)**

Prerequisite: KDA 115

Radiographic techniques, procedures and infection control emphasized. Practical experience in exposing, processing, and mounting radiographs taken on patients at the University of Missouri-Kansas City School of Dentistry and in private practice offices (general and specialty). 4 hrs. lab/wk. Course taught at MCC-Penn Valley Community College, 3201 Southwest Trafficway, Kansas City, MO. Students should contact the Penn Valley coordinator of dental assisting about the class meeting times and beginning and ending dates of classes. Call 816-759-4000.

KDA 225**Dental Office Management (2 CR)**

Prerequisite: Enrollment in the Dental Assisting Program

Admission to the dental assisting program is required. Principles of business management in the dental office. Control of the appointment book, filing, financial management, insurance forms, supply inventory and recall systems by conventional and computerized methods. Dental computer applications and use. Hands-on experience in private practice offices and/or clinic KDA 250. 1 hr. lecture, 2 hrs. lab/ wk. Course taught at MCC-Penn Valley Community College, 3201 Southwest Trafficway, Kansas City, MO. Students should contact the Penn Valley coordinator of dental assisting about the class meeting times and beginning and ending dates of classes. Call 816-759-4000.

KDA 230**Oral Pathology (1 CR)**

Prerequisites: KDA 108 and KDA 110

An overview of diseases of the human body, including basic cell tissues, with specific emphasis on diseases of the face and mouth. 2 hrs. lab/wk. Course taught at Penn Valley Community College, 3201 Southwest Trafficway, Kansas City, MO. Students should contact the Penn Valley coordinator of dental assisting about the class meeting times and beginning and ending dates of classes.

KDA 250**Clinical Experience II (4 CR)**

Prerequisite: KDA 125

Advanced clinical experience in the front office, at chairside, in radiographic and laboratory assisting techniques in general and in specialty dental offices and clinics. 16 hrs. clinic/wk. Course taught at MCC-Penn Valley Community College, 3201 Southwest Trafficway, Kansas City, MO. Students should contact the Penn Valley coordinator of dental assisting about the class meeting times and beginning and ending dates of classes. Call 816-759-4000.

KDA 260**Dental Assisting Seminar (2 CR)**

Prerequisite: KDA 125

Preparation for the Dental Assisting National Board Examination (DANB) and for successful employment. Clarification of prior material by discussion and dialogue between students and instructors. Preparation of personal resume and job applications. Demonstrate interview techniques. 2 hr. lecture/wk. Course taught at MCC-Penn Valley Community College, 3201 Southwest Trafficway, Kansas City, MO. Students should contact the Penn Valley coordinator of dental assisting about the class meeting times and beginning and ending dates of classes. Call 816-759-4000.

KDA 270**Expanded Functions in Restorative Dentistry (1 CR)**

Prerequisite: Student must meet one of the following: 1) Certified dental or

orthodontic assistant through the Dental Assisting National Board, Inc. 2) Graduate of an ADA-accredited dental assisting or dental hygiene program 3) Completion of KDA 106 Basic Dental Techniques and successful completion of Basic Skills Mastery Exam given by the Missouri Dental Association

Dental restorative materials with emphasis on placing and carving amalgam and composite restorations and palliative care of dental emergencies. 2 hrs. lab/wk. Course taught at MCC-Penn Valley Community College, 3201 Southwest Trafficway, Kansas City, MO. Students should contact the Penn Valley coordinator of dental assisting about the class meeting times and beginning and ending dates of classes. Call 816-759-4000.

KDA 271**Expanded Functions in Orthodontics**

Prerequisite: Student must meet one of the following: 1) Certified dental or orthodontic assistant through the Dental Assisting National Board, Inc. 2) Graduate of an ADA-accredited dental assisting or Dental hygiene program 3) Completion of KDA 106 Basic Dental Techniques and successful completion of Basic Skills Mastery Exam given by the Missouri Dental Assistants Association

Orthodontic procedures with emphasis on impressions, bending archwires, placement and removal of orthodontic bands and brackets, and palliative care of orthodontic emergencies. .5 credit hour, 1 hr. lab/wk. Course taught at MCC-Penn Valley Community College, 3201 Southwest Trafficway, Kansas City, MO. Students should contact the Penn Valley coordinator of dental assisting about the class meeting times and beginning and ending dates of classes. Call 816-759-4000.

KDA 272**Expanded Functions in Periodontics**

Prerequisite: Student must meet one of the following: 1) Certified dental or orthodontic assistant through the Dental Assisting National Board, Inc. 2) Graduate of an ADA-accredited dental assisting or dental hygiene program 3) Completion of KDA Basic Dental Techniques and successful completion of Basic Skills Mastery Exam given by the Missouri Dental Assistants Association

Periodontal procedures with emphasis on air-brasive coronal polishing and placement of periodontal dressings. Credit hours .5. 1hr. lab/wk. Course taught at MCC-Penn Valley Community College, 3201 Southwest Trafficway, Kansas City, MO. Students should contact the Penn Valley coordinator of dental assisting about the class meeting times and beginning and ending dates of classes. Call 816-759-4000.

KDA 273**Expanded Functions in Prosthetic Dentistry (1 CR)**

Prerequisite: Student must meet one of the following: 1) Certified dental or orthodontic assistant through the Dental Assisting National Board, Inc. 2) Graduate of an ADA-accredited dental assisting or dental hygiene program 3) Completion of KDA 106 Basic Dental Techniques and successful completion of Basic Skills Mastery Exam given by the Missouri Dental Assistants Association

Prosthodontic procedures with emphasis on prosthodontic impression techniques, cementation of dental appliances, extra-oral adjustment of fixed and removable prostheses, placement of soft-tissue liners. 2 hrs. lab/wk. Course taught at Penn Valley Community College, 3201 Southwest Trafficway, Kansas City, MO. Students should contact the Penn Valley coordinator of dental assisting about the class meeting times and beginning and ending dates of classes. Call 816-759-4000.

Dental Hygiene (DHYG)

DHYG 121

Clinical Dental Hygiene I: Pre-Clinic (5 CR)

Prerequisites: Admission to the Dental Hygiene Program, a minimum 2.0 GPA in curriculum courses and CHEM 122 and ENGL 121 and BIOL 140 and PSYC 130 and BIOL 230 *Corequisites:* DHYG 125 and DHYG 138 *Prerequisite or corequisite:* DHYG 135 and SOC 122 *Prerequisite:* Selective Admission Approval

This course will include information and techniques relating to the history, development, current status and future of the profession of dental hygiene. Students will be introduced to fundamental dental hygiene services, instrumentation, patient assessment, preventive treatment, transmissible diseases, exposure barriers and infection control. Enrollment in certain courses may require a professional liability fee of \$16.00. Students will be notified via their JCCC student e-mail account if the fee is due and instructions on how to pay the fee. 2 hrs. lecture, 13 hrs. lab/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$3300 to \$3350.

DHYG 125

Developmental Dentistry (2 CR)

Prerequisites: Admission to Dental Hygiene Program and CHEM 122 and ENGL 121 and BIOL 140 and PSYC 130 and BIOL 230 and *Corequisites:* DHYG 121 and DHYG 138 and *Prerequisites or corequisites:* SOC 122 and DHYG 135

This course will include a study of embryology; oral histology; developmental disturbances of the face, oral cavity and related structures; and dental morphology and occlusion. 1 hr. lecture, 3 hrs. lab/wk.

DHYG 135

Dental Materials (2 CR)

Prerequisites: CHEM 122 and ENGL 121 and PSYC 130 and BIOL 140 and BIOL 230 and *Prerequisite or corequisite:* SOC 122 *Corequisites:* DHYG 121 and DHYG 125 and DHYG 138

This course is designed to provide students with a knowledge base of the science and physical properties of dental materials. Through laboratory exercises, students will have hands-on experience with dental materials used in dental hygiene and dentistry while applying their knowledge of dental material sciences. 1 hr. lecture, 2 hrs. lab/wk.

DHYG 138

Head and Neck Anatomy (2 CR)

Prerequisites: BIOL 230 and CHEM 122 and ENGL 121 and PSYC 130 and BIOL 140 and admission to the Dental Hygiene Program and *Prerequisites or corequisites:* SOC 122 and DHYG 135 *Corequisites:* DHYG 121 and DHYG 125

This course is designed to provide dental hygiene students with the basic anatomical foundations to support clinical course work. Topics to be covered include embryonic development of the head and neck, along with identification of the bones in the skull. Muscles of the head and neck will be identified along with their functions, insertion and origins. The vascular, lymphatic and nervous systems of the head and neck will be discussed along with the anatomical basis of the spread of infection. 3 hrs. lecture and lab/wk.

DHYG 140

Clinical Dental Hygiene II (4 CR)

Prerequisite: DHYG 121 *Corequisites:* DHYG 142 and DHYG 146 and DHYG 148 and *prerequisites or corequisites:* BIOL 225 and DHYG 135

The course will include clinical application of dental hygiene techniques and instrumentation, oral health products, patient motivation and educational techniques, preventive strategies including use of an intraoral clinic camera and an introduction to selected dental specialties. Students will be prepared for medical and dental emergencies, which may be encountered in various practice settings. An introduction to the dental hygiene process (ADPIE) and working with special-needs patient populations will be provided. 2 hrs. lecture & 8 hrs. clinic/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$25 to \$35.

DHYG 142

Dental Radiology (2 CR)

Prerequisites: DHYG 121 *Corequisites:* DHYG 140 and DHYG 146 and DHYG 148 and *Prerequisites or corequisites:* BIOL 225 and DHYG 135

This class will concentrate on the theory and clinical practice of exposing, processing, mounting and evaluating oral radiographs with emphasis on radiation protection and infection control for the patient and operator. 1 hr. lecture, 3 hrs. lab/wk.

DHYG 146

Periodontics (3 CR)

Prerequisite: DHYG 121 *Corequisites:* DHYG 140 and DHYG 142 and DHYG 148 *Prerequisites or Corequisites:* BIOL 225 and DHYG 135

This course will include recognition of the etiology and clinical signs and symptoms of periodontal diseases. The inflammatory process, treatment planning and nonsurgical therapy are discussed. 3 hrs. lecture/wk.

DHYG 148

Dental Health Education (2 CR)

Prerequisite: DHYG 121 *Corequisites:* DHYG 140 and DHYG 142 and DHYG 146 *Prerequisites or Corequisites:* BIOL 225 and DHYG 135

Students will study health and apply educational methods for individuals and groups, with special emphasis on behavior modification, compliance, communication and motivation. Exercises in the research process and evaluation research articles are included. 1 hr. lecture, 2 hrs. lab/wk

DHYG 221

Clinical Dental Hygiene III (6 CR)

Prerequisites: DHYG 140 and BIOL 235 *Corequisites:* DHYG 225 and DHYG 230 and DHYG 240

Students will continue development in the areas of patient management, preventive dental hygiene treatment and proficiency in clinical techniques through practical application. Current advances in dental hygiene services will also be introduced. Enrollment in certain courses may require a professional liability fee of \$16.00. Students will be notified via their JCCC student e-mail account if the fee is due and instructions on how to pay the fee. 2 hrs. lecture, 16 hrs. clinic/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$250 to \$275.

DHYG 225

Pathology (3 CR)

Prerequisites: DHYG 140 and BIOL 235 *Corequisites:* DHYG 221 and DHYG 230 and DHYG 240

This course will introduce the students to concepts related to general systemic and oral pathology. General principles of pathology include inflammation, immunity, neoplasia and wound healing. Basic pathological processes of oral conditions, their etiologies and treatments will be discussed. 3 hrs. lecture/wk.

DHYG 230

Dental Therapeutics (3 CR)

Prerequisites: DHYG 140 and BIOL 235 Corequisites: DHYG 221 and DHYG 225 and DHYG 240

This course will introduce the basic principles of drug actions, emphasizing dental-related therapeutics and drugs associated with common systemic disorders, information on the selection of professional products, and principles necessary in administering local anesthesia. 2 hrs. lecture, 2 hrs. lab/wk.

DHYG 240

Community Dental Health (2 CR)

Prerequisites: DHYG 140 and BIOL 235 Corequisites: DHYG 221 and DHYG 225 and DHYG 230

Topics will include public health agencies, statistical procedures for critiquing scientific literature, identifying dental needs of different groups and planning dental health education programs. Preventive techniques, health promotion, consumer advocacy and the role of the dental hygienist in public health will be emphasized. Field experience will be included. 1 hr. lecture, 3 hrs. lab/wk.

DHYG 245

Nitrous Oxide Analgesia (1 CR)

Prerequisite: DHYG 221 Corequisite: DHYG 250

This course will concentrate on the principles of administering and monitoring nitrous oxide analgesia. Upon completion of the course, didactic and clinical proficiency in nitrous oxide analgesia will meet certification standards set by state dental boards. 1 hr. lecture, lab/wk.

DHYG 250

Clinical Dental Hygiene IV (6 CR)

Prerequisite: DHYG 221 Corequisite: DHYG 245

This course will offer continued development of proficiency in clinical techniques and current procedural practices of the dental hygienist with emphasis on self-evaluation. Topics will include ethics, jurisprudence, office management, current dental hygiene issues and preparation for board exams. 2 hrs. lecture, 16 hrs. clinic/wk., 1 hr. board review for first 8 wks.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$100 to \$125.

Drafting/CAD/AutoCAD (DRAF)

DRAF 120

Introduction to Drafting (2 CR)

This course should be taken by students without prior drafting experience. Upon successful completion of this course, the student should be able to identify and apply the essential, basic skills necessary to proceed through the drafting program, including lettering, measuring, geometric construction, sketching, isometrics, orthographic views, dimensioning and auxiliary view. 1 hr. lecture, 3 hrs. lab/wk. Drafting classes that have additional lab have either the time and room listed or TBA (to be announced) with the room number listed.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$45 to \$60.

DRAF 123

Interpreting Machine Drawings (2 CR)

Prerequisite or corequisite: DRAF 120 or department approval

This course is a required course in the computer-aided drafting and design technology program. Upon successful completion of this course, students should be able to interpret graphics used to fabricate, assemble, maintain and operate the equipment and products of industry. General detail and assembly prints will be evaluated for title block information, general notes, dimensioning, tolerance specification and symbology. Specialized drawings will include cams, gears, numerical control, plastics, sheet metal and instrumentation. 2 hrs. lecture/wk.

DRAF 129

Interpreting Architectural Drawings (2 CR)

This beginning course will explain the fundamentals of interpreting (reading) architectural drawings. Upon successful completion of this course, students should be able to understand plan and elevation views, sections, details, schedules, specifications, symbols and abbreviations found on most residential and commercial construction drawings. 2 hrs./wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$5 to \$10.

DRAF 130

Introduction to CAD Concepts - AutoCAD: 2010 (3 CR)

Prerequisite: DRAF 120 or department approval

This course provides a basic knowledge of AutoCAD. Students will learn to use CAD equipment, including input/output devices and microcomputers as drafting tools. Emphasis will be on a basic understanding of CAD terms and concepts as they are applied in industry. Students will be provided an overview of many of the key features of a major microcomputer CAD package with hands-on experience at a workstation. Basic instruction will be provided on drawing setup, drawing commands, editing commands and screen control. The important concepts of layering, standard symbols and dimensioning will be introduced. 2 hrs. lecture, 3 hrs. lab/wk. Drafting classes that have additional lab have either the time and room listed or TBA (to be announced) with the room number listed.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$10 to \$15.

DRAF 132

Introduction to AutoCAD LT (3 CR)

This course provides a basic knowledge of computer-aided drafting (CAD). Students will learn basic AutoCAD LT commands and the use of CAD equipment, including input/output devices as drafting tools. The latest version of AutoCAD LT, student version, will be used to cover topics including creating and setting up a drawing, using blocks and wblocks, editing a drawing, saving completed drawings, developing template drawings, printing from paper space, dimensioning, layering, drawing defaults and hatching. This course is for beginning AutoCAD users. 2 hrs. lecture, 3 hrs. lab/wk.

DRAF 135

Graphic Analysis (3 CR)

Prerequisites: DRAF 120 and DRAF 130 or department approval

This course expands on introductory knowledge in drafting and CAD. Upon successful completion of this course, the student should be able to solve descriptive geometry problems, locate intersections of geometric shapes and produce developments of geometric shapes. Most assignments in this course will be completed using AutoCAD software. 2 hrs. lecture, 3 hrs. lab/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$10 to \$15.

DRAF 140

Topics in CAD I: BIM / REVIT (2 CR)

This course provides training for a specific design application software. Students will learn software commands and terminology. Students will be provided with in-depth coverage of the selected software and be given hands-on experience. Emphasis will be placed on the application of software to industry projects. 2 hrs. lecture, lab/wk.

DRAF 143

Introduction to BIM Building Information Modeling (2 CR)

Prerequisite or corequisite: DRAF 129

This course introduces students to the concepts and usage of BIM: Building Information Modeling in the building construction field. Students will use Building Information Modeling software to interact with a virtual building model. Upon successful completion of this course, students will manipulate the software interface to model, interpret, access data, and view the building model. The student will use the software to model and access plan views, elevations, sections, 3-D views, structural elements, schedules and support files found in a 3-D building model. The REVIT software package is currently used. 2 hrs. lecture/wk.

DRAF 164

Architectural Drafting/Residential Interior Design (3 CR)

Upon completion of this course the student should be able to interpret residential drawings, draft architectural drawings and use industry references. Drawings studied include floor plans, elevations, sections, details and schedules. In addition to lab assignments, students will draft on coldpress board, vellum and plastic film. This course is required in the Interior Design, Interior Entrepreneurship and Interior Merchandising AAS programs. 2 hrs. lecture, 3 hrs. lab/wk

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$140 to \$160.

DRAF 222

Mechanical Drafting (3 CR)

Prerequisites: DRAF 123 and DRAF 230 Prerequisite and/or corequisite: MATH 134 or MATH 131

Students successfully completing this course should be able to draw details and assembly views of mechanical parts. The types of parts discussed in this class include castings, sheet metal pieces, jigs and fixtures, and gauges. Important concepts include dimensioning, form and position tolerancing, coordinate tolerancing, and calculations related to material allowances and manufacturing. Project assignments will be completed using computer-aided drafting software. This course is typically taught in the fall semester. 2 hrs lecture, 3 hrs. lab/wk. Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$40.

DRAF 225

Civil Drafting (3 CR)

Prerequisite: DRAF 230 or ENGR 131 and prerequisite or corequisite: MATH 134

Upon successful completion of this course, the student should be able to apply drafting techniques used in civil engineering offices. The student will learn to draw civil engineering plans from surveying and engineering data. The student will be able to produce plan and profile drawings, roadway cross sections, earthwork calculations, topographic maps and property maps. The student will use CAD in drawing projects. This course is typically taught in the spring semester. 2 hrs. lecture, 3 hrs. lab/wk.

DRAF 228

Industrial Design Applications (3 CR)

Prerequisites: CET 211 and DRAF 222 and DRAF 250 and DRAF 252

This course examines industrial systems. Topics include interdisciplinary considerations of manufacturing processes, machine elements, electrical controls and structural design. Systems will include pumping systems or material handling systems. Team project/protocol will be used to develop graphic, ISO and ANSI-approved solutions. Job books and journals for a project are required from all students. This course is typically taught in the spring semester. 2 hrs. lecture, 3 hrs. lab/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$50 to \$75.

DRAF 230

Intermediate CAD: AutoCAD (3 CR)

Prerequisite: DRAF 130 or department approval

This course provides an increased knowledge of autoCAD as it is used in today's industries. Students will build on their CAD experience by learning new commands and techniques that increase system productivity. Special emphasis will be on developing construction techniques and command usage to increase CAD proficiency. Additional study of standard symbols, layers and editing functions will occur. Concepts covered will include dimensioning variables and styles, attributes and external referencing, as well as paper space and model space, as used in multiple-view drawings. 2 hrs. lecture, 3 hrs. lab/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$5 to \$10.

DRAF 231

CAD 3-D (3 CR)

Prerequisite: DRAF 230

In this course students will explore the use of computer-aided drafting and design software for the construction of three-dimensional computer models. Emphasis will be on using 3-D software to produce multiple-view drawings. Visualization commands and techniques will be discussed and developed. Topics will include view commands and wire-frame and surface construction, as well as solid modeling. 2 hrs. lecture, 3 hrs. lab/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$5 to \$10.

DRAF 232

CAD Applications Workstation Environment (2 CR)

Prerequisite: DRAF 230 or department approval

This course provides instruction for customizing the CAD workstation and handling files in a network environment. Students will receive instruction in software commands and terminology and be provided with in-depth coverage of customizing the CAD environment and managing CAD data files in a production environment. Emphasis will be on hands-on application of the covered topics. 2 hrs. lecture, lab/wk.

DRAF 233

CAD Administration (2 CR)

This course covers topics necessary for an individual to manage a CAD department in a production environment. Topics include managing CAD data, selecting types of equipment/software and establishing drafting policies and procedures. Also discussed are personnel issues for CAD employees/employers. 2 hrs. lecture/wk.

DRAF 238

Architectural Drafting (3 CR)

Prerequisites: DRAF 129 and DRAF 230

This course is an introduction to the production of architectural drawings for residential and commercial construction. Upon successful completion of this course, the student will be able to draw floor plans, sections, elevations, dimensions and schedules and use industry standards. Projects will be completed using CAD software. This course is typically taught in the spring semester. 2 hrs. lecture, 3 hrs. lab/wk.

DRAF 240

Introduction to AutoLISP (2 CR)

Prerequisite: DRAF 230

This course covers techniques for automation of AutoCAD drafting procedures through the use of the AutoLISP programming language. The scope of this course will include basic AutoLISP functions, creation of AutoLISP expressions and program files. It covers basic techniques and concepts needed to begin using AutoLISP effectively. 1 1/2 hrs. lecture, 1 hr. lab/wk.

DRAF 242

Topics in CAD II (2 CR)

Prerequisite: DRAF 230 or department approval

This course provides training for a specific CAD-related software. Students will learn software commands and terminology. Students will be provided with in-depth coverage of the selected software and be given hands-on experience. Emphasis will be on the application of the selected software to industry projects. 2 hrs. lecture, lab/wk. Drafting classes that have additional lab have either the time and room listed or TBA (to be announced) with the room number listed.

DRAF 243

Architectural Desktop: Revit (2 CR)

Prerequisite: DRAF 230 or ENGR 131 or department approval

This course introduces the student to the Architectural Desktop software used by many architectural and engineering design firms. Topics include software commands, project setup and the design process. Emphasis will be placed on the hands-on application of software to industrial projects. It is recommended that students have previous architectural design knowledge or have taken DRAF 238, Architectural Drafting. 2 hrs. lecture and lab/wk.

DRAF 244

Land Development Desktop/CIVIL 3D (2 CR)

Prerequisite: DRAF 230 or ENGR 131 or department approval

This course introduces the student to the Land Development Desktop software used by many land planning, civil engineering and surveying firms. Topics include software commands, project setup and the design process. Emphasis will be placed on the hands-on application of the software to industrial projects. It is recommended that students have previous civil engineering design knowledge or have taken DRAF 225, Civil Drafting. 2 hrs. lecture and lab/wk.

DRAF 245

Mechanical Desktop: Inventor (2 CR)

Prerequisite: DRAF 230 or ENGR 131 or department approval

This course introduced the student to the Mechanical Desktop software used by many industrial and mechanical design firms. Topics include software commands, project setup and the design process. Emphasis will be placed on the hands-on application of the software to industrial projects. It is recommended that students have previous mechanical engineering design knowledge or have taken DRAF 222, Mechanical Drafting. 2 hrs. lecture and lab/wk.

DRAF 250

Electrical Drafting (3 CR)

Prerequisites: MATH 133 and DRAF 230 or ENGR 131

Upon successful completion of this course, the student should be able to identify drafting techniques applicable to industrial lighting, motor controls, power distribution and generation. Emphasis will be on the use of tables, catalogs and applications software as aids to decision making required on electrical drawings. Project assignments will be completed primarily using CAD. This course is typically taught in the fall semester. 2 hrs. lecture, 3 hrs. lab/wk.

DRAF 252

Structural Drafting (3 CR)

Prerequisite: DRAF 230 or ENGR 131 and Prerequisite or corequisite: MATH 134

Upon successful completion of this course, the student should be able to produce structural drawings and details of steel, concrete and wood structures for manufacturing, construction, engineering and architectural firms. Project work will be done using CAD. This course is typically taught in the spring semester. 2 hrs. lecture, 3 hrs. lab./wk.

DRAF 264

CAD:Interior Design (3 CR)

Prerequisites: ITMD 123 and ITMD 129 both with a grade of grade of "C" or higher, or department approval

This course is an introduction to the use of computer-aided drafting (CAD) as used in the interior design field. Upon successful completion of this course, the student should be able to draw floor plans and elevations of interiors using a computer-aided drafting system. AutoCAD LT software will be used. 2 hrs. lecture, 3 hrs. lab/wk. Drafting classes that have additional lab have either the time and room listed or TBA (to be announced) with the room number listed. Note: Prerequisites ITMD 123 and ITMD 129 require a grade of "C" or higher. Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$10 to \$15.

DRAF 266

Graphic Communications II for Interior Design (3 CR)

Prerequisite: DRAF 261

Upon successful completion of this course, the student should be able to draft three-dimensional representations of interior spaces, furniture, window treatments and decorative accessories. One-point and two-point perspective drawing, isometric drawing and perspective grids are covered. Student will draft in pencil on vellum and ink on mylar. 2. hrs. lecture, 3 hrs. lab/wk.

DRAF 271

Drafting Internship I (3 CR)

Prerequisite: department approval

Upon successful completion of this course, the student should be able to apply classroom knowledge to an actual work situation. The internship will provide advanced students the opportunity to develop job- and career-related skills while in a work setting. The work will be developed cooperatively with area employers, college staff and each student to provide a variety of actual job experiences directly related to the student's career goals. 15 hrs. min./wk. Drafting classes that have additional lab have either the time and room listed or TBA (to be announced) with the room number listed.

DRAF 272

Drafting Internship II (3 CR)

Prerequisites: DRAF 271 and department approval

Upon successful completion of this course, the student should be able to apply classroom knowledge to an actual work situation. The internship will provide advanced students the opportunity to develop job- and career-related skills while in a work setting. The work will be developed cooperatively with area employers, college staff and each student to provide a variety of actual job experiences directly related to the student's career goals. 15 hrs. min./wk. Drafting classes that have additional lab have either the time and room listed or TBA (to be announced) with the room number listed.

Economics (ECON)

ECON 132

Survey of Economics (3 CR)

Upon successful completion of this course, the student should be able to explain basic macroeconomic and microeconomic theory, fiscal and monetary policies, the role and significance of international economics and government trade and regulatory policies. In addition, the student should be able to describe the characteristics and consequences of the differing business units in the economy, as well as the functioning of the labor market and how national income is distributed. The course is primarily for students who desire a one-semester, nontechnical overview of the basic components of macroeconomic and microeconomic theory and the functioning of the United States economy. 3 hrs. lecture/wk.

ECON 230

Economics I (3 CR)

Upon successful completion of this course, the student should be able to use economic terminology and principles to explain and discuss basic macroeconomic concepts, including supply of and demand for products, national income determination, money and banking, and monetary and fiscal policy. The student enrolling in this course should have successfully completed one year of high school algebra or the equivalent. (Macro) 3 hrs./wk.

ECON 231

Economics II (3 CR)

Upon successful completion of this course, the student should be able to use economic terminology and principles to explain and discuss basic microeconomic concepts, including extended analysis of product supply and demand and theory of the firm and product and resource market structures. Students enrolling in this course should have successfully completed one year of high school algebra or the equivalent. (Micro) 3 hrs./wk.

Education and Early Childhood (EDUC)

EDUC 121

Introduction to Teaching (3 CR)

Note: For possible future elementary/secondary educators

Teaching concepts and practices as they apply to today's elementary and secondary schools will be introduced. Topics will include the roles and responsibilities of the teacher, various modes of instruction, specialized areas in teaching, and professional requirements and concerns. Twenty hours of observation in a school setting are required. 3 hrs./wk.

EDUC 130

Foundations of Early Childhood Education (3 CR)

This introductory survey course is designed to provide students with current

information on topics relevant to employment in early childhood programs. The course explores the historical and philosophical roots of early childhood education, general principles in child development, the teacher's role, values and ethics in early childhood education, curriculum design, and classroom management. Twenty hours of observation in a group childcare setting are required. Enrollment in certain courses may require a professional liability fee of \$16.00. 3 hrs. lecture/wk.

EDUC 131

Early Childhood Curriculum I (3 CR)

Prerequisite or corequisite: EDUC 130

This methods course is designed for students who are, or will be, working in an early childhood education setting and parents or others who desire to develop an intellectually challenging environment for young children. The focus of the course is curriculum areas that deal with language and physical development. 3 hrs. lecture/wk.

EDUC 205

Concepts in Early Childhood Education (3 CR)

Prerequisite or corequisite: EDUC 130 for certificate only

This course will provide early childhood care and education professionals, and those aspiring to the profession, with the opportunity to apply early childhood education experience and continuing professional education to college credit. Students will gain and apply knowledge in many aspects of teaching young children in child-care and educational settings. The student will spend seven hours a week (105 clock hours total) in a supervised practical experience at the Hiersteiner Child Developments Center at JCCC and will complete 1.5 CEUs in early childhood education. Credit for prior experience may be substituted for completing this course. The program facilitator must assess the documents (i.e., CDA) provided by the student and/or arrange and evaluate the practical experience before offering credit for this course. Completion of an application for this credit is required and may be obtained from the program facilitator. For certificate only. 3 hrs. lecture/wk.

EDUC 210

Creative Experiences for Young Children (3 CR)

Prerequisites: EDUC 130 and one of the following: PSYC 215 or PSYC 218 or EDUC 270

This course is a study of constructing and maintaining an environment for young children that fosters aesthetic sensitivity and creativity. The course includes the young child's developmental stages in art, music, movement, language, and creative and dramatic play; methods and materials that nourish developmentally appropriate creative experiences and support an inclusive, anti-bias curriculum; integration of creative experiences in the whole curriculum; the use of technology; and helping families understand the creative experience. 3 hrs. lecture/wk.

EDUC 215

Young Children with Special Needs (3 CR)

This course is a study of creating and maintaining a developmentally appropriate inclusive environment for young children with special needs. The course includes the history of education and care for young children with special needs, federal and state legislation, types of differing abilities, developmental stages and capabilities of all young children, an inclusive approach to early education, and curriculum development for young children with special needs. Health, safety and nutrition; screening and assessment; interaction techniques; the role of the educator specific to the child's special needs; partnering with the family, other disciplines and community; and advocating for children are presented. The laboratory will include demonstration of the subject matter. Enrollment in certain courses may require a professional liability fee of \$16.00. Students will be notified via their JCCC student e-mail account if the fee is due and instructions on how to pay the fee. 2 hrs. lecture, 3 hrs. lab/wk.

EDUC 220**Survey of the Exceptional Child (3 CR)**

This course is an overview of the field of special education geared to those who are preparing to work with students with special needs. The course provides fundamental information on the identification and exceptionality, laws and legal cases affecting the delivery of services to individuals with exceptionalities and the principles of effective educational approaches for each exceptionality. Categories of exceptionality presented include learning disabilities, mental retardation, behavior disorders, gifted and talented, communication disorders, autism, traumatic brain injury, physical disabilities, sensory impairments, other health impairments and multiple and severe disabilities. 3 hrs./ wk.

EDUC 225**Infant and Toddler Education and Care (3 CR)**

Prerequisite: EDUC 130

This course is a study of creating and maintaining a developmentally appropriate environment for infants and toddlers. The course will include the history of education and care, theories of child development, developmental stages and capabilities of the very young child, and curriculum development for infants and toddlers. Health, safety and nutrition; assessment; interaction techniques; the role of the educator specific to the needs of the infant and toddler; partnering with family and community; and advocating for the very young are presented. The laboratory will include demonstration of the subject matter. Enrollment in certain courses may require a professional liability fee of \$16.00. Students will be notified via their JCCC student e-mail account if the fee is due and instructions on how to pay the fee. 2 hrs. lecture, 3 hrs. lab/wk.

EDUC 231**Early Childhood Curriculum II (3 CR)**

Prerequisite: EDUC 131

This methods course is designed for students who are, or will be, working in an early childhood education setting and parents or others who desire to develop an intellectually challenging environment for young children. The focus of the course is on curriculum areas that deal with the physical and social aspects of the world. Included in this inquiry curriculum are mathematics, science, social studies and nutrition. 3 hrs. lecture/wk.

EDUC 235**Parenting (2 CR)**

Prerequisite or corequisite: PSYC 215 or PSYC 218 or EDUC 270

This course is a study of effective parenting. The course is designed for teachers of young children and parents and guardians who desire to provide an environment that reflects sensitivity to the unique needs of the individual child and family. Topics covered during the course are the history of child-rearing methods, an overview of child development, types of families, parent/guardian fears and concerns, purposes of child behavior, and effective communication techniques. Problem prevention and resolution, nurturing self-esteem in children and building effective, collaborative relationships between teachers and families are also covered. 2 hrs. lecture/wk.

EDUC 240**School-Age Programs and Curriculum I (3 CR)**

Prerequisite: EDUC 130

This methods course is designed for students who are, or will be, working in an early childhood education setting and parents and caregivers who desire to develop an intellectually challenging environment for school age children. The focus of the course is on curriculum areas for the school-aged child and extended day and summer programs. 3 hrs. lecture/wk.

EDUC 243**Issues and Skills for Paraeducators (3 CR)**

Students will explore the issues, skills and challenges specific to working as a paraeducator. In particular, students will be introduced to the issues relating to the inclusion of students with special needs into the mainstream educational environment. Students will review and practice those skills necessary to being an effective member of an instructional team, including collaboration, problem solving, decision making, team building and parent outreach. 3 hrs./wk.

EDUC 245**School-Age Programs and Curriculum II (3 CR)**

Prerequisite: EDUC 240

The student will study the creation and maintenance of a developmentally appropriate environment for school-age children in extended school day and summer programs. The student will acquire the skills and characteristics of effective educators. The student will explore types of programs and how to plan, implement and evaluate these programs. Also, staff supervision and development, record keeping, relevant state regulations and laws will be discussed. Collaboration with family and community, public relations and contributing to the profession will be studied. The lab will include demonstration of the subject matter. Enrollment in certain courses may require a professional liability fee of \$16.00. Students will be notified via their JCCC student e-mail account if the fee is due and instructions on how to pay the fee. 2 hrs. lecture, 1 hrs. lab/wk.

EDUC 246**Multicultural Issues in Education (2 CR)**

In this course students will explore the changing demographics of students in public schools. The course will also explore the ways in which a student's culture can affect the student's learning style, communication skill and behavior. The course will also describe strategies that take into account cultural differences, values and child-rearing practices when educators seek to create a safe and accepting environment for all students. 2 hrs. lecture/wk.

EDUC 250**Child Health, Safety and Nutrition (3 CR)**

This course is a study of the basic health, nutrition and safety management practices for young children. Information on establishing and maintaining a physically and psychologically safe and healthy learning environment appropriate for the needs of young children will be included. The interrelation of health, safety and nutrition is stressed, with emphasis on appraisal procedures, prevention and protection, services and educational experiences for young children and their families. 3 hrs. lecture/wk.

EDUC 260**Observing and Interacting with Young Children (3 CR)**

Prerequisite: EDUC 130 and Prerequisite or corequisite: PSYC 215 or PSYC 218 or EDUC 270

This course is a study of the role of observation to assess and monitor the development and learning of children, birth through age 8, and the appropriate techniques for interacting with young children, considering their individual differences. Included will be the purposes and types of observation procedures, interpretation and use of findings, reporting techniques, and legal and ethical responsibilities. Expected age-related child behavior, fundamental principles of and theoretical approaches to child guidance, guidance techniques, working with families, and issues of diversity are presented. The laboratory will include demonstration of the subject matter. Enrollment in certain courses may require a professional liability fee of \$16.00. Students will be notified via their JCCC student e-mail account if the fee is due and instructions on how to pay the fee. 2 hrs. lecture, 3 hrs. lab/wk.

EDUC 270

Early Childhood Development (3 CR)

This course is a comprehensive account of human development from conception through age 8. The course integrates genetic, biological, physical and social influences with psychological processes affecting the development of young children. 3 hrs. lecture/wk.

EDUC 280

Administration of Early Childhood Program (3 CR)

This course is a study of the organization and administration of early childhood programs. The topics include the skills and characteristics of effective administrators; types of programs; planning, implementing and evaluating programs; policy development; staff supervision and development; finances and budget; record keeping; relevant state regulations and laws; developing, equipping and maintaining a facility; organizing a developmentally appropriate environment; collaboration with family and community; public relations; and contributing to the profession. The lab will include demonstration of the subject matter. 2 hrs. lecture, 3 hrs. lab/wk.

EDUC 283

Prof. Competencies: Early Childhood Education (1 CR)

Prerequisite: Department approval

This course focuses on the conduct and responsibilities of the early childhood professional. Topics include early childhood education codes, laws and regulations; child development; experience planning and curriculum development; observation and guidance of young children; authentic assessment; responsibilities to the young child's family, to the community, and to the teaching profession; employability skills; self-assessment; and job seeking skills. Completion of this course is required to obtain the One Year Post-Secondary Certificate in Early Childhood Education. 1hr. lecture/wk.

EDUC 284

Seminar: Early Childhood Education (3 CR)

Prerequisite: Department approval and Corequisite: EDUC 285

The course will focus on conduct and responsibilities of the intern; early childhood codes, laws and regulations; child development; activity planning and curriculum development; observation and guidance of young children; authentic assessment; responsibilities to the young child's family and community and to the teaching profession; employability skills; self-assessment; and job-seeking skills. The student's practical application of information in the internship will be discussed, and a portfolio will be developed. 3 hrs. lecture/wk.

EDUC 285

Student Teaching: Early Childhood Education (3 CR)

Prerequisite: Department approval and Corequisite: EDUC 284

This supervised field experience in early childhood education is designed for students to apply their knowledge of teaching young children. The student will be participating in curriculum design and presentation; observing and interacting with young children; providing for the health, safety and nutrition of young children; managing the program setting; and working with families and the community. A self-assessment and a professional development plan are completed. The student will spend 20 hours a week (320 clock hours total) in at least two different early childhood settings, serving children of two different ages. Enrollment in certain courses may require a professional liability fee of \$16.00. Students will be notified via their JCCC student e-mail account if the fee is due and instructions on how to pay the fee.

EDUC 290

Leadership in Early Childhood Education (3 CR)

Prerequisite: Program Facilitator Approval

The student will study how early childhood education program directors lead programs and create quality environments for children, families and staff. The leadership topics include: leadership styles; developing mission statements, program philosophies, procedures, manuals and handbooks; assessing and planning for program improvements; recruiting and retaining qualified early childhood teachers; creating professional growth opportunities; developing effective staff meetings; implementing a shared decision making process; utilizing conflict resolution strategies; and developing partnerships with families and community agencies. 3 hrs. lecture/wk.

Electrical Technology (ELTE)

ELTE 122

National Electrical Code I (4 CR)

This is an introductory course on the use and interpretation of the current National Electrical Code. Students should develop a working knowledge of the code that will permit them to apply it to everyday applications. Upon successful completion of this course, the student should be able to use the code to design service entrances, feeders and branch circuits and discern between wiring methods used in different occupancies. 4 hrs. lecture /wk.

ELTE 123

Electromechanical Systems (4 CR)

Upon successful completion of this course, the student should be able to identify electrical components and their relationships to the various repair and troubleshooting techniques. The materials in this course will prove useful to service technicians whose background in electricity is limited. The course includes material from basic electrical theory to troubleshooting complex electrical circuits. This course will provide practice in the application of electrical theory as well as in the interconnection of components of heating and cooling systems. The student will be required to provide ANSI Z87 safety glasses and may be expected to provide other basic hand tools and/or equipment. This is a beginning course in electrical theory that is required for HVAC, electrical and power plant technology but is appropriate for all interested students. Common components found in the HVAC industry are used to develop these skills. 3 hrs. lecture, 3 hrs. lab/wk.

ELTE 125

Residential Wiring Methods (4 CR)

Prerequisite or corequisite: HVAC 123 or ELTE 123

This is an introductory course on residential wiring methods that includes practical application and hands-on experience in implementing the code requirements. Upon successful completion of this course, the student should acquire the necessary skills to wire a residence to meet the minimum requirements as set forth in the current National Electrical Code for residential occupancies. The student will be required to provide ANSI Z87 safety glasses and may be expected to provide other basic hand tools and/or equipment. 3 hrs. lecture, 3 hrs. lab/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$125 to \$300.

ELTE 200

Commercial Wiring Methods (4 CR)

Prerequisite or corequisite: HVAC 123 or ELTE 123

This course covers commercial wiring methods. Upon successful completion of this course, the student should be able to read commercial blueprints and apply the current National Electrical Code to commercial wiring systems. The student will gain working knowledge and hands-on experience with commercial wiring techniques. The student will be required to provide ANSI Z87 safety glasses and may be expected to provide other basic hand tools and/or equipment. 3 hrs. lecture, 3 hrs. lab/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$125 to \$300.

ELTE 202

Electrical Estimating (3 CR)

Prerequisites: ELTE 122 and ELTE 125 or ELTE 200 or department approval

Upon successful completion of this course, the student should be able to manually and electronically (using industry standard computer software) develop an electrical estimate for a residential and commercial design. Emphasis will be placed on compiling a take-off list of materials from blueprints, completing a bill of material and completing the final bid process. This includes a bid accuracy analysis to determine the job's selling price. The student will be able to determine material cost, labor cost, the proper application of direct cost, overhead and profit. Also, to conclude the estimate, the student will be able to write bid proposals and change orders. 2 hrs. lecture, 3 hrs lab/wk.

ELTE 205

Industrial Electrical Wiring (4 CR)

Prerequisite: ELTE 122 or ELTE 125 or ELTE 200

This advanced course covers industrial wiring methods. Upon successful completion of this course, the student should be able to read industrial blueprints and apply the current National Electrical Code to industrial wiring systems. The student will gain working knowledge and hands-on experience with industrial wiring techniques. The student will be required to provide ANSI Z87 safety glasses and may be expected to provide other basic hand tools and/or equipment. 3 hrs. lecture, 3 hrs. lab/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$125 to \$300.

ELTE 210

Code Certification Review (3 CR)

Prerequisite: ELTE 122

Upon successful completion of this course, the student should be able to use the current National Electrical Code to do calculations involving loads, lighting and circuit sizing. The course will cover typical load calculations used in both residential and commercial settings. The student should also be able to interpret and apply the National Electrical Code rules to special wiring systems including Hazardous Locations, Elevators, Remote-control circuits and Fire Alarm systems. 3 hrs. lecture/wk.

ELTE 215

Generators, Transformers and Motors (4 CR)

Prerequisites: ELTE 123 and one of the following: ELTE 122 or ELTE 125 or ELTE 200 or equivalent experience and department approval

This is an advanced course on the use of generators, transformers and motors. Upon successful completion of this course, the student should be able to interpret and apply the rules of the current National Electrical Code to wiring systems composed of these electrical components. Also, the student will gain a working knowledge of the theory of these single-phase and 3-phase electrical components and their practical applications in everyday use in the electrical industry. 4 hrs. lecture/wk.

ELTE 271

Electrical Internship I (3 CR)

Prerequisite: department approval

Upon successful completion of this course, the student should be able to apply classroom knowledge to an actual work situation. The internship will provide advanced students with on-the-job experience under the supervision of

professionals in the industry. The work will be developed cooperatively with area employers, college staff and each student to provide a variety of actual job experiences directly related to the student's career goals. 1 hr. lecture, minimum 15 hrs. on-the-job training/wk.

Electronics (ELEC)

ELEC 118

Mobile Auto Electronics Installation (3 CR)

This course covers after-market AM-FM and HD radios, audio amplifiers, security systems, DVD video systems and GPS navigation systems. Other topics covered will include how to determine the customers' requirements and then advising them of the best equipment to purchase. Students will receive hands-on instruction on installing and configuring mobile electronics systems. 2 hrs. lecture & 3 hrs. instructional lab/wk.

ELEC 120

Introduction to Electronics (3 CR)

This is a beginning course in electronics technology that is appropriate for both electronic majors and other interested students. An overview of basic electronic theory, principles and components is presented. In addition, the laboratory exercises will emphasize the operation and use of the primary pieces of electronic test equipment and the fabrication of selected circuits. 2 hrs. lecture, 2 hrs. lab-lecture, 2 hrs. lab/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$10 to \$20.

ELEC 122

Circuit Analysis I (3 CR)

Prerequisites: ELEC 120 and MATH 133 or MATH 172

This course covers resistive circuits having DC sources. Analysis topics include Ohm's law, Kirchoff's law, the superposition theorem, Thevenin's theorem and Norton's theorem. The current, voltage and resistance relationships in series, parallel and combination circuits will be studied. 3 hrs. lecture/wk.

ELEC 123

Smart House Technology (3 CR)

This course is a general introduction to the rapidly growing field of home technology and its integration and use. Lectures, demonstrations and lab work will be used to teach the types of home technology being sold and installed. This course is designed to assist new users to implement this technology in their own homes and as an introduction for students wanting to proceed further into the field as contractors or installers. 3 hrs. lecture/wk.

ELEC 125

Digital Electronics I (4 CR)

This is a beginning course in which students will study and practice the basic concepts of digital electronics. Topics will include digital number systems, logic gates, logic circuits, flip-flops, digital arithmetic, counters and registers. 3 hrs. lecture, 3 hrs. lab/wk.

ELEC 126

Microcomputer A+ Preparation (4 CR)

This course is designed to be a general introduction to personal computer hardware and operating system software. The course teaches the operation, installation and upgrade of all the major components of a typical PC. The course also provides the basic knowledge to prepare the student for passing the

A+ test, which is the industry standard certification for personal computer technicians. Since A+ Certification is based upon the Windows Operating System and Intel/AMD-type microprocessors, these will be the basis of the course. The course will cover both of the A+ Certification testing areas: PC Hardware (Core Test) and Operating Systems (OS Test). 3 hrs. lecture, 3 hrs. lab/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$5 to \$10.

ELEC 127

Robots for Humans (4 CR)

This course is a general introduction to the rapidly growing field of robotics. The class will use lectures, demonstrations and lab work to teach the basics of robotics. This course is designed to assist new users in making use of this technology in their own lives and as an introduction for students wanting to proceed further into the field. 3 hrs lecture, 2 hrs open lab/wk.

ELEC 130

Electronic Devices I (4 CR)

Prerequisite or corequisite: ELEC 140

This is the first course in electronic devices. Topics include diodes and transistors, special purpose diodes and diode application circuits. Both bipolar junction transistors (BJTs) and field effect transistors (FETs) are examined and application circuits for both transistor types are constructed. 3 hrs. lecture, 3 hrs. lab/wk.

ELEC 131

Introduction to Sensors and Actuators (3 CR)

This course examines types and uses of industrial sensors and actuators. Topics include temperature, pressure, optical, position and flow sensors. Operation of AC and DC motor drives will also be covered. The course will also include wiring and troubleshooting of sensors and actuators. Lecture topics will be supported by hands-on lab projects. 2 hrs. lecture, 3 hrs. lab/wk.

ELEC 133

Programmable Controllers (3 CR)

This is an introductory course in programmable logic controllers. The course is designed for individuals without extensive electrical or controller backgrounds. Hardware aspects and programming aspects of controller operation are covered. The foundational controller logic symbols and controller logic operations necessary to interpret and write ladder logic programs are taught in this class. Students will enter, edit and test controller programs through assigned laboratory projects. 2 hrs. lecture, 3 hrs. lab/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$5 to \$10.

ELEC 140

Circuit Analysis II (3 CR)

Prerequisites: ELEC 122 and MATH 134 or MATH 172 or MATH 173

The analysis techniques presented in Circuit Analysis I will be applied to complex circuits driven by AC and pulsed sources. The responses of circuits having resistance, inductance and capacitance will be analyzed. Other topics include transformers and electrical filters. 3 hrs. lecture/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$5 to \$30.

ELEC 150

Introduction to Telecommunications (3 CR)

This is an introductory-level course in telecommunications principles that includes both voice and data communications. An examination of the communications industry and its regulatory environment will be provided. Topics include voiceband communications, digital transmission, switching and signaling, and emerging technologies. 3 hrs. lecture/wk.

ELEC 165

Advanced Programmable Controllers (3 CR)

Prerequisite: ELEC 133

This course is a continuation of ELEC 133. Principle topics include sequences, file and block transfers, analog control and PID functions. In addition, methods of networking of PLCs and advanced user interfaces will be covered. Lecture topics will be supported by laboratory projects. 2 hrs. lecture, 3 hrs. lab/wk.

ELEC 175

Telecommunications (3 CR)

Prerequisite or corequisite: ELEC 130

This course studies hardware and software functions of telecommunication systems. Topics include both voice and data aspects of telecommunication systems, including terminology, interfaces, protocols, transmission media, networks and networking technologies. 2 hrs. lecture, 3 hrs. lab/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$10 TO 30.

ELEC 185

LAN Cabling and Installation (3 CR)

This course is designed to provide specialized skills for installing and testing local area network cabling and wireless installation. Twisted-pair, coax and fiber cables will be introduced and contrasted based on their characteristics and applications. Laboratory exercises for terminating and testing network cables and installing wireless systems will accompany the lectures. Students will be trained how to use common wiring tools and testing instruments. Methods of documenting LAN systems will also be introduced. 2 hrs. lecture, 3 hrs. lab/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$10 to \$20.

ELEC 195

Introduction to Wireless LANs (3 CR)

This course will introduce the student to the subject of wireless local area networks. The course will cover the types of equipment and their uses, correct configuration of equipment, types of security methods used, how to determine the physical lay-out of the access points and other equipment and procedures that can be used to administrate the network. 3 hrs. lecture, 2 hrs lab./wk.

ELEC 225

Digital Electronics II (3 CR)

Prerequisite: ELEC 125

Students will continue their study of digital concepts and will learn how to build digital circuitry using digital integrated circuit chips and basic concepts of computer organization. In additional, emphasis will be placed on learning how to troubleshoot digital circuits and digital systems. Each student will build a digital computer through a series of laboratory projects. 2 hrs. lecture, 3 hrs. lab/wk.

ELEC 230

Electronic Devices II (3 CR)

Prerequisite: ELEC 130

This class is a continuation of the electronic devices sequence. Topics include operational amplifiers, thyristors and voltage regulators. Operational amplifier applications include comparators, summing amplifiers, integrators, differentiators and active filters. 2 hrs. lecture, 3 hrs. lab/wk.

ELEC 240

Electronic Communication Systems (4 CR)

Prerequisite or corequisite: ELEC 230

This course provides a study of electronic communication systems. Topics include the electromagnetic spectrum, decibels, noise, amplitude modulation, antennas, transmission lines and the global positioning satellite system. 3 hrs. lecture, 3 hrs. lab/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$10 to \$30.

ELEC 245

Microprocessors (3 CR)

Prerequisite: ELEC 225

This course provides students with a basic knowledge of microprocessors and how microprocessors interface with other devices to create microcomputer systems. Students will learn how to write assembly language and machine language programs for a microprocessor as well as how to interface memory, input devices and output devices to a microprocessor. Additionally, emphasis will be placed on learning how to troubleshoot microprocessor-based systems. 2 hrs. lecture, 3 hrs. lab/wk.

ELEC 250

Microcomputer Maintenance (3 CR)

Prerequisite: ELEC 126

This course is a continuation of the study of personal computers and will further the student's ability to maintain and repair them. In addition, this course will assist the student in preparing for computer-maintenance certification. Topics will include interaction of hardware and operating systems, resource conflicts, networking capabilities, common hardware and software problems, hardware differences of portable computers, and upgrading computers. The course topics will be supported by laboratory projects. 2 hrs. lecture, 3 hrs. lab/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$5 to \$10.

ELEC 271

Electronics Internship I (1 CR)

Prerequisite: department approval

This course affords the student the opportunity to apply classroom knowledge to an actual work environment. It will provide selected advanced electronics technology students with appropriate on-the-job experience with area employers, under instructional oversight, that will promote the student's career goals. 18 hrs. approved and appropriate work activity/wk.

ELEC 272

Electronics Internship II (1 CR)

Prerequisites: ELEC 271 and department approval

This course is a continuation of ELEC 271. It affords the student the opportunity to apply classroom knowledge to an actual work environment. It will provide selected advanced electronics technology students with appropriate on-the-job experience with area employers, under instructional oversight, that will promote the student's career goals. 18 hrs. of approved and appropriate work activity/wk.

Emergency Medical Science/MICT (EMS)

EMS 121

CPR I - Basic Life Support for Healthcare Provider (1 CR)

This course provides an overview of the cardiovascular and respiratory systems, a discussion of medical and environmental emergencies leading to the need for CPR, and an introduction to diagnostic signs and triage, as well as insight into the structure and function of the emergency medical services system. The most current practical CPR skills will be taught, including CPR, AED, and airway obstruction techniques for adults, children and infants. Upon successful completion of all American Heart Association standards, the student will receive affirmation at the Healthcare Provider level. 4 hrs. lecture, lab/wk. for 5 wks. This course will meet the general education requirement for Health and/or Physical Education.

EMS 125

CPR II-Basic CPR Instructor (1 CR)

Prerequisite: Successful completion of EMS 121 and/or current certification by AHA as Basic Rescuer

This class will include a review and affirmation of Basic Rescuer techniques, practice in the design and implementation of CPR courses, demonstration of manikin maintenance and decontamination procedures, and mini-lectures. Upon successful completion of this class, students will be eligible for affirmation by the American Heart Association as a BLS instructor. Each participant must teach or co-teach a CPR class while being monitored by an AHA faculty member before the instructor affirmation card will be issued. 2.5 hrs. lecture, lab/wk. for 8 wks. (average).

EMS 128

EMS First Responder (5 CR)

This course is designed to provide training in emergency medical care for those who are apt to be the first persons responding to an emergency incident. Fire, police, civil defense personnel, school bus drivers, day-care providers, utility workers and industrial workers are a few examples of those persons who would benefit from this training. The student will receive both didactic and psychomotor skills training in CPR, patient assessment, fracture management, airway management and trauma management. Successful completion of this course with a minimum grade of "C" will enable the student to sit for the First Responder certification exam administered by the Kansas Board of Emergency Medical Services. 6 hrs. lecture, 6.5 hrs. lab/wk. for 8 wks. (average).

EMS 130

Emergency Medical Technician (9 CR)

Prerequisite: EMS 128 or equivalent training as determined by the EMS department (military, other medical or fire department, verification of training will be required), associates degree (transcripts required).

This program is designed for individuals interested in providing medical care to patients in the pre-hospital setting. It will provide the participants with opportunities to gain information, skills and attitudes necessary for certification and practice as an emergency medical technician (EMT) in the state of Kansas. This program has been approved by the Kansas Board of Emergency Medical Services (BEMS). It addresses information and techniques currently considered the responsibility of the EMT according to the United States Department of Transportation, National Standard Curriculum. The program consists of didactic instruction, practical skill training and clinical experience. Students are also required to attend Saturday session(s) as necessary. Saturday dates and times will be announced during the first class session. Classroom instruction includes anatomy, physiology, recognition and care of medical emergencies, and trauma-related injuries. CPR, bandaging, splinting, childbirth techniques and airway management are among the skills

taught. An extrication session will give students hands-on experience with automobile accident situations. Upon instructor recommendation, students will participate in clinical and field observation. All transportation to and from off-campus sites is the responsibility of the student. Students completing this course with a minimum grade of "C" will be allowed to sit for the Kansas EMT State Certification Examination and receive JCCC certificate of completion. Enrollment in certain courses may require a professional liability fee of \$16.00. Students will be notified via their JCCC student e-mail account if the fee is due and instructions on how to pay the fee. 14 hrs. field experience/wk. (average)

EMS 133

Emergency Medical Technician Practicum (3 CR)

Prerequisites: EMS 130 or equivalent and a copy of current EMT-B card

EMT Practicum is designed to give the newly certified EMT-B the additional skills and confidence needed to successfully compete for a position as an EMT-B with an EMS service. Skills will include ambulance operation, driving, map reading, insurance billing and unit maintenance. This course will also provide high-fidelity scenario training in all aspects of the EMS call as well as extensive field lab time with a local EMS service. Students will participate in realistic medical emergency scenarios with "actors" playing life-like patients and bystanders as well as numerous field internship shifts on a licensed ambulance. Students will work through all phases of an ambulance call. They will be presented with complex patient care situations that require the development of critical thinking and decision-making skills. Students will be tested on their ability to lead a team of pre-hospital caregivers in the diagnosis, proper treatment and evacuation of a patient. Scenario simulations will be set up to be as life-like as possible. Enrollment in these courses require a professional liability fee of \$16.00. Students will be notified via their JCCC student e-mail account if the fee is not paid. 2 hrs. lecture, 10 hrs. lab/wk. This course is only offered in the summer.

EMS 140

Basic Cardiology and EKG Recognition (3 CR)

Prerequisites: Prospective students should be certified in a health profession, i.e., EMT, RN, LPN, EMT-P. Department approval is required.

The health care worker with an understanding of ECG tracing will function more effectively when providing care for the cardiac patient. Increasing numbers of professionals are being called upon to utilize ECG tracing in their work settings, but without adequate knowledge of its use. This course will serve as both continuing education and the preparation for the job entry and/or job advancement. During the course, students will learn to apply monitoring and 12-lead electrodes, diagnose ECG dysrhythmias and infarct locations, treat ECG dysrhythmias, and defibrillate ventricular fibrillation. 3 hrs. lecture/wk.

EMS 203

KS EMT - Intermediate/Defibrillator (11 CR)

Prerequisites: EMT-B and additional prerequisite and/or documentation requirements. See department for details.

This course will cover selected advanced emergency medical care concepts and practices. This intermediate-level course advances the basic emergency medical technician's knowledge and skills in patient assessment, airway management, intravenous cannulation and manual defibrillation. The KS EMT-I/D's knowledge and skills are intermediate between the EMT-Basic and the EMT-Paramedic. Upon successful completion of this course, the student will be able to utilize the assessment findings to formulate a field impression and implement the treatment plan for the patient suffering a medical or trauma emergency. As the KS-EMT-I/D demonstrates cognitive and motor skill competency in the classroom and skills laboratory, his or her training will proceed to the clinical and field environments, where the knowledge, skills and attitudes necessary for professional practice will be practiced, synthesized and perfected. Enrollment in certain courses may require a professional liability fee of \$16.00. Students will be notified via their JCCC student e-mail account if the fee is due and instructions on how to pay the fee. 7 hrs. lecture, 5 hrs. lab, 10 hrs. clinical/field experience/wk.

EMS 206

Training Officer I (1 CR)

Prerequisites: Kansas Board of EMS certification at the Emergency Medical Technician - Basic (EMT-B) level or above and approval of the course instructor

This course is a requirement for the Kansas Board of Emergency Medical Services (KSBEMS) certification as a Training Officer (TO). The course is intended to prepare the student to plan, implement, coordinate, teach and evaluate continuing education programs. The course is a prerequisite for Training Officer II. 15 hrs. lecture, 5 hrs. lab total

EMS 207

Training Officer II (2 CR)

Prerequisites: Kansas Board of Emergency Medical Services certification at the provider level the student wishes to teach, completion of EMS 206 Training Officer I and approval of the course instructor

This course is a requirement for the Kansas Board of Emergency Medical Services (KSBEMS) certification as a Training Officer (TO). The course is intended to prepare the student to plan, implement, coordinate, teach and evaluate continuing education programs. As a TOII a student will also be qualified to plan, implement, coordinate, teach and evaluate Initial Instruction Programs for the First Responder level of certification in Kansas. 33 hrs. lecture, 7 hrs. lab total

EMS 210

Emergency Medical Services Instructor Coordinator (5 CR)

Prerequisites: Prospective students must meet all the requirements for selection as set forth by the Kansas Board of Emergency Medical Services, which includes certification as a care provider, documentation of pre-hospital experience and successful completion of the BEMS pre-selection process

This course covers the basic tenets of adult education as they apply to teaching emergency medical services provider courses. Students are oriented to all Kansas requirements for conducting initial courses of instruction for ambulance attendants. Successful completion will be the first step toward certification as a Kansas EMS instructor coordinator. This program has been approved by the Kansas Board of Emergency Medical Services (BEMS). It addresses information and techniques currently considered the responsibility of the EMT-IC according to the United States Department of Transportation, National Standard Curriculum. 5 hrs. lecture-demonstration/wk. for 8 wks.

EMS 220

MICT I (10 CR)

Prerequisite: Admission to the MICT program

MICT I is the first of four courses in advanced out-of-hospital emergency medical care leading to the opportunity to sit for the National Registry Examination for Paramedics. In this narrowly focused but intense foundational course, the paramedic student will gain a significant knowledge of patient assessment, pharmacology and medication administration techniques, electrocardiography, advanced airway management, and paramedic scope of practice. Much material will be covered rapidly, and emphasis is on organization, internalization and synthesis of the basic knowledge of the discipline in this 10-week course. Additionally, during the initial psychomotor teaching labs, students will gain the ability to assess patients, administer medications, treat dysrhythmias and manage the airway through manikin practice. Enrollment in certain courses may require a professional liability fee of \$16.00. Students will be notified via their JCCC student e-mail account if the fee is due and instructions on how to pay the fee. 24 hrs. lecture/wk. Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$700 to \$1,000.

EMS 225

MICT II (10 CR)

Prerequisite: EMS 220 with a grade of "C" or higher

MICT II is the second of four courses in advanced out-of-hospital emergency medical care leading to the opportunity to sit for the National Registry Examination for Paramedics. This course builds on the foundational knowledge developed in MICT I and covers advanced management of medical and trauma emergencies in the out-of-hospital environment. Much material will be covered rapidly, and emphasis is on organization, internalization, synthesis and application of the basic knowledge of the discipline in this 10-week course. Students demonstrate competency at motor skill performance, and extensive simulation practice is afforded. Students begin field observation with a paramedic ambulance crew and complete an Advanced Cardiac Life Support Course. 24 hrs. avg. lecture/wk., 12 hrs. lab/field observation avg./wk.

EMS 230

MICT III Clinicals (12 CR)

Prerequisite: EMS 225 with a grade of "C" or higher

MICT III is the third of four courses in advanced out-of-hospital emergency medical care leading to the opportunity to sit for the National Registry Examination for Paramedics. During MICT III, paramedic students have the opportunity to take the knowledge and skills gained in MICT I and II and apply them in actual supervised clinical practice. MICT III represents a brief, intense 14-week course in which knowledge and skills are synthesized and applied to patients under supervision of physicians and nurses in clinical practice in the emergency department, critical care unit, surgery/ recovery room, labor/delivery room, pediatric emergency department and burn center. Field observation lab and classroom and laboratory review are included as well. Enrollment in certain courses may require a professional liability fee of \$16.00. Students will be notified via their JCCC student e-mail account if the fee is due and instructions on how to pay the fee. 8 hrs. integrated lecture/lab/wk., 44 hrs. clinical/lab/field avg./wk.

EMS 271

MICT IV Field Internship (15 CR)

Prerequisite: EMS 230 with a grade of "C" or higher

MICT IV is the final of four courses in advanced out-of-hospital emergency medical care leading to the opportunity to sit for the National Registry Examination for Paramedics. During MICT IV, paramedic students have the opportunity to take the knowledge and skills gained in MICT I, II and III and apply them in an actual practice environment. MICT IV represents an intense 4-month course in which knowledge, skills and professional behaviors are synthesized and applied to victims of sudden trauma or medical emergencies under supervision of paramedic preceptors at the emergency scene and in the ambulance. Entry-level competence into the profession is demonstrated as the student demonstrates the ability to assess the scene and the patient, develop a plan for therapeutic intervention as well as scene management, and effectively lead the out-of-hospital resuscitation team's effort. Classroom and laboratory review are included. Enrollment in certain courses may require a professional liability fee of \$16.00. Students will be notified via their JCCC student e-mail account if the fee is due and instructions on how to pay the fee. 8 hrs. integrated lecture lab avg./ wk., 56 hrs. clinical/lab/field avg./wk.

Energy Perform & Resource Mgmt (EPRM)

EPRM 121

Introduction to Residential Energy (4 CR)

Upon successful completion of this course, the student should be able to evaluate energy usage of the past and the future, describe the energy picture of today's world, identify the priorities for energy efficiency, and describe the

purpose of a residential energy audit. Competencies will include knowing energy and the laws of thermodynamics; heat transfer through building envelope; sources of internal heat gain and heat loss calculations; energy transformation and heat flow; efficiency of HVAC systems, water heating systems, and appliances; and basic electrical wiring, lighting, and components of a residence. 4 hrs. lecture/wk.

EPRM 123

Residential HVAC Systems (4 CR)

This course describes how heating, ventilation and air conditioning systems work together in a residence. Upon successful completion of this course, the student should be able to identify the functions of the components of an air-conditioning system a heating system, and the electrical system that connect the systems together. Topics will include heat laws, refrigeration cycles, electrical theory, various types of furnaces, air conditioners, and types of controls. The student should also be able to identify electrical and combustion components and their relationships within the residence. The student will be required to provide ANSI Z87 safety glasses and may be expected to provide other basic hand tools and/or equipment. 3 hrs. lecture, 2 hrs. lab/wk.

EPRM 124

Equipment Selection and Duct Design (4 CR)

Prerequisites: EPRM 121 and EPRM 123

Upon successful completion of this course, the student should be able to identify techniques and procedures used in the residential construction industry to determine proper sizing of HVAC equipment and ducts to meet the requirements for a high-quality, comfortable climate in terms of heating, cooling, humidifying, dehumidifying, ventilation and air cleaning or filtering. The student will be required to provide ANSI Z87 safety glasses and may be expected to provide other basic hand tools and/or equipment. 3 hrs. lecture, 3 hrs. lab/wk. This course is the same as HVAC 124; do not enroll in both.

EPRM 125

Residential Energy Auditing Applications (3 CR)

Prerequisites: EPRM 121 and EPRM 123

This course outlines a complete energy audit procedure that will ensure consistent data collection for a residence. Topics include diagnostic procedures to evaluate the building shell, doors and windows, air leakage, and other residential energy inefficiencies. The course includes recommendations the auditor can make to increase the energy efficiency and functionality of a client's home based on the audit. Analysis of residential heating and cooling systems, as well as analysis of base load measures, is included in the course. A major focus of the course is the use of appropriate test equipment, such as blower door tester, duct blower kit, and other hand-held measuring devices necessary to conduct effective energy audits. The course will include training in the use of specialized computer software to determine a numerical energy efficiency measure for homes being audited. Students will be required to provide ANSI Z87 safety glasses and may be expected to provide other basic hand tools and/or equipment. 2 hrs. lecture, 2 hrs. instructional lab studio/wk.

Engineering (ENGR)

ENGR 121

Engineering Orientation (2 CR)

Upon successful completion of this course, the student should be able to describe careers in engineering and use fundamental concepts in engineering problem solving. Topics include engineering disciplines, aptitude and academic requirements, professional responsibilities, problem definition and solution, engineering design, and terminology. Students will meet professional engineers during field trips to engineering companies and work sites. The primary intent of this course is to introduce students to the engineering problem-solving process and to help each student make the best career

decision. 2 hrs. lecture/wk.

ENGR 131

Engineering Graphics I:AutoCAD (4 CR)

Prerequisite or corequisite: MATH 133 or MATH 130 or MATH 171 or MATH 172 or MATH 173 or MATH 241

Upon successful completion of this course, the student will be able to apply graphic principles used in the engineering design process. The student will master graphics concepts using computer-aided drafting (CAD) software. Topics include 2-D and 3-D CAD commands; geometric construction; multi-view, orthographic projection; sectional views; isometrics; dimensioning; and descriptive geometry. 3 hrs. lecture, 4 hrs. lab/wk.

ENGR 171

Programming for Engineering and Science (3 CR)

Prerequisite: MATH 171

At the completion of this course, the student should be able to design algorithms for the solution of engineering and science problems using pseudocoding and flowcharting techniques; code the solution in the FORTRAN programming language; and compile, test and debug the program. Programming concepts covered will include data input from the keyboard and data files, formatted output, sequence, selection and iteration structures, function and subroutine subprograms and array processing. Proficiency with conversions and math in the decimal, binary and hexadecimal numbering systems will also be attained. This is a beginning course that will prepare students for more advanced studies in engineering and science computer applications. 2 hrs. lecture, 2 hrs. lab/wk.

ENGR 180

Engineering Land Surveying I (3 CR)

Corequisite: MATH 134 or MATH 172

Upon successful completion of this course, the student should be able to identify the basic applications of plane surveying procedures; measurement of horizontal distances, directions, angles, leveling, traversing, curves and stadia coordinates; computations with the aid of a computer; and topographical property and construction surveying. Students will take part in field operations using equipment such as auto levels, theodolites, EDM, GPS, and total station. 2 hrs. lecture, 3 hrs. lab/wk.

ENGR 251

Statics (3 CR)

Prerequisite: MATH 242 and Prerequisite or Corequisite: PHYS 220

Upon successful completion of this course, the student should be able to describe and predict the conditions of rest and motion of bodies under the action of forces. The principles used will include vectors, force systems, equilibrium, free body diagram, centroids, moments of inertia, trusses, frame, and shear and moment diagrams. This course is typically offered in the summer and fall semesters. 3 hrs. lecture/wk.

ENGR 254

Dynamics (3 CR)

Prerequisite: ENGR 251

Upon successful completion of this course, the student should be able to apply the principles of dynamics, the branch of engineering mechanics that studies objects in motion. Topics covered will include unbalanced force systems (Newton's second law), displacement, velocity and acceleration, work and energy, and impulse and momentum. Computer applications will be included. This course is typically offered in the spring semester. 3 hrs. lecture/wk.

English (ENGL)

ENGL 102

Writing Strategies (3 CR)

Prerequisite: Appropriate placement test score

This course assists the student in developing strategies for sentence writing. The course is designed to meet a variety of learning styles, levels and needs. Students will develop strategies for self-monitoring errors in written products. Students are taught strategies for writing a variety of sentence formats and have extensive practice in writing sentences as a means of implementing new information. 3hrs./wk. This course does not fulfill degree requirements. Students must take the JCCC writing assessment test before enrolling. For more information, see a JCCC counselor.

ENGL 103

Practical Writing Skills (1 CR)

At the completion of this course, the student should be able to recognize and write complete sentences. The student will write a variety of sentences using strategies for building sentences with phrases and clauses as well as editing sentences through coordination and subordination. The student will then practice developing paragraphs in various organizational modes. Along with writing the student will read selected prose and write responses to these readings. The course is designed specifically to aid non-native speaking students in acquiring writing skills through individualized instruction. The aim of this course is to enhance/supplement the English as a Second Language program already offered at JCCC. Also, because hearing-impaired students have similar difficulties with the English language as ESL students, this course addresses the challenges often faced by this student population. This course meets by arrangement in the Writing Center. This course does not fulfill degree requirements. After registering for this course, the student should contact the Writing Center.

ENGL 105

Basic English Grammar (3 CR)

The aim of English 105 is to introduce the student to the basic structures in English grammar: parts of speech, sentence types, phrases and clauses. Students learn to use correct punctuation. Moving from joining short phrases to the basic sentence, students learn to combine ideas to form a variety of sentence structures. Students practice skills, working in class (often in pairs or groups) and making use of computer programs in the Writing Center. Grammar games are used to help prepare students for a test. 3 hrs./wk. This course does not fulfill degree requirements.

ENGL 106

Introduction to Writing (3 CR)

Prerequisite: ENGL 102 or appropriate score on assessment test

Beginning with a review of basic sentence skills, this course focuses on paragraph development, including subject selection, topic sentences, methods of development, transitional devices and effective introductions and conclusions. The last part of the course will focus on developing multi-paragraph essays. 3 hrs./wk. This course does not fulfill degree requirements. Students must take the JCCC writing assessment test. For more information, see a JCCC counselor.

ENGL 107

Sentence Pattern Skills (1 CR)

At the completion of this course, the student should be able to identify the parts of speech, elements of a sentence and basic sentence patterns. Emphasis is on sentence combining and sentence composing. Students are told that grammar in isolation will not improve writing skills, and they are encouraged to practice writing. This course meets by arrangement in the Writing Center. This course does not fulfill degree requirements. After registering for this

course, the student should contact the Writing Center.

ENGL 108

Composing Skills (1 CR)

After completing Composing Skills, students will be able to choose a topic, narrow the topic, and organize and develop with supporting evidence a variety of paragraph modes. The student will be able to achieve paragraph unity, coherence and emphasis. Also, the student will learn revision and editing strategies. Course meets by arrangement in the Writing Center. This course does not fulfill degree requirements. After registering for this course, the student should contact the Writing Center.

ENGL 109

Proofreading Skills (1 CR)

This 1-credit module is designed to provide students with strategies and rules that will help them recognize and repair common grammar, usage and mechanical errors in their writing. This course focuses on the major and minor errors as set forth in the English program objectives (available in the Writing Center). Students will learn to recognize and correct these errors, not only on exercise sheets, but also in their own writing. This class meets by arrangement in the Writing Center. This course does not fulfill degree requirements. After registering for this course, the student should contact the Writing Center.

ENGL 110

English Grammar Review (1 CR)

English Grammar Review helps students to review the parts of speech, elements of a sentence, basic sentence patterns, major sentence level errors, agreement errors and punctuation. Students are encouraged to practice writing. Course meets by arrangement in the Writing Center. This course does not fulfill degree requirements. After registering for this course, the student should contact the Writing Center.

ENGL 112

Research Skills (1 CR)

Research Skills is a review of the various aspects of the research process, beginning with limiting the subject and moving to revising the finished product. Emphasis is on the gathering of resource materials, synthesizing the information and developing an essay in which the resource information is used to support a thesis and is documented in an approved academic form. This course meets by arrangement in the Writing Center. This course does not fulfill degree requirements. After registering for this course, the student should contact the Writing Center.

ENGL 115

Revision Skills (1 CR)

Revision Skills is designed to instruct the practicing writer in skills needed to revise all writing, including business, college and personal writing. Students will use computer programs and self-paced materials. Revision Skills is intended to complement courses in which writing is assigned. Students will be encouraged to bring in business communication or college assignments to apply the learned skills. Course meets by arrangement in the Writing Center. This course does not fulfill degree requirements. After registering for this course, the student should contact the Writing Center.

ENGL 120

Writing in the Disciplines (1 CR)

This course is designed to complement and/or support classes in which writing is intrinsic to the curriculum and provide students with a process that can be applied to the variety of written assignments typically assigned in classes other than composition. Students will practice writing a variety of short papers using a prescribed process for each assignment. The course is individualized. Students enrolled in this class must come to the Writing Center, LIB 308, to make arrangements for their class schedule, to pick up a syllabus and other

materials, and to be assigned an instructor. The course is a combination of written material and software. All completed work will be kept in a folder in the Writing Center. Students should anticipate approximately 20 hours of work to complete the course. This course does not fulfill degree requirements.

ENGL 121

Composition I (3 CR)

Prerequisite: ENGL 106 or appropriate placement test score or EAP 113 and EAP 117

Composition I focuses on writing nonfiction prose suitable in its expression and content to both its occasion and its audience. Students will have an opportunity to improve in all phases of the writing process: discovering ideas, gathering information, planning and organizing, drafting, revising and editing. Each essay written in the course should clearly communicate a central idea or thesis, contain sufficient detail to be lively and convincing, reflect the voice of the writer and use carefully edited standard written English. 3 hrs./wk. Students must take the JCCC writing assessment test or submit an ACT score of 19 or higher before enrolling. For more information, see a JCCC counselor. This course may be offered as a Learning Communities (LCOM) section, see current credit schedule for LCOM details.

ENGL 122

Composition II (3 CR)

Prerequisite: ENGL 121

Because so much writing is required in college and in the workplace demands the ability to synthesize information gathered from various sources, Composition II will focus on skills essential to gathering, comprehending, analyzing, evaluating and synthesizing information. Composition II also emphasizes organizing and polishing steps important in composing expository, evaluative and persuasive prose. 3 hrs./wk. This course may be offered as a Learning Communities (LCOM) section, see current credit schedule for LCOM details.

ENGL 123

Technical Writing I (3 CR)

Prerequisite: ENGL 121

This course provides a basic knowledge of technical writing. Students will learn the writing process (prewriting, writing and rewriting) to follow when constructing correspondence, including memos, letters, e-mail, reports, instructional manuals and Web pages. Students also will learn seven key traits of effective technical writing: clarity, conciseness, document design, organization, audience recognition, audience involvement and accuracy. Accuracy specifically entails the need for students to adhere to rules of grammar and mechanics. Students will learn how to create computer-generated graphics and learn word processing skills. Finally, the students will learn how to work in teams, modeling Total Quality Management skills. 3 hrs./wk.

ENGL 125

Scientific Writing (3 CR)

Prerequisite: ENGL 121

This course focuses on developing skills in scientific writing for students interested in or majoring in the sciences. Students will employ the writing process and audience awareness to construct correspondence, job application materials, PowerPoint presentations, lab reports, and long reports requiring research, analysis, and explanation of scientific processes, procedures, and data. Accuracy is emphasized in scientific writing and specifically entails the need for students to adhere to rules of grammar, mechanics, and consistent application of applicable scientific principles. 3 hrs. lecture/wk.

ENGL 130

Introduction to Literature (3 CR)

Prerequisite: ENGL 121

Students will read, discuss and analyze works from three literary genres: the short story, the poem and the play. Students will learn and apply the technical vocabulary used in the criticism of these literary forms. Students will be introduced to representative works from various literary traditions and cultures, including numerous works from contemporary writers. 3 hrs./wk. This course may be offered as a Learning Communities (LCOM) section, see current credit schedule for LCOM details.

ENGL 140

Writing for Interactive Media (3 CR)

Prerequisite: ENGL 121

This course teaches students to apply the writing process as well as fundamental rhetorical and composition skills to various interactive media including web pages, CD-ROMs/DVD, e-mail, kiosks, support materials, simulations, social networking and other electronic media. The instruction will focus on skills essential to selecting, evaluating and synthesizing information from primary and secondary sources; in addition, it will emphasize the different approaches to organization that these media require as well as the variety of discourse styles used in informative, instructional, persuasive and entertainment media texts. 3 hrs. lecture/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$10 to \$20.

ENGL 150

Digital Narratives (3 CR)

Prerequisite: ENGL 121

Games, particularly Role-Playing Games (RPGs) and other participatory narratives, share many properties with traditional narratives, yet differ significantly from their linear counterparts. This course focuses on the elements of narrative as well as the principles that drive virtual or alternative possible worlds (both fictive and reality-based), and it will provide students with practice writing and designing artifacts that demonstrate an understanding of plot, character, setting and the impact of structure and purpose in game development. This course is taught in the fall semester only. 3 hrs. lecture/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$20 to \$30.

ENGL 205

Bible as Literature (3 CR)

Prerequisite: ENGL 122

This course introduces students to the literary aspects of Bible. Students will read extracts from both the Hebrew and Greek portions of the Bible in translation. They will learn to analyze these readings as representatives of the Bible's many literary forms. Students will also sample from later literary works that draw on biblical sources for their inspiration. Students will write essays demonstrating their understanding of the works studied. 3 hrs. lecture/wk.

ENGL 210

Technical Writing II (3 CR)

Prerequisite: ENGL 123

This course provides an advanced knowledge of technical writing. Students will learn the writing process (prewriting, writing and rewriting) to follow when constructing correspondence. Types of technical writing covered in this course include memos, letters, e-mail, short reports, long reports, instructional manuals, Web pages, PowerPoint presentations, brochures, newsletters, journal articles, resumes and online resumes. Students also will learn seven key traits of effective technical writing: clarity, conciseness, document design, organization, audience recognition, audience involvement and accuracy. Accuracy specifically entails the need for students to adhere to rules of grammar and mechanics. Students will learn how to create computer-generated

graphics and learn word-processing skills. Finally, the students will learn how to work in teams, modeling Total Quality Management skills. 3 hrs./wk.

ENGL 215

U.S. Latino and Latina Literature (3 CR)

Prerequisite or corequisite: ENGL 122

This course introduces students to texts by U.S. writers of Hispanic descent or origin. Written primarily in English, the texts may include fiction, non-fiction, poetry, drama, and/or film. The readings, discussions, and related writing projects will emphasize the relationship between mainstream America and borderland writers; explore the cultural and artistic context of the writers and their works; recognize and assess the use of major narrative and rhetorical strategies; and stimulate consideration of issues surrounding assimilation, identity formation, code-switching, and cultural hybridity. 3 hrs. lecture/wk.

ENGL 217

Literature by Women (3 CR)

Prerequisite or corequisite: ENGL 122

This survey course introduces students to a representative sample of texts created by women from the mid-seventeenth century to present. Using the lens of gender, students will explore the social, historical, political, and cultural contexts relevant to the literature. Further, students will identify significant literary devices and genres as employed by these authors. The course will emphasize the dynamic relationship between the literature and its contexts. 3 hr. lecture/wk.

ENGL 222

Advanced Composition (3 CR)

Prerequisite: ENGL 122

This course offers challenging insights into the act of writing. We will move beyond Composition I and Composition II, focusing on writing persuasively to a select audience; working together to anticipate and defuse objections; supply convincing evidence; synthesize the ideas of others to support our ends; look critically at all sources; and perfect a mature, polished style that is suitable to audience and occasion. 3 hrs./wk.

ENGL 223

Creative Writing (3 CR)

Prerequisite: ENGL 122

Students will study and practice writing in two or three of the major literary modes of writing: poetry, fiction, and possibly drama. The reading assignments are based on the premise that, to be a good writer, students must have knowledge of literary techniques and be perceptive readers and critics.

Students will examine techniques of two or possibly three of the literary genres and then apply their knowledge to write in each genre. In addition, they will read other students' work and provide useful feedback on that work. 3 hrs./wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$10 to \$20.

ENGL 224

Creative Writing Workshop (3 CR)

Prerequisite: ENGL 223

In this class, students will build upon the knowledge and skills learned in ENGL 223. In addition to studying writing techniques, they will produce a body of written work in one or more literary genres of their choice: poetry, fiction, and/or drama. They will also read other students' work and provide useful feedback on that work. 3 hrs./wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$15 to \$25.

ENGL 227**Introduction to Poetry (3 CR)**

Prerequisite: ENGL 122

This course emphasizes close reading and analysis of poetry by writers from different time periods, countries, and ethnic backgrounds. Students will study terms, patterns, and forms that are useful for an understanding and appreciation of poetic verse. The course will cover major literary, historical, and cultural movements as they relate to poetry. Students will be introduced to major classical and contemporary American and English poets, along with contemporary foreign-language poetry in translation. 3 hrs. lecture/wk.

ENGL 230**Introduction to Fiction (3 CR)**

Prerequisite: ENGL 122

This course features significant opportunities to write about the literature and the reader's response to it. Students will learn the historical fictional precedents of the short story; the similarities and differences between the short story and other narrative forms, such as the novel; the differences between the short story and its historical precedents, between short stories and film adaptations of them, and between commercial and literary short stories. Students will discover the place of short stories in major literary movements, the key elements of short stories and interpretive approaches to short stories. 3 hrs./wk.

ENGL 231**American Prose (3 CR)**

Prerequisite: ENGL 122

American Prose presents a series of literary works by American writers that reflects the attitudes and identity of our national literature and culture. By grappling with the ideas and characterizations presented in each literary work, the student develops meaningful insights into the attitudes and human conditions that influence America's national literary identity. 3 hrs./wk.

ENGL 232**Children's Literature (3 CR)**

Prerequisite: ENGL 122

Children's Literature is meant for all students interested in bringing children and books together but is especially suited for those who are students with English or education majors; teachers already in the elementary school classroom; parents; those working with children in preschools, day-care centers and libraries; and grandparents and prospective parents. The course would also benefit those exploring the field of writing and illustrating for children. Students will identify children's needs and interests, list the criteria for choosing books for children, and demonstrate the means by which we can bring children and books together. Students will read, examine and critique a variety of children's literature selected by author, genre and historical time period. 3 hrs./wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$20 to \$50.

ENGL 235**Drama as Literature (3 CR)**

Prerequisite: ENGL 122

This course introduces students to the analysis of plays as literature. Beginning with the Greek dramatists and ending with the contemporary scene, students will read full-length plays and the comments of playwrights, directors, actors and critics. They will analyze drama from psychological, historical, philosophical, structural and dramatic perspectives. Students will write essays demonstrating their understanding of the works studied. 3 hrs./wk.

ENGL 236**British Literature I (3 CR)**

Prerequisite: ENGL 122

In this survey course, the student will study British literature written up to 1800, ranging from the Anglo-Saxon to the Augustan eras, including works by major authors, such as Chaucer, Shakespeare, Milton, and Swift. The course will emphasize the relationships among influential writers, their lives and times. Additionally, the student will explore the literary differences between the British culture and one other culture that was governed by the British Empire. Such non-British literary works may be from Australia, India, Asia, and various regions of Africa, or the Middle East. 3 hrs. lecture/wk.

ENGL 237**British Literature II (3 CR)**

Prerequisite: ENGL 122

In this survey course, the student will study British literature written from 1800 to the present. Major authors from the Romantic, Victorian and Modern eras, such as Austen, Blake, Wordsworth, the Shelleys, Dickens, Tennyson, the Brownings, Eliot, and Woolf, will be included. The course will emphasize the relationships among influential writers, their lives and times. Additionally, the student will explore the literary differences between the British culture and one other culture that was governed by the British Empire. Such non-British literary works may be chosen from the traditions of Australia, India, Asia, various regions of Africa, or the Middle East. British Literature I is NOT a prerequisite for this course. 3 hrs. lecture/wk.

ENGL 243**Literature of Science Fiction (3 CR)**

Prerequisite or corequisite: ENGL 122

This course examines the literature of science fiction, especially from 1960 through the present. Students explore the unifying concepts of science and technology, depicted through imaginative narratives of the past, present and future. Students read short stories and/or novels, view science fiction films and discuss key science fiction concepts. 3 hrs. lecture/wk. This course may be offered as a Learning Communities (LCOM) section, see current credit schedule for LCOM details.

ENGL 244**Literature of American Popular Music (3 CR)**

Prerequisite: ENGL 122

Students read, analyze, evaluate and discuss the literature surrounding American popular music. No less than any other form of literature, all genres of American popular music are intertwined, engaged in dialogue, and revealing of the American experience. By engaging with, comparing and evaluating the conversations between popular music and fiction, poetry, and criticism, students will explore the social, historical, political, and cultural contexts relevant to the literature. Through this process, students will discover, analyze, synthesize and evaluate the ongoing negotiations between a great diversity of cultural aesthetics, political interests and public opinions in the shaping of American identity. 3 hrs. lecture/wk.

ENGL 245**Writing Literature for Children (3 CR)**

Prerequisite: ENGL 232

Writing Literature for Children is a continuation of Introduction to Children's Literature aimed primarily at those students interested in writing and publishing literature for children. The students will review children's needs and interests, research topics and collect data for possible books. Then students will write and assemble a variety of children's literature. Students will critique their own work and that of their peers and revise their work accordingly. Finally, students will compose all correspondence typically required by

publishers. 3 hrs./wk.

ENGL 250

World Masterpieces (3 CR)

Prerequisite: ENGL 122

World Masterpieces introduces students to literary study using major literary works composed from the times of Homer to Shakespeare that have been influential in shaping and expressing values of Western culture. Students will read selections representative of the epic, tragic, comic and lyric traditions primarily to gain knowledge of the works assigned. In addition, students will analyze the assigned texts as literary works and as cultural artifacts and influences. Finally, students will compare and contrast contemporary understandings of the individual and society with those expressed in the works studied. In completing the course objectives, students will learn the conventions of writing about literature and become familiar with general reference materials useful in studying literature. 3 hrs./wk.

ENGL 254

Masterpieces of the Cinema (3 CR)

Prerequisite: ENGL 122

This course examines the development of cinema from the early experiments in the late 1800s up to the present day, presenting the history and art of both American and international cinema. Students read the textbook, view short and full-length films, and discuss important cinematic techniques and concepts. Students verify their judgments by summarizing and analyzing these important concepts, using discussions, and writing effective, well-organized essays in response to cinematic presentations and explanations. 3 hrs./wk.

ENGL 256

American Poetry (3 CR)

Prerequisite: ENGL 122

American Poetry presents a planned reading schedule and directed discussion of poems that reflect the attitudes of American poets and American culture. By grappling with the ideas and characterizations presented in these poems, students can develop meaningful insights into the attitudes and human conditions that have influenced America's national literary identity. 3 hrs./wk.

writing at the paragraph level along with grammatical structures to help ensure students success. The course will also focus on learning and study strategies to enhance writing. This course is the second writing and grammar course in the sequence of courses. 3 hrs. lecture/wk. This course does not fulfill degree requirements.

EAP 105

Speaking and Pronunciation I (3 CR)

Prerequisite: Appropriate ESL assessment test score

This course provides English Language Learning (ELL) students the opportunity to develop their speaking and pronunciation skills. Focus will be on effective techniques for using American English in academic, career and personal settings. 3 hrs. lecture/wk. This course does not fulfill degree requirements.

EAP 107

Speaking and Pronunciation II (3 CR)

Prerequisites: Either EAP 101 and EAP 120 and EAP 105 OR appropriate ESL assessment test score

This course provides English Language Learning (ELL) students the opportunity to expand fluency in speaking and pronunciation. The course covers techniques for listening with accuracy and speaking with the stress, rhythm and intonation of American English. Personal communications and group interactions in academic, career and community settings are included. The course concludes with applications to individual life goals. 3 hrs lecture/wk. This course does not fulfill degree requirements.

EAP 111

Writing and Grammar III (3 CR)

Prerequisites: Either EAP 103 and EAP 121 and EAP 107 OR appropriate ESL assessment test score

This course provides English Language Learning (ELL) students an integrated communicative experience at the intermediate level. Students will focus on developing fluency in writing using American English at the paragraph and multi-paragraph level along with grammatical structures to support writing. This course is the third writing and grammar course in the sequence of courses. This course does not fulfill degree requirements. 3 hrs. lecture/wk.

EAP 113

Writing and Grammar IV (3 CR)

Prerequisites: Either EAP 111 and EAP 122 and EAP 115 OR appropriate ESL assessment test score

This course provides English Language Learning (ELL) students the opportunity to improve fluency in American English in writing at the high intermediate to advanced level. Students will engage in writing tasks that relate to the academic disciplines. The course also focuses on grammar activities including editing strategies for effective writing. This course is the fourth writing and grammar course in the sequence of courses. This course does not fulfill degree requirements. 3 hrs. lecture/wk.

EAP 115

Speaking and Pronunciation III (3 CR)

Prerequisites: Either EAP 103 and EAP 121 and EAP 107 OR appropriate ESL assessment test score

This course provides English Language Learning (ELL) students the opportunity to enhance fluency in speaking, pronunciation, and listening at the upper intermediate level. Students apply standard American communication patterns to understand lectures, speak in academic settings, and communicate in group interactions. Informal and formal projects include oral reports in specific fields of study and academic debates. The course concludes with analysis of individual goals and assessments to enhance academic success.

English for Academic Purposes (EAP)

EAP 101

Writing and Grammar I (3 CR)

Prerequisite: Appropriate ESL assessment test score

This course provides English Language Learning (ELL) students an integrated communicative experience at the beginning college level. Students will learn effective writing techniques and grammatical structures for using American English at the sentence and basic paragraph level. The course will also focus on basic study and learning strategies to aid writing. This course is the first writing and grammar course in the sequence of courses. 3 hrs lecture/wk. This course does not fulfill degree requirements.

EAP 103

Writing and Grammar II (3 CR)

Prerequisites: Either EAP 101 and EAP 120 and EAP 105 OR appropriate ESL assessment test score

This course provides English Language Learning (ELL) students an integrated communicative experience. Students will focus on using American English in

This course does not fulfill degree requirements. 3 hrs. lecture/wk.

EAP 117

Speaking and Pronunciation IV (3 CR)

Prerequisites: Either EAP 111 and EAP 122 and EAP 115 OR appropriate ESL assessment test score

This course offers English Language Learning (ELL) students the opportunity to master speaking, pronunciation, and listening at an advanced level. Pronunciation performance will be enhanced for accent reduction and communication of precise meanings of standard American English. Students apply advanced strategies to process knowledge from specific fields of study and give presentations with idiomatic vocabulary from literature, media, and research sources. The course concludes with expansion of sociolinguistic and cultural competencies for group interactions and large audiences. Pre- and post-assessments measure progress in exit competencies. This course does not fulfill degree requirements. 3 hrs. lecture/wk.

EAP 120

Reading/Vocabulary I (3 CR)

Prerequisite: Appropriate ESL assessment test score

This course provides English Language Learning (ELL) students an integrated communication experience on the high beginning college level. Students will learn effective techniques for reading, studying and using American English in an academic setting. This is the first reading course in the sequence of courses. This course does not fulfill degree requirements. 3 hrs. lecture/wk.

EAP 121

Reading/Vocabulary II (3 CR)

Prerequisites: Either EAP 101 and EAP 120 and EAP 105 OR appropriate ESL assessment test score

This course provides English Language Learning (ELL) students the opportunity to develop reading fluency, comprehension and vocabulary on the low intermediate college level. Reading, writing, speaking and listening will be integrated, and students will learn effective techniques for studying and using American English in an academic setting. This is the second reading course in the series. 3 hrs. lecture/wk. This course does not fulfill degree requirements.

EAP 122

Reading and Vocabulary III (3 CR)

Prerequisites: Either EAP 103 and EAP 121 and EAP 107 OR appropriate ESL assessment test score

This course provides English Language Learning (ELL) students an integrated communicative experience at the intermediate college level. Students will develop reading fluency, comprehension, and vocabulary. Reading, writing, speaking, and listening will be integrated, and students will learn effective techniques for using American English to read and study in an academic setting. This course is the third reading course in the series. This course does not fulfill degree requirements.

Entrepreneurship (ENTR)

ENTR 010

Business Plan Certificate (7 CR)

The business plan certificate program focuses on evaluating an idea for a business and concludes with writing a business plan to start and/or grow a business. The certificate is comprised of the three entrepreneurship courses: ENTR 120 Introduction to Entrepreneurship 2 credit hours, ENTR 180 Opportunity Analysis 2 credit hours, and ENTR 142 Fast Trac Business Plan 3 credit hours Major Code 4810

ENTR 120

Introduction to Entrepreneurship (2 CR)

The student will understand the role of entrepreneurial businesses in the United States and the impact on our national and global economy. The student will evaluate the skills and commitment necessary to successfully operate an entrepreneurial venture. Additionally, the student will review the challenges and rewards of entrepreneurship as a career choice as well as entrance strategies to accomplish such a choice. 2 hrs. lecture/wk.

ENTR 131

Financial Management for Small Business (2 CR)

Prerequisite: ACCT 111 or ACCT 121

Upon successful completion of this course, the student should be able to identify and evaluate the various sources available for funding a small business; demonstrate an understanding of financial terminology; read, prepare and analyze a financial statement; and write a loan proposal. In addition, the student should be able to explain the importance of working capital and cash management. The student should also be able to identify financing needs, establish credit policies, and prepare sales forecasts. This course is required for a vocational certificate and associate of applied science degree in business entrepreneurship. 2 hrs./wk.

ENTR 142

Fast Trac Business Plan (3 CR)

Upon successful completion of this course, the student will be able to evaluate a business concept and write a sound business plan. In the process of doing so, students will be able to assess the strengths and weaknesses of a business concept; collect and organize market research data into a marketing plan; and prepare the financial projects for their business concept. In addition, students will be able to identify and evaluate various resources available for funding small businesses. The course is required for the business plan certificate, the vocational certificate in business entrepreneurship and the associate of applied science degree in business entrepreneurship. 3 hrs. lecture/wk.

ENTR 160

Legal Issues for Small Business (2 CR)

Upon successful completion of this course, the student should be able to identify the forms of business ownership and the legal and tax implications for each. In addition, the student should be able to explain laws covering issues such as personnel, contracts and protection of intellectual property. The student should also be able to explain the reporting requirements for local, state and federal agencies. This course is required for the associate of applied science degree and the vocational certificate in business. 2 hrs./wk.

ENTR 180

Opportunity Analysis (2 CR)

Upon successful completion of this course, the student should be able to assess the current economic, social and political climate for small businesses. In addition, the student should be able to explain how demographic, technological and social changes create opportunities for small business ventures. This course is required for the associate of applied science degree in business entrepreneurship. 2 hrs./wk.

ENTR 190

Small Business Analysis (2 CR)

Prerequisites: ENTR 131 and ENTR 160 and BUS 230 or department approval

Upon successful completion of this capstone course, the student should be able to identify problems that frequently arise in small business and use problem-solving skills to formulate solutions. In addition, the student should be able to apply the knowledge of business concepts and techniques in the analysis of cases and actual business situations. This course is required for an associate of

applied science degree and a vocational certificate in business entrepreneurship. 2 hrs./wk.

ENTR 195

Franchising (3 CR)

Prerequisite: BUS 230

In this course, the student should be able to research the franchising method of doing business from the perspective of both the franchisor and the franchisee. The student will analyze independent management efforts necessary for a successful franchise business venture as well as understand the interdependent contractual obligations that are legally binding between the franchisor-franchisee. 3 hrs. lecture/wk.

ENTR 210

Entrepreneurship Internship I (1 CR)

Prerequisite: department approval

Upon the successful completion of this course, the student should be able to apply classroom knowledge to an actual work situation. This course consists of supervised work experience in an approved training situation. A minimum of 240 hours of on-the-job training is required. This course is required for an associate of science degree in business entrepreneurship. Either ENTR 210 or BUSE 210, Entrepreneurship Internship I, or ENTR 215 or BUSE 215, Entrepreneurship Internship II, is required for a vocational certificate in business entrepreneurship.

ENTR 215

Entrepreneurship Internship II (1 CR)

Prerequisites: ENTR 210 and department approval

Upon the successful completion of this course, the student should be able to apply classroom knowledge to an actual work situation. A minimum of 240 hours of on-the-job training is required. This course is required for an associate of applied science degree in business entrepreneurship. Either BUSE 210 or ENTR 210, Entrepreneurship Internship I, or BUSE 215 or ENTR 215, Entrepreneurship Internship II is required for a vocational certificate in business entrepreneurship.

ENTR 220

Entrepreneurial Marketing (2 CR)

Prerequisite: BUS 230

In this course, the student will gain insights essential for marketing an entrepreneurial venture utilizing innovative and financially responsible marketing strategies. The student will analyze marketing philosophies implemented by key successful entrepreneurs. Additionally, the student will prepare a marketing plan to launch the entrepreneurial venture and a marketing plan to implement during the first two years of business operation. 2 hrs. lecture/wk.

ENTR 225

Family Business (3 CR)

Upon successful completion of this course, the student will gain the knowledge and skills needed for the successful management and leadership of a family enterprise by exploring a diverse set of family firms, examining the interrelationships among the owners, the family, and the management team. The student will analyze the management and family practices that ensure success while recognizing the advantages and challenges facing family enterprises. Emphasis is placed on positioning the family enterprise for sustained growth and continuity through generations. 3 hrs. lecture/wk.

ENTR 240

Funding Acquisition for Entrepreneurs (2 CR)

Prerequisite: ENTR 142

Upon successful completion of this course, the student will understand the importance and impact of funding sources for their entrepreneurial venture. This will be accomplished by reviewing the impact of venture capital in every phase of the business venture from idea to exit including planning, teambuilding, protecting intellectual capital, identifying funding sources, raising money, writing funding agreements, and managing through to an IPO or merger and acquisition. Additionally, the student will develop and present a funding proposal. 2 hrs. lecture/wk.

Fashion Merchandising/Design (FASH)

FASH 121

Fashion Fundamentals (3 CR)

Upon successful completion of this course, the student should be able to define appropriate fashion terminology and explain the structure of the industry, including the design process and marketing of the fashion product. 3 hrs./wk.

FASH 122

Aesthetics for Merchandising and Design (3 CR)

Upon successful completion of this course, the student should be able to demonstrate an understanding and apply the concept of aesthetics as it relates to the different roles of the apparel industry and the development, selection and promotion of apparel and textile products. The student will incorporate the principles and elements of design into projects designed to apply their aesthetic knowledge. 3 hrs. lecture/wk.

FASH 123

Apparel Construction I (4 CR)

Upon successful completion of this course, the student should be able to apply clothing construction principles, techniques and skills in apparel construction. The class will use lecture, demonstration and hands-on experience to teach the skills needed to plan and construct four garments during this class. 2 hrs. lecture, 4 hrs. lab/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$100 to \$300.

FASH 124

Apparel Construction II (4 CR)

Prerequisite: FASH 123 or two years of high school apparel construction training or department approval

Upon successful completion of this course, the student should be able to apply intermediate apparel construction principles, techniques and skills in the production of various garments. This continuation of FASH 123 will focus on the planning and construction of an ensemble of intermediate complexity made from muslin fitting samples, with emphasis on precise fitting alteration. This course is a suggested elective for the Fashion Merchandising program. 2 hrs. lecture, 4 hrs. lab/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$100 to \$300.

FASH 125

Visual Merchandising (3 CR)

Upon successful completion of this course, the student should be able to explain and apply the principles of design in visual merchandising. In addition, the student should be able to identify and explain the use of mannequins and

other forms, display fixtures and lighting systems; apply color theory; and present merchandise effectively in visual displays. The student should also be able to demonstrate the use of appropriate types of displays for in-store promotions. This course is required for the Fashion Merchandising program. 3 hrs./wk.

FASH 127

Computer Aided Pattern Development (4 CR)

Prerequisite: FASH 131

Upon successful completion of this course, the student will be able to apply the use of flat pattern techniques in developing computerized patterns for original apparel designs using the Gerber Pattern Design System technology. Students will digitize basic slopers/blocks and manipulate them into original apparel designs on the computer. This class will use a combination of lecture, demonstration and hands-on computer experience to teach the skills needed for creating digital patterns. 2 hrs. lecture, 4 hrs. lab/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$80.

FASH 130

Fashion Illustration I (3 CR)

Prerequisite: ART 130

Upon completion of this course, the student will be able to create fashion illustrations using several different types of media and begin to develop content for their fashion portfolio. The student will be able to express and apply color, mood, detail and form in representing a variety of different types of apparel. This class includes a study of all types of fashion drawing including technical drawings, garment detail drawings and development of a full cohesive collection. 3 hrs./wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$100 to \$200.

FASH 131

Flat Pattern Development (4 CR)

Prerequisite: FASH 123

Upon successful completion of this course, students should be able to apply the use of flat pattern methods in developing patterns for original apparel designs. Students will hand draft a set of both standard size and custom slopers/blocks for manipulation into original pattern designs. Students will plan, develop patterns, create pattern instructions and prepare muslin samples of their designs. The class will use a combination of lecture, demonstration and hands on experience to teach the skills necessary in manual pattern development. 2 hrs. lecture 4 hrs. instructional lab/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$100 to \$150.

FASH 132

Marketing Communications (3 CR)

Upon successful completion of this course, the student should be able to explain advertising and promotion from an integrated marketing communications perspective that combines theory with planning, management and strategy. In addition, the student will be able to explain advertising, sales promotion, direct marketing and publicity/public relations and the need for integration of these promotional mix elements in an overall marketing communications program. 3 hrs./wk. This course is typically taught in the fall semester.

FASH 133

Computer Aided Apparel Design (3 CR)

Prerequisite: FASH 122

Upon successful completion of this course, students should be able to apply Adobe Photoshop and Illustrator computer skills to create original textile and apparel designs. Students will learn a variety of different techniques to create portfolio ready compositions specific to fashion design. 3 hrs. lecture/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$25 to \$50.

FASH 135

Image Management (1 CR)

Upon successful completion of this course, the student should be able to conduct an extensive wardrobe inventory. In addition, the student should be able to apply principles of personal grooming, elements of design and fabric, and accessory knowledge to the development of an individual professional wardrobe plan based on individual budget constraints. 1 hr./wk.

FASH 141

Garment Alterations I (3 CR)

Prerequisites: FASH 123 and Prerequisite or Corequisite: FASH 124

Upon successful completion of this course, the student should be able to apply garment construction principles, techniques and skills in apparel construction and tailoring to garments in need or resizing or repair. The class will use lecture, demonstration and hands-on experience to teach the skills needed to plan and execute the adjustments necessary to resize the garment to a particular body. 4 hrs. integrated lecture/lab per week

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$100 to \$200.

FASH 142

Garment Alterations II (3 CR)

Prerequisite: FASH 141 and Prerequisite or Corequisite: FASH 143

Upon successful completion of this course, the student should be able to apply garment construction principles, techniques and skills in apparel construction and tailoring to formalwear and evening garments in need or resizing or repair. The class will use lecture, demonstration and hands-on experience to teach the skills needed to plan and execute the adjustments necessary to resize the garment to a particular body. 4 hrs. integrated lecture/lab per week.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$100 to \$200.

FASH 143

Tailoring (4 CR)

Prerequisite: FASH 124

Upon successful completion of this course, the student should be able to apply advanced construction principles, techniques and skills in the production of tailored garments. This course is a continuation of FASH 124, Apparel Construction II. The class will use lecture, demonstration and hands-on experience as the student completes a trial muslin for a jacket or coat plus a finished three-piece ensemble of advanced complexity during this class. 2 hrs. lecture, 4 hrs. lab/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$100 to \$300.

FASH 150

Textiles (3 CR)

Upon successful completion of this course, the student should be able to differentiate fibers and fabrics according to their specific characteristics and to select fibers and fabrics for specific applications. In addition, the student should be able to identify properties and characteristics of natural and man-

made fibers, the properties and characteristics of yarns, fabric construction methods including weaving and knitting and various finishing processes including printing and dyeing. 3 hrs./wk.

FASH 215

Field Study: MAGIC Trade Show (1 CR)

Prerequisite: FASH 121

Upon successful completion of this course, the student will be able to explain the importance of the MAGIC trade show in the fashion industry and explain the different segments of the show. Students should be able to identify different types of attendees and their objectives at the show as well as attend a minimum of two conference seminars and one fashion show.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$550 to \$600.

FASH 224

History of Costume (3 CR)

Upon successful completion of this course, the student should be able to identify the political, economic, technological and sociological factors that have influenced Western costume worn by women, men and children from ancient Egyptian times to the present. 3 hrs./wk.

FASH 225

Store Planning (3 CR)

Prerequisite: FASH 125

Upon successful completion of this course, the student should be able to demonstrate the skills needed to plan and execute the display methods and store planning concepts for promoting merchandise within a large or small store interior. These plans will use the student's understanding of design, fixtures, traffic patterns, floor sets, graphics/signage and materials. This course is a requirement for the visual merchandising certificate. 3 hrs. lecture/wk. This course is typically taught in the spring semester.

FASH 230

Fashion Illustration II (3 CR)

Prerequisite: FASH 130

Upon successful completion of this course, the student should be able to produce refined fashion illustrations to enhance the portfolio. Fashion Illustration II is a continuation of Fashion Illustration I. Greater emphasis is placed on development of a personal illustration style and presentation of a professionally executed portfolio. 3 hrs./wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$10 to \$50.

FASH 231

Merchandising Planning and Control (3 CR)

Prerequisite: MATH 120

Upon successful completion of this course, the student should be able to describe the management structure of retail merchandising operations, contrast merchandising functions among various types of retail operations, explain the buying process, explain the financial operations of retail merchandising and apply these principles in computer-simulated case situations. 3 hrs./wk. This course is typically taught in the spring semester.

FASH 242

Consumer Product Evaluation (3 CR)

Upon successful completion of this course, the student should be able to evaluate a wide range of textile and nontextile products, from lingerie to china,

on the basis of specialized product knowledge. In addition, the student should be able to prepare research projects on selected products. 3 hrs./wk. This course is typically taught in the spring semester.

FASH 265

Fashion Product Development (4 CR)

Prerequisites: FASH 123 and FASH 131 and FASH 133 and FASH 130

Upon successful completion of this course, students should be able to develop original garment design ideas from initial concept through to production. This includes translating market trend research, creating inspiration and concept presentation boards and continuing the design process through fabric selection and developing original patterns for first samples using flat pattern drafting and draping techniques. Students will calculate costing for their garments and develop detailed specification packages.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$100 to \$300.

FASH 268

Field Study: The Market Center (3 CR)

Prerequisite: FASH 121

Upon successful completion of this course, the student should be able to identify and distinguish between national, regional and local retail market centers. In addition, the student should be able to explain the importance of market centers, analyze the marketing mix of selected retailers and describe uses of fashion auxiliary services. This is a suggested course for the Fashion Merchandising program. 3 hrs./wk. This course is typically taught in the spring semester.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$900.

FASH 277

Fashion Seminar: Career Options (2 CR)

Upon successful completion of this course, the student should be able to define individual career goals after a thorough examination of five career areas within the fashion industry. In addition, the student should be able to explain strategies for success in the workplace. 2 hrs./wk.

FASH 279

Fashion Portfolio Development (2 CR)

Prerequisites: FASH 121 and FASH 124 and FASH 265

Students will compile, select and create new material for their portfolio as well as evaluate their own competencies and strengths. In addition, students will create a resume and perform a mock interview to be reviewed by faculty and peers. 2 hrs. lecture/wk. This course is typically taught in the spring semester.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$25 to \$80.

FASH 280

Capstone: Industry Topics (3 CR)

Prerequisites: 40 credit hours toward Fashion Merchandising or Design degree to be approved by the department. Students must pass all FASH courses with a grade of "C" or higher

Upon successful completion of this course, the student should be able to exhibit knowledge and work-based skill inherent to fashion retailing, wholesaling and manufacturing. The student will have opportunities to apply knowledge gained in prior courses analyzing industry topics. This capstone course will review and evaluate competencies that are essential for employment in the fashion industry. This course is required for the Fashion Merchandising program. 3 hrs. lecture/wk. This course is typically taught in the spring semester.

FASH 283

Fashion Internship I (1 CR)

Upon successful completion of this course, the student should be able to apply classroom knowledge to an actual work situation. This course offers work experience under instructional supervision in an approved training situation designed to provide practical experience in the fashion industry. A minimum of 15 hours on-the-job training/wk.

FASH 284

Fashion Internship II (1 CR)

Upon successful completion of this course, the student should be able to apply classroom knowledge to an actual work situation. The student will receive 225 hours of work experience in an approved training situation designed to provide practical experience in the fashion industry. An average of 15 hours on-the-job training/wk.

FASH 285

Fashion Internship III (1 CR)

Upon successful completion of this course, the student should be able to demonstrate the skills required to advance to an entry-level management position. The student will receive 225 hours of work experience in an approved training situation designed to provide practical experience in the fashion industry. An average of 15 hours on-the-job training is required/wk.

FASH 286

Fashion Internship IV (1 CR)

Prerequisites: FASH 283 and FASH 284 and FASH 285 and 40 hours toward degree in Fashion Merchandising

Upon successful completion of this course, the student will have received 225 hours of work experience in an approved training environment. The student should be able to demonstrate the skills required in an entry level management position. An average of 15 hours on the job training/wk. is required.

FASH 298

European Fashion Emphasis (3 CR)

Upon successful completion of this course, the student will be able to compare American and European retail merchandising, advertising and visual presentation. This travel-for-credit course includes visits to selected European cities.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$3000.

Fire Services Administration (FIRE)

FIRE 120

Fire Academy (12 CR)

HPER 240 and department approval

This course provides cognitive, psychomotor and affective instruction for those students seeking certification as a fire fighter in the state of Kansas. The class covers hazardous materials (first responder; operations level), fire department communications, fire ground operations, rescue operations and prevention, preparedness and maintenance, and physical agility (CPAT). Upon successful completion of the cognitive examinations and all psychomotor skills evaluations, students will be allowed to sit for the Kansas Fire Fighter II state certification examination, which is administrated by the University of Kansas, Fire and Rescue Training Institute, 8 hrs. lecture 7 hrs. lab/wk. This course is typically taught in the fall and spring semesters only.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$300.

FIRE 130

Fire Investigation (1 CR)

Prerequisite: FIRE 120

This course provides instruction in basic fire investigation. Students will learn basic cause and origin determination, scene and evidence security techniques, and report-writing skills. This course meets the job performance requirements pertaining to fire investigation identified in NFPA 1021, Fire Office Professional Qualifications. 1 hr./wk.

FIRE 135

Building and Fire Codes (3 CR)

Prerequisite: FIRE 120

This course entails application and interpretation of codes and ordinances, especially the Life Safety Codes used extensively in fire prevention. 3 hrs./wk.

FIRE 162

Fire Tactics and Strategy (3 CR)

Prerequisite: FIRE 120

Fire control through manpower, equipment and extinguishing agents will be explored, including theoretical models and practical applications. 3 hrs./wk. This course is typically taught in the fall semester only.

FIRE 220

Fire Administration (3 CR)

Prerequisite: FIRE 120

Techniques and methods used in managing fire departments are explored, including budgeting processes, administrative functions and types of political systems that affect a fire department. 3 hrs./wk. This course is typically taught in the fall semester only

FIRE 222

Fire Science Law (3 CR)

Prerequisite: FIRE 120

The law as it pertains to the fire service will be explained, along with tort law and business law. 3 hrs. /wk. This course is typically taught in the fall semester only.

FIRE 224

Incident Command Systems (3 CR)

Prerequisite: FIRE 120

This is a course in basic incident command. Disaster control, disaster management, communications for disaster management and types of disasters are presented. 3 hrs. /wk.

FIRE 250

Fire Service Science Instructional Methodology (3 CR)

Prerequisite: FIRE 120

This course is designed to provide the instructional skills and knowledge necessary to develop, conduct and evaluate formal training programs in in-service and classroom formats. This course meets NFPA 1041 standards for fire service instruction.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$100.

Floriculture (FLR)

FLR 130

Principles of Traditional Design (3 CR)

This course teaches the guidelines and basics of floral design. These principles are known as balance, composition, harmony, focal point, proportion, line, rhythm, texture, form, space, and color. The course will help the students develop an eye for color combinations, flow of lines, perspectives and the post-harvest care of floral materials. Recommendations are made that pertain to receiving, unpacking and processing the flowers. Methods of conditioning, hardening, and forcing flowers and use of preservatives are illustrated. 2 hrs. lecture 3 hrs. instructional lab/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$100.

FLR 150

Contemporary Design Styles (3 CR)

This course will focus on contemporary, Asian, and current trends in floral design. The course will help students develop their skills in asymmetrical balance, negative space, focal point, dramatic lines. Also included is the history of oriental design, cutting edge design, twigs, branches, pods to be used for textures, bold color schemes, and further discussion of the "less is more" concept. 2 hrs lecture, 3 instructional lab hrs/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$100.

FLR 200

Plants for Interior Design (3 CR)

This course discusses the basic aspects of healthy plant growth, including the functions of the root system and the leaf. Photosynthesis, respiration, and transpiration are explained, and the factors that affect these processes are discussed. Students will also learn Plant Nomenclature (common names and scientific names) for many plants. Students will be able to diagnose an unhealthy plant and determine the necessary steps needed to take to bring it back to health. The course will help students obtain a greater appreciation of foliage and blooming plants and understand their role in improving the interior environment. 2 hrs.lecture and 3 hrs instructional lab/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$100.

FLR 220

Wedding Design (3 CR)

Prerequisites: FLR 130 or FLR 150

This course will focus on traditional and contemporary wedding designs. Because weddings often constitute a large portion of a florist's business, it is imperative that students become proficient in various wedding designs, and be trained in many specialized arranging techniques. The course covers steps in creating the bridal bouquet, including round, crescent, cascade, triangle, and hand tied. Corsage construction, hair pieces, and other accessories will be discussed. Marketing and promotional efforts to build the wedding business will also be discussed. 2 hrs. lecture 3 hrs instructional lab/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$100.

FLR 250

Sympathy Flowers (3 CR)

Prerequisites: FLR 130 or FLR 150

This course will focus on the basic concepts of design for funeral bouquets, wreaths, and casket sprays. The student will learn how to combine flowers using texture, shape and color for different effects. Interesting ways to use foliage, twigs, mosses and other accessory materials will be presented along with different uses of ribbon. Topics of discussion will also include the best

use of sympathy cards and how to develop a good working relationship with your funeral directors. 2 hrs. lecture and instructional 3 hrs. lab/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$100.

FLR 270

Retail Flower Shop Operations (3 CR)

Prerequisites: FLR 200 and FLR 220 and FLR 250

This course will focus on the actual retail operation of a flower shop. Students will explore the various types of flower shops. Topics will include marketing strategies, advertising and promotion, develop selling skills, and merchandising. In addition, students will learn about employee relations, delivery services, public relations, management, florist computer software, buying and pricing. 2 hrs. lecture, 3 hrs. integrated lab/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$100.

Foreign Language (FL)

FL 116

Elementary Latin I (3 CR)

Students will have the opportunity to learn the basic vocabulary and structural patterns, or grammar, of Latin. Emphasis will be on fundamental grammar concepts, extensive word study for English vocabulary growth and the lasting contributions Roman society made to Western civilization. 3 hrs./wk. This course is not offered in the spring semester.

FL 117

Elementary Latin II (3 CR)

Prerequisite: FL 116 or one year of high-school Latin

This course will complete the presentation of basic Latin vocabulary and grammar. Fundamental grammar concepts, extensive word study for English vocabulary growth and the lasting contributions of Roman society to Western civilization will be emphasized. 3 hrs./wk. This course is taught in the spring semester.

FL 120

Elementary German I (5 CR)

This course presents the sounds, vocabulary and basic structural patterns of German, focusing on the development of listening comprehension, speaking, reading and writing skills. Cultural material will be integrated into the course. 5 hrs./wk.

FL 121

Elementary German II (5 CR)

Prerequisite: FL 120 or one year of high-school German

This course will continue the presentation of the vocabulary and basic structural patterns begun in Elementary German I with continued emphasis on the development of listening comprehension, speaking, reading and writing skills. 5 hrs./wk.

FL 123

Elementary Hebrew I (5 CR)

In this basic course, students will study the four areas of Hebrew language acquisition: listening, speaking, reading and writing. This course requires intensive classroom interaction as well as additional out-of-class assignments. Exposure to aspects of Israeli culture will be integrated into this course. 5 hrs. lecture/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$0 to \$17.

FL 124

Elementary Hebrew II (5 CR)

Prerequisite: FL 123

In this course, students will continue to develop skills in Hebrew: listening, speaking, reading and writing. This course is designed to encourage students to engage in classroom dialogue facilitating comfort with the spoken language. Exposure to aspects of Israeli culture will be integrated into the course. 5 hrs. lecture/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$0 to \$17.

FL 130

Elementary Spanish I (5 CR)

In this basic course, students will study Spanish grammar conversation, composition and the culture of Spanish-speaking countries. 5 hrs./wk.

FL 131

Elementary Spanish II (5 CR)

Prerequisite: FL 130 with a grade of "C" or higher or two years of high-school Spanish; or the appropriate score on the placement test

This course will continue the presentation of the material introduced in Elementary Spanish I. Graded reading selections will be added as a basis for conversation and composition in discussion periods. Placement test recommended: can be taken at the Testing Center. 5 hrs./wk.

FL 133

Basic Spanish for Hospitality Management (2 CR)

In this basic course, students will be introduced to terminology related to the hospitality industry, basic Spanish grammar and phrases related to work. 2 hrs./wk.

FL 140

Elementary French I (5 CR)

Areas covered in this basic course include vocabulary building, grammar study, conversation and an introduction to French culture and civilization. The emphasis is on conversation. Placement test recommended: can be taken at the Testing Center. 5 hrs./wk.

FL 141

Elementary French II (5 CR)

Prerequisite: FL 140 or one year of high-school French

This course continues the presentation of the material introduced in Elementary French I. Graded reading selections will be used as the basis for conversation. Placement test recommended: can be taken at the Testing Center. 5 hrs./wk.

FL 145

Field Study in Russian Language & Culture (2 CR)

This field study course is open to students with any level of Russian language proficiency - from beginning to advanced. The course combines orientation sessions in Russian language and culture at JCCC with two weeks of study in Russia. During their stay in Russia, students will attend a Russian university, take classes in Russian language and culture and participate in excursions to sites of historical and cultural significance. Students will be placed in Russian

language classes that are commensurate with their proficiency level in the Russian language. 10 hrs. lecture & 80 hrs. field study in Russia. FEES: Students are responsible for all expenses incurred during this field study, including costs for travel documents, insurance and all travel expenses. Students should contact instructor for cost estimate.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$2300 to \$2500.

FL 150

Elementary Russian I (5 CR)

In this course, students will learn the basic sounds, vocabulary and structural patterns of Russian. Emphasis will be on listening comprehension, speaking, reading and writing skills. Cultural material will be included. 5 hrs./wk.

FL 151

Elementary Russian II (5 CR)

Prerequisite: FL 150 or one year of high-school Russian

This course completes the presentation begun in Elementary Russian I. Students will gain listening comprehension, speaking, reading and writing skills appropriate to a second-level course. This course is taught in the spring semester. 5 hrs./wk.

FL 155

Elementary Arabic I (5 CR)

In this basic course, teacher and student activities are geared toward developing functional abilities to use Arabic accurately and fluently in listening, speaking, reading, and writing. This course requires intensive classroom interaction and out-of-class assignments. 5 hrs. lecture/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$10.

FL 156

Elementary Arabic II (5 CR)

Prerequisite: FL 155

This course will continue the presentation of vocabulary and basic structural patterns begun in Elementary Arabic I. There will be a continuation of comprehension, listening, reading, writing from an everyday use emphasis. This course is taught in the spring semester. 5 hrs. lecture/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$10.

FL 160

Elementary Italian I (5 CR)

Students will be introduced to the sounds, vocabulary and basic structural patterns of Italian, with primary focus on the development of listening comprehension, speaking, reading and writing skills. Integrated throughout the course will be an introduction to the culture of Italy. 5 hrs./wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$8 to \$20.

FL 161

Elementary Italian II (5 CR)

Prerequisite: FL 160 or one year of high-school Italian

A continuation of the presentation of the vocabulary and basic structural patterns of Italian, this course will emphasize the development of listening comprehension, speaking, reading and writing skills. Cultural material also will be integrated into the course. This course is taught in the spring semester. 5hrs./wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this

course has additional expense considerations that are estimated to be \$8 to \$20.

FL 165

Elementary Chinese I (5 CR)

This course will introduce students to the basic sounds, vocabulary, grammar and usage, characters and reading of the Chinese language. The emphasis will be on developing basic conversational skills. Students will develop an understanding and appreciation of Chinese culture. 5 hrs./wk.

FL 166

Elementary Chinese II (5 CR)

Prerequisite: FL 165 or equivalent college-level course with a grade of "D" or higher or one year of high-school Chinese with a grade of "D" or higher

This course offers a continuation of Elementary Chinese I, emphasizing the sounds, vocabulary, grammar, usage, characters and reading of the Chinese language. Students will develop more advanced conversational skills and cultural understanding. 5 hrs./wk.

FL 170

Elementary Japanese I (5 CR)

This course is an introduction to the sounds, vocabulary, grammar, usage and readings of the Japanese language. The emphasis will be on developing basic conversational skills. Cultural materials will be included. This course is typically taught in the fall semester. 5 hrs./wk.

FL 171

Elementary Japanese II (5 CR)

Prerequisite: FL 170 or one year of high-school Japanese

A continuation of Elementary Japanese I, this course will emphasize the sounds, vocabulary, grammar, usage and reading of the Japanese language. Focus is on developing more advanced conversational skills and cultural understanding. This course is typically taught in the spring semester. 5 hrs./wk.

FL 175

Elementary Brazilian Portuguese I (5 CR)

In this basic course, students will study Portuguese grammar, conversation, composition and the culture of Brazil. 5 hrs./wk.

FL 176

Elementary Brazilian Portuguese II (5 CR)

Prerequisite: FL 175

This course will continue the presentation of the material introduced in Elementary Brazilian Portuguese I. Graded reading selections are added as a basis for conversation and composition in discussion periods. This course is taught in the spring semester. 5 hrs. lecture/wk.

FL 178

Intermediate Russian I (3 CR)

Prerequisite: FL 151 or two years of high-school Russian

This course will emphasize vocabulary development and more advanced study of Russian grammar. Students will practice reading, listening comprehension, speaking and writing at the intermediate level. 3 hrs./wk.

FL 179

Intermediate Russian II (3 CR)

Prerequisite: FL 178 or three years of high-school Russian

Students will study Russian language and culture that would prepare them to travel in a Russian-speaking country and engage in simple conversation with the citizens. 3 hrs./wk.

FL 180

Elementary American Sign Language I (3 CR)

This class will focus on the development of beginning American Sign Language communication skills. Comprehension skills and linguistic features of the language taught in context will be emphasized. 6 hrs. integrated lecture-lab/wk. FL 180 and ASL 120 are the same course. Do not enroll in both.

FL 181

Elementary American Sign Language II (3 CR)

Prerequisite: FL 180 or INTR 120 with a grade of "C" or higher

This course will focus on continued development of elementary American Sign Language skills beyond those taught in Elementary ASL I. Students will work on developing communication competencies, concentrating on comprehension and production skills. Information about the linguistic and cultural features will be included in the context of language learning experiences. 6 hrs. integrated lecture-lab/wk. FL 181 and ASL 121 are the same course. Do not enroll in both.

FL 182

Intermediate Japanese I (5 CR)

Prerequisite: FL 171 or two years of high-school Japanese and department approval

This course continues the study of Japanese language and culture, emphasizing the sounds, vocabulary, grammar, usage and readings of the Japanese language. The course concentrates on developing further advanced conversational skills by increasing vocabulary and variety of sentence patterns. Cultural understanding will also be stressed. This course is typically taught in the fall semester. 5 hrs. lecture/wk.

FL 183

Intermediate Japanese II (5 CR)

Prerequisite: FL182 or three years of high-school Japanese and department approval

This course is a continuation of FL 182, the study of Japanese language and culture, emphasizing the sounds, vocabulary, grammar, usage and readings of the Japanese language. The course concentrates on developing further advanced conversational skills by increasing vocabulary and variety of sentence patterns. Cultural understanding will be stressed also. This course is typically taught in the spring semester. 5 hrs. lecture/wk.

FL 192

Intermediate Chinese I (3 CR)

Prerequisite: FL 166 or equivalent

This course is a continuation of study of the Chinese language and culture, emphasizing the sounds, vocabulary, grammar, usage and readings of the Chinese language. Focus will be on developing more advanced conversational skills by increasing vocabulary and variety of sentence patterns. Cultural understanding will also be stressed. 3 hrs./wk.

FL 193

Intermediate Chinese II (3 CR)

Prerequisite: FL 192 or equivalent

This course is a continuation of study of the intermediate Chinese language and culture, emphasizing the sounds, vocabulary, grammar, usage and readings of the Chinese language. Focus will be on developing more advanced

conversational skills by increasing vocabulary and variety of sentence patterns. Cultural understanding will also be stressed. 3 hrs. lecture/wk.

FL 195

Intermediate Arabic I (3 CR)

Prerequisite: FL 156

This course is an in-depth study of Arabic grammar and vocabulary. The four skills of speaking, reading, writing, and listening will be covered. This course aims to develop an intermediate level of proficiency in Arabic. 3 hrs. lecture/wk.

FL 196

Intermediate Arabic II (3 CR)

Prerequisite: FL 195

An in-depth study of Arabic grammar and vocabulary. The four skills of speaking, reading, writing, and listening will be covered. This course aims to develop an intermediate level of proficiency in Arabic. 3 hrs. lecture/wk.

FL 205

Conversational Japanese (2 CR)

Prerequisite: FL 171 or two years of high-school Japanese

This course is designed to enhance the ability of students to express themselves orally in Japanese through vocabulary building and reiteration of essential grammatical structures. The vocabulary will stress everyday situations. 2 hrs. lecture/wk.

FL 220

Intermediate German I (3 CR)

Prerequisite: FL 121 or two years of high-school German

This class will emphasize vocabulary building and grammar review primarily through extensive reading of German texts. There will be additional practice in listening comprehension, speaking and writing. Placement test recommended: can be taken at the Testing Center. 3 hrs./wk.

FL 221

Intermediate German II (3 CR)

Prerequisite: FL 220 or three years of high-school German

This class will further expand the mastery of German vocabulary and structure through extensive reading of more advanced texts with additional practice in listening comprehension, speaking and writing. Placement test recommended: can be taken at the Testing Center. 3 hrs./wk.

FL 223

Conversational German (2 CR)

Prerequisite: FL 121 or two years of high-school German

By applying vocabulary and structures presented in the text and handouts and by applying knowledge gained in a systematic review of German, the successful student will be able to communicate in German in situations that typically arise while traveling in a German-speaking country. Placement test recommended: can be taken at the Testing Center. 2 hrs./wk.

FL 230

Intermediate Spanish I (3 CR)

Prerequisites: FL 131 with a grade of "C" or higher or three years of high-school Spanish or the appropriate score on the placement test

This course refines grammar, builds vocabulary, increases understanding of

Hispanic culture, and provides practice designed to improve speaking fluency. It includes composition and conversation. Placement test recommended: can be taken at the Testing Center. 3 hrs./wk.

FL 231

Intermediate Spanish II (3 CR)

Prerequisite: FL 230 with a grade of "C" or higher or four years of high-school Spanish or the appropriate score on the placement test

This course refines grammar, builds vocabulary, increases understanding of Hispanic culture, and provides practice designed to improve speaking fluency. It includes more advanced readings as a source for composition and conversation. Placement test recommended: can be taken at the Testing Center. 3 hrs./wk.

FL 234

Conversational Spanish (2 CR)

Prerequisite: FL 230 with a grade of "B" or higher; or FL 231 with a grade of "C" or higher; or four years of high-school Spanish; or the score equivalent to FL 231 on the placement test

This course enhances students' ability to express themselves orally in Spanish through vocabulary building and reiteration of essential grammatical structures. The vocabulary emphasizes everyday life situations and current events. Placement test recommended: can be taken in the Testing Center. 2 hrs. lecture/wk.

FL 240

Intermediate French I (3 CR)

Prerequisite: FL 141 or two years of high-school French

In this course, students begin a more in-depth study of French grammar and vocabulary as they improve their mastery of the four communicative skills (listening, speaking, reading and writing). Reading assignments (from literary, journalistic and Internet sources) will be more advanced and writing assignments will be more extensive at the Intermediate level. Placement test recommended: can be taken at the Testing Center. 3 hrs./wk.

FL 241

Intermediate French II (3 CR)

Prerequisite: FL 240 or three years of high-school French

In this class, students continue their in-depth study of French grammar and improvement of vocabulary. All four communication skills (listening, speaking, reading, and writing) continue to be emphasized as reading assignments, compositions, listening comprehension exercises and class discussion become more complex. Placement test recommended. Go to the Testing Center or to the Language Resource Center. 3 hrs./wk.

FL 243

Conversational French (2 CR)

Prerequisite: FL 141 or two years of high-school French

This course is designed to build spontaneous speaking ability. Everyday situations and current events will be discussed in class. Placement test recommended. Go to the Testing Center or to the Language Resource Center. 2 hrs./wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$1 to \$3.

FL 246

Conversational Russian (2 CR)

Prerequisite: FL 151 or two years of high-school Russian

This course is designed to enhance students' ability to express themselves

orally in Russian through vocabulary building and reiteration of essential grammatical structures. The vocabulary will stress everyday situations and current events. 2 hrs./wk. This course may be offered as a Learning Communities (LCOM) section, see current credit schedule for LCOM details.

FL 248

Conversational Arabic (2 CR)

Prerequisite: FL 156

This course is designed to enhance students' ability to express themselves orally in Arabic through vocabulary building and reiteration of essential grammatical structures. 2 hrs. lecture/wk.

FL 249

Conversational Chinese (2 CR)

Prerequisite: FL 193 or two years of high-school Chinese

This course is designed to enhance the ability of students to express themselves orally in Chinese through vocabulary building and reiteration of essential grammatical structures. The vocabulary will stress everyday situations and current events. 2 hrs. lecture/wk.

FL 250

Conversational French: Cinema (2 CR)

Prerequisite: FL 141 or two years of high-school French

This course is designed to build students' speaking and listening comprehension proficiencies in French through the viewing and discussion of French and francophone films. Students will study vocabulary and grammatical structures presented in the course textbook and/or handouts and will view films and discuss them. Most topics of discussion will relate to everyday life and social situations as well as basic personal information. Students will also learn to identify and discuss the main components of a film and key cinematic techniques and concepts. 2 hrs. lecture/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$40 to \$60.

FL 270

Intermediate American Sign Language I (3 CR)

Prerequisite: FL 181 or INTR 121

This course will focus on the development of intermediate American Sign Language communication skills. Emphasis will be on teaching in context comprehension skills and linguistic features of the language. 6 hrs. lecture-lab/wk. INTR 122, FL 270 and ASL 122 are the same courses; only enroll in one.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$10 to \$40.

FL 271

Intermediate American Sign Language II (3 CR)

Prerequisite: FL 270 or INTR 122

The study of intermediate American Sign Language will continue in this course. It is designed to further intermediate communication skills in American Sign Language. Information about the linguistic and cultural features will be included in the context of language learning experiences. 6 hrs. lecture/wk. INTR 123, FL 271 and ASL 123 are the same courses; only enroll in one.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$10 to \$40.

FL 298

French Culture and Civilization (3 CR)

In this travel-for-credit course, students will visit selected sites in France, where they will compare the French and U.S. languages, values, culture and institutions. Summer.

Game Development (GAME)

GAME 101

Computer Game Creation (4 CR)

This course is designed to present the skills and to provide the hands-on experience required to create computer games utilizing game development tools that require no programming. Typical game creation topics to be covered include: learning how to build games with a game development environment, the basic ideas of game design, introduction to building 3D levels, a brief survey of the game business and game careers. Typical tasks will include: building a variety of games, learning how to include sound effects and simple animation effects in games, using simple analysis tools to evaluate games, building a 3D level, creating an original game as a term project. 3 hrs. lecture, 1.5 hrs. lab/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$20 to \$50.

GAME 102

The Business of Games (3 CR)

In this course, students are introduced to the business and process of game development, from the concept document to publishing. Students will learn the stages of game development within the context of the often complex relationship between developer, publisher and retailer. The course uses a participatory format emphasizing analytical thinking and problem solving, both key skills for persons seeking a career in the game development industry. 3 hrs lecture/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$20 to \$50.

GAME 110

Flash Gaming (4 CR)

This course is designed to present the skills and to provide the hands-on experience required to create computer games utilizing Flash MX 2004. Typical topics to be covered include 2D coordinate systems, basic game physics, game trigonometry, motion techniques, collision detection, collision reaction, conservation of momentum and energy, and tile based worlds. Typical tasks include creation of angle conversion functions; projection functions; controlling speed, velocity, and acceleration; applying Newton's three laws of motion, affecting gravity and friction; and creation of grid management systems. 3 hrs. lecture and 1.5 hrs. lab/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$20 to \$50.

GAME 140

Game Programming I - 2D (4 CR)

Prerequisite: CS 200

This course is designed to present skills and provide hands-on experience required to create two-dimensional games utilizing C++. Typical game topics will include programming in a GUI (graphical user interface) environment, game libraries, sound, music and working with graphics. Typical tasks will include setting up the environment, creating several games, using music and sound in a game, and exercises that will highlight important game

programming concepts. 3 hrs. lecture, 1.5 hrs. lab/wk.

GAME 180

Artificial Intelligence for Games (3 CR)

Prerequisite: CS 200

Upon successful completion of this course, students should be able to deconstruct simple computer programs illustrating introductory concepts in artificial intelligence as applied to computer games. They will define terms and application areas in the field, and describe game representation and implementation techniques used in artificial intelligence for games. 3 hrs lecture/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$20 to \$50.

GAME 200

Game Design (3 CR)

Students will refer to the history of video games to describe the progression of development up to the modern forms of games available today. Students will critically analyze video games and identify and understand the thematic, visual, systematic, and geographical elements that contribute to making a fun user experience. Abstract systems will be introduced at the beginning of the course, and students will be invited to give their own examples. Models will be shown early as references for students when investigating specific video game structures later in the course. Students will develop a common lattice of "game design patterns" creating a common vocabulary and database. Creative habits and professional attitudes will be discussed. 3 hrs. lecture/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$20 to \$50.

GAME 230

Game Programming II -3D (4 CR)

Prerequisite: GAME 140

This course will provide an opportunity for students to obtain the knowledge and skills necessary to create 3D multiplayer games. Topics include 3D models of players, vehicles, items, and structures; audio and music; graphical user interfaces and menus; UV wrapped textures and skins; environmental effects; and outdoor terrain. 3 hrs. lecture, 2 hrs. lab/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$20 to \$50.

GAME 250

Game Programming III-Capstone (4 CR)

Prerequisites: GAME 200 and GAME 230 and CIM 145 and ENGL 150 and *Prerequisite or corequisite:* GAME 180

This course is designed for students to apply the foundations of game design and game programming to a significant original game. Students should work within a team to analyze a problem, develop and present a proposed game design document, build a demonstrable prototype of the game and develop a significant portion of the finished product. Students should also develop a project schedule and present progress information to the class. Students should also develop job search skills and both written and oral communication skills. 3 hrs. lecture, 2 hrs. lab by arrangement/wk

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$20 to \$50.

GAME 255

Mobile Game Programming (4 CR)

Prerequisites: GAME 140 and GAME 200

This course is designed for students who want to learn mobile device game programming. The students will learn the various limitations on mobile devices and the options available for programming them. They will create a 2D game for mobile devices. 3 hrs lecture, 2 hrs lab per week.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$20 to \$50.

Geographic Information Systems (KEOG)

KEOG 120

Introduction to Geographic Information Systems (3 CR)

Fundamental concepts of geographic information systems (GIS), elements of GIS, analysis of spatial information, real-world applications, map creation and analysis. Primary objective is to investigate interactive GIS applications rather than develop expert users. Course taught at MCC-Longview Community College, 500 SW Longview Road, Lee's Summit, Missouri 64081, 816-672-2549, and MCC-Maple Woods Community College, 2601 NE Barry Road, Kansas City, Missouri 64156, 816-437-3355.

KEOG 128

Web Development (3 CR)

Prerequisites: MCC's CSIS 110 or CSIS 115

An in-depth introduction to the creating of web pages for an Internet site. Create individual web pages that use all the basic components, and then build a web site that follows good design and navigation principles. Interactive and multimedia features will be added to the site. Issues concerning the Internet will be discussed. 2 hrs. lecture & 2 hrs. lab/wk. Course taught at MCC

KEOG 144

Introduction to SQL with Oracle (3 CR)

Prerequisite: MCC's CSIS 115

In-depth hands-on experience with ORACLE database management system (DBMS). The student will use SQL to develop skills in retrieving data, inserting, deleting and updating records, and creating tables, records, and other database objects. Basic relational database design management concepts will be discussed. 2 hrs. lecture & 2 hrs lab/wk.

KEOG 220

Geographic Information Systems Database & Design (3 CR)

Prerequisite: KEOG 120

Concepts of Geo-database design and management in geographic information systems (GIS), SQL statements, geographic data types and functions, data entry, techniques of geographic information structure and indexing, querying techniques, searches, and spatial analysis, creation and use of metadata real-world applications. Course taught at MCC-Longview Community College, 500 SW Longview Road, Lee's Summit, Missouri 64081, 816-672-2549, and MCC-Maple Woods Community College, 2601 NE Barry Road, Kansas City, Missouri 64156, 816-437-3355.

KEOG 224

Applications in Geographic Information Systems (3 CR)

Prerequisites: KEOG 120 and KEOG 220

Applications in Geographic Information Systems. Data collection, incorporation of local and global data, and analysis of spatial information that can be used to investigate major application areas, national GIS policy. This course is taught at MCC-Longview Community College, 500 SW Longview

Road, Lee's Summit, Missouri 64081, 816-627-2549, and MCC-Maple Wood Community College, 2601 NE Barry Road, Kansas City, Missouri 64156, 816-437-3355.

KEOG 228

Administrative Issues in Geographic Info Systems (3 CR)

Prerequisite: KEOG 120

Addresses issues unique to GIS operation such as implementation issues, decision making procedures, strategies for success, legal issues, involvement of management, NCGIA Guidelines, marking within an organization, strategic planning and industry outlook. 3 hrs. lecture/wk. 1-3 credit hour course. A three credit hour internship is required for a student with no GIS experience and 1 hour for someone already employed in the GIS field. This course is taught at MCC-Longview Community College, 500 SW Longview Road, Lee's Summit, Missouri 64081, 816-672-2549, and MCC-Maple Woods Community College, 2601 NE Barry Road, Kansas City, Missouri 64156, 816-437-3355.

KEOG 230

Geographic Information Systems Internship (1 CR)

Prerequisites: KEOG 120 and KEOG 220

Internship in a Geographic Information System facility. Experience real-workplace requirements, complete assigned tasks by hosting facility such as GIS data entry, data retrieval, GPS field work, documentation, or general GIS facility duties. Arranged meetings with instructor includes work ethics, expectations, challenges, evaluation. 225-675 hours. This course is taught at MCC-Longview Community College, 500 SW Longview Road, Lee's Summit, Missouri 64018, 816-672-2549, and MCC-Maple Woods Community College, 2601 NE Barry Road, Kansas City, Missouri 64156, 816-437-3355.

Geoscience (GEOS)

GEOS 130

General Geology (5 CR)

In this introductory course the students will survey the geologic processes that form and shape the earth over geologic time using the models of the rock cycle, the hydrologic cycle and the tectonic cycle. In the laboratory they will conduct hands-on activities designed to enhance and reinforce the geologic concepts they have studied. 4 hrs. lecture, 3 hrs. lab/wk.

GEOS 140

Physical Geography (3 CR)

This course is a survey of the physical and environmental topics of geography, including the methods used to study them. The Earth as a system and the subsystems of the atmosphere, hydrosphere, lithosphere and biosphere constitute the major units of study. Students will acquire basic terminology that they will use to explain the earth, the atmosphere, the landscape, and the processes that occur on earth to change the landscape. Topics may include mapping with topographic maps and remote sensing; development and structure of the atmosphere; weather; water resources; climate; rock formation; mountain building; chemical and physical weathering; mass movement; soil formation; erosion, transportation and deposition by running water, wind, ice, currents, waves and tides; and the foundation that these processes build for the biosphere on earth. 3 hrs./wk.

GEOS 141

Physical Geography Lab (2 CR)

Prerequisite or corequisite: GEOS 140 or the equivalent

Students in this course will practice their knowledge of physical geography through the collection and analysis of atmospheric data and the identification

and interpretation of landforms and biological patterns as depicted on topographic maps and remotely sensed imagery. 4 hrs. lab/wk.

GEOS 145

World Regional Geography (3 CR)

In this introductory course, the student will first review the basic theories of the discipline of geography, the relationship of world population and resources and the factors affecting development. Next, the student will survey the major regions of the world to identify each region's distinguishing geographic characteristics, summarize its past development and explain the key issues affecting the region's future development. 3 hrs. lecture/wk.

Graphic Design (GDES)

GDES 120

Introduction to Graphic Design (3 CR)

This course is designed to acquaint the student with the various aspects of the graphic design field. Topics include the ways in which visual messages are used in society, the skills needed by a graphic designer and the potential areas of specialization and employment. This class will have guest speakers from the field of graphic design. Emphasis will be on assisting the student to make an informed decision about graphic design as a career. 3 hrs. lecture/wk. Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$40 to \$50.

GDES 130

Drawing and Media Methods 1 (3 CR)

Prerequisites: GDES 120 and ART 124 and CDT 135 and CDT 140 and CDT 145

This course will provide instruction in perceptual techniques, perspective theory and drawing process methods that relate to the visual analysis of the three-dimensional forms drawn from life. Focus will be on the application of theory, processes and techniques to attain structural accuracy and the illusion of three-dimensional form on a two-dimensional surface. 6 hrs. lecture and studio/wk. Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$200 to \$400.

GDES 131

Drawing and Media Methods 2 (3 CR)

Prerequisite: GDES 130

This course is a continuation of Drawing and Media Methods I, with emphasis on the creative application of perspective theory, perceptual skill and drawing methods. Drawing methods and rendering techniques will be applied to visual problem-solving processes and the communication of design concepts. 6 hrs. lecture studio/wk. Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$200 to \$400.

GDES 132

Typography (3 CR)

Prerequisites: ART 124 and GDES 120 and CDT 135 and CDT 140 and CDT 145

This course will provide instruction in the basic principles of contemporary typographic design. Information concerning typography, from traditional letterpress through digital type design and typesetting, will be included. The

course content will emphasize effective methods of communicating to a mass audience through the printed letter, word, line and page. Working knowledge of QuarkXpress and Adobe InDesign required. 6 hrs. lecture and studio/wk. Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$200 to \$400.

GDES 134

Layout Design (3 CR)

Prerequisite: GDES 132

This course will provide a basic study of layout elements. Students will acquire the skills necessary to produce layouts. These skills include photographic indication techniques, comp lettering, advertising and editorial grid systems and electronic page design. This course is typically offered in the spring semester only. 6 hrs. lecture and studio/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$200 to \$400.

GDES 140

Technical Processes (3 CR)

Prerequisites: PHOT 121 and CDTP 135 and CDTP 140 and CDTP 145

This course covers digital prepress applications, scanning, image manipulation and color output devices. The transition from conventional to digital production will be covered. Analysis of output and file management and the understanding of proofing systems will be covered. Proper usage of peripheral equipment will be emphasized. 6 hrs. lecture and studio/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$200 to \$400.

GDES 230

Drawing and Media Methods 3 (3 CR)

Prerequisites: GDES 131 and GDES 132 and GDES 134

This course will provide an understanding of the application of illustration to graphic design. Visual problem-solving processes acquired in Drawing and Media Methods 2 will be further developed through problems in image composition emphasizing expressive communication. Techniques in traditional and digital media are explored. This course is typically taught in the fall semester only. 6 hrs. lecture and studio/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$200 to \$400.

GDES 231

Advanced Typography (3 CR)

Prerequisite: GDES 134

This course is a continuation of Layout Design. Emphasis will be on typographic solutions that explore verbal/visual messages. Projects include designs for publication, such as posters, brochures, packaging and graphic campaigns. Typography as a functional and experimental medium will be stressed. Design problem-solving for a diverse range of specifications, including audience, client needs and budget constraints, are included. Traditional and digital tools will be incorporated to produce comprehensives. This course is typically offered in the fall semester only. Working knowledge of Macromedia Dreamweaver is required. 6 hrs. lecture and studio/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$200 to \$400.

GDES 235

Production Methods (3 CR)

Prerequisites: GDES 134 and GDES 140

This course will provide the fundamentals of preparing art for reproduction. Traditional camera-ready art techniques and digital prepress production methods will be emphasized. This course is typically offered in the fall semester only. 6 hrs. lecture and studio/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$200 to \$400.

GDES 236

Electronic Production (3 CR)

Prerequisites: GDES 230 and GDES 231 and GDES 235

This course is a continuation of the Production Methods course, providing experience in digital prepress and electronic production techniques. The student will apply production skills to problems of professional scope and complexity, including specialty processes, trapping and color separation. Preparation of graphic files for screen presentation and for the Web will be explored. This course is typically offered in the spring semester only. 6 hrs. lecture and studio/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$200 to \$400.

GDES 244

Communication Systems (3 CR)

Prerequisites: GDES 230 and GDES 231 and GDES 235

This course will explore the scope and potential of graphic design as a vehicle for visual communication in contemporary society. Signs and symbols, as well as communicative power of typographic, hand graphic and photographic modes, will be studied. Traditional and electronic methods will be used to develop projects. This course is typically offered in the spring semester only. 6 hrs. lecture and studio/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$200 to \$400.

GDES 245

Advanced Design Practice (3 CR)

Prerequisites: GDES 230 and GDES 231 and GDES 235

This course will focus on the use of the student's total design capability and technical knowledge in solving graphic design problems of professional scope and complexity. Students will have the opportunity to work with three art directors and produce three professional projects for potential inclusion in their portfolios. This course is typically offered in the spring semester only. 6 hrs. lecture and studio/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$200 to \$400.

GDES 272

Professional Preparation (3 CR)

Prerequisites: GDES 230 and GDES 231 and GDES 235 Prerequisite: The student must have completed all required studio courses in the graphic design program prior to the semester for which he or she is enrolling in this course or be co-enrolled in all fourth-semester studio courses.

This course will provide graphic design majors instruction in the organization and presentation of his or her work in a portfolio format of professional quality. A portfolio, digital portfolio archive, self promo, resume and business ensemble will be produced. Instruction in interviewing techniques and employment searches will also be provided. 6 hrs. lecture and studio/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$200 to \$400.

GDES 275

Graphic Design Internship (1 CR)

Prerequisite: Graphic design faculty review committee approval

Students will work in an approved training situation under instructional supervision. The internship is designed to give the student the opportunity to use the skills learned in the graphic design program. Student interns will complete a minimum of 180 hours on the job and will be compensated with at least the minimum hourly wage.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$50 to \$100.

Health Care (HC)

HC 101

Introduction to Health Care Delivery (3 CR)

This course is an introduction to the health care delivery system with an overview of health careers and the roles and responsibilities of members of the health care team. Emphasis will be on how to work within a health care team, effective communication skills, professional safety and workplace skills, and legal and ethical rights and responsibilities of patients and health care workers. 3 hrs. lecture/wk.

HC 125

International Awareness Field Study (2 CR)

This is a service-learning course. While partnering with a not-for-profit agency, teams of students will deliver service to a community in a developing country that suffers from extreme poverty. The service provided will vary depending on the identified needs of the community. While serving in the developing country, students will gain an understanding of the culture, language and health status of the people. Students will be exposed to the social, political and economic aspects of life that shape the community. Prior to travel, students are required to attend preparation meetings, fund raise and participate in a local service project. 16 hrs. lecture, 40 hrs. field study

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$0 to \$450.

Health Care Interpreting (HCI)

HCI 110

Introduction to Interpreting (3 CR)

Prerequisites: Interview and permission of the facilitator. Potential indicators of proficiency may be required.

This course provides a practical and theoretical introduction to the field of bilingual interpreting. Students will study interpreter roles and skills, modes of interpreting and translating, ethical issues, professional standards of practices, cultural competence and applied linguistics. Upon completion, students should have a strong foundation of knowledge regarding the profession of interpreting and should be ready for specific skills training. This course is taught in English. 3 hrs. lecture/wk. This course is taught in the fall semester only.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$20.

HCI 120

Interpreting Skills I (3 CR)

Prerequisite or corequisite: HCI 110 with a grade of "C" or higher

This course develops students' skills in sight translation and consecutive interpreting. Listening and memory skills, communication strategies and intervention techniques also are emphasized. Upon completion, students should be able to sight translate short written texts and consecutively interpret non-technical, interactive messages between Spanish and English. This course is taught in English with some Spanish terminology and practice. 2 hrs. lecture and 2.5 hrs lab/wk. This course is taught in the fall semester only.

HCI 130

Interpreting Skills II (3 CR)

Prerequisites: HCI 110 with a grade of "C" or higher and HCI 120 with a grade of "C" or higher

This course develops students' skills in simultaneous interpreting and written translation. In addition, through classroom, lab and field experiences, students practice the three interpretation modes they have learned in the program and improve all aspects of their interpreting while forming good professional habits. Self-assessment, professional growth and development of a personal philosophy of interpreting are stressed. This course is taught in English with some Spanish terminology and practice. 2 hrs lecture and 2.5 hrs lab/wk. This course is taught in the spring semester.

HCI 140

Spanish Medical Interpreting (3 CR)

Prerequisite: HCI 120 with a grade of "C" or higher and Prerequisites or corequisites: HCI 130 with a grade of "C" or higher and AAC 130

This course develops the knowledge, techniques, and practices needed to function as a bilingual interpreter in a medical environment. Students will be introduced to basic medical conditions, procedures, courses of treatment and equipment, with vocabulary and terminology in both English and Spanish. Upon completion, students should be able to apply medical interpreting and translating techniques in a variety of health care settings. This course is taught in English with some Spanish terminology. 3 hrs. lecture/wk. This course is taught in the spring semester.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$20.

HCI 180

Medical Interpreting Practicum (2 CR)

Prerequisites: HCI 130 with a grade of "C" or higher and HCI 140 with a grade of "C" or higher and Prerequisite or corequisite: HC 101 with a grade of "C" or higher

Students will observe and interpret at assigned medical facilities, participate in organized class discussions about their interpreting experiences and develop a personal philosophy of interpreting. Both classroom meetings and fieldwork are required for this class. Enrollment in certain courses will require a professional liability fee of \$16.00. Students will be notified via their JCCC student e-mail account on how to pay the fee. 1 hr. lecture, 3 hrs. practicum/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$20.

Health Information Technology (KMRT)

KMRT 101

Introduction to the Health Information Technology Profession (2 CR)

Orientation to the health information management profession and the supporting professional organization. History and evolution of health care delivery, facilities, and practitioners. Supervisory functions of the health information management department. 2 hrs. lecture/wk. Course taught at

MCC-Penn Valley Community College. Students should contact the Penn Valley coordinator of health information technology about the class meeting times and beginning and ending dates of classes. Call 816-759-4000.

KMRT 102

Health Records Systems, Analysis and Control (3.5 CR)

Content, storage, retrieval, control, and retention of medical records, especially hospital records. Forms design and control, microfilming, and computer applications for health record departments. 2.5 hrs. lecture, 2 hrs. lab/wk. Course taught at MCC-Penn Valley Community College. Students should contact the Penn Valley coordinator of health information technology about the class meeting times and beginning and ending dates of classes. Call 816-759-4000.

KMRT 103

Medical Terminology for Health Records (3 CR)

Professional language of medicine. Analysis of medical terms by roots and combining forms. Disease processes, diagnostic and operative procedures for each system of the body. Selected medical specialties. 3 hrs. lecture/wk. Course taught at MCC-Penn Valley Community College. Students should contact the Penn Valley coordinator of health information technology about the class meeting times and beginning and ending dates of classes. Call 816-759-4000.

KMRT 106

Health Care Statistics (3 CR)

Prerequisite: KMRT 102

Vital health statistics, their uses and values. Abstracting and analysis of data from medical records, collection of data from other sources, and methods of presenting the information. 2.5 hrs. lecture, 1 hr. lab/ wk. Course taught at MCC-Penn Valley Community College. Students should contact the Penn Valley coordinator of health information technology about the class meeting times and beginning and ending dates of classes. Call 816-759-4000.

KMRT 108

Legal Aspects of the Health Information Technology Profession (2 CR)

Prerequisite: KMRT 102

Legal principles applied to the health care professions. Confidentiality of the medical record, informed consent, the medical record as a legal document, release of clinical information, response to subpoena, and testimony. 2 hrs. lecture/wk. Course taught at MCC-Penn Valley Community College. Students should contact the Penn Valley coordinator of health information technology about the class meeting times and beginning and ending dates of classes. Call 816-759-4000.

KMRT 109

Directed Practice I (2.5 CR)

Prerequisites: BIOL 144 and KMRT 102

Supervised on-the-job training in a medical records department. Supervised discussion of clinical experiences. 2 hrs. lab, 3 hrs. field studies/wk. Course taught at MCC-Penn Valley Community College. Students should contact the Penn Valley coordinator of health information technology about the class meeting times and beginning and ending dates of classes. Call 816-759-4000.

KMRT 110

Introduction to Basic Pharmacology (1.5 CR)

Prerequisites: BIOL 144 and KMRT 103

Introduction to basic pharmacology with a body systems approach to disease. 1 hr. lecture, 1 hr. lab/wk. Course taught at MCC-Penn Valley Community College. Students should contact the Penn Valley coordinator of health information technology about the class meeting times and beginning and

ending dates of classes. Call 816-759-4000.

KMRT 200

Introduction to Classification Systems (1 CR)

Classification systems used to organize clinical data in health care. The ICD-9-CM classification system will be introduced. 1 hr. lecture/wk. Course taught at Penn Valley Community College. Students should contact the MCC-Penn Valley coordinator of health information technology about the class meeting times and beginning and ending dates of classes. Call 816-759-4000.

KMRT 201

Quality Management (3 CR)

Prerequisite: KMRT 108

Methods of assessing and improving quality in a health care setting. Concept of continuous quality improvement. Compliance with guidelines of regulatory and accrediting agencies. 2.5 hrs. lecture, 1 hr. lab/wk. Course taught at MCC-Penn Valley Community College. Students should contact the Penn Valley coordinator of health information technology about the class meeting times and beginning and ending dates of classes. Call 816-759-4000.

KMRT 202

Class. Sysms/Nomenclatures/Indexes & Registers I (4 CR)

Prerequisite: KMRT 200

Nomenclatures and classification systems for coding and indexing diagnoses and procedures with special emphasis on ICD-9-CM. 2.5 hrs. lecture, 3 hrs. lab/wk. Course taught at MCC-Penn Valley Community College. Students should contact the Penn Valley coordinator of health information technology about the class meeting times and beginning and ending dates of classes. Call 816-759-4000.

KMRT 203

Directed Practice II (2 CR)

Prerequisites: BIOL 144 and KMRT 202 and KMRT 210 or BIOL 144 and concurrent enrollment in KMRT 202 and KMRT 210

Supervised learning experience in a medical records department under the direction of a credentialed professional involving a variety of procedures including coding and abstracting health information, medical transcription, and release of information. Supervised discussion of clinical experiences. 1 hr. lab, 3 hrs. field studies/wk. Course taught at MCC-Penn Valley Community College. Students should contact the Penn Valley coordinator of health information technology about the class meeting times and beginning and ending dates of classes. Call 816-759-4000.

KMRT 206

Specialized Health Records Systems (2 CR)

Overview of specialized health care systems with an emphasis on record maintenance, requirements of accrediting and regulating agencies and specialized health information registers. 2 hrs. lecture /wk. Course taught at MCC-Penn Valley Community College. Students should contact the Penn Valley coordinator of health information technology about the class meeting times and beginning and ending dates of classes. Call 816-759-4000.

KMRT 207

Class. System/Nomenclature/Index & Register II (3 CR)

Prerequisites: BIOL 144 and KMRT 202

Nomenclatures and classification system for coding and indexing diagnoses and procedures with emphasis on healthcare facilities. Impact of DRGs on the coding function. 2 hrs. lecture, 2 hrs. lab/wk. Course taught at MCC-Penn Valley Community College. Students should contact the Penn Valley coordinator of health information technology about the class meeting times

and beginning and ending dates of classes. Call 816-759-4000.

KMRT 208

Directed Practice III (2 CR)

Prerequisite: KMRT 203

Supervised on-the-job instruction about health record systems in specialized health care facilities. Supervised discussion of directed practice experiences. 2 hrs. lab, 2 hrs. field studies. Course taught at MCC-Penn Valley Community College. Students should contact the Penn Valley coordinator of health information technology about the class meeting times and beginning and ending dates of classes. Call 816-759-4000.

KMRT 210

Classif Systems & Nomenclatures/Ambulatory Care (3 CR)

Prerequisites: KMRT 200 and BIOL 108/PVCC or concurrent enrollment in BIOL 108/PVCC

Outpatient coding, classification, and payment systems. Assignment of CPT-4 codes to procedures and services. Common outpatient procedures. Role of the health information technologist in ambulatory coding & billing. 2 hrs. lecture, 2 hrs. lab/wk. Course taught at MCC-Penn Valley Community College. Students should contact the Penn Valley coordinator of health information technology about the class meeting times and beginning and ending dates of classes. Call 816-759-4000.

KMRT 211

Organization & Administration Health Information (3 CR)

Prerequisites: KMRT 201, KMRT 202, and KMRT 203

General principles of management and organization as applied to health information settings. Budget development and control, personnel recruitment and retention, performance appraisal, and progressive discipline. Office design, productivity monitoring, work simplification, job analysis and job descriptions, and quality management. 2.5 hrs. lecture, 1 hr. lab/wk. Course taught at MCC-Penn Valley Community College. Students should contact the Penn Valley coordinator of health information technology about the class meeting times and beginning and ending dates of classes. Call 816-759-4000.

KMRT 212

Intro to Medical Insurance & Office Procedures (1.5 CR)

Prerequisites: KMRT 103, KMRT 202, KMRT 210 and BIOL 144

An overview of medical office systems and administrative procedures, with emphasis on insurance billing, compliance with regulatory agencies, and technology tools, including medical transcription. 1 hr. lecture, 1 hr. lab/wk. Course taught at MCC-Penn Valley Community College. Students should contact the Penn Valley coordinator of health information technology about the class meeting times and beginning and ending dates of classes. Call 816-759-4000.

Health Occupations (AVHO)

AVHO 102

Certified Nurse Aide (CNA) (5 CR)

Prerequisite: ENGL 121 with a grade of "C" or higher or Appropriate Compass reading test score. Documentation of current TB test and current CPR for Health Care Providers and a Social Security Card.

This course provides classroom and clinical instruction for the primary care of clients in long-term and acute-care facilities. Students learn skills for daily hygiene, bedside care, vital sign measurement, positioning and safe transfer of clients. The class prepares and schedules the student to take the Kansas CNA

examination. In-state tuition and fees \$330 total. Out-of-state tuition and fees \$1,135 total. 96 contact hrs. For additional information go to the [jccc.edu](http://www.jccc.edu) web page: click on classes; click on credit class search; click the semester; course prefix is AVHO Health Occupations. Click on CRN number for information. The credit reflected in this course is for transcript reporting, recording and transfer only. For more information, go to http://www.jccc.net/home/depts/5104/site/newstudent/types/adm_avs/CNA_Information-Requirements. Enrollment in certain courses may require a professional liability fee of \$16.00. Students will be notified via their JCCC student e-mail account if the fee is due and instructions on how to pay the fee. Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$20 to \$110.

AVHO 103

Certified Nurse Aide Refresher Course (CNA-R) (1 CR)

Prerequisite: Kansas CNA Certification

This 21-hour CNA refresher course provides classroom and laboratory experience to update the inactive CNA. The student will discuss the nurse aide's responsibility in the current health care system and the importance of resident rights. The student will demonstrate safety measures, infection control procedures, personal care skills, measurement of vital signs and transfers, positioning and turning. 21 contact hours. In-state tuition \$58, and out-of-state tuition \$219. For additional information go to the [jccc.edu](http://www.jccc.edu) web page: click on classes; click on credit class search; click the semester; course prefix is AVHO Health Occupations. Click on CRN number for information. The credit reflected in this course is for transcript reporting, recording and transfer only. For more information, go to http://www.jccc.net/home/depts/5104/site/newstudent/types/adm_avs/CNA_R_refresher_Info-Requirement

AVHO 104

Certified Medication Aide (CMA) (4 CR)

Prerequisites: Appropriate Compass reading test score, and proof of Kansas CNA certification or having completed the state CNA examination and awaiting results. If CNA examination results are not satisfactory, the student must withdraw from the CMA course. Documentation of current TB skin test - negative results within the last year. Current CPR for Health Care Providers and Social Security card.

This course includes the development of knowledge related to many commonly prescribed medications. Students will learn the classification, side effects and techniques of administration, including preparation and accurate distribution of medications. Safe administration of oral medications is discussed and demonstrated. Students will be scheduled to take the Kansas CMA examination. In-state tuition and fees \$272 total. Out-of-state tuition and fees \$916 total. 80 contact hrs. For additional information go to the [jccc.edu](http://www.jccc.edu) web page: click on classes; click on credit class search; click the semester; course prefix is AVHO Health Occupations. Click on CRN number for information. The credit reflected in this course is for transcript reporting, recording and transfer only. For more information, go to http://www.jccc.net/home/depts/5104/site/newstudent/types/adm_avs/CMA_Information-Requirements. Enrollment in certain courses may require a professional liability fee of \$16.00. Students will be notified via their JCCC student e-mail account if the fee is due and instructions on how to pay the fee. Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$20 to \$110.

AVHO 106

Home Health Aide (HHA) (1 CR)

Prerequisites: Proof of Kansas CNA certification and appropriate Compass reading test score Requirements - copy of current TB test, current CPR for Health Care Providers card and Social Security Card.

This course provides the student with information necessary for nutritional meal planning, task modification, emotional support and personal service to clients and families needing health care assistance at home. Students will be

scheduled to take the Kansas HHA certification examination. In-state tuition and fees \$108 total. Out-of-state tuition and fees \$269 total. 21 contact hrs. For additional information go to the [jccc.net](http://www.jccc.net) web page: click on classes; click on credit class search; click the semester; course prefix is AVHO Health Occupations. Click on CRN number for information. The credit reflected in this course is for transcript reporting, recording and transfer only. For more information, go to

http://www.jccc.net/home/depts/5104/site/newstudent/types/adm_avs/HHA_Information-Requirements.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$20 to \$55.

AVHO 108

Certified Medication Aide Update (CMA-U) (1 CR)

Prerequisites: Proof of Kansas CMA certification and Proof of Kansas CNA Certification

This course meets the continuing education requirements for licensed Certified Medication Aides. The course includes review of commonly used drugs and their interactions with foods and other drugs. Also included are discussions of legal implications and regulations related to administration and record keeping, biological effects of medications on the elderly and a review of basic safety principles. 15 contact hours. In-state tuition and fees \$58, and out-of-state tuition \$219. For additional information go to the [jccc.edu](http://www.jccc.edu) web page: click on classes; click on credit class search; click the semester; course prefix is AVHO Health Occupations. Click on CRN number for information. The credit reflected in this course is for transcript reporting, recording and transfer only. For more information, go to

http://www.jccc.net/home/depts/5104/site/newstudent/types/adm_avs/CMA_Update-Info-Requirements

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$20.

AVHO 112

Rehabilitative Aide (RA) (2 CR)

Prerequisite: Proof of current Kansas CNA certification

This course includes both classroom and laboratory instruction for the aging process as well as the role of the rehabilitative aide as a member of the health care team. Students learn the skills required to enhance the mobility of elderly residents in long-term care as well as the skills required to care for residents with special needs. In-state tuition \$116, and out-of-state tuition \$438. 32 contact hrs. For additional information go to the [jccc.edu](http://www.jccc.edu) web page: click on classes; click on credit class search; click the semester; course prefix is AVHO Health Occupations. Click on CRN number for information. The credit reflected in this course is for transcript reporting, recording and transfer only. For more information, go to

http://www.jccc.net/home/depts/5104/site/newstudent/types/adm_avs/RA_Information_-_Requirements

AVHO 115

I V Therapy For LPNs (3 CR)

Prerequisites: Proof of Kansas LPN licensure. Present evidence of Personal Liability insurance at the time of application for admission to the program and maintain it throughout the clinical practicum. Maintenance of current CPR certification for the duration of the course. Evidence of negative TB test or chest X-ray within the past year. JCCC Student Professional Liability Insurance

This course provides review of basic physiology of the circulatory system and instruction in principles of site selection for veins appropriate for I.V. therapy. This course meets the Kansas requirements for LPNs seeking certification in I.V. Therapy. In-state tuition and fees \$234 total. Out-of-state tuition and fees \$717 total. 48 contact hrs. For additional information go to the [jccc.edu](http://www.jccc.edu) web page: click on classes; click on credit class search; click the semester; course prefix is AVHO Health Occupations. Click on CRN number for information. The credit reflected in this course is for transcript reporting, recording and transfer only. For more information, go to

http://www.jccc.net/home/depts/5104/site/newstudent/types/adm_avs/IV_Therapy_Info-Requirements. Enrollment in certain courses may require a professional liability fee of \$16.00. Students will be notified via their JCCC student e-mail account if the fee is due and instructions on how to pay the fee.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$55.

Heating, Vent., Air Conditioning (HVAC)

HVAC 121

Basic Principles of HVAC (4 CR)

Prerequisite or corequisite: HVAC 123 or ELTE 123

This is a beginning course in heating, ventilation and air conditioning technology that is appropriate for HVAC majors and other interested students. Upon successful completion of this course, the student should be able to identify the function of the basic components of an air-conditioning system. Topics will include heat laws, refrigerants, oils and refrigeration cycles of residential and light commercial systems. In the lab, students will design, assemble and operate a working refrigeration system. Competencies will include brazing, wiring, evacuating and charging a system. The student will be required to provide ANSI Z87 safety glasses and may be expected to provide other basic hand tools and/or equipment. 3 hrs. lecture, 3 hrs. lab/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$30 to \$150.

HVAC 123

Electromechanical Systems (4 CR)

This is a beginning course in electrical theory that is required for HVAC, electrical and power plant technology, but is appropriate for all interested students. Common components found in the HVAC industry are used to develop these skills. Upon successful completion of this course, the student should be able to identify electrical components and their relationships to the various repair and troubleshooting techniques. The materials in this course will prove useful to service technicians whose background in electricity is limited. The course includes material from basic electrical theory to troubleshooting complex electrical circuits. This course will provide practice in application of electrical theory as well as in the interconnection of components of heating and cooling systems. The student will be required to provide ANSI Z87 safety glasses and may be expected to provide other basic hand tools and/or equipment. 3 hrs. lecture, 3 hrs. lab/wk.

HVAC 124

Equipment Selection and Duct Design (4 CR)

Prerequisites: HVAC 121 and either HVAC 123 or ELTE 123

Upon successful completion of this course, the student should be able to identify techniques and procedures used in the residential construction industry to determine proper sizing of HVAC equipment and ducts to meet the requirements for a high-quality, comfortable climate in terms of heating, cooling, humidifying, dehumidifying, ventilation and air cleaning or filtering. The student will be required to provide ANSI Z87 safety glasses and may be expected to provide other basic hand tools and/or equipment. 3 hrs. lecture, 3 hrs. lab/wk. This course is the same as EPRM 124; do not enroll in both.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$5 to \$10.

HVAC 125

Energy Alternatives (2 CR)

Upon successful completion of this course, the student should be able to

identify diverse methods of alternate energy production. Some of the technologies that will be discussed are wind energy, photoelectric energy, nuclear energy, hydroelectric energy, biomass and alternate fuel vehicles. Students will understand the advantages of using various alternate energy technologies, the effects or by-products of each and the problems that might be encountered. Some student research will be included in the context of the course. Emphasis will be on the most promising or effective alternate energy technologies available. 2 hrs. lecture/wk.

HVAC 127

Residential Systems: Heating (4 CR)

Prerequisites: HVAC 121 and either HVAC 123 or ELTE 123

Upon successful completion of this course, the student should be able to identify all the components and accessories and their relation to the functions of residential heating systems. Topics covered will be natural gas, propane, oil, forced air and hydronic-types of equipment. Emphasis will be on the electrical diagrams and mechanical principles of operation of these systems. Practical instruction in service diagnosis procedures and techniques for efficient operation, maintenance, troubleshooting and repair of these systems make up the lab portion of the course. The student will be required to provide ANSI Z87 safety glasses and may be expected to provide other basic hand tools and/or equipment. 3 hrs. lecture, 3 hrs. lab/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$30 to \$150.

HVAC 137

Residential Systems: Air Conditioning (4 CR)

Prerequisites: HVAC 121 and either HVAC 123 or ELTE 123

Upon successful completion of this course, the student should be able to identify all the components and accessories and their relation to the functions of residential air conditioning systems. Topics covered will include electric and natural gas air conditioner condensing units, metering devices, evaporation coils, and refrigerants. Electrical diagrams, psychrometric charts and techniques for efficient operation, maintenance, troubleshooting and repair of these systems make up the laboratory portion of the course. The student will be required to provide ANSI Z87 safety glasses and may be expected to provide other basic hand tools and/or equipment. 3 hrs. lecture, 3 hrs. lab/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$30 to \$150.

HVAC 143

Reading Blueprints and Ladder Diagrams (2 CR)

Upon successful completion of this course, the student should be able to identify all types of industrial plant blueprints. Included will be a discussion of machine parts and drawings as well as hydraulic, pneumatic, piping and plumbing, electrical, air conditioning and refrigeration drawings. Sketching used in industrial plants will be covered. A portion of the course will cover the types and use of ladder logic and various components such as input, output and diagrams. The structure, symbols and terminology of ladder logic diagrams will be introduced. Logic and decision-making functions are presented, along with practice in creating ladder logic diagrams. 2 hrs. lecture/wk.

HVAC 146

Plumbing Systems Applications (3 CR)

Upon successful completion of this course, the student should be able to demonstrate familiarity with many aspects of fuel gas piping, gas appliance venting, water heater installations, combustion air requirements and proper piping techniques. Classroom lectures center on methods for proper sizing of both fuel gas piping and vent sizing with emphasis on interpretation of both the Uniform Plumbing Code and the National Fuel Gas Code. There will be an emphasis on combustion air requirements. Laboratory competencies will include identification of materials and proper installation methods of fuel gas

lines, vent piping systems and copper water line connections. The student will be required to provide ANSI Z87 safety glasses and may be expected to provide other basic hand tools and/or equipment. 2 hrs. lecture, 3 hrs. lab/wk.

HVAC 148

HVAC Installation and Start-up Procedures (3 CR)

Prerequisites: HVAC 121 and either HVAC 123 or ELTE 123

Upon successful completion of this course, the student should be able to identify techniques and procedures to install new systems, retrofit systems and do an initial start-up, check-out furnaces and air conditioners. Topics will include electrical requirements, flue appliance location, permit and inspections, combustion air, sheet metal ducts, and mechanical standards. The student will be required to provide ANSI Z87 safety glasses and may be expected to provide other basic hand tools and/or equipment. 2 hrs. lecture, 3 hrs. lab/wk.

HVAC 150

Refrigerant Management and Certification (1 CR)

Upon successful completion of this course, the student should have knowledge and confidence necessary to pass the EPA Refrigerant Certification exam and properly, efficiently and responsibly handle refrigerants as set forth in the Clean Air Act of 1990. 1 hr. lecture/wk.

HVAC 155

Workplace Skills (1 CR)

Upon successful completion of this course, the student should be able to identify the job skills necessary to have a successful career in the field of their choice. Topics included listening skills, oral communication, human relations, decision making/problem solving, how to work as a team, time and resource management, work ethics, career planning and resume building. 1 hr. lecture/wk.

HVAC 167

Sheet Metal Layout and Fabrication (3 CR)

Upon successful completion of this course, the student should be able to identify the components, equipment and operation for sheet metal layout and fabrication. Practice problems are included at the end of each unit in order to provide the student with an opportunity to apply the methods attained by sheet metal layout. Shop facilities are available. The patterns will be fabricated and joined into a line of fittings. This gives the most complete test of pattern accuracy and also provides the experience needed by a competent layout person. The student will be required to provide ANSI Z87 safety glasses and may be expected to provide other basic hand tools and/or equipment. 2 hrs. lecture, 3 hrs. lab/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$30 to \$150.

HVAC 221

Commercial Systems: Air Conditioning (4 CR)

Prerequisites: HVAC 121 and either HVAC 123 or ELTE 123

Upon successful completion of this course, the student should be able to identify cooling systems used in commercial, institutional and industrial applications. Types of equipment include reciprocating and centrifugal chillers, absorption systems, cooling towers, fans and air handlers. Topics also include psychometrics, pressure-enthalpy diagrams and commercial load calculations, evacuation and charging. 3 hrs. lecture, 3 hrs. lab/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$30 to \$150.

HVAC 223

Commercial Systems: Heating (4 CR)

Prerequisite: HVAC 123 or ELTE 123

Upon successful completion of this course, the student should be able to identify large heating systems used in commercial, institutional and industrial applications. Types of equipment include hot water, low-pressure and high-pressure steam boilers; auxiliary, safety and flame safeguard controls; steam traps; condensate return; and water treatment systems. The student will be required to provide ANSI Z87 safety glasses and may be expected to provide other basic hand tools. 3 hrs. lecture, 3 hrs. lab/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$30 to \$150.

HVAC 229

Advanced Control Systems (4 CR)

Prerequisites: HVAC 121 and either HVAC 123 or ELTE 123

Upon successful completion of this course, the student should be able to identify the components and theory in electronic, pneumatic and direct digital control systems as they apply to HVAC systems. This course will reinforce and build on those competencies learned in HVAC 123 and HVAC 121. Classroom lectures will center on components, wiring diagrams, calibration and sequences of operation, system components, theory of operation, wiring diagrams and installation methods. Laboratory competencies include identification, calibration, maintenance and problem diagnosis of pneumatic, electronic and DDC systems, thermostat controllers and their related sensors/transmitters. Students will program a complete building energy management system. Interactive instructional media will be used in this course. 3 hrs. lecture, 3 hrs. lab/wk

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$30 to \$150.

HVAC 231

HVAC Rooftop Units (3 CR)

Prerequisites: HVAC 121 and either HVAC 123 or ELTE 123

Topics will include electrical controls and economizers of various rooftop units, roof curbs, installation, service, diagnosis, evacuation and charging of typical light commercial rooftop units. The student will be required to provide ANSI Z87 safety glasses and may be expected to provide other basic hand tools and/or equipment. 2 hrs. lecture, 3 hrs. lab/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$30 to \$150.

HVAC 235

Residential Heat Pump Systems (4 CR)

Prerequisites: HVAC 121 and either HVAC 123 or ELTE 123

Upon successful completion of this course, the student should be able to identify the function of all components and accessories of all electric and dual heat pump systems. Topics will include electric heat and heat pump fundamentals, principles and applications; refrigerant flow controls; defrost cycle controls; heat pump thermostats; indoor air distribution; dual fuel controls; and change-over stats. Emphasis will be on the electrical diagrams and mechanical principles of operation. These systems, as well as practical instruction in service and diagram procedures and techniques for the efficient operation, maintenance, troubleshooting and repair of these systems, will make up the lab portion of the course. The student will be required to provide ANSI Z87 safety glasses and may be expected to provide other basic hand tools and/or equipment. 3 hrs. lecture, 3 hrs. lab/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$30 to \$150.

HVAC 271

HVAC Internship (3 CR)

Prerequisite: Department approval required

Upon successful completion of this course, the student should be able to apply classroom knowledge to an actual work situation. The internship will provide advanced students with on-the-job experience under the supervision of professionals in the industry. The work will be developed cooperatively with area employers, college staff and each student to provide a variety of actual job experiences directly related to the student's career goals. 1 hr. lecture, minimum 15 hrs. on-the-job training/wk.

History (HIST)

HIST 120

Local and Kansas History (3 CR)

This course introduces students to the history of Kansas from the beginning of the Late Ceramic Period (1500) to the present. Emphasis will be on the examination of the living patterns of the various peoples who have inhabited the region during this time frame. This course will also analyze the social and economic factors and political objectives that transformed the central plains from the domain of the bison-hunting Plains Indian to a society based in a market-agricultural economy. 3 hrs./wk.

HIST 125

Western Civilization: Readings and Discussion I (3 CR)

The course explores the major developments, ideas and personalities that have shaped Western civilization. Organized around a readings and discussion format, students engage some of the world's most provocative and influential literature. Western Civilization I begins with the ancient cultures of the Middle East, Greece and Rome and follows the development of Western thought from the medieval period to the Renaissance and Reformation. 3 hrs. lecture/wk. It is not necessary to take HIST 125 before HIST 126.

HIST 126

Western Civilization: Readings and Discussion II (3 CR)

The course explores the major developments, ideas and personalities that, for the past 500 years, have shaped Western civilization. Organized around a readings and discussion format, the course allows students to engage some of the world's most provocative and influential literature. Western Civilization II begins with the three revolutions that define modernity - Scientific, French, and Industrial. The course also highlights the new ideologies of the 19th century and more recent themes of modernization and the cultural crisis of the 20th century. 3 hrs. lecture/wk. It is not necessary to take HIST 125 before HIST 126. This course may be offered as a Learning Communities (LCOM) section, see current credit schedule for LCOM details.

HIST 128

Medieval History (3 CR)

Medieval History is a detailed survey of the period from late Roman Antiquity to the early Renaissance. Primary and secondary texts and visual resources will be used to illuminate the period that saw first the decline into relative stagnation caused by barbarian onslaughts, and then gradual reemergence of a powerful civilization that revitalized itself by renewing the insights of ancient times. 3 hrs. lecture/wk.

HIST 129

Early Modern Europe 1500-1789 (3 CR)

This course is an introduction to early modern European history, with emphasis on the economic, social and political developments that have shaped

the modern world: the Renaissance; the Catholic and Protestant Reformations; the rise of nation-states; the new inter-cultural contact between Europe and the world; the Commercial Revolution and the Enlightenment. 3 hrs. lecture/wk.

HIST 130

European History Since 1789 (3 CR)

This course covers the major political, intellectual, and economic and social developments in Europe from the end of the 18th century to the present, including modern political ideologies, major wars, the growth of strong governments, the effect of modern science on social and political thought, the Industrial Revolution, the creation of large middle classes, and the effect of modern technology. 3 hrs./wk.

HIST 132

History of Africa (3 CR)

This course introduces students to the history of Africa until the present. It emphasizes the fundamental characteristics and long-term developments in the evolution of African political and socioeconomic institutions. 3 hrs./wk.

HIST 135

Eastern Civilization (3 CR)

This course is an introduction to the societies and cultures of Asia. Through lectures, readings and discussions, the course will focus on aspects of the history, politics, art, literature and economics of China, Japan and India. The major traditional themes and concepts of these civilizations will be stressed. 3 hrs. /wk.

HIST 137

African American Studies (3 CR)

This course surveys the major themes and developments in African-American culture and history from the colonial period to the present. The course is divided into three five-week segments. Each segment relates to a historical period; slave, post-emancipation and contemporary. Each segment also permits a flexible, interdisciplinary approach that will include literature, fine arts and the social sciences. 3 hrs. lecture/wk.

HIST 140

U.S. History to 1877 (3 CR)

This survey course in U.S. history will emphasize developments and trends in American society from the early period of discovery and settlement through Reconstruction. Topics will include the Colonial era, the Revolutionary period, the Federalist era, the expansion of the Republic during the mid-19th century, and the Civil War and Reconstruction. The emphasis will be on analysis and interpretation of these developments. 3 hrs./wk. This course may be offered as a Learning Communities (LCOM) section, see current credit schedule for LCOM details.

HIST 141

U.S. History Since 1877 (3 CR)

This survey course will emphasize developments and trends in American society from the 1870s to the late twentieth century. Topics will include the Reconstruction era, industrialization, immigration, reform movements, World Wars I and II, social and cultural trends, and foreign policy. Emphasis will be on analysis and interpretation of these developments. 3 hrs./wk. This course may be offered as a Learning Communities (LCOM) section, see current credit schedule for LCOM details.

HIST 143

Ancient Greece, the Near East, and Egypt (3 CR)

This course will present the background to the rise of Ancient Greece by examining, first its Near-Eastern and Egyptian predecessors. Then, it will

examine Greece's historical development from the early Aegean phase, through its Dark, Archaic, classical and Hellenistic phases. In addition to political, military, and social and economic developments, Greek literature and art will also be highlighted. 3 hrs. lecture/wk.

HIST 150

Islam: Religion & Civilization (3 CR)

This course covers the context in which Islam arose; the career of the Prophet Muhammad; the main teachings and practices of the religion; the Qur'an and other early Islamic literature; subsequent political developments in the religion and its spread; its main religious branches; its history during the Middle Ages; the Christian crusades and their consequences; the major components of Islamic civilization including law, the arts, literature, philosophy, science, and mathematics; Sufi; the effects of Western imperialism upon Islamic states; major developments in Islamic thought and practice since the seventeenth century; the Islamic diaspora; and Islam today. HIST 150 is the same course as REL 150 and HUM 150; enroll in one only. 3 hrs. lecture/wk.

HIST 151

World History I: Traditional World (3 CR)

This course provides students an introduction to the history of the major world civilizations up to approximately 1500. Upon successful completion of the course, students will be able to identify the major political, social, economic and technical developments in the histories of Egypt, Mesopotamia, other Near Eastern civilizations, Rome, Greece, India, China, sub-Saharan Africa, pre-Columbian America and medieval Europe. Students will be able to define the concept of a traditional, as opposed to a modern, society. They will be able to compare these societies with each another and with the modern society of the contemporary United States. 3 hrs. lecture/wk.

HIST 152

World History II: Modern World (3 CR)

This course provides students an introduction to the history of the world since approximately 1500. Upon successful completion, students will be able to describe and analyze the development of modernism, which occurred first in the West, including the scientific revolution, secularism, industrialism and the rise of new political ideologies. They will be able to trace the expansion of modernization in both the Western and non-Western worlds and the response to modernism in non-Western countries. 3 hrs. lecture/wk.

HIST 160

Modern Russian History (3 CR)

This course examines Russian history within a Eurasian context. It is a study of three centuries of the social, political, economic and cultural forces that shaped Russian history, beginning with a survey of the events that place Russia outside the Western historical tradition. 3 hrs./ wk. or online. Usually this course is offered in the fall semester either on-campus or online. This course may be offered as a Learning Communities (LCOM) section, see current credit schedule for LCOM details.

HIST 162

Modern Latin America (3 CR)

This course is an examination of the economic, social, political and cultural history of Latin America since independence. Regional identities, such as Central America, and independent national states, such as Cuba and Mexico, are explored. Literary and intellectual trends together with contemporary popular culture are featured in the course. 3 hrs./wk.

HIST 164

Japan: Changing Tradition (3 CR)

Prerequisite: department approval

This self-paced course explores Japanese history, politics and economics from

the early days of the Tokugawa regime from 1500 to the present. The thrust of the course is geared to exploring the themes that permeate the Japanese experience over the past two centuries.

HIST 167

Introduction to History: Japan (3 CR)

This course will provide an introduction to Japan from the earliest period of human settlement on the Japanese archipelago to the present. In so doing, it will explore political, economic, social, cultural, and religious developments. Such an exploration will be useful for further study of East Asian and Japanese history as well as other aspects of Japanese language and cultural study. 3 hrs. lecture/wk.

HIST 195

History of the Middle East (3 CR)

This course introduces students to the environmental, political, economic, religious and ethnic landscape of the Middle East and Northern Africa. Though its focus is historical, the course prepares students for an understanding of the contemporary challenges faced by the region. Particular attention is paid to the Middle East and Northern Africa as the intersection of three monotheistic traditions, the central role of aridity and natural resources in its development, the interfacing of multiple cultures with Islam, the religious and ethnic diversity of the region today, and modern encounters with the nation-state system and western secularism. Students will also explore the contributions of the region to the larger world and the interactions of Middle Eastern and Northern African countries and people with Asia, Europe, and the United States. 3 hrs. lecture/wk.

Home Economics (HMEC)

HMEC 151

Nutrition and Meal Planning (3 CR)

This course covers the basic food groups, their use in meal planning, their functions and their nutritional values. In addition to the current trends in eating, this course covers diets and exercise, as well as fad diets, life-cycle nutritional needs, and the effects of nutrient intake on growth and development. This is a required course for the food and beverage program and the chef apprenticeship program. 3 hrs./wk. This course will meet the general education requirement for Health and/or Physical Education.

Honors Program (HON)

HON 250

Honors Forum: In Search of Solutions (3 CR)

This course will focus on two topics during the semester and how those topics affect the local, national and global communities. The course complements other courses in the curriculum by applying the dual emphases of specific content and skill development to the areas of interaction, analysis, synthesis and conflict resolution. Students will study each issue in a historical and contemporary context, develop a greater understanding of the issues, and take a position on the issues. This position will be subjected to further challenge and dialogue. In this course, the process of reflecting, researching, analyzing and evaluating are as important as content. As points of view concerning the issue are developed, the students must articulate and defend these viewpoints as they are challenged by others and make judgments among alternative options. The first topic is selected by the faculty members, then midway through the semester, the students will select the second topic. This course will require students to use many forms of research, including the Internet and electronic databases. In addition, students will be expected to use e-mail for sharing information with classmates and instructors.

Horticulture (HORT)

HORT 115

Home Horticulture (2 CR)

This course provides basic knowledge for the design and management of home lawns, flower and vegetable gardens, and landscape trees and shrubs. Students will learn basic plant anatomy and physiology concepts; how to recognize some common plant deficiency symptoms; the use of fertilizers and pesticides; identification of some common trees, shrubs and garden plants; and the major considerations of good landscape design. 1 hr. lecture, 2 hrs. lab/wk.

HORT 120

Introduction to Urban Agribusiness (3 CR)

This is a general survey course for students who wish to learn more about the broad field of agribusiness. Particular emphasis is on the many facets of landscape and grounds management. Career areas that will be covered are interior landscaping, greenhouse management, the position of pesticide applicators' position and golf course management. 3 hrs. lecture/wk.

HORT 135

Landscape Design (3 CR)

The course is designed to familiarize students with aspects of landscape design. Students will analyze the site and preferences of the client and complete a landscape design following basic design principles. Students will learn presentation graphics, hand lettering techniques, and how to make a hand drawing to scale. Note: Plant material courses (HORT 214, HORT 215, HORT 220) could be helpful for this course but are not required. 2 hrs. lecture, 2 hrs. lab/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$30.

HORT 140

Turfgrass I (3 CR)

The basics of turfgrass identification, selection, use and care will be covered. The emphasis will be on efficient management of soil and turf on large or small grounds. Upon successful completion of this course, students should be able to demonstrate their ability to properly identify the major categories of turfgrass; establish and maintain turfgrass; identify turfgrass pests; and develop a pest control fertilizer program. Irrigation systems, their maintenance and repair will also be discussed. 2 hrs. lecture, 2 hrs. lab/wk.

HORT 150

Fruits, Vegetables and Herb Crops (2 CR)

This course is designed to familiarize garden center employees with the plant materials and production of crops many homeowners use and grow. This course will help the employee answer many homeowner questions about production, varieties and potential crop problems. Home hobbyists may also wish to enroll in this course. 1 hr. lecture, 2 hrs. lab/wk.

HORT 160

Garden Center Operations (3 CR)

This course is designed for garden center employees and provides background on the elements necessary for success in a competitive retail environment. The business organization is emphasized, including environmental monitoring, selling, inventory issues, merchandising, advertising, cost effectiveness, labor/team relationships and customer service. In addition, safety and legal issues are examined. 3 hrs. lecture/wk.

HORT 165

Arboriculture (3 CR)

This course will prepare the student to work with trees in Zones 5-6. In lecture and lab settings students will learn and demonstrate how to properly plant, prune and maintain trees, identify hazard trees and proper pruning and tree removal techniques. Emphasis will be placed on ANSI and OSHA safety requirements. At the end of this course the student will be prepared to take the test for arboriculture certification in Kansas. 2 hrs. lecture 3 hrs. lab/wk.

HORT 201

Introduction to Horticultural Science (4 CR)

This is an introduction to the principles and practices of horticultural plant systems. Plant structure and function will be discussed, along with the effects of environmental factors on plant growth. General cultural practices will be described, including pest control, mineral nutrition and plant propagation. 3 hrs. lecture, 2 hrs. lab/wk.

HORT 205

Plant Propagation (3 CR)

Prerequisite: HORT 201 or department approval

This course provides basic knowledge of the art and science of sexual and asexual methods of propagating plants. Students study the processes of seed development, seed dormancy, germination, root initiation and grafting. Students will learn basic seed sowing, cutting and grafting skills. The students will be able to demonstrate the selection of appropriate propagation methods and choose the proper environmental conditions necessary to achieve successful propagation of seeds or cuttings. 2 hrs. lecture, 2 hrs. lab/wk.

HORT 210

Concepts of Floral Design (3 CR)

This is an introductory course for students to learn the design basics of flower arranging. The course will help the students develop an eye for color combinations, flow of lines, balance, geometric shapes and textures in materials used, mechanics of design, customer perspectives and the post-harvest care of floral materials. 2 hrs. lecture, 3 hrs. lab/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$100 to \$150.

HORT 214

Woody Plants I, Deciduous (3 CR)

The class places emphasis on identification, ornamental characters, site requirements, and use of woody ornamental deciduous trees and shrubs with special emphasis on the cultivated varieties in climatic zones 5 and 6. Plant uses and seasonal effects and influences that affect plant choices will be also be taught. This course will assist the grounds maintenance employee, landscaper, and garden center employee in identifying plant materials used in the landscape. 2 hrs. lecture, 3 hrs. lab/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$10.

HORT 215

Woody Plants II, Evergreens (3 CR)

This course places emphasis on identification, ornamental characteristics, site requirements and use of evergreen trees and shrubs and flowering shrubs with special emphasis on the cultivated varieties in climatic zones 5 and 6. Plant uses and seasonal effects and influences that affect plant choices will be taught. This course will assist the grounds maintenance employee, landscaper and garden center employee in identifying plant materials used in the landscape. 2 hrs. lecture, 3 hrs. lab/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$10.

HORT 220

Herbaceous Plants (3 CR)

This course will focus on the identification, ornamental characters, culture, propagation, and use of herbaceous perennials, bulbs, ground covers, vines and annuals. This course will assist the grounds maintenance employee, landscaper, and garden center employee in identifying and selecting herbaceous plant materials with additional emphasis on uses and maintenance of these plants when used in the landscape. 2 hrs. lecture, 3 hrs. lab/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$10.

HORT 225

Plant Problems (3 CR)

Prerequisites: HORT 214 and HORT 220 or department approval

This course is a broad-spectrum overview of plant insects, diseases and nutrition. Students will look at plants to identify the common characteristics found when diagnosing plant problems. Identification, treatment and treatment alternatives will be considered to help customers make diagnostic decisions for the use of chemicals and integrated pest management techniques (IPM). 2 hrs. lecture, 3 hrs. lab/wk.

HORT 235

Landscape Maintenance and Techniques (3 CR)

This course is designed to familiarize students with the principles and techniques involved in landscape maintenance including pruning techniques, fertilization, irrigation, spray schedules and weed control. Installation and maintenance of annual and perennial plant material is examined. In addition, the student will learn to design preventive strategies and identify and examine disease and insect damage. The students will learn how to maintain good customer relations. 2 hrs. lecture, 2 hrs. lab/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$30.

HORT 240

Turfgrass II (3 CR)

Prerequisite: HORT 140

This course is a continuation of turfgrass I (HORT 140). Topics include green construction, top dressing, sprayer calibration, management programs (e.g., setting up a lawn care program) and the influence environment has on turfgrass growth. 2 hrs. lecture 2 hrs. lab/wk.

HORT 245

Commercial Crop Production (3 CR)

This course is designed to familiarize Market Farmers with the plant materials and production of crops grown in the Market Farming industry. This course will help answer questions about varieties of plants to grow, establishment, growth, harvesting and post-harvesting of crop, varieties of plants to grow. Students will become familiar with different marketing options and good record keeping. 3 hrs. lecture/wk.

HORT 255

Pest Control Management (3 CR)

This course will explore the general concepts of turf, ornamental, commercial crop and vegetable garden maintenance and pest control in the local area. The student will become familiar with federal and state regulations pertaining to horticulture chemical application. Upon completion of this course, the student should be prepared to take the Kansas or Missouri licensing examination to become a certified applicator of restricted horticultural pesticides and herbicides. 3 hrs. lecture/wk.

HORT 260

Horticulture Soils (3 CR)

This course covers soil components as well as the physical, chemical and biological properties of soils that affect plant growth. Emphasis will be placed on horticultural substrates and urban soils and their applications. 2 hrs. lecture, 2 hrs. lab/wk.

HORT 265

Landscape Construction (3 CR)

This course will cover the theories, principles and practices used in the interpretation and implementation of landscape construction. It will include site planning and preparation, safety principles, tool use and identification, landscape and construction materials, job bid development and project management. Construction projects in the class will vary by semester. 2 hrs. lecture, 2 hrs. lab/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$100 to \$235.

HORT 270

Horticulture Internship (3 CR)

Prerequisite: Department approval

Student should be able to apply classroom knowledge to an actual work situation. The internship will provide students on-the-job experience under the supervision of professionals in the Horticultural industry. The work will be developed cooperatively with area employers, college staff and each student to provide a job experience in the area of their horticultural focus and career goals. 20 hrs field study

HORT 272

Sustainable Agriculture Fall Practicum (2 CR)

Through practical experience complemented by lectures and discussions, students will gain exposure to a broad range of tasks facing the market farmer during the fall and early winter seasons. This includes production and marketing of summer crops, planning, and production of fall crops in high tunnels and open field, and marketing these fall crops. Topics include production planning, planting, integrated crop management, harvest and postharvest practices, marketing through various channels, tools and equipment, soil fertility management, and record keeping. Practicum activities will integrate with other courses in this market farming certificate program. Students will learn both conventional and organic production techniques. Entrepreneurship will be emphasized throughout. 7 hrs. practicum/wk.

HORT 274

Sustainable Agriculture Spring Practicum (2 CR)

Through practical experience complemented by lectures and discussions, students will gain exposure to a broad range of tasks facing the market farmer during the winter and early spring seasons. This includes production and marketing of winter crops and planning and production of spring and summer crops in high tunnels and open field and marketing these spring crops. Topics include production planning, planting, integrated crop management, harvest and postharvest practices, marketing through various channels, tools and equipment, soil fertility management, and record keeping. Practicum activities will integrate with other courses in this market farming certificate program. Students will learn both conventional and organic production techniques. Entrepreneurship will be emphasized throughout. 7 hrs practicum/wk.

HORT 276

Sustainable Agriculture Summer Practicum (2 CR)

Through practical experience complemented by lectures and discussions, students will gain exposure to a broad range of tasks facing the market farmer during the summer season. This includes planning, production and marketing

of spring and summer crops and planning and production of fall crops in high tunnels and open field. Topics include production planning, planting, integrated crop management, harvest and postharvest practices, marketing through various channels, tools and equipment, soil fertility management, and record keeping. Practicum activities will integrate with other courses in this market farming certificate program. Students will learn both conventional and organic production techniques. Entrepreneurship will be emphasized throughout. 7 hrs. practicum/wk.

Hospitality Management (HMG T)

HMG T 120

Food Service Sanitation (1 CR)

This course covers the basic principles of providing and serving safe food. It also provides the student with safe food-handling procedures necessary to manage a sanitary and safe food service operation in compliance with the National Food code and the National Restaurant Association. The successful completion of the Serv Safe Sanitation exam will result in a national sanitation certification. 1 hr. lecture/wk.

HMG T 121

Perspectives of Hospitality Management (3 CR)

This introductory course is designed to provide students with current information on topics relevant to career exploration, employment and operational specifics of the various segments of the hospitality industry. The course includes exploration of the tourism, lodging, food and beverage and related industries, along with the operational characteristics unique to each and the critical concepts of service management. The identification of current events and trends will be included along with the evaluation of impact on the hospitality industry. This course also identifies and explores career opportunities and includes the professional profiles and job search materials directly related to the hospitality industry. 3 hrs. lecture/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$25 to \$50.

HMG T 123

Professional Cooking I (3 CR)

Prerequisite or corequisite: HMG T 120

This is the first of two courses in professional cooking methods for students enrolled in hospitality management programs. Upon completion of this course, the student should be able to demonstrate skills in basic cooking methods, recipe conversion, and professional food preparation and handling. Additionally, the student should be able to safely operate common food service equipment used in commercial kitchens. 1 hr. lecture, 2.5 hrs. lab/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$50 to \$200.

HMG T 126

Food Management (4 CR)

Prerequisites: HMG T 123 and HMG T 230 and HMG T 277 and admission to the hospitality management program

This course offers an overview of restaurant management practices used in the hospitality industry. Emphasis will be on demonstrating the components of menu planning and the styles of food service used for various occasions -- buffet service and French, Russian and American service. The student will participate in the operation of the campus restaurant, including food preparation, service, sales promotion, purchasing and costing. 7 hrs./wk.

HMG 128

Supervisory Management (3 CR)

This course contains the basic supervisory management skills, management styles, motivation with emphasis on human relations, delegation, training, evaluation and communication. In addition, the hiring and firing functions within FLSA guidelines will be covered. 3 hrs./wk.

HMG 130

Hospitality Law (3 CR)

This course offers an overview of product and dram shop liability as well as of the various areas of federal and state legislation that regulate the hospitality industry. Emphasis will be on familiarizing the hospitality manager with ways to avoid costly and time-consuming lawsuits. A manager's or owner's legal rights and responsibilities also will be discussed. Upon successful completion of this course, the student should be able to recognize potential legal problems. 3 hrs./wk.

HMG 132

Seminar in Housekeeping Operations (3 CR)

This course presents a systematic approach to managing housekeeping operations in the hospitality industry. The course will also include related health department and OSHA regulations. While enrolled in this class, a student must work a minimum of 15 hours a week in a lodging operation. The work experience is concurrent but does not necessarily concentrate on the subject being taught in the course. This course is typically offered in the fall semester. 2 hrs./wk.

HMG 145

Food Production Specialties (3 CR)

Prerequisite: HMG 123

This course covers the fundamentals of convenience baking, hors d'oeuvre and cold kitchen preparation. It provides knowledge of and basic skills in the pastry kitchen, where the student can handle convenience products from the frozen or dried state and produce finished pies, cakes and dessert items. It provides further knowledge of and skill in the garde-manger kitchen, specifically making salads, cocktail hors d'oeuvres and cocktail sandwiches, as well as making economic purchases for gourmet food items. In addition, the student will learn how to make intermezzo ices, identify different types of cheese, and design and make a general plan for a buffet. 1 1/2 hrs. lecture, 2 hrs. lab/wk.

HMG 150

Seminar: Food Service Sales and Marketing (3 CR)

This course includes detailed information in distinguishing the difference between marketing, sales, promotion, advertising and merchandising. In addition, development and quantifying the cost of a marketing plan by analyzing markets and developing a primary target market will be discussed. This course is a seminar course, and students are required to be employed 15 hours per week in a job related to the hospitality industry. 3 hrs. lecture, 15 hrs. internship/wk.

HMG 165

Food Industry Compliance & Safety (3 CR)

Upon successful completion of this course, the student should be able to analyze and explain the basic legal compliance issues regarding food safety and the post-harvest handling of local food products. This course focuses on the legal compliance issues of market farming as well as the food safe handling principles necessary for an individual involved in market farming. It will provide students with practical methods of application involved with food safety and post-harvest marketing. 3 hrs. lecture/wk.

HMG 167

Local Food Production (3 CR)

Upon successful completion of this course, the student should be able to analyze and explain the basic cooking methods, recipe conversion and professional food preparation and handling of local food products. Additionally, the student should be able to safely operate common food service equipment used in commercial kitchens. It will provide students with practical methods of application involved with safe handling and production of post-harvest local food products. 2 hrs. lecture, 1.5 hrs. instructional lab/wk.

HMG 203

Hotel Sales and Marketing (3 CR)

Prerequisites: HMG 121 and admission to the hospitality management program

This course will focus on practical sales and marketing techniques for the hotel industry. It will cover a marketing plan and advertising campaign for a hotel, including identifying target markets, prospecting for sales leads and using sales techniques. This course is typically offered in the fall semester. 3 hrs. lecture/wk.

HMG 207

Hospitality Human Resource Management (3 CR)

Prerequisite: HMG 128

This course will examine hospitality human resources management from the global perspective as the rise of multinational hospitality corporations and a multicultural society place new requirements on managers with human resource responsibilities. Special emphasis will be placed on both the "soft skills" involved in counseling, interpersonal relations and different management theories, as well as the "hard skills" involved in the legislative aspects of managing people. This course will concentrate on how to manage managers. 3 hrs. lecture/wk.

HMG 220

American Regional Cuisine (3 CR)

Prerequisite: HMG 230

This course introduces the student to regional American cooking from nine regional culinary traditions and two specialty traditions within American cuisine. Students will study the cuisine of New England; the Mid-Atlantic states; the Deep South; Florida and the Caribbean; Cajun and Creole; the Central Plains and Rocky Mountain states; Tex-Mex and the American Southwest; California and Hawaii; the Pacific Northwest, as well as vegetarian cuisine and kosher dietary laws. Upon completion of this course, the student should be able to demonstrate skills in cooking and presenting classic American dishes in their traditional forms within a restaurant setting. 1 hr. lecture, 2.5 hrs. lab/wk.

HMG 221

Design and Facilities Management (3 CR)

Prerequisites: HMG 123 and HMG 271

This course includes detailed information about food service design that covers layout, design and equipment specifications. In addition, facilities operations will be discussed regarding electrical, water and transportation systems; refrigeration; waste disposal; energy management; and HVAC. Preventive maintenance will be emphasized. 3 hrs./wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$25 to \$100.

HMG 223

Fundamentals of Baking (3 CR)

This course covers bakeshop production as it relates to the basic principles of ingredients, measurements, mixing, proofing, baking and final presentation. In addition, the student will be able to identify the various types of baking equipment used in the preparation of bakeshop products. The class includes lecture and participation. 1 hr. lecture, 2.5 hrs. lab/wk.

HMGT 226

Garde Manger (3 CR)

Prerequisite: HMGT 230

This course is designed for the student to learn cold food production and charcuterie. The course will allow the student to develop fundamental principles of the cold kitchen and modernize traditional methods of salad preparation. 1 hr. lecture, 2.5 hrs. lab/wk.

HMGT 228

Advanced Hospitality Management (3 CR)

Prerequisite: Department approval

This course includes detailed information about various components of menu planning, food service, supervision, design and beverage control. In addition, an understanding of the external factors affecting the hotel-restaurant industry will be discussed. Skills necessary to secure a position in management within the hospitality industry will be emphasized, and case studies and computer simulation (HOTS) will be used for critical thinking analysis. Business plans will be developed as part of the course project. 3 hrs./wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$25 to \$50.

HMGT 230

Professional Cooking II (3 CR)

Prerequisites: HMGT 120 and HMGT 123

This is the second of two courses in professional cooking methods for students enrolled in hospitality management programs. Upon completion of this course, the student should be able to demonstrate advanced level skills in cooking methods, recipe conversion, and professional food preparation and handling. Additionally, the student should be able to safely operate advanced food service equipment used in commercial kitchens. This course consists of lecture, demonstration and participation in food preparation. 1 hr. lecture, 2.5 hrs. lab/wk.

HMGT 231

Advanced Food Preparation (4 CR)

Prerequisites: HMGT 230 and department approval

This course is designed to develop a student's advanced culinary skills in preparation of international cuisine commonly served in today's operations in Latin America, Europe, Asia, the Middle East, the Far East and the Pacific area. 4 hrs. lecture/wk.

HMGT 235

Seminar: Risk Management and Loss Prevention (3 CR)

This course explains the issues surrounding the need for individualized security programs, examines a wide variety of security and safety equipment and procedures, discusses guest protection and internal security for asset protection. It explores risk management and loss prevention issues and outlines OSHA regulations that apply to lodging properties. While enrolled in this class, a student must work a minimum of 15 hours a week in a lodging operation. The work experience is concurrent but does not necessarily concentrate on the subject being taught in the course. This course is typically offered in the spring semester. 2 hrs lecture, 15 hrs. work/wk.

HMGT 240

Advanced Baking (4 CR)

Prerequisites: HMGT 123 and HMGT 223

This course covers the principles needed to enter the baking and pastry industry. The course provides knowledge of specialty ingredients and techniques needed to make tortes, finished desserts and a wedding cake. The student will be instructed in the making of these items through lecture and will prepare a variety of such items in lab. 4 hrs. lecture, lab/wk.

HMGT 248

Confectionery Arts (3 CR)

This course covers the design and production of artistic centerpieces made from confections. It provides knowledge of and basic skills in making decorative dining table centerpieces using food products such as cooled and pulled sugar syrup, isomalt, pastillage, marzipan and chocolate. The student will be instructed in the preparation of these ingredients and will construct center and showpieces after viewing demonstrations. 4.5 hrs. lecture, lab/wk.

HMGT 250

Introduction to Catering (3 CR)

This course includes detailed information about the different types of catered events within the hospitality industry. Topics covered include the importance of marketing, contract writing, food production, room arrangements and required personnel relative to specific catered events. 3 hrs. lecture/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$5 to \$25.

HMGT 256

Casino Management (3 CR)

This course is designed to familiarize students with the unique conditions and management challenges associated with a casino property. An overview of game operation and rules will serve as a foundation. Management controls will be emphasized including how to compute statistical data to assist management in operations. The course is not intended to be a training exercise. Casino marketing and ways to develop effective player rating systems will be analyzed. The history of the casino industry and regulatory environment will also be examined. The course is not intended to be a training exercise for those interested in learning to deal games. 3 hrs. lecture/wk.

HMGT 265

Front Office Management (3 CR)

This course provides a full understanding of the flow of business from the front office, beginning with the reservations process to checkout and settlement. It also includes the night audit and statistical analysis of rates and revenue management. This course is typically offered in the spring semester. 3 hrs./wk.

HMGT 268

Hospitality Managerial Accounting (3 CR)

Prerequisites: MATH 120 and HMGT 121 and HMGT 273

This course introduces the student to basic managerial accounting. This includes accounting concepts, processing data and the flow of financial information within a hospitality operation. The course provides a working knowledge of an income statement, balance sheet, statement of owner's equity and cash flows. 3 hrs. lecture/wk.

HMGT 271

Seminar in Hospitality Management: Purchasing (3 CR)

This course offers an overview of purchasing techniques and specification writing for commodities used in the hospitality industry. Emphasis will be on

decision-making skills in the areas of quality, quantity, specifications and general value analysis. Two hours in class and a minimum of 15 hours a week are required in a supervised work situation in an approved area of the hospitality industry. Work experience is concurrent but does not necessarily concentrate on the subject being taught in the course.

HMG 273

Hospitality Cost Accounting (3 CR)

Prerequisites: MATH 120 or higher and HMG 121

This course includes detailed information on how to prepare operation statements for a food service operator, including inventory and control systems. Areas of concentration will be food cost controls, labor cost controls, purchasing controls and profit production. The practice set will be used to reinforce control systems. 2 hrs./wk.

HMG 275

Seminar in Hospitality Management: Internship (3 CR)

Prerequisite: Admission to the hospitality management program

This course provides industry experience for students in cooperating businesses, agencies and organizations. While enrolled in this course, a student must work a minimum of 320 hours in an approved position in the hospitality industry. By arrangement.

HMG 277

Seminar in Hospitality Management: Menu Planning (3 CR)

Prerequisite: HMG 123

This course provides the basic knowledge of menu design and planning. Students will learn the components of menu design and planning for each concept category. The course will cover the topics of menu layout, selection and development, price structures and the theory of menu design. A minimum of 15 hours a week is required in a supervised work situation in an approved area of the hospitality industry. Work experience is concurrent but does not necessarily concentrate on the subject being taught in the course. 2 hrs. lecture/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$5 to \$25.

HMG 279

Beverage Control (3 CR)

This course covers the history of wines and their use and storage procedures. The students should gain an understanding of beverage control and how it is used in all types of operations. The course will also cover in-depth study of spirits, internal control systems and local/state alcoholic beverage control laws. 3 hrs./wk.

HMG 281

Culinary Arts Practicum I (2 CR)

Prerequisite: Acceptance into the American Culinary Federation Chef Apprenticeship training program and hospitality management department approval

A qualified chef who is a member of the American Culinary Federation will supervise this on-the-job apprentice training. Upon successful completion of this course, the student should be able to apply food preparation and presentation techniques and gain experience in all phases of food service operation.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$100 to \$300.

HMG 282

Culinary Arts Practicum II (2 CR)

Prerequisite: HMG 281

A qualified chef who is a member of the American Culinary Federation will supervise this on-the-job apprentice training. Upon successful completion of this course, the student should be able to apply food preparation and presentation techniques and gain experience in all phases of food service operation. This course is a continuation of Culinary Arts Practicum I.

HMG 285

Culinary Arts Practicum III (2 CR)

Prerequisite: HMG 282

A qualified chef who is a member of the American Culinary Federation will supervise this on-the-job apprentice training. Upon successful completion of this course, the student should be able to apply food preparation and presentation techniques and gain experience in all phases of food service operation. This course is a continuation of Culinary Arts Practicum II.

HMG 286

Culinary Arts Practicum IV (2 CR)

Prerequisite: HMG 285

A qualified chef who is a member of the American Culinary Federation will supervise this on-the-job apprentice training. Upon successful completion of this course, the student should be able to apply food preparation and presentation techniques and gain experience in all phases of food service operation. This course is a continuation of Culinary Arts Practicum III.

HMG 287

Culinary Arts Practicum V (2 CR)

Prerequisite: HMG 286

A qualified chef who is a member of the American Culinary Federation will supervise this on-the-job apprentice training. Upon successful completion of this course, the student should be able to apply food preparation and presentation techniques and gain experience in all phases of food service operation. This course is a continuation of Culinary Arts Practicum IV.

HMG 288

Culinary Arts Practicum VI (2 CR)

Prerequisites: HMG 287 and hospitality management department approval

A qualified chef who is a member of the American Culinary Federation will supervise this on-the-job apprentice training. Upon successful completion of this course, the student should be able to apply food preparation and presentation techniques and gain experience in all phases of food service operation. This course is a continuation of Culinary Arts Practicum V.

Hospitality Mgt Pastry Baking (HMPB)

HMPB 155

Pastry Shop Production I (4 CR)

Prerequisites: HMG 120 and HMG 123 Corequisites: HMPB 160 and HMPB 233 and HMPB 252

This course will provide hands-on instruction of techniques used to make basic pastry shop staples used in the production of items intended for retail sales in a professional pastry shop. This course is typically offered in the fall semester.

1 hr. lecture & 4 hrs. lab/wk.

HMPB 160

Pastry Shop Principles I (4 CR)

Prerequisites: HMGT 120 and HMGT 123 Corequisites: HMPB 155 and HMPB 233 and HMPB 252

This course will examine the fundamental baking concepts including sanitation, ingredient identification and usage, weights and measures, inventory and product ordering needed as it pertains to a professional pastry shop. Students will be operating a working bake shop. This course is typically offered in the fall semester. 1 hr. lecture 3 hrs. lab/wk.

HMPB 233

Patisserie (4 CR)

Prerequisites: HMGT 120 and HMGT 123 Corequisites: HMPB 155 and HMPB 160 and HMPB 252

This course will provide hands-on instruction of techniques to make finished pastry items such as tortes, tarts, pastries, cookies, candies and breads as well as how to present items in a professional manner. This course is typically offered in the fall semester. 1 hr. lecture 3 hrs. lab/wk.

HMPB 252

Pastry Shop Business Basics I (3 CR)

Prerequisites: HMGT 120 and HMGT 123 Corequisites: HMPB 155 and HMPB 160 and HMPB 233

This course will provide basic hands-on techniques used to market finished pastry items, customer service, setting up, restocking and maintaining a display case, as well as taking pastry orders. This course is typically offered in the fall semester. 1 hr. lecture 3 hrs. lab/wk.

HMPB 255

Pastry Shop Production II (4 CR)

Prerequisites: HMPB 155 and HMPB 160 and HMPB 233 and HMPB 252 Corequisites: HMPB 260 and HMPB 257 and HMPB 262

This course will provide hand-on instruction of advanced techniques used to make advanced staples used in the production of advanced pastries, cakes, tarts, and tortes intended for retail sales in a professional pastry shop. This course is typically offered in the spring semester. 1 hr lect. 3 hrs lab./wk.

HMPB 257

Sugar Basics (4 CR)

Prerequisites: HMPB 155 and HMPB 160 and HMPB 233 and HMPB 252 Corequisites: HMPB 255 and HMPB 260 and HMPB 262

This course will provide hands-on instruction of pulled and brown sugar techniques used for garnishing advanced pastry items. The student will learn how to cook, pull, blow and store sugar pieces used in a professional pastry shop. This course is typically offered in the spring semester. 3 hrs. lab and 1 hr. lab/wk.

HMPB 260

Pastry Shop Principles II (4 CR)

Prerequisites: HMPB 155 and HMPB 160 and HMPB 233 and HMPB 252 Corequisites: HMPB 255 and HMPB 257 and HMPB 262

This course will examine the advanced baking concepts including high dollar ingredient identification and usage, storage, advanced inventory control, costing and product sources and product availability as it pertains to a professional pastry shop. This course is typically offered in the spring semester. 1 hr. lecture, 3 hrs. lab/wk.

HMPB 262

Pastry Shop Business Basics II (3 CR)

Prerequisites: HMPB 155 and HMPB 160 and HMPB 233 and HMPB 252 Corequisites: HMPB 255 and HMPB 260 and HMPB 257

This course will provide advanced hands-on techniques used to market finished pastry items, execute excellent customer service, establishing operational guidelines, inventory and restocking, product ordering, product research, maintaining a display case, as well as taking pastry orders. This course is typically offered in the spring semester. 1 hr. lecture 2 hrs. lab/wk.

Humanities (HUM)

HUM 122

Introduction to Humanities (3 CR)

This interdisciplinary study begins with a look at artistic and technical elements of several art forms, including painting, sculpture, architecture, music, theater, film, dance and literature. Major themes expressed in the works and their reflection of the values of their culture are also examined. 3 hrs. lecture/wk.

HUM 137

Introduction to Russian Culture (3 CR)

This course is a survey of the cultural history of Russia from the ninth century to the present. The approach is interdisciplinary, examining representative examples of Russian art, architecture, music, theater, dance, literature and philosophy in their historical context. In addition to developing the students' appreciation of Russia's contribution to world culture, the course aims to enhance students' understanding of the contemporary world. 3 hrs. lecture/wk. When paired with Introduction to Literature, Russian emphasis, it includes an online component. Usually this course is offered in the spring semester. This course may be offered as a Learning Communities (LCOM) section, see current credit schedule for LCOM details.

HUM 138

Introduction to Russian Culture, Field Study (1 CR)

Prerequisite: HUM 137 or department approval

This course is the field study portion of the HUM 137, Introduction to Russia, course. Students study, on site, selected works of art, architecture, music, literature, theater and film for the various historical periods from the perspective of Russian experts in these fields. In addition, students enhance their knowledge of Russian history by visiting the sites of many of the major events that have shaped the development of Russia's culture. 2 hrs. lab/wk.

HUM 145

Introduction to World Humanities I (3 CR)

This course will acquaint students with the arts and ideas of the world's major civilizations, from antiquity through the Renaissance. The approach will be interdisciplinary, covering the artistic values embodied in painting, sculpture, architecture, literature, theater, music and dance as they have emerged out of their historical contexts. In addition to providing the fundamental principles, methodologies and theories used in the study of the humanities, the course aims to enhance students' understanding of the contemporary world. 3 hrs. lecture/wk.

HUM 146

Introduction to World Humanities II (3 CR)

This course will acquaint students with the arts and ideas of the world's major civilizations, from the Renaissance to the present. The approach will be both interdisciplinary and chronological, covering the artistic values embodied in

painting, sculpture, architecture, literature, theater, music and dance as they have emerged out of their historical contexts. In addition to providing the fundamental principles, methodologies and theories used in the study of the humanities, the course aims to enhance students' understanding of the contemporary world. 3 hrs. lecture/wk.

HUM 150

Islam: Religion & Civilization (3 CR)

This course covers the context in which Islam arose; the career of the Prophet Muhammad; the main teachings and practices of the religion; the Qur'an and other early Islamic literature; subsequent political developments in the religion and its spread; its main religious branches; its history during the Middle Ages; the Christian crusades and their consequences; the major components of Islamic civilization including law, the arts, literature, philosophy, science, and mathematics; Sufi; the effects of Western imperialism upon Islamic states; major developments in Islamic thought and practice since the seventeenth century; the Islamic diaspora; and Islam today. HUM 150 is the same course as HIST 150 and REL 150; enroll in one only. 3 hrs. lecture/wk.

HUM 155

Classical Mythology (3 CR)

This course provides a systematic study of the myths and epic cycles of the Greeks and Romans in both literature and art and investigates their survival and metamorphosis in the literature and visual arts of Western Europe. In addition, this course provides several methodological frameworks with which to analyze several types of tales and their relation to history, religion, rituals and art. 3 hrs. lecture/wk.

HUM 156

Contemporary Approaches to World Myths (3 CR)

This course provides a systematic study of world mythologies, where they appear in literature and art and their survival and metamorphosis in contemporary culture. The course provides several methodological frameworks with which to analyze myths and their relation to history, religion, ritual and art. Through the study and comparison of world mythologies, students are encouraged to evaluate their own perspectives and experiences in the context of human diversity. 3 hrs. lecture/wk.

HUM 164

Civilization (3 CR)

This course covers the major ideas and events of Western civilization communicated through the arts. The course begins after the fall of the Roman Empire and includes material to the 20th century. 3 hrs. lecture/wk.

HUM 167

Introduction to Japanese Culture (3 CR)

The course acquaints students with the arts and ideas of Japan, from its pre-history through the present day. The approach is interdisciplinary, examining artistic and philosophical values embodied in theatre (including dance and music), painting (calligraphy), woodblock prints, ceramics, sculpture, literature, and gardens, as well as modern developments including anime and film. In addition to developing the students' appreciation of Japan's contribution to world culture, the course aims to enhance students' understanding of the contemporary world. 3 hrs. lecture/wk.

Industrial Technology (INDT)

INDT 125

Industrial Safety (3 CR)

Upon successful completion of this course, the student should be able to

identify various industrial safety and health considerations, list basic safety rules and regulations, identify the proper personal protective equipment needed for common industrial tasks and recognize the need for an ongoing safety program. 3 hr. lecture/wk.

INDT 140

Quality Improvement Using SPC (2 CR)

Upon successful completion of this course, the student should be able to describe and apply basic concepts of quality improvement. This course will examine the application of the "Transformation of America" concept to American businesses. Statistical process control will be introduced as a tool to improve quality. W. Edwards Deming's 14 points and the management changes required to implement quality improvement also will be covered. 2 hrs. lecture/wk.

INDT 155

Workplace Skills (1 CR)

Upon successful completion of this course, the student should be able to identify the job skills necessary to have a successful career in the field of his or her choosing. Topics include listening skills, oral communication, human relations, decision making/problem solving, how to work as a team, time and resource management, work ethics and career planning. 1 hr. lecture/wk.

Information Technology (IT)

IT 140

Networking Fundamentals (4 CR)

This course is a replacement for the IT 200 Networking Technologies course. It serves as the first module of four that are designed to prepare students to complete the Cisco Certified Network Associate (CCNA) Certification. Cisco updated its curriculum for the first course and included VLSM and basic router configuration from the second course. This necessitated the need to expand this course. The basis for this course is still IT 200, Networking Technologies, with the addition of this new material. In that router configuration is a skill that is required in all of the other Cisco CCNA classes, it is imperative that the students learn the skill in this course. Therefore the increase in credit hours is associated with the need to learn this skill. 3 hrs. lecture 2 hrs. open lab/wk.

IT 145

Routing Protocols and Concepts (3 CR)

Prerequisites: IT 200 or IT 140

This course is designed to provide students with a fundamental understanding of network routing and the operation of routers. It maps to the Cisco Academy Routing Protocols and Concepts course of the Cisco Certified Network Associate Exploration curriculum. Topics covered include router components, accessing routers, working with Cisco Internetworking Operating System (IOS), configuring static and dynamic routing. Students will configure common routing protocols such as Routing Information Protocol versions 1 and 2, Enhanced Interior Gateway Routing Protocol, and Open Shortest Path First. Students will design and implement IP addressing schemes using subnetting, Variable Length Subnet Mask, and Classless Inter Domain Routing. Laboratory exercises will accompany lectures. 3 hrs. lecture, 2 hrs. open lab/wk.

IT 200

Networking Technologies (3 CR)

This course is designed to provide students with the fundamentals of networking technology. Concepts covered include network terminology and protocols, network standards, LANs and WANs, the layers of the OSI reference model, cabling practices, network topologies, and IP addressing.

IT 203

Voice Over IP Fundamentals (4 CR)

Prerequisite: IT 145

This course is designed to provide students with the fundamentals of Voice over IP (VoIP) networking technology. Concepts covered include an explanation of the national voice and data network, telephony terminology, VoIP protocol analysis and telephony survey techniques. 2 hrs. lecture, 2 hrs. instructional lab, 1 hr. open lab/wk.

IT 205

Implementing Windows Client (3 CR)

The focus of this course is the use of Microsoft Windows as an operating system in a business environment. Planning a simple network system, installation and configuration of the software and hardware, resource management, connectivity, running application software under Windows, monitoring and optimizing system hardware, and troubleshooting all lead the student to a deeper understanding of local area network use and administration. 2 hrs. lecture, 3 hrs. lab/wk.

IT 209

LAN Switching (4 CR)

Prerequisite: IT 140 or IT 200

This course is designed to provide students with the necessary knowledge and skills to interconnect and configure network switches. Students successfully completing this course should be able to perform basic switch administration tasks including installing, configuring and troubleshooting. Students will build Local Area Networks (LANs) based on the hierarchical design model supported by Virtual LANs (VLANs) and the Spanning Tree Protocol (STP). This course maps to one of four modules designed to prepare students to complete the Cisco Certified Network Associate (CCNA) Certification.

IT 221

Windows Server (3 CR)

Prerequisites: IT 205

This course is designed to provide students with the knowledge and skills to perform competently in the role of a network administrator utilizing the Windows network operating system. Students completing this course will be able to accomplish basic fundamental network management tasks, including planning server roles and subsequent requirements, planning the network file system, implementing user accounts and file system security, implementing network printing, and managing the network servers. 2 hrs. lecture, 3 hrs. lab/wk.

IT 225

Windows Active Directory Services (3 CR)

Prerequisite: IT 221

The focus of this course is using Microsoft Windows Server or Advanced Server software to install, configure and troubleshoot Active Directory components, Domain Name Space (DNS) for Active Directory and Active Directory security solutions. The course also emphasizes the skills required to manage, monitor and optimize the desktop environment using Group Policy. 2 hrs. lecture, 3 hrs. lab/wk.

IT 227

SQL Server Administration (3 CR)

Prerequisite: IT 221

Upon successful completion of this course, the student should be able to administer an SQL server installation. Topics covered include installing, upgrading and configuring SQL servers using SQL utilities; working with databases and users; backing up and restoring databases and log files;

automating maintenance tasks; managing, copying and moving data; replicating; tuning; and troubleshooting. 2 hrs. lecture, 3 hrs. lab/wk.

IT 228

Exchange Server (3 CR)

Prerequisite: IT 225

This course is designed to provide network administrators with information that enhances their ability to manage an Exchange server network. Included are topics related to server and client mail management and server performance, e-mail concepts and advanced Internet networking. 3 hrs. lecture, 2 hrs. lab/wk.

IT 230

UNIX Fundamentals (3 CR)

This course is designed to provide students with a fundamental understanding of the UNIX operating system environment. Students successfully completing this course will be able to execute common Unix commands and utilities; and accomplish basic system tasks such as navigating the file system, applying file system security, managing user accounts, installing and configuring user software, using the printing environment, and managing the resources of a basic Unix system. 2 hrs. lecture, 3 hrs. lab/wk.

IT 231

UNIX Administration (3 CR)

Prerequisite: IT 230

This course is designed to provide students with the necessary knowledge and skills to perform competently as a Unix system administrator. Students successfully completing this course should be able to perform basic system administration tasks including installing, configuring and troubleshooting a basic Unix system, managing devices, implementing the printing environment, creating and maintaining file systems, installing packages, and configuring the graphical user interface. 2 hrs. lecture, 3 hrs. lab/wk.

IT 232

UNIX Networking (4 CR)

Prerequisite: IT 231

This course is designed to provide students with information that enhances their ability to manage Unix systems in a networked environment. Included are topics related to configuring and managing network connectivity, and the installation, configuration, and securing of network services. 3 hrs. lecture, 2 hr. lab/wk.

IT 245

Network Infrastructure (3 CR)

Prerequisite: IT 221

This course is designed to provide an in-depth understanding of the ability to install, manage, monitor, configure and troubleshoot DNS, DHCP, Remote Access, Network Protocols, IP Routing and WINS in a Windows 2000 network infrastructure. In addition, it will provide an in-depth understanding of the ability to manage, monitor and troubleshoot Network Address Translation and Certificate Services. Laboratory exercises will accompany the lectures. 2 hrs. lecture, 3 hrs. lab/wk.

IT 246

Introduction to Routers (3 CR)

Prerequisite: IT 200

This course is designed to provide students a fundamental understanding of network routing and the operation of routers. Topics include installing and configuring routers, OSPF and Link State routing protocols, working with metrics and route selection, and TCP/IP configuration. Programming and setup

using Cisco routers will be conducted. Laboratory exercises will accompany lectures. 2 hrs. lecture, 3 hrs. lab/wk.

IT 247

Accessing Wide Area Networks (3 CR)

Prerequisites: IT 209 and (IT 145 or IT 246)

This course is designed to provide students a fundamental understanding of internetworking. Topics include Local Area Network (LAN) segmentation using routers. Wide Area Network (WAN) physical technologies will be studied. Configuring WAN protocols using Point-to-Point Protocol (PPP), Integrated Services Digital Network (ISDN) and Frame Relay will be presented. Securing the network with standard and extended access lists will be performed. Programming and configuration will be conducted using Cisco routers and switches. Laboratory exercises will accompany lectures. 2 hrs. lecture, 3 hrs. lab/wk.

IT 249

Advanced Routing (3 CR)

Prerequisite: IT 247

This course provides advanced instruction of Cisco routers found in medium to large networks. It is intended for students preparing for advanced Cisco certification. Upon completion of this course, the student will be able to select and implement the appropriate Cisco services required to build a scalable router network. Topics covered include extending IP addressing, implementing OSPF for a single area and multiple areas, configuring EIGRP, and implementing BGP. This course will follow semester five in the Cisco Networking Academy curriculum.

IT 250

Networking Seminar (3 CR)

Prerequisite: IT 225 and IT 247

This course is designed to teach advanced concepts in information technology. Topics covered are section specific and include e-mail servers, Web servers, database servers, routing, switching and advanced LAN design concepts. Prerequisites are posted for each section. Students may use this course as a capstone for applying concepts and procedures developed in previous courses using realistic business scenarios. 2 hrs. lecture, 3 hrs. lab/wk.

IT 251

Network Security Fundamentals (4 CR)

Prerequisite: IT 247

This course is designed to provide students with a fundamental understanding of network security principles and implementation. Topics covered include authentication, the types of attacks and malicious code that may be used against computer networks, the threats and countermeasures for e-mail, Web applications, remote access, and file and print services. A variety of security topologies will be discussed as well as technologies and concepts used for providing secure communication channels, secure internetworking devices, intrusion detection systems, and firewalls. Hands-on exercises will be used to reinforce the concepts. 3 hrs. lecture, 2 hrs. lab/wk.

IT 252

Firewall Security (4 CR)

Prerequisite: IT 247

This course is designed to teach students how to protect local area networks (LANs) using firewall security devices. It focuses on the overall security process based on a security policy with an emphasis on hands-on skills. It covers the basic functionality of the Cisco Private Internet Exchange (PIX) product family. Students will learn specific PIX configurations and settings designed to maximize security. This course is also intended to prepare students to pass the Cisco Secure PIX Firewall Certification exam. 3 hrs. lecture, 2 hrs.

lab/wk.

IT 253

Advanced Switching (3 CR)

Prerequisite: IT 247

This course provides advanced instruction of Cisco switches found in medium to large networks. It introduces students to the deployment of the state-of-the-art campus Local Area Networks (LAN). The course focuses on the selection and implementation of the appropriate Cisco Internetworking Operating System (IOS) services to build reliable scalable multilayer-switches LANs. Students will develop skills with Virtual LANs (VLAN), Virtual Trunking Protocol (VTP), Spanning Tree Protocol (STP), inter-VLAN routing, redundancy, Quality of Service (QoS) issues, campus LAN security, and transparent LAN services.

IT 254

Remote Access Networks (3 CR)

Prerequisite: IT 247

This is an advanced course that covers the techniques and features for enabling or enhancing Wide Area Network (WAN) and remote access solutions. It focuses on using one or more of the available WAN dialup or permanent connection technologies for remote access between enterprise sites. This course includes asynchronous modem connections, Point-to-Point Protocol (PPP) features, and network security using Virtual Private Networks (VPNs). Students will apply common remote access solutions including ISDN Basic Rate Interface and Primary Rate Interface (BRI and PRI), Dial-On-Demand Routing (DDR), Frame Relay, dial backup, Quality of Service (QoS), and Authentication Authorization Accounting (AAA). 3 hrs. lecture, 2 hrs. lab/wk.

IT 255

Wireless Security (4 CR)

Prerequisite: IT 247

This course is designed to teach the student how to build, maintain and configure security on a Wireless Local Area Network (WLAN). It provides the student with hands-on projects to reinforce WLAN concepts from LAN cabling and other information technology and electronics courses. Upon completion of this course, students should be able to design, document and troubleshoot the security plan and operation of a WLAN. This course is also intended to prepare the student to pass the Cisco Wireless LAN Certification exam. 3 hrs. lecture, 2 hrs. lab/wk.

IT 271

Information Technology Internship I (3 CR)

Prerequisites: IT 210 or IT 221 or IT 230 and department approval

This course affords the student the opportunity to apply classroom knowledge to an actual work environment. It will provide advanced information technology students with appropriate on-the-job experience with area employers, under instructional oversight, which will promote the student's career goals. Student will work a total of 300 hours a semester at an approved job site.

IT 272

Information Technology Internship II (3 CR)

Prerequisites: IT 271 and department approval

This course is a continuation of IT 271, Internship I. It provides the student additional opportunity to apply classroom knowledge to an actual work environment. Students will work a total of 300 hours per semester at an approved job site.

Interactive Media (CIM)

CIM 130

Interactive Media Concepts (2 CR)

Prerequisite or corequisite: ENGL 121

This survey course introduces students to the interactive media field. Topics to be covered include the definition of interactive media, the basic stages of interactive media creation and project management fundamentals. Current and future trends in interactive media will also be covered. 2 hrs. lecture/wk.

CIM 133

Screen Design (4 CR)

Prerequisite: CDTP 135

This course will cover fundamental visual principles and the creation of graphic elements, as well as the layout of those visual elements, for the computer screen. Visual perception, composition, color and typographic principles will be covered as applicable to presentation graphics, Web graphics, CD-ROM and kiosk graphics. Cross-platform issues will be addressed. This course is intended to provide nondesigners with fundamental visual literacy. 3 hrs. lecture, 2 hrs. lab/wk.

CIM 135

Digital Imaging and Video (3 CR)

Prerequisite: CDTP 135 Recommended: PHOT 121

This course provides an introduction to electronically mediated photography, including digital video. The course covers basic concepts of photographic communication and design. The course covers basic techniques of electronic photography, including operation of input devices, two-dimensional and time-based computer imaging and digital video production software programs and output devices. Recommended prior courses are Fundamentals of Photography and Introduction to Photoshop. 6 hrs. integrated lecture, studio/wk.

CIM 140

Interactive Media Assets (4 CR)

Prerequisites: CDTP 135 AND prerequisite or corequisite CIM 130

This course teaches the creation, acquisition and management of assets for use in the development of interactive media. Assets to be covered include digital text, graphics, audio and video. Related topics include issues concerning intellectual property and interactive media professional practices. 3 hrs. lecture, 2 hrs. lab/wk.

CIM 156

Interactive Authoring I (4 CR)

Prerequisite: CIM 130 and prerequisite or corequisite: CIM 140

This course focuses on the user experience aspects of Web design, HTML and interactive authoring. The course covers concepts about the way the World Wide Web works and introduces students to new technologies that are destined to have an important effect on the Web's future. Students examine specifications for each project and carefully analyze individual sites. This course provides a comprehensive experience in the design and development of websites primarily utilizing HTML and CSS. 3 hrs. lecture, 2 hrs. lab/wk.

CIM 200

Interactive Communication Form (3 CR)

Prerequisite or corequisite: CIM 130

This course will focus on concepts and forms of human communication historically, currently and in the future of our culture. Immediated and mediated forms of communication, such as lecture, telephony, television, print

and computer interaction, will be explored. Particular attention will be given to how communication forms affect content. Emphasis will be on the integration of communication forms as demonstrated by interactive media applications. 3 hrs. lecture/wk.

CIM 230

Interactive Media Development (4 CR)

Prerequisite: CIM 156 AND prerequisite or corequisite CIM 254 AND corequisite: CIM 250

The course will provide a conceptual as well as a hands-on exploration of the development process for interactive media. Information design, interaction design and presentation design will be equally emphasized. Students produce a series of projects starting with the use of text and graphics and building toward more complex projects employing animation and video. 3 hrs. lecture, 2 hrs. lab/wk. This course is taught in the fall semester.

CIM 235

Advanced Digital Video (3 CR)

Prerequisite: CIM 135

This course provides advanced instruction in the production and applications of digital video. The course covers advanced concepts and techniques in video design and production, from the initial preproduction scripts and storyboards through actual shooting to nonlinear editing, mastering and output. The emphasis is on in-depth, advanced, practical experience in producing professional-level video products for a variety of applications, including education, corporate, documentary and entertainment. 6 hrs. integrated lecture studio/wk.

CIM 250

Interface Design (4 CR)

Prerequisite: CIM 156 AND prerequisite or corequisite: CIM 254 AND corequisite: CIM 230

This course will specifically focus on the issues and complexity of interface design for interactive media applications. Students are provided an in-depth study of the use of the building blocks of interface design: backgrounds, windows and panels, buttons and controls, text, images, sound, video and animation. Through readings, critiques, exercises and discussions, students will explore what makes the interface of an interactive media application successful. 3 hrs. lecture, 2 hrs. lab/wk. This course is taught in the fall semester.

CIM 254

Interact Authoring II (4 CR)

Prerequisite: CIM 156

This course will build on the knowledge and skills gained in the Interactive Authoring I course. Students will write a technical proposal, produce a flowchart and create a storyboard for each project before actually authoring the project. This course provides in-depth experience with the design and development of websites and interactive authoring for delivery by other platforms, primarily utilizing industry-standard proprietary multimedia authoring applications and their associated scripting methods. Project management will also be explored. 3 hrs. lecture, 2 hrs. lab/wk.

CIM 270

Interactive Media Project (4 CR)

Prerequisites: CIM 230 and CIM 250 and CIM 254

This project-oriented course requires students to actively participate in a group interactive media project. The project requires each student to analyze the problem and write a project proposal. Students work as a team to design, produce and gather assets for the project. The team is responsible for building a prototype and developing the final project as well as testing and evaluating

the final project prior to delivery. 3 hrs. lecture, 2 hrs. lab/wk. This course is taught in the spring semester.

CIM 272

Interactive Media Internship (1 CR)

Prerequisite: department approval required

Students will work in an approved training situation under instructional supervision. The internship is designed to give the student the opportunity to use the skills learned in the interactive media program. Student interns will be required to complete a minimum of 180 hours of on-the-job training. ANI 272 and CIM 272 are the same course; do not enroll in both.

CIM 273

Career Preparation (4 CR)

Prerequisites: CIM 230 and CIM 250 and prerequisite or corequisite: CIM 270

This course will provide interactive media majors instruction in the presentation of his or her work in a digital portfolio format of professional quality. A printed and written resume will be produced. Self-promotion, networking, job searches and interview skills will also be covered. 3 hrs. lecture, 2 hrs. lab/wk. CIM 273 is the same course as ANI 273; do not enroll in both. This course is taught in the spring semester.

Interior Design (ITMD)

ITMD 121

Interior Design (3 CR)

This course provides basic, introductory knowledge about interior design. Upon successful completion of this course, the student should understand the significance of interior design, complete projects using the elements and principles of design and color theory in interior spaces, use space planning skills to arrange furniture on a floor plan, and present the floor plan and its decorative scheme. 3 hrs./wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$75 to \$100.

ITMD 123

Space Planning (3 CR)

Prerequisites: ITMD 121 with "C" or higher and DRAF 164 with a grade of "C" or higher

This is an advanced course focusing on the process of space planning. Upon successful completion of this course, the student should be able to demonstrate an advanced level of understanding in: space planning rationale, space planning procedures, and how to convey the meaning of a space plan. 4 hrs. integrated lecture and lab/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$50.

ITMD 125

Interior Textiles (3 CR)

This course is a comprehensive study of textiles used in interior design. Upon successful completion of this course, the student should be able to differentiate fibers and textiles according to their specific characteristics and to select fibers and interior textiles for specific applications. Specific course content includes properties and characteristics of natural and man-made fibers; construction methods; and various finishing processes, such as weaving, knitting, felting, printing and dyeing. The course will concentrate on textiles designed for interior applications. 2 hrs. lecture, 2 hrs. lab/wk

ITMD 127

Elements of Floral Design (1 CR)

This course provides in-depth knowledge and hands-on application of floral design. Upon successful completion of this course, the student should be able to use the principles of floral design, develop a proficiency in the techniques of line and mass arrangements, possess a greater appreciation for flowers and other plant material, apply the mechanics and design considerations involved in working with silk and dried materials, and design and create silk and dried floral arrangements. 1.5 hrs. integrated lecture, lab/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$100 to \$150.

ITMD 129

Design Presentation (3 CR)

Prerequisites: ITMD 121 with a grade of "C" or higher and DRAF 164 with a grade of "C" or higher

This is an intermediate course focusing on interior design presentation skills. Upon successful completion of this course, the student will demonstrate visual communication skills including isometric, axonometric, oblique and perspective drawings as well as use rendering techniques and color to enhance drawings. Additionally the student will organize and demonstrate visual and verbal presentations to communicate the design solution. 2 hrs. lecture, 2 hrs. lab/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$75 to \$100.

ITMD 132

Materials and Resources (3 CR)

This course provides in-depth knowledge about materials used in interior spaces. Upon successful completion of this course, the student should be able to evaluate the quality of interior materials; demonstrate the ability to use catalogs and other product information resources; identify manufacturing and/or construction techniques used in products; use correct terminology to describe the various types of interior materials; and compare the design, use, durability and cost of materials. 3 hrs./wk.

ITMD 133

Furniture & Ornamentation/Antiquity to Renaissance (3 CR)

This course provides in-depth knowledge in the study of Western furniture and ornament. Upon successful completion of this course, the student should be able to analyze and compare the furniture, ornamentation, design motifs and textiles of historical periods from antiquity to the Renaissance. Additionally, the student should be able to define the religious, political and social influences on the ornamentation and furnishings of each period. The student should also be able to identify the craftsmanship and materials used in the furniture of each historical period and correctly use vocabulary related to each era. 3hrs./wk.

ITMD 140

Window Treatments (1 CR)

Prerequisites: ITMD 121 and ITMD 125 both with a grade of "C" or higher and prerequisite or corequisite: ITMD 271 with a grade of "C" or higher

This course provides comprehensive knowledge about draperies and window treatments and their construction. Upon successful completion of this course, the student should demonstrate the use of correct vocabulary relating to drapery and window treatments, explain the equipment used in the drapery industry, distinguish appropriate textiles and hardware for specific window treatments, measure for window treatments, and describe and select the proper suspension system for specific window treatments. The student will measure, select and present the proper style, fabric and suspension system for a specific window treatment. 1 hr./wk.

ITMD 143

Accessory Fundamentals (1 CR)

Prerequisite: ITMD 121 with a grade of "C" or higher

This course provides in-depth knowledge about accessories and accessory placement. Upon successful completion of this course, the student should be able to identify the various principles and elements of design as they relate to accessories. Students should be able to identify and explain the difference between functional and decorative accessories. Additionally, the student should demonstrate an understanding of the quality of different types accessories, how to identify the client's personal style, and how to successfully place different types of accessories. 1 hr. lecture/wk.

ITMD 145

Upholstered Furniture (1 CR)

Prerequisites: ITMD 121 and ITMD 125 both with a grade of "C" or higher and prerequisite or corequisite: ITMD 271 with a grade of "C" or higher

This course provides comprehensive knowledge about upholstery construction. Upon successful completion of this course, the student should be able to demonstrate the use of correct vocabulary relating to upholstery construction, explain the equipment used in the upholstery industry, identify appropriate textiles and materials for upholstery use, and describe the various suspension systems used in bench-constructed and mass-produced furniture. 1 hr./wk.

ITMD 147

Lighting Basics (1 CR)

Prerequisite: ITMD 121 with a grade of "C" or higher or FASH 125

This course provides general knowledge about lighting design and planning. Upon successful completion of this course, the student should be able to define and use vocabulary relating to lighting design and planning. The student should be able to recognize and explain lighting application and technology used in the lighting industry. 1 hr. lecture/wk.

ITMD 148

History of Asian Furniture and Design (2 CR)

This course provides in-depth knowledge in the study of Asian furniture and ornament. Upon successful completion of this course, the student will be able to analyze and compare furniture, ornamentation, design motifs and textiles of the Near East and Far East during historical periods from antiquity to modern times. The student should be able to identify the religious, political and social influences on the ornamentation and furnishings of each period. In addition, the student should be able to identify the craftsmanship and materials used in the furniture of each historical period and to demonstrate the use of correct vocabulary related to each era. 2 hrs./wk.

ITMD 149

Casegoods (1 CR)

Prerequisite: ITMD 121 with a grade of "C" or higher

Upon successful completion of this course the student should be able to understand various construction techniques, describe different wood species and their properties, and explain the best functional and decorative uses for each wood species. The student will apply principles and elements of design when selecting casegoods, describe care and repair of casegoods, and understand current trends in the casegood industry. 1 hr. lecture/wk.

ITMD 150

Asian Rugs and Carpets (1 CR)

This course provides in-depth knowledge in the study of Asian carpets and rugs. Upon successful completion of this course, the students will be able to analyze and compare materials, ornamentation, design motifs and textiles of the Near East and Far East during historical periods from antiquity to modern

times. The student should be able to identify the religious, political and social influences on the ornamentation and furnishings. In addition, the student should be able to demonstrate the use of correct vocabulary. 1 hr./wk.

ITMD 175

Advanced Floral Design (1 CR)

Prerequisite: ITMD 127

This course is a continuation of Elements of Floral Design and provides the student with a more comprehensive application of floral design for home interiors. Upon successful completion of this course, the student will be able to determine the appropriate floral design for an existing home, design a variety of florals for specific placement, work with other students on a specific project and learn how to buy and price interior floral designs. 1 hr. lecture, 1.5 hrs. lab/wk.

ITMD 180

Leadership in Design (1 CR)

Prerequisite: ITMD 123 with a grade of "C" or higher

Upon successful completion of this course, the student should be able to identify leadership skills necessary to have successful involvement in the field of interior design and professional organizations. Topics include group communication methods, time management, team-building skills, and organizing and facilitating meetings. Students desiring leadership opportunities in professional organizations are encouraged to enroll. 1 hr. lecture/wk.

ITMD 189

Sustaining Design (1 CR)

Upon successful completion of this course the student should be able to understand and explain the concepts, terminology and global issues of the various ecological approaches to design and of the impact of design on the environment. The student will have an understanding of the cradle-to-cradle paradigm. Students will learn to identify the impact their selections will have on the environment and to consider ecological options when specifying products. 1 hr. lecture/wk.

ITMD 213

Lighting Design and Planning (3 CR)

Prerequisite: ITMD 121 with grade of "C" or higher or FASH 125

This course provides in-depth knowledge about lighting design and planning giving the student the ability to not only understand but to manipulate and create the lighting plan. Upon successful completion of this course, the student should be able to define and use vocabulary relating to lighting design and planning and to recognize and explain lighting application and technology used in the lighting industry. Additionally, the student should be able to identify and describe proper fixtures and equipment for lighting applications and demonstrate skills in selecting proper lighting designs for specific applications. 3 hrs. lecture/wk.

ITMD 219

Issues in Interior Design (3 CR)

Prerequisite: ITMD 221 with a grade of "C" or higher

This course is designed to educate the student on the current issues that affect the interior design profession such as environmental design, green/sustainable design and Universal Design. These topics may vary based on current industry concerns. Upon successful completion of this course, the student should be able to identify, explain and analyze ramifications to the industry that arise from the economy, politics and social culture. 3 hrs. lecture/wk.

ITMD 221

Residential Design (3 CR)

Prerequisites: DRAF 264 with a grade of "C" or higher AND prerequisite or corequisite ITMD 271 with a grade of "C" or higher

This is an advanced course focusing on residential design. The design process will be practiced from beginning to end in order to formulate a complete design solution. Upon successful completion of this course, the student should be able to demonstrate an advanced level of space planning on a floor plan. In addition, the student will develop color schemes that will solve specific assigned interior design problems and demonstrate the ability to coordinate fabrics and finishes in a complete floor plan for a residential unit. The student will produce floor plans and additional views enhanced by color and shadow. The student will also demonstrate an understanding of business practices. 2 hrs. lecture, 3 hrs. lab/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$50.

ITMD 223

Commercial Design (3 CR)

Prerequisite: DRAF 264 with a grade of "C" or higher

This is an advanced course focusing on commercial design. Upon successful completion of this course, the student will be able to define and use vocabulary related to commercial design, identify and use proper architectural symbols common to the commercial design industry. Additionally, the student should be able to demonstrate the skills necessary to create a code compliant commercially designed space; explain the different concepts of office planning; and use the design process to arrive at potential design solutions. 2 hr. lecture, 3 hrs. lab/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$50.

ITMD 225

Interior Textiles II (3 CR)

Prerequisite: ITMD 125 with a grade of "C" or higher

This course is an advanced study of textiles used in interior design. Upon successful completion of this course, the student should be able to differentiate fibers and textiles according to their specific characteristics and to select fibers and interior textiles for specific applications. The course concentrates on textiles designed for residential and contract applications. 2 hrs. lecture 2 hrs. lab/wk.

ITMD 231

Furniture & Ornamentation Renaissance to 20th Century (3 CR)

This course provides in-depth knowledge in the study of Western furniture and ornament. Upon successful completion of this course, the student should be able to analyze and compare furniture, ornamentation, design motifs and textiles of historical periods from the Renaissance to the 20th century.

Additionally, the student should be able to define the social, religious and political influences on the ornamentation and furnishings of each period. The student should also be able to identify the craftsmanship and materials used in the furniture of each historical period and correctly use vocabulary related to each era. 3 hrs./wk. This course may be offered as a Learning Communities (LCOM) section, see current credit schedule for LCOM details.

ITMD 234

Kitchen and Bath: Planning and Design (3 CR)

Prerequisites: DRAF 264 with a grade of "C" or higher and ITMD 123 with a grade of "C" or higher

This is a comprehensive course in kitchen and bath design and planning. Upon successful completion of this course, the student should be able to define and use proper vocabulary related to kitchen and bath design and construction, identify and use proper architectural symbols common to kitchen and bath plans and elevations, state the space relationships required for proper kitchen and bath usage, convert to metric measurements, and draw a kitchen and bath floor plan and elevation. 2 hrs. lecture, 3 hrs. instructional lab/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$50 to \$75.

ITMD 237

Capstone: Merchandising and Entrepreneurship (2 CR)

Prerequisite: Department approval

This course is designed as a capstone for the Interior Merchandising and Interior Entrepreneurship programs. It should be taken in conjunction with or after completion of the final interiors studio course or in the graduating semester. Upon successful completion of this course, the student should be able to select and rework portfolio materials for maximum visual potential and appeal. In addition, the student will prepare a resume, conduct a job search, and present written and oral presentations based on resource and product files from other classes. 2 hrs. lecture/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$75 to \$100.

ITMD 239

Capstone: Interior Design (2 CR)

Prerequisite: Department approval

This course is designed as a capstone for the Interior Design Program. It should be taken in conjunction with or after completion of the final interiors studio course or in the graduating semester. Upon successful completion of this course, the student should be able to select and rework portfolio materials for maximum visual potential and appeal. In addition, the student will prepare a resume, conduct a job search, and present written and oral presentations based on resource and product files from other classes. 2 hrs. lecture/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$75 to \$100.

ITMD 250

20th Century Designers (1 CR)

This course provides in-depth knowledge in the study of the 20th-century designers. Upon successful completion of course, the student should be able to analyze and compare furniture, ornamentation, design motifs and textiles of various 20th-century designers. Recognition of periods and individual styles is stressed. The student will have an opportunity to study a specific designer in depth. 1 hr lecture /wk.

ITMD 271

Budgeting and Estimating (3 CR)

Prerequisites: ITMD 121 with a grade of "C" or higher and ITMD 125 with a grade of "C" or higher and MATH 120 with a grade of "C" or higher

Upon successful completion of this course, the student should be able to demonstrate a business-like approach toward job and work, explain and list methods of pricing interior design/merchandising materials and services, measure accurately for materials, utilize business math in interior design/merchandising applications, and accurately compute cost in cases. 3 hrs. lecture/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$20.

ITMD 273

Interiors Seminar: Practices and Procedures (2 CR)

Prerequisite: ITMD 123 with a grade of "C" or higher

Upon successful completion of this course, the student should be able to demonstrate the use of proper interior design industry terminology, appropriate business forms and contracts, define the types of business legal structure, and solve business organizational and ethical problems through use of case studies.

2 hrs./wk.

ITMD 282

Interiors Internship I (1 CR)

Prerequisite: ITMD 121 with a grade of "C" or higher

Upon successful completion of this course, the student should be able to apply classroom knowledge to an actual work situation. This course consists of supervised work experience in an approved training situation. It is designed to provide practical experience in the interiors industry. A minimum of 15 hours each week on-the-job training is required.

ITMD 284

Interiors Internship II (1 CR)

Prerequisites: ITMD 121 with a grade of "C" or higher and ITMD 282 with a grade of "C" or higher

Upon successful completion of this course, the student should be able to apply classroom knowledge to an actual work situation. This course consists of supervised work experience in an approved training situation. It is designed to provide practical experience in the interiors industry. A minimum of 15 hours each week on-the-job training is required.

ITMD 295

Field Study: Design and Merchandising (3 CR)

Prerequisites: ITMD 121 and department approval

This travel-for-credit course consists of visits to manufacturing plants, a market showroom and a merchandise mart in a major market city.

ITMD 296

Interior Design: the Orient (3 CR)

Upon successful completion of this course, the student should be able to recognize and identify Asian furniture pieces and accessories from different countries; define and use vocabulary common to the art periods; and compare and contrast furniture and accessory pieces observed in museums, temples, homes and antique stores. This course will include five 3-hour pre-departure seminars followed by a three-week field trip to Japan, Hong Kong and Thailand.

Interpreter Training (INTR)

INTR 122

Intermediate American Sign Language I (3 CR)

Prerequisite: INTR 121 or ASL 121 or FL 181 with a grade of "C" or higher and Corequisite: Students accepted in the interpreter training program must take corequisites of INTR 130 and INTR 126 and (INTR 147 or ASL 145) and (INTR 145 or ASL 145) all with a grade of "C" or higher

This course will focus on the development of intermediate American Sign Language communication skills. Comprehension skills and linguistic features of the language taught in context will be emphasized. 6 hrs.lecture-lab/wk. The daytime sections only are open to students in the interpreter training program. INTR 122, FL 270 and ASL 122 are the same courses; only enroll in one. Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$10 to \$20.

INTR 123

Intermediate American Sign Language II (3 CR)

Prerequisite: INTR 122 or ASL 122 or FL 270 with a grade of "C" or higher

and Corequisite: For students accepted in the interpreter training program: INTR 131 and INTR 135 and INTR 242 and INTR 248 all with a grade of "C" or higher

The course will continue study of intermediate American Sign Language. It is designed to develop further intermediate communication skills in American Sign Language. Information about the linguistic and cultural features will be included in the context of language learning experiences. 6 hrs. integrated lecture-lab/ wk. The daytime sections are open only to students in the interpreter training program. INTR 123, FL 271 and ASL 123 are the same courses; only enroll in one.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$10 to \$20.

INTR 126

Classifiers in American Sign Language (2 CR)

Prerequisites: INTR 121 or ASL 121 with grade of "C" or higher and acceptance in the interpreter training program Corequisites: (INTR 122 or ASL 122) and INTR 130 and (INTR 147 or ASL 147) and (INTR 145 or ASL 145)

The course will provide an in-depth analysis of classifiers in ASL through discussion and demonstration of the three different categories of classifiers in ASL: representative classifiers (noun and its action), descriptive classifiers (size-and-shape, extent, perimeter, pattern and texture), and instrumental classifiers (manipulative and handle). Students will learn to comprehend and produce classifiers from all three categories.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$400 to \$500.

INTR 130

Survey of the Interpreting Profession (3 CR)

Prerequisites: INTR 121 or FL 181 or ASL 121 with a grade of "C" or higher and acceptance in the interpreter training program Corequisites: (INTR 122 or ASL 122) and INTR 126 and (INTR 147 or ASL 147) and (INTR 145 or ASL 145) all with a grade of "C" or higher

This course provides an introduction to interpreting as an occupation. Students will come to understand interpersonal communication skills, professional ethics, parameters of responsibilities, community resources and legal ramifications as they relate to the interpreter. 3 hrs./wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$10 to \$50.

INTR 131

Interpreting Preparation Skills (2 CR)

Prerequisites: INTR 130 with a grade of "C" or higher and acceptance into the interpreter training program Corequisites: INTR 123 and INTR 135 and INTR 242 and INTR 248 all with a grade of "C" or higher

This course provides students with a foundation in the theory of interpretation. Students will explore the Colonomos Model of interpreting and apply this model by first using pre-interpreting skills in isolation. Then students will progress from producing translations to interpreting consecutively. 4 hrs. integrated lecture-lab/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$10 to \$50.

INTR 135

Intro to American Sign Language Linguistics (3 CR)

Prerequisite: INTR 122 or ASL 122 or FL 270 with a grade of "C" or higher Corequisites: for students accepted in the interpreter training program enroll in: INTR 123 and INTR 242 and INTR 131 and INTR 248 all with a grade of

"C" or higher

This course introduces students to the structural and grammatical principles of ASL. Students will explore concepts of equivalency between English and ASL 3 hrs. lecture/wk. The daytime sections are open only to students in the interpreter training program. INTR 135 and ASL 135 are the same course; do not enroll in both.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$10 to \$50.

INTR 145

Introduction to the Deaf Community (3 CR)

Prerequisite: Acceptance to interpreter training program and Prerequisite or corequisite: ANTH 125 and SPD 120 for Interpreter Training Program
Corequisites for Interpreter Training Prog: INTR 122 and INTR 126 and INTR 130 and INTR 147 all with a grade of "C" or higher
Note: Prerequisite or corequisite of INTR 120 or ASL 120 or FL 180 required for students in the American Sign Language Studies Certificate

This course will prepare students to develop and recognize the diversity within the Deaf Community, significant events and figures in Deaf History, and basic norms and values of Deaf Culture. Students will examine and compare Deaf Culture and hearing culture in America. The daytime sections are open only to students in the interpreter training program. 3 hrs./wk. INTR 145 and ASL 145 are the same course; do not enroll in both.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$10 to \$50.

INTR 147

Fingerspelling I (2 CR)

Prerequisite: INTR 121 or FL 181 or ASL 121 with a grade of "C" or higher and Corequisites: For students accepted in the interpreter training program, enroll in: (INTR 122 or ASL 122) and INTR 126 and INTR 130 and (INTR 145 or ASL 145) all with a grade of "C" or higher

Students will work on developing beginning expressive and receptive fingerspelling skills based on word recognition principles. 1 hr. lecture, 2 hrs. lab/wk. The daytime sections are open only to students in the interpreter training program. INTR 147 and ASL 147 are the same course; do not enroll in both.

INTR 150

American Sign Language Literature (3 CR)

Prerequisite: INTR 122 with a grade of "C" or higher

This course will provide introduction, discussion, and demonstration of literature in American Sign Language (ASL). The literature involves ASL Poetry, ASL Storytelling/Narratives, Deaf Humor, Deaf Folklore and other genres that have been passed on from one generation to another by culturally deaf people. Students will receive, analyze and retell a variety of ASL literature. 3 hrs. lecture/wk. INTR 150 and ASL 150 are the same course; do not enroll in both.

INTR 181

Interpreting Practicum I (1 CR)

Prerequisites: INTR 130 and INTR 145 with a grade of "C" or higher and Corequisites: INTR 223 and INTR 226 and INTR 250 all with a grade of "C" or higher

Students will observe skilled interpreters in various interpreting situations in a variety of settings during the semester. 2 hrs. lab, field work/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$10 to \$50.

INTR 223

Advanced American Sign Language (3 CR)

Prerequisite: INTR 123 or ASL 123 or FL 271 with a grade of "C" or higher
Corequisites: INTR 250 and INTR 226 and INTR 181 all with a grade of "C" or higher

This course is a continuation of Intermediate American Sign Language II. Students will learn about culturally significant topics related to the Deaf community, more complex ASL grammatical features and conversational skill development. Comprehension skills and linguistic features of ASL will be taught to a variety of contexts in simulated, typical interaction. Students will have opportunities to utilize what they learn about advanced ASL through class activities, dialogues, short stories, general conversations and class discussions. Sign comprehension and production skills will be emphasized. This course meets for six hours of internship/week.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$10 to \$25.

INTR 226

Specialized and Technical Vocabulary (2 CR)

Prerequisite: INTR 123 or ASL 123 with a grade of "C" or higher
Corequisites: INTR 181 and INTR 250 and INTR 223 all with a grade of "C" or higher

This course will expand the interpreter training students' vocabulary related to specialized and technical contexts. Students will discuss vocabulary use in a variety of contexts to include socially restricted terms and phrases Deaf people use; colloquialisms; varying registers; terminology in medical, mental health, religion, sex, drugs; and strong language in ASL. Students' development of comprehension and production skills in common formal and informal settings will be emphasized. Students will also discuss Signing Exact English (SEE II) and the differences from American Sign Language (ASL). 3 hrs. integrated lecture-lab/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$10 to \$50.

INTR 242

Fingerspelling II (2 CR)

Prerequisite: INTR 147 with a grade of "C" or higher
Corequisites: INTR 123 and INTR 131 and INTR 135 and INTR 248 all with a grade of "C" or higher

This course focuses on continued development of expressive and receptive fingerspelling skills based on word and phrase recognition and expression. 1 hr. lecture, 2 hrs. lab/wk.

INTR 248

Deaf Community Ethnography (3 CR)

Prerequisite: INTR 145 or ASL 145 with a grade of "C" or higher
Corequisites: (INTR 123 or ASL 123) and INTR 131 and (INTR 135 or ASL 135) and INTR 242 all with a grade of "C" or higher

This advanced course will provide students the opportunity to explore power and oppression issues experienced by d/Deaf people. Specific attention will be given to society's views of the d/Deaf community and the influence of various media on these views. 3 hrs. lecture/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$10 to \$25.

INTR 250

Interpreting I (6 CR)

Prerequisite: INTR 131 with a grade of "C" or higher
Corequisites: INTR 181 and INTR 223 and INTR 226 all with a grade of "C" or higher

In this introduction to interpreting principles, emphasis will be on English-to-ASL and ASL-to-English skills. Students will participate in sequential drills and apply these skills in class. 2 hrs. lecture, 8 hrs. lab/wk.
Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$10 to \$50.

INTR 251

Interpreting II (2 CR)

Prerequisite: INTR 250 with a grade of "C" or higher *Corequisites:* INTR 262 and INTR 282 and AAC 150 all with a grade of "C" or higher

A description is not available for this course.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$10 to \$50.

INTR 262

Seminar on Interpreting (3 CR)

Prerequisite: INTR 250 with a grade of "C" or higher *Corequisites:* INTR 251 and INTR 282 and AAC 150 all with a grade of "C" or higher

This course provides students with knowledge of stress management as applied to both the physical demands and mental conditions of sign language interpreting. Students will learn and apply decision-making techniques in regard to the Interpreter (RID) Code of Ethics. Additionally, the course provides students with knowledge of career development theory, career decision-making and the job-search process. 3 hrs. lecture/wk.

INTR 282

Interpreting Practicum II (6 CR)

Prerequisite: INTR 181 with a grade of "C" or higher *Corequisites:* INTR 251 and INTR 262 and AAC 150 all with a grade of "C" or higher

This course provides students with an opportunity to observe and interpret in an off-site setting with the supervision of an experienced interpreter. Students will actively engage in discussions relating to the difficulties and rewards of working in a realistic interpreting environment. The fieldwork totals 270 hours a semester.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$10 to \$50.

Journalism/Media Communication (JOUR)

JOUR 120

Mass Media and Society (3 CR)

Each of us is exposed to and affected by the mass media on a daily basis. This course is designed to increase students' awareness of the various media and media's impact on their daily beliefs, opinions, decisions, and goals. As a result, students will become more media literate and astute critics of media messages. 3 hrs./wk.

JOUR 122

Reporting for the Media (3 CR)

Reporting for the Media is structured for students interested in the basics of writing and reporting. Writing for print, broadcast, and online media are included. Information gathering and story writing are conducted under strict deadlines to prepare students for a professional position. Basic news writing and style principles will be gained by writing stories for JCCC student media, including the student newspaper, The Campus Ledger. 3 hrs./wk.

JOUR 125

Fundamentals of Advertising (3 CR)

Fundamentals of Advertising introduces the student to the contemporary advertising process. Research, planning, creativity, production, media placement and sales are discussed, along with individual mediums and their forms, functions and roles in society. Major emphasis is placed on the areas of advertising/marketing research, planning and creativity, including integrated marketing communications. 3 hrs./wk.

JOUR 127

Electronic Media (3 CR)

This course serves students interested in pursuing knowledge of or a career in electronic media. The course includes a study of the industry's development, its form and function, job responsibilities, audience measurement, FCC regulations and ethics. Class time includes discussion of current trends and issues in the field. Productions in the college's student media facilities offer opportunities for students to further evaluate potential career choices in electronic media. 3 hrs./wk.

JOUR 130

Principles of Public Relations (3 CR)

This course is intended to provide the student with an overview of the history, principles and real-life functions of public relations. Public relations is a rapidly growing field. The ability to communicate well with the public is essential in business, education, health care and numerous other fields. This course is designed to give students the background to develop their PR skills. 3 hrs./wk.

JOUR 145

Digital Photojournalism (3 CR)

Prerequisite: PHOT 128

This course is designed to meet the photographic imaging needs of journalism students. It provides a journalistic approach to the concepts and application of digital photography for multi-media. Students will use cameras, computers, software, scanners and image-output devices to master the issues, concepts, and constraints involved in creating imagers for a broad range of media. They will prepare and format digitized image files for storage and transmission, and print and Web-based reproduction. 6 hrs. integrated lecture lab/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$75 to \$150.

JOUR 202

Broadcast Performance (3 CR)

Students will learn how to improve their speaking voices and body language as well as the techniques necessary to effectively communicate messages through basic announcing skills. Interviewing, radio and television news, and commercial announcing are some of the topics covered in this course, which will allow students to polish their skills through performances in the college's television studio and on campus media. 3 hrs./wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$10 to \$15.

JOUR 222

Advanced Reporting (3 CR)

Prerequisite: JOUR 122

This course is designed to sharpen the discernment, critical thinking and writing skills of student journalists. Specific English language rules and principles plus AP news writing style will be emphasized in the production of incisive, well-defined features, profiles, reviews, editorials and personal columns. Professional writings in various media will be examined and

critiqued. Class members will have the opportunity to participate in hands-on video shooting and editing of a news story package. Students will gain additional experience by participating in news events, as well as interacting with area media professionals. 3 hrs./wk.

JOUR 225

Promotional Writing (3 CR)

Prerequisite: JOUR 125 or JOUR 130

Students will study copywriting for promotional purposes, starting with an understanding of the target audience. Emphasis is on writing ads for print, radio and television; direct mail and direct response; the web; and new genres. 3 hrs./wk.

JOUR 227

Basic Video Production (3 CR)

This course provides students with the fundamentals of video production. The goal is to teach students basic video techniques. Topics covered include technology, lighting, camera operations, audio and editing. Students will gain hands-on experience in the college's Media Production Services Department. 3 hrs. lecture/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$10 to \$20.

JOUR 242

Advanced Broadcast Performance: TV (3 CR)

Prerequisite: JOUR 202

Students will produce news, feature, sports, and interview programming for airing on the college's cable station, video server, and social networks. The development of news stories will be included in hands-on activities throughout the course. Learning composure, focus, and detail in a team information-gathering operation will be emphasized. 3 hrs. lecture/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$10 to \$15.

JOUR 247

Advanced Video Production (3 CR)

Prerequisite: JOUR 227

Students will direct, produce, and edit programming for distribution via the college's media outlets. Students will develop the technical skills involved in both studio production and field production as well as advanced skills in camera operations, multi-camera directing, lighting, audio production, and graphics. 3 hrs. lecture/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$100 to \$125.

JOUR 252

Advanced Broadcast Performance II: TV (3 CR)

Prerequisite: JOUR 242

This course builds upon the skills learned in the Advanced Broadcast Performance course. Students will produce news, features, sports, and interview programming for airing on the college's cable station, video server, and social networks. The development of news packages, event reporting, and extended coverage of campus events will be included in hands-on activities throughout the course. Learning composure, focus, and detail in a team information-gathering operation will be emphasized. 3 hrs. lecture/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$100 - 125.

JOUR 257

Advanced Video Production II (3 CR)

Prerequisite: JOUR 247

This course builds upon the Advanced Video Production course. Students will direct, produce, and edit programming for distribution via the college's media outlets. They will enhance their advanced technical skills involved in both studio production and field production as well as advanced skills in camera operations, multi-camera directing, lighting, audio production, and graphics. The development of writing for media programming will also be emphasized. 3 hrs. lecture/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$100 - 125.

JOUR 262

Advanced Broadcast Performance III: TV (3 CR)

Prerequisite: JOUR 252

This course builds upon the skills learned in Advanced Broadcast Performance II. Students will produce news, features, sports, and interview programming for airing on the college's cable station, video server, and social networks in a collaborative effort with other students in the broadcast/video program. The development of news packages, event reporting, and extended coverage of campus events will be included in hands-on activities throughout the course. Learning composure, focus, and detail in a team information-gathering operation will be emphasized. Production supervision skills will also be emphasized. 3 hrs. lecture/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$100 to \$125.

JOUR 267

Advanced Video Production III (3 CR)

Prerequisite: JOUR 257

This course continues the advancement of technical skills offered in Advanced Video Production II. Enhancement of skills includes program production of electronic student media. Application of technical skills in studio and field production, multi-camera directing, lighting, audio production and graphics will evolve through hands-on training. Advanced work in writing for student media programming is emphasized. 3 hrs. lecture/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$100 to \$175.

JOUR 271

Journalism Internship (3 CR)

Prerequisites: Instructor approval; completion of six credit hours in journalism/media communications at JCCC or another college with a grade of "C" or higher in those 6 hours.

A journalism/media internship allows students to gain work experience at an approved training center under staff supervision. Emphasis is on learning new skills related to a particular program or department at a media facility. Students may learn the application of writing techniques needed to produce and broadcast news, and produce advertising or public relations promotional copy. On-the-job training involves approximately 15-20 hrs./wk. by arrangement.

Land Surveying (KSRV)

KSRV 120

Introduction to Geographic Information Systems (3 CR)

Fundamental concepts of Geographic Information Systems (GIS), elements of GIS, analysis of spatial information real-world applications, map creation and analysis. Primary objective is to investigate interactive GIS applications rather than develop expert users. 3 hrs. lecture/wk.

KSRV 137

Subdivision Planning and Layout (3 CR)

Prerequisites: ENGR 180 MCC's and DRAF 152

Physical elements of designing land subdivisions including traffic circulation, sewer and drainage systems, soils and earthwork, grading considerations, erosion control, lot and block arrangement, topography and existing land use factors, geometric analysis, laws and codes affecting land subdivisions, environmental considerations, site analysis procedures. 3 hrs. lecture/wk. Courses taught at MCC-Longview Community College, 500 SW Longview Rd., Lee's Summit, MO. Students should contact the Longview coordinator of land surveying about the class meeting times and beginning and ending dates of classes. Call 816-672-2510.

KSRV 152

Engineering Graphics & CADD I (5 CR)

Prerequisite: MATH test

Introduction to engineering communications and basic computer-aided drafting/design (CADD). Emphasis on sketching, orthographic projections, drawing layout, drafting and CADD standards and conventions, dimensioning, sectioning, annotation and basic design principles. Foundation for computer aided drafting/design including file management, basic drawing commands, basic editing commands, layering conventions, blocks, dimensioning, polylines, sectioning, and drawing layout, hatching and plotting. 3 hrs. lecture, 4 hrs lab.

KSRV 220

GIS Database and Design (3 CR)

Prerequisite: KSRV 120

Concepts of Geo-database design and management in Geographic Information Systems (GIS), SQL statements, geographic data types and functions, data entry, techniques of geographic information structure and indexing, querying techniques, searches, and spatial analysis, creation and use of metadata real-world applications. 3 hrs. lecture

KSRV 235

Advanced Surveying (3 CR)

Prerequisite: ENGR 180

This course is a continuation of surveying skills introduced in ENGR 180 with an emphasis on advanced techniques beyond plane surveying such as geodetic control networks, practical astronomy, state plane coordinates, photogrammetry and the US Public Land Surveys System. 3 hrs. lecture/wk. Course taught at MCC-Longview Community College, 500 SW Longview Rd., Lee's Summit, MO. Students should contact the Longview coordinator of land surveying about the class meeting times and beginning and ending dates of classes. Call 816-672-2510.

KSRV 236

Boundary Control & Legal Principles (3 CR)

Prerequisite: ENGR 180

A study of the legal principles of land boundaries, section corners, area; interpretations of land descriptions; identification of land parcels; legal principles of boundary locations; and the United States land survey system. 3 hrs. lecture/wk. Course taught at MCC-Longview Community College, 500 SW Longview Rd., Lee's Summit, MO. Students should contact the Longview coordinator of land surveying about the class meeting times and beginning and ending dates of classes. Call 816-672-2510.

KSRV 237

Evidence and Procedures for Boundary Locations (3 CR)

Prerequisite: ENGR 180

A study of the land survey practice of retracement and creation of new parcels as it relates to the lot survey, the sectional survey, and the water boundary survey. Discussion of further standard business practice. 3 hrs. lecture/wk. Course taught at MCC-Longview Community College, 500 SW Longview Rd., Lee's Summit, MO. Students should contact the Longview coordinator of land surveying about the class meeting times and beginning and ending dates of classes. Call 816-672-2510.

KSRV 244

Fundamentals of GPS Surveying (3 CR)

Prerequisite: ENGR 180

The purpose of this course is to introduce the student and practitioner to the modern practices of satellite surveying with an emphasis on its origins in physical geodesy. 3 hrs. lecture

KSRV 269

Computer Aided Design II (4 CR)

Prerequisites: DRAF 152 or 169 (MCC)

Advanced Computer Aided Drafting and design (CADD). Advanced dimensioning and tolerancing techniques, attributes, advanced drawing aids, file management and basic customization. Effective use of model space, paper space and viewports. An introduction to three-dimensional wire frames, surface models, solid models and rendering tools. 2 hrs. lecture, 4 hrs. lab/wk.

Leadership (LEAD)

LEAD 120

Leadership Development Seminar (3 CR)

This seminar course is designed for individuals who are interested in exploring the concepts of leadership using discussion, film, exercises and works of classic literature. The course will lead to the development of a personal leadership philosophy. 3 hrs./wk.

LEAD 130

Leadership & Civic Engagement (3 CR)

This course is designed to help students develop the capacity and confidence for leadership in their personal, professional, and civic activities. The course focuses on the study of essential components and concepts of leadership, examination of characteristics and skills of effective historic and contemporary leaders, analysis of leadership skills and responsibilities in community settings, identification of personal leadership goals and standards, and development of competencies needed to meet community and global challenges in an informed, innovative, and responsible manner. 3 hrs. lecture/wk.

Learning Communities (LCOM)

LCOM 098

Accelerated Math: Fundamentals/Elementary Algebra (6 CR)

Prerequisite: An appropriate score on an assessment test

This 16-week course is an integration of the content of both Fundamentals of Mathematics and Elementary Algebra and graded as if taken as two separate

courses. You will earn 3 credit hours in Fundamentals of Mathematics and 3 credit hours in Elementary Algebra that will transfer as if they were being taught in the traditional format. Students will receive credit on their transcript for MATH 111 and MATH 115. Note: MATH 115 may fulfill some certificate requirements, but will not fulfill degree requirements.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$0 to \$100.

LCOM 099

Accelerated Math: Elementary Algebra/Intermediate Algebra (6 CR)

Prerequisite: MATH 111 with a grade of "C" or higher or an appropriate score on an assessment test.

This 16-week course is an integration of the content of both Elementary Algebra and Intermediate Algebra and graded as if taken as two separate courses. You will earn 3 credit hours in Elementary Algebra and 3 credit hours in Intermediate Algebra that will transfer as if they were being taught in the traditional format. Students will receive credit on their transcript for MATH 115 and MATH 116. MATH 115 may fulfill some certificate requirements, but will not fulfill degree requirements.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$0 to \$100.

LCOM 120

Business Math/Learning Strategies for Math (4 CR)

Prerequisite: MATH 111 with a grade of "C" or higher or appropriate score on the math assessment test *Corequisites:* MATH 120 and LS 174

Students earn 4-credit hours (3 credit hours for MATH 120 Business Math and 1 credit hour for LS 174 Learning Strategies for Math). This 4-credit hour course facilitates mathematics learning by integrating thinking skills, study skills and mathematical content. The student will acquire life-long learning skills along with fundamental math procedures and concepts. Students in this learning community class will learn problem solving, test taking and cognitive skills. They will apply these skills to their math textbook, homework assignments, class discussions and lectures. This course will also address emotions and attitudes which may block math learning, and will offer strategies and techniques designed to overcome these feelings. Active learning will be encouraged through activities such as pair and share, journal writing, group discussions, self-assessments and collaborative learning. 4 hr. lecture/wk.

LCOM 126

Composition II and U.S. History to 1877 (6 CR)

Prerequisite: ENGL 106 or appropriate placement score

Students earn 6 transferable credit hours in general education requirements (3 for ENGL 122, Composition II, and 3 for HIST 140, U.S. History to 1877). The philosophy behind joining these two courses together is to encourage students to think critically and write effectively with American history providing unifying themes. Writing instruction works best when students can focus sustained attention on one particular discipline. Writing in college and the workplace demands the ability to synthesize often conflicting information gathered from various sources. The discipline of American history provides ample opportunities for students to develop skills in composing various types of prose.

LCOM 127

Composition II and US History Since 1877 (6 CR)

Prerequisite: ENGL 106 or appropriate test score

Students earn 6 transferable credit hours in general education requirements (3 for ENGL 122, Composition II, and 3 for HIST 141, U.S. History Since 1877). The philosophy behind joining these two courses together is to encourage students to think critically and write effectively with American history

providing unifying themes. Writing instruction works best when students can focus sustained attention on one particular discipline. Writing in college and the workplace demands the ability to synthesize often conflicting information gathered from various sources. The discipline of American history provides ample opportunities for students to develop skills in composing various types of prose.

LCOM 128

Art History: Renaissance to Modern/Furniture and Ornamentation: Renaissance to Modern (6 CR)

Students earn 6 credit hours (3 for ARTH 182, Art History: Renaissance/Modern, and 3 for ITMD 231, History of Furniture & Ornamentation/Renaissance-20th Century). NOTE: This learning community will meet on campus on Tuesdays and the Nelson-Atkins Museum of Art on Thursdays. In a traditional curriculum the history of the visual arts and architecture and the history of furniture and ornamentation are taught separately. In this learning community the two courses will be thoroughly integrated, thus providing students with a more accurate and meaningful way to learn. The class will meet once a week on the JCCC campus and once a week at the Nelson-Atkins Museum of Art in Kansas City, MO. Students, therefore will have the unique opportunity to study paintings, sculpture, furniture and the decorative arts from the Renaissance to the present using historically significant objects and art works. The class will involve such activities as oral presentations about art works in the museum and researching and writing about furniture and ornamentation. Students should have reliable transportation for the weekly drive to the Nelson-Atkins and should NOT enroll in an 11 a.m.-12:15 p.m. class.

LCOM 132

Composition II/Literature of Science Fiction (6 CR)

Prerequisite: ENGL 121

Students earn 6 credit hours (3 for ENGL 122, Composition II, and 3 for ENGL 243, Literature of Science Fiction). Students in this learning community will integrate their work in Composition II with their work in Literature of Science Fiction. Science fiction literature will be read and evaluated and will act as the subject matter for the writing inherent in the Composition II course objectives: we'll read and summarize science fiction stories and criticism; we'll critique and synthesize definitions of science fiction, its development, and its key concepts; and we'll explore the translation of text to screen.

LCOM 135

Social Issues:Appomattox-9/11 (6 CR)

Students earn 6 transferable credit hours in general education requirements (3 for SOC 122, Introduction to Sociology, and 3 for HIST 141, U.S. History Since 1877). Come explore American society in a learning community combining U.S. History since 1865 with Introduction to Sociology. Examine historical events with sociological eyes and understand how we created this society in which we live. We'll cover everything from A to Z: Appomattox to Z-Boys, Economics to Ecology, Family to Feminism, Media to the Moral Majority, Religions to Race, Social Class to Sexuality, Technology to Terrorism and Wealth to World War II.

LCOM 140

Selling Interior Products (6 CR)

Students earn 6 credit hours (3 for ITMD 132, Interior Products, and 3 for MKT 134, Professional Selling). In this learning community, students will learn in-depth product knowledge inclusive of specific features and benefits for numerous interior products. Additionally, students will learn how to utilize professional selling skills to sell interior products. Students will practice through role playing the steps of professional selling to illustrate the application of skill techniques in each step. 6 hrs. lecture/wk.

LCOM 142

Digital Literacies (6 CR)

Prerequisite: ENGL 106 or appropriate test score, Prerequisite for CWEB 105 is CWEB 101; Prerequisite for CWEB 115 is CWEB 105; Prerequisite for CWEB 130 CPCA 161 or CWEB 105 or CWEB 106

Students earn 6 credit hours (3 credit hours for ENGL 121, Composition I, 1 credit hour for CWEB 105, Intro to Web Pages: Dreamweaver; 1 credit hour for CWEB 115, Intermediate Web Pages: Dreamweaver and 1 credit hour for CWEB 130, Intro to Flash) (The CWEB courses would be taken in sequence throughout the semester.) This course combines the basic thinking skills and core competencies needed to thrive in the modern interactive environment. Students will enroll in ENGL 121 and CWEB 105, 115 and 130. Students will learn to transform "technobabble" into a language they can speak and understand. The course unlocks the power and potential of the Internet through a four-step inquiry process of awareness, analysis, reflection and action. This course helps students acquire an empowering set of "navigational" skills which include the ability to: 1) access information from a variety of sources; 2) analyze and explore how messages are "constructed" whether print, verbal, visual or multi-media; 3) evaluate media's explicit and implicit messages against one's own ethical, moral and/or democratic principles and 4) express or create their own messages using a variety of media tools.

LCOM 145

The Origins of Human Nature (6 CR)

Students earn 6 credit hours (3 for SOC 122 Intro to Sociology and 3 for PSYC 130 Intro to Psychology). Is it nature? Is it nurture? Are we who we are because of our genes or our environment, or both? Experience this Learning Community to learn what sociology and psychology have to say about human nature.

LCOM 147

Foundations of Modern Thought (6 CR)

Students can earn 6 transferable credit hours in general education requirements (3 for HIST 126, Western Civilization: Readings and Discussions, and 3 for SOC 122, Intro to Sociology). Modern social issues and structures have their origins in classic thought and writings. This learning community connects the heritage of Western thought to our contemporary lives. Search for the connections to democratic thought, social inequalities, the creation and dissolution of community, and other foundational ideas of modern society.

LCOM 149

Interpersonal Communication Navigation (4 CR)

Students earn 4 transferable credit hours in general education requirements (3 for SPD 120, Interpersonal Communication, and 1 for HPER 102, Navigation 102). This 4-credit hour course combines principles of effective communication with helping students experience a successful transition to college life. Students will learn practical life management skills and how to enhance their academic skills, while navigating through the fundamental elements of the communication process. Students in this learning community class will learn principles of communication theory, terminology of human communication, and will apply communication skills in everyday life. Students will have an opportunity to learn about self, one's self-concept, and how we relate to our world through healthy interpersonal relationships. Students will participate in self-awareness and career exploration activities that involve campus and community resources. Through decision-making activities, conflict management role playing perception awareness drills, and mastering one's listening skills, students will view and appreciate communication in a new and improved way. Emphasis will be on interactive and participatory activities, that include journal writing, small and large group discussion, quizzes and self-assessment.

LCOM 151

American and Global Terrorism (6 CR)

Students earn 6-credit hours (3 credit hours for POLS 124 American National Government and 3 for ADMJ 224 Introduction to Terrorism). This course gives an overall view of terrorism and the impact on the American political system. This is a Coordinated Studies Learning Community that includes three

full hours of on-campus instruction plus online work. The American government course is a JCCC online offering of many years.

LCOM 153

Russian Literature and Russian Culture (6 CR)

Prerequisite: ENGL 121

Students earn 6-credit hours (3 credit hours for ENGL 130, Introduction to Literature and 3 credit hours for HUM 137, Introduction to Russian Culture). This course is an interdisciplinary survey of Russian culture and literature from the ninth century to the present day. Students examine representative examples of Russian fiction, poetry, drama, art, architecture, music, and dance within their cultural, historical and political context. Russian poetry, drama, and fiction do not stand in isolation from the culture that produced them and are most fruitfully studied and understood within that context.

LCOM 155

Intro to Algebra/Learn Strat Math (4 CR)

Prerequisite: MATH 111 with a minimum grade of "C" or appropriate score on the math assessment test

Students earn 4-credit hours (3 credit hours for MATH 115, Intro to Algebra and 1 credit hour for LS 174, Learning Strategies for MATH). This course facilitates mathematics learning by integrating thinking skills, study skills and mathematical content. The student will acquire life-long learning skills along with the basic skills of algebra. Students in this learning community class will learn problem solving, test taking and cognitive skills. They will apply these skills to their math textbook, homework assignments, class discussions and lectures. This course will also address emotions and attitudes which may block math learning and will offer strategies and techniques designed to overcome these feelings. MATH 115 may fulfill some certificate requirements, but will not fulfill degree requirements.

LCOM 157

Fund of Math/Learning Strat for Math (4 CR)

Prerequisite: Appropriate score on the math assessment test

Students earn 4-credit hours (3 credit hours for MATH 111 Fundamentals of Math and 1 credit hour for LS 174 Learning Strategies for Math). This course facilitates mathematics learning by integrating thinking skills, study skills and mathematical content. The student will acquire life-long learning skills along with fundamental math procedures and concepts. Students in this learning community class will learn problem solving, test taking and cognitive skills. They will apply these skills to their math textbook, homework assignments, class discussions and lectures. This course will also address emotions and attitudes which may block math learning and will offer strategies and techniques designed to overcome these feelings. Active learning will be encouraged through activities such as pair and share, journal writing, group discussions, self-assessments and collaborative learning.

LCOM 159

Intimate Relationships (6 CR)

Students earn 6-credit hours (3-credit hours for PSYC 130, Introduction to Psychology and 3-credit hours for SOC 131, Marriage and the Family). Does media imitate life or does life imitate media? Experience this learning community that combines Psychology and Marriage and the Family. Explore intimate relationships by applying sociological and psychological principles to episodes of classic shows such as "The Brady Bunch," and "Leave it to Beaver," as well as "Sex and the City," "Big Love," "Brokeback Mountain," and other popular shows. Find the keys to understanding the intimacies of contemporary relationships in this spicy course.

LCOM 161

Environmental Science/Comp II (6 CR)

Prerequisite: ENGL 121

Students earn 6-credit hours (3 for ENGL 122, Composition II and 3 for BIOL 130, Environmental Science). Most Americans are only dimly aware of their immediate environment, and they know even less about how that place fits into, impacts, and is impacted by the global environment. Through reading, writing, and discussion, this course will raise students' awareness of where they are and help them become more conscious of their own place in and responsibility to the earth's ecology. This is a Coordinated Studies Learning Community that includes six full hours of on-campus instruction.

LCOM 163

Russia: Empire of East & West (5 CR)

Prerequisites: FL 141 or two years of high school Russian

Students earn 5-credit hours (2 for FL 246, Conversational Russian and 3 for HIST 160, Modern Russian History). This interdisciplinary Russian Conversation and Russian History course allows students to build their conversation skills with the vocabulary and grammar appropriate to describe and discuss the events, personalities and forces that shaped Russia as an Eurasian empire. The course requires 2-credit-hours weekly time and 3-credit-hours of online work.

LCOM 165

American Histories/Family Hist (6 CR)

Prerequisite: ENGL 106 or appropriate placement score or EAP 113 and EAP 117

Students can earn 6-credit hours (3-credit hours for ENGL 121, Composition I and 3-credit hours for HIST 141, U.S. Since 1877). U.S. History comes alive and makes more sense to people when they can see the big and little events in light of their own family's stories and memories. Not only will students study the expected topics (World War II, Viet Nam, the Great Depression), they will also explore the history of private life: what people ate, wore, worked and played at in any given era. At the same time, students will work on writing their own family's history. Instead of approaching Composition I as a series of unrelated essays, students will learn to write by focusing on how class readings and discussions related directly to their own and their family's lives. Through narrative, analysis, and research, they will create a document that their family can rely on and refer to over the course of generations to come.

LCOM 167

Society: From Cells to People (6 CR)

Students earn 6 credit hours (3 for SOC 122 Intro to Sociology and 3 for BIOL 122 Principles of Biology) What is the difference between the society in the ant hill in your backyard and the society of a human megalopolis? Do bacteria have a society? Enroll in this Learning Community to study the parallels between biological and sociological structures. Learn how the processes of life evolve, function, change, and interact in the biological and social worlds. Examine the diversity within the unity of life.

LCOM 169

Intermediate Algebra/Learning Strategies for Math (4 CR)

Prerequisite: MATH 115 with a grade of "C" or higher or appropriate score on the math assessment test

This course is a combination of Intermediate Algebra (MATH 116 - 3 credit hours) and Learning Strategies for Mathematics (LS 174 - 1 credit hour). This course should be strongly considered for any student who has taken Intermediate Algebra repeated times without success. The student will acquire life-long learning skills along with fundamental math procedures and concepts. Students in this learning community class will learn problem solving, test taking and cognitive skills. They will apply these skills to their math textbook, homework assignments, class discussions and lectures. This course will also address emotions and attitudes which may block math learning and will offer strategies and techniques designed to overcome these feelings. Active learning will be encouraged through activities such as pair and share, journal writing, group discussions, self-assessments and collaborative learning. The course meets for approximately one hour more per week than a regular course.

Learning Strategies (LS)

LS 174

Learning Strategies for Math (1 CR)

Corequisite: Concurrent enrollment in a math course

This course teaches thinking and study skills specifically geared toward the learning of math. Students practice these skills on their math textbooks and homework assignments as well as in their math class discussions and lectures. This course also addresses feelings and attitudes that may block math learning and offers strategies and techniques designed to overcome these feelings. 1 hr./wk. Learning Strategies courses offer students opportunities to acquire the thinking and learning skills needed to be a successful learner, including reading textbooks, taking notes, organizing information and preparing for tests. This course may be offered as a Learning Communities (LCOM) section, see current credit schedule for LCOM details.

LS 176

Strategic Learning System (1 CR)

Corequisite: Concurrent enrollment in a college lecture course

In this course, students will learn a series of strategies for processing information from textbooks and lectures and strategies for studying for and taking tests. As the strategies are introduced, students apply them to the content of courses in which they are concurrently enrolled. Upon successful completion of the course, students will have developed a system for learning that can be adapted for use in any learning situation. 1 hr./wk. Learning Strategies courses offer students opportunities to acquire the thinking and learning skills needed to be a successful learner, including reading textbooks, taking notes, organizing information and preparing for tests.

LS 178

Memory Strategies (1 CR)

Corequisite: Concurrent enrollment in another college course

In this course, students learn a series of techniques to help them improve their retention and recall of information needed for success in college courses. These techniques provide a systematic approach to learning and remembering. Students immediately use the techniques to learn information from their other college courses. 1 hr./wk. Learning Strategies courses offer students opportunities to acquire the thinking and learning skills needed to be a successful learner, including reading textbooks, taking notes, organizing information and preparing for tests.

LS 186

Exam Strategies (1 CR)

Corequisite: Concurrent enrollment in at least one other college course in which exams are taken

This course offers students an opportunity to explore their own learning styles and to develop appropriate strategies for improving test performance through improved learning procedures. Emphasis will be on practical application of the learned strategies to courses in which the students are concurrently enrolled. 1 hr./wk. Learning Strategies courses offer students opportunities to acquire the thinking and learning skills needed to be a successful learner, including reading textbooks, taking notes, organizing information and preparing for tests.

LS 200

College Learning Methods (3 CR)

Corequisite: Concurrent enrollment in at least one academic college course

This course provides students with opportunities to develop skills and habits that will help them establish and maintain effective learning systems. Students

first learn and practice the learning methods in class and then apply these methods to appropriate situations in their other college coursework. The methods, which are based on valid learning and thinking principles, will help students meet the higher-level demands of the subjects encountered in college courses. 3 hrs./wk. Learning Strategies courses offer students opportunities to acquire the thinking and learning skills needed to be a successful learner, including reading textbooks, taking notes, organizing information and preparing for tests.

Legal Studies (LAW)

LAW 121

Introduction to Law (3 CR)

Upon successful completion of this course, the student should be able to explain the major substantive and procedural aspects of law. This course provides an overview of the legal system and knowledge of specific legal topics, including torts, criminal law, contracts, family law, business law, real estate and probate. This course is a requirement for applying to the paralegal program and for completion of the legal nurse consultant program. 3 hrs. lecture/wk.

LAW 123

Paralegal Professional Studies (1 CR)

Upon successful completion of this course, the student should be able to explain the legal assistant profession. Topics will include paralegal licensing, certification, education, employment and professional ethics. The course is required for students seeking admission to the paralegal program. 1 hr. lecture/wk.

LAW 125

Introduction to Legal Research (1 CR)

Prerequisite: Admission to the paralegal program or department chair approval.

This course will acquaint the student with the characteristics of informational resources, and search strategies for retrieving both non-legal and legal information. Emphasis will be placed on the development of legal research skills, utilizing both print and electronic sources. Numerous opportunities will be provided for skill development in the use of these resources. 1 hr. lecture/wk.

LAW 132

Civil Litigation (3 CR)

Prerequisites: paralegal students or legal nurse consultant students - admission to the program and LAW 121 or department chair approval

This course will acquaint the student with the major characteristics of the civil litigation process. Students will become familiar with the various types of procedural rules regulating the civil litigation process and their application. Emphasis will be on the role of the legal assistant in a civil litigation practice and will include the drafting of pleadings. 3 hrs. lecture/wk.

LAW 134

Introduction to Legal Technology (3 CR)

Prerequisite: Admission as a student to the paralegal program or department chair approval

Upon successful completion of this course, the student will be able to explain the role of technology within a legal work environment and use software customarily available in a modern legal work environment, including word processing, spreadsheet, presentation, and database software. In addition, students will demonstrate the ability to create, edit, and share common legal

documents and forms, and to use the internet within a legal work environment. 3 hrs. lecture/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$10.

LAW 140

Alternative Dispute Resolution (3 CR)

Prerequisites: Legal nurse consultant students and paralegal program students - LAW 132 and selective admission approval

This course examines the various methods used by our legal system for dispute resolution and the role of the legal assistant in those methods. Upon successful completion of this course, the students should be able to explore the nature of conflict and the principles of negotiation and review the traditional litigation system. The course will concentrate on the major alternatives to litigation, including mediation and arbitration. 3 hrs. lecture/wk.

LAW 142

Torts (3 CR)

Prerequisites: Legal nurse consultant students and paralegal program students - LAW 132 and selective admission approval

Upon successful completion of this course, the student should be able to explain the major principles of tort law and personal injury litigation. The student should be able to discuss and compare the elements of negligence torts, intentional torts and strict liability torts, as well as the types of damages available and defenses to each of these torts. 3 hrs. lecture/wk.

LAW 148

Criminal Litigation (3 CR)

Prerequisite: Legal nurse consultant students and paralegal program students - LAW 132

Upon successful completion of this course, the student should be able to explain the objectives, substantive principles and procedural rules of the criminal process. The student will be able to explain the role of the paralegal in criminal litigation practice and draft documents used in the criminal litigation process. 3 hrs. lecture/wk.

LAW 152

Real Estate Law (3 CR)

Prerequisites: Paralegal program students - Admission to the paralegal program or department approval. Legal nurse consultant students - LAW 225 and LAW 121

Upon successful completion of this course, the student should be able to describe common types of real estate transactions and conveyances. The preparation of legal instruments, namely deeds, contracts, leases and mortgages will be studied. 3 hrs. lecture/wk.

LAW 162

Family Law (3 CR)

Prerequisites: Paralegal program students - admission to paralegal program or department approval. Legal nurse consultant students - LAW 225 and LAW 121

Upon successful completion of this course, the student should be able to describe the substantive and procedural principles of family law, including issues related to adoption, divorce, custody, support and visitation. The student will also be able to draft pleadings including petition for divorce, petition for adoption, decrees, settlement agreements and motions for modification. 3 hrs. lecture/wk.

LAW 165

Forensic Science and the Law (3 CR)

This course will offer a survey of the forensic sciences and will examine their applications to the law. Legal constraints on the use of scientific evidence, including U.S. Supreme Court decision and other legal rules, will be explored. Topics will include an exploration of career opportunities available to persons interested in a forensic-related career. This course is open to any student with an interest in forensic science. 3 hrs. lecture/wk.

LAW 171

Law Office Management (3 CR)

Prerequisites: Paralegal program students - admission to the paralegal program or department approval. Legal nurse consultant students - LAW 225 and LAW 121

This course will acquaint the student with the general principles of law office management and will emphasize the unique characteristics of organizing and managing the law office or legal department. Projects will provide students with opportunities for practical application of law office management concepts. 3 hrs. lecture/wk.

LAW 175

Environmental Policy and Law (3 CR)

This course is a survey course in environmental regulation and will provide an overview of key environmental laws including major provisions of the National Environmental Policy Act (NEPA), the Clean Water Act (CWA), the Clean Air Act (CAA), the Resource Conservation and Recovery Act (RCRA), the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) and The Endangered Species Act (ESA). 3 hrs. lecture/wk.

LAW 201

Advanced Legal Technology (3 CR)

Prerequisite: Admission to the paralegal program and completion of LAW 134 or department chair approval

Upon successful completion of this course, the student will be able to evaluate and use specialized legal software to perform customary tasks within a legal environment, including litigation support, case management, office management, file management, time-keeping and billing, docket control, preparation of legal presentations, and research. 3 hrs. lecture/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$10.

LAW 205

Legal Analysis and Writing (3 CR)

Prerequisite: Admission to the legal studies program or department chair approval

This course is a required course within the Legal Studies Program. In this course, the student will learn to analyze case law, statutes and secondary legal authority. In addition, the student will learn how to communicate research results, analysis and conclusions professionally and effectively. Numerous opportunities will be provided for skill development. 3 hrs. lecture/wk.

LAW 210

Advanced Legal Research (3 CR)

Prerequisite: Admission to the paralegal program and LAW 125 and LAW 205 or department chair approval

This course builds on the skills developed in the Introduction to Legal Research course. In this course, the student will develop more sophisticated skills for the retrieval of information from professional legal literature sources, including both print and electronic media. Opportunities will be provided for skill development in the use of these resources. 3 hrs. lecture/wk.

LAW 212

Business Organizations (3 CR)

Prerequisites: Paralegal program students - admission to the paralegal program or department approval. Legal nurse consultant students - LAW 225 and LAW 121

Upon successful completion of this course, the student should be able to describe the various forms of business ownership, including corporations, partnerships and sole proprietorships. The emphasis in the course is on the role of the legal assistant in a business law practice and on the preparation of related documents. 3 hrs. lecture/wk.

LAW 225

Legal Nurse Consultant Profession (1 CR)

Prerequisite: Admission to the legal nurse consultant program or department chair approval

In this course, students will examine the functions of legal nurse consultants and available career opportunities, including relevant issues regarding employment and independent contracting. 1 hr. lecture/wk.

LAW 226

Immigration Law (3 CR)

Prerequisites: Paralegal program students: admission to the paralegal program or department approval. Legal nurse consultant students: LAW 225 and LAW 121

Upon successful completion of this course, the student will be able to explain the various aspects of immigration law. The emphasis in the course is on the functions of the paralegal in an immigration law practice and on the preparation of related documents. 3 hrs. lecture/wk.

LAW 241

Wills, Trusts and Probate Administration (3 CR)

Prerequisites: Paralegal program students - admission to the paralegal program or department approval. Legal nurse consultant students - LAW 225 and LAW 121

Upon successful completion of this course, the student should be able to draft a will with testamentary powers. The use of trusts, probate procedures, techniques for fact gathering and mastery of estate tax principles are emphasized in this course. 3 hrs. lecture/wk.

LAW 245

Elder Law (3 CR)

Prerequisites: Paralegal program students - admission to the paralegal program or department approval. Legal nurse consultant students - LAW 225 and LAW 121

Upon successful completion of this course, the student should be able to explain the legal aspects of aging. Topics include financial and estate planning, health care, personal planning and protection, taxation, housing and other legal matters affecting the elderly and people with special legal needs. 3 hrs. lecture/wk.

LAW 247

Intellectual Property Law (3 CR)

Prerequisites: Paralegal program students - admission to the paralegal program or division administrator approval. Legal nurse consultant students - LAW 225 and LAW 121

In this course, students will learn the various forms of intellectual property. The emphasis in the course is on the functions of the paralegal in an intellectual law practice and on the preparation of related documents. 3 hrs. lecture/wk.

LAW 250

Medicolegal Research and Writing (3 CR)

Prerequisites: Admission to the legal nurse consultant program or department chair approval

This course emphasizes the role of the legal nurse consultant in the preparation of, and contribution to, various documents used in the context of a medicolegal-related law practice. Topics include the use of medical and science related information resources and the preparation of such documents as legal memoranda; legal correspondence; summaries of medical and scientific literature; summaries of health-care records; and summaries of health-care expenses and settlement brochures, particularly in the context of intentional torts, negligence, product liability, strict liability, and medical-malpractice litigation. 3 hrs. lecture/wk.

LAW 266

Employment Law (3 CR)

Prerequisites: Paralegal program students - admission to the paralegal program or department approval. Legal nurse consultant students - LAW 121 and LAW 225

This course examines the relationship between employer and employee. Major federal and state employment laws will be examined, including Title VII of the Civil Rights Act of 1964, the Age Discrimination Employment Act and the Americans with Disabilities Act. 3 hrs. lecture/wk.

LAW 269

Bankruptcy Law (3 CR)

Prerequisites: Paralegal program students - admission to the paralegal program or department chair approval. Legal nurse consultant students - LAW 121 or LAW 225

This course will familiarize the student with the purpose and application of the federal Bankruptcy Code. Topics will include an introduction to the bankruptcy law, bankruptcy court procedures, and the preparation of bankruptcy forms and documents. Emphasis will be on Chapter 7 of the Bankruptcy Code and the role of the legal assistant as part of a team in a bankruptcy practice. 3 hrs. lecture/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$4.

LAW 270

Administrative Law (3 CR)

Prerequisite: Admission to the legal nurse consultant program and LAW 225 and LAW 121 or admission to the paralegal program

Upon successful completion of the course, the student will be able to explain and apply substantive and procedural principles of administrative agencies. The course will concentrate on the basic principles of workers' compensation law, Social Security law; the Americans with Disabilities Act and the Occupational Safety Health Administration. 3 hrs. lecture/wk.

LAW 271

Legal Ethics, Interviewing and Investigation (3 CR)

Prerequisite: Paralegal program students - admission to the paralegal program or department chair approval. Legal Nurse Consultant students - admission to the legal nurse consultant program or department chair approval

Upon successful completion of this course, the student will be able to explain ethical rules and standards governing the legal profession, interview clients and witnesses, and perform factual investigation pursuant to legal proceedings. The emphasis will be on recognition of ethical problems commonly encountered, as well as the development of interviewing and investigating skills. 3 hrs. lecture/wk.

LAW 275

Paralegal Internship I (1 CR)

Prerequisite or Corequisite: Paralegal program students - LAW 271

This course provides the student with an opportunity to gain practical work experience under the supervision of an attorney in day-to-day, on-site office work. The student must complete 120 hours of work at the internship site. In addition to on-site work, the student will meet with the internship instructor during the internship period four times and complete all requirements; keep an eight-week log; interview a practicing paralegal; draft a cover letter and resume; and submit final evaluations by the employer and student. Obtaining an internship is the responsibility of the individual student. 120 internship hours

LAW 276

Paralegal Internship II (1 CR)

Prerequisite: LAW 275

This course provides the student with an opportunity to gain practical work experience under the supervision of an attorney in day-to-day, on-site office work. The student must complete 120 hours of work at the internship site. In addition to on-site work, the student will meet with the internship instructor during the internship period four times and complete all requirements; keep an eight-week log; interview a practicing paralegal manager; participate in a mock job interview; and submit final evaluations by the employer and the student. Obtaining an internship is the responsibility of the individual student.

Library (LIBR)

LIBR 125

Introduction to Library Research (1 CR)

This course provides an introduction to the methods and technologies of library research. Included will be a study of the various information resources available for research and techniques for retrieving information from both print and electronic sources. The resources of Billington Library will be featured, although the emphasis will be on building information retrieval skills that will be useful in many settings.

Marketing Management (MKT)

MKT 121

Retail Management (3 CR)

Upon successful completion of this course, the student should be able to describe and analyze retail store organization and operation including customer markets, store location and design, human resource management, merchandise planning and control, and retail promotion. 3 hrs. lecture/wk.

MKT 134

Professional Selling (3 CR)

Upon successful completion of this course, the student should be able to describe the process of successful selling in the retail environment. In addition, the student should be able to define the steps of selling and identify appropriate application. The student should also be able to apply selling principles through role-play. Students who have received credit for MKT 133 may not receive credit for MKT 134. 3 hrs. lecture/wk. This course may be offered as a Learning Communities (LCOM) section, see current credit schedule for LCOM details.

MKT 140**Teleservice Communication Skills (3 CR)**

Upon successful completion of this course, the student should be able to describe the process of successful communication in the teleservice field. In addition, the student should be able to define the principles of teleclient service and identify their appropriate application. The student should also be able to demonstrate effective telecommunication and client services skills through role-playing. Students who have received credit for MKT 133 or MKT 134 may not receive credit for MKT 140. 3 hrs. lecture/wk.

MKT 202**Consumer Behavior (3 CR)**

Upon successful completion of this course, the student should be able to analyze the elements and influences that affect consumer behavior. In addition, the student should be able to apply the basic principles of consumer behavior and insight to the application of consumer-research findings used in the professional practice of marketing. 3 hrs. lecture/wk.

MKT 221**Sales Management (3 CR)**

Prerequisite: MKT 134

Upon successful completion of this course, the student should be able to identify skills necessary to manage a sales force and develop a plan for recruitment selection, training, motivation and evaluation. In addition, the student should be able to describe and analyze techniques to forecast and plan sales and audit results. 3 hrs. lecture/wk.

MKT 234**Services Marketing (3 CR)**

Corequisite: BUS 230

Upon successful completion of this course, the student should be able to describe the functioning of a services economy. In addition, students should be able to describe and define the nature and characteristics of services and the way services are required to be marketed because of their intangible core. Additionally, students should be able to describe service quality, the foundation of services marketing and the success factors in services marketing. 3 hrs. lecture/wk.

MKT 240**Advertising and Promotion (3 CR)**

In this course, the student will understand and recognize the importance of an integrated marketing communications planning model in order to coordinate all of the promotional mix elements for today's businesses. Topics of study include advertising, direct marketing, sales promotion, public relations and interactive media. The course integrates theory with planning, management and strategy. Upon completion, the student will be able to develop an effective marketing communications program. 3 hrs. lecture/wk.

MKT 284**Marketing and Management Internship I (1 CR)**

Upon successful completion of this course, the student should be able to apply classroom knowledge to an actual work situation. This course offers work experience under instructional supervision in an approved training situation designed to provide practical experience in marketing and management. A minimum of 15 hrs./wk. on-the-job training is required.

MKT 286**Marketing and Management Internship II (1 CR)**

Prerequisite: MKT 284

Upon successful completion of this course, the student should be able to apply classroom knowledge to an actual work situation. This course offers work experience under instructional supervision in an approved training situation designed to provide practical experience in marketing and management. A minimum of 15 hrs./wk. on-the-job training is required.

MKT 288**Marketing and Management Internship III (1 CR)**

Prerequisite: MKT 286

Upon successful completion of this course, the student should be able to apply classroom knowledge to an actual work situation. This course offers work experience under instructional supervision in an approved training situation designed to provide practical experience in marketing and management. A minimum of 15 hrs./wk. on-the-job training is required.

MKT 289**Marketing and Management Internship IV (1 CR)**

Prerequisite: MKT 288

Upon successful completion of this course, the student should be able to apply classroom knowledge to an actual work situation. This course offers work experience under instructional supervision in an approved training situation designed to provide practical experience in marketing and management. A minimum of 15 hrs./wk. on-the-job training is required.

MKT 290**Capstone: Marketing and Management Case Studies (3 CR)**

Prerequisites: BUS 141 and BUS 230 and MKT 284 and MKT 286 or department approval

Upon successful completion of this course, the student should be able to identify problems, develop and describe the situational analysis, formulate alternative solutions, and reach and explain a decision for each issue. In addition, the student should be able to apply the knowledge of marketing and management concepts and techniques in the analysis of cases and actual business situations. 3 hrs. lecture/wk.

Mathematics (MATH)

MATH 111**Fundamentals of Mathematics (3 CR)**

Prerequisite: Appropriate score on the math assessment test

Fundamentals of Mathematics is designed for the student who needs to improve or review basic math skills and concepts. This course includes computation using integers, fractions, decimals, proportions and percents along with an overview of percents, measurement, geometry, statistics and linear equations. Fundamentals of Math provides the mathematical foundation upon which subsequent studies in mathematics and other areas depend. 3 or 5 hrs. lecture / wk. This course does not fulfill degree requirements. This course may be offered as a Learning Communities (LCOM) section, see current credit schedule for LCOM details.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$0 to \$100.

MATH 115**Elementary Algebra (3 CR)**

Prerequisite: MATH 111 with a grade of "C" or higher or appropriate score on the math assessment test

This is a beginning course in algebra, designed to help students acquire a solid

foundation in the basic skills of algebra. Students will learn to simplify arithmetic and algebraic expressions, including exponential expressions, polynomials, rational expressions and radical expressions; solve equations and inequalities, including linear equations and quadratic equations; graph linear equations; and analyze linear equations. 3 or 5 hrs. lecture/wk. MATH 115 may fulfill some certificate requirements, but will not fulfill degree requirements. This course may be offered as a Learning Communities (LCOM) section, see current credit schedule for LCOM details.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$0 to \$100.

MATH 116

Intermediate Algebra (3 CR)

Prerequisite: MATH 115 with a grade of "C" or higher or appropriate score on the math assessment test

This course focuses on arithmetic and algebraic manipulation, equations and inequalities, graphs, and analysis of equations and graphs. Students will simplify arithmetic and algebraic expressions, including those containing rational expressions, rational exponents, radicals and complex numbers; solve equations and inequalities including linear, quadratic, quadratic in form, as well as those containing rational expressions, radicals or absolute value; graph linear inequalities and basic conics; and analyze functions and nonfunctions. 3 or 5 hrs.lecture/wk. This course may be offered as a Learning Communities (LCOM) section, see current credit schedule for LCOM details.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$0 to \$100.

MATH 118

Geometry (3 CR)

Prerequisite: MATH 115 with a grade of "C" or higher or appropriate score on the math assessment test

This course is an informal approach to geometry. Topics will include lines, polygons, area, volume, circles, similarity, congruence and coordinate geometry. 3 hrs. lecture/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$0 to \$100.

MATH 120

Business Mathematics (3 CR)

Prerequisite: MATH 111 with a grade of "C" or higher or appropriate score on the math assessment test

This is a course for the student who needs specific skills in mathematics to address business problems and business applications. Students will learn the mathematics involved in payroll, retailing, asset valuation, interest, finance, and the time value of money. Students will use a calculator and computer to solve a variety of applications. 3 hrs./wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$0 to \$25.

MATH 122

Mathematics in Our Culture (3 CR)

Prerequisite: MATH 111 with a grade of "C" or higher or appropriate score on the math assessment test

This is a course about the extent, power and history of many interesting areas of mathematics. Topics will include mathematical reasoning and recreation, calculator activities, computer literacy, mathematics in art and music, probability, statistics and topology. 3 hrs./wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$0 to

\$100.

MATH 130

Technical Mathematics I (3 CR)

Prerequisite: MATH 111 with a grade of "C" or higher or an appropriate score on the math assessment test

This course is the first of a two-semester sequence that will introduce the mathematical skills and concepts necessary in technical work. It will focus on the basics of algebra, geometry and their applications. Topics will include operations with polynomials, linear equations, systems of equations, formulas and basic geometry. 3 hrs. lecture/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$0 to \$100.

MATH 131

Technical Mathematics II (3 CR)

Prerequisites: MATH 130 or MATH 133 with a grade of "C" or higher or an equivalent course with a grade of "C" or higher

This course is the second of a two-semester sequence on the mathematical skills and concepts necessary in technical work. It will focus on more advanced algebraic skills, solving equations, and trigonometry. The topics will include polynomials, rational expressions, radical expressions, complex numbers, solving quadratic, rational, radical, exponential and logarithmic equations, and working with basic trigonometry. 3 hrs. lecture/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$0 to \$100.

MATH 135

Applied Mathematics for Science (3 CR)

Prerequisite: MATH 115 with a grade of "C" or higher or an appropriate score on the math assessment test.

This course is an introduction to the mathematical applications common in a scientific laboratory setting. The content includes the use of algebra and statistics. Algebra topics include graphing and evaluating equations, solving formulas, logarithms, exponentials, and proportions. Statistics topics include measures of center, standard deviation, graphical representations of data, regressions and correlations. 3 hrs./wk.

MATH 165

Finite Mathematics (3 CR)

Prerequisite: MATH 116 with a grade of "C" or higher or appropriate score on the math assessment test

This course will emphasize the beauty, scope, practical applications and relevance of mathematics. It is designed to involve the students with the concepts as well as quantitative skills. Topics include inductive and deductive reasoning, mathematical patterns, sets, introduction to trigonometry, Euclidean geometry, probability, statistics and matrices. The common themes throughout the course are innovation in computers, related mathematical and cultural history and reasoning ability. 3 hrs./wk. This course is only offered in the spring semester.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$0 to \$100.

MATH 171

College Algebra (3 CR)

Prerequisite: MATH 116 with a grade of "C" or higher or MATH 131 with a grade of "C" or higher or MATH 134 with a grade of "C" or higher or appropriate score on the math assessment test

This course focuses on the study of functions and their graphs, techniques of solving equations and the recognition and creation of patterns. Students will analyze and graph functions, including constant, linear, absolute value, square root, polynomial, rational, exponential and logarithmic functions and non-functions; solve equations and inequalities, including polynomial equations, exponential equations, logarithmic equations, systems of linear equations and systems of linear inequalities; and analyze and create algebraic and numerical patterns. 3 or 5 hrs./wk. This course may be offered as a Learning Communities (LCOM) section, see current credit schedule for LCOM details. Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$0 to \$100.

MATH 172

Trigonometry (3 CR)

Prerequisite: MATH 171 with a grade of "C" or higher or appropriate score on the math assessment test

This is a course in trigonometric functions and graphs. Emphasis will be on understanding function notation, definitions, algebraic relations, real-world applications, graphing in the real and complex plane, inverse functions, polar functions and vectors. Students who take Math 172 and Math 173 will receive at most five hours of credit toward graduation. 3 hrs./wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$0 to \$100.

MATH 173

Precalculus (5 CR)

Prerequisite: MATH 116 with a grade of "C" or higher or appropriate score on the math assessment test

Note: MATH 173 is an accelerated course recommended for students with a strong high school math background (three to four years) who plan to take calculus. This course focuses on the study of functions and their graphs, trigonometry, techniques of solving equations and the recognition and creation of patterns. Students will analyze and graph functions, including constant, linear, absolute value, square root, polynomial, rational, exponential, logarithmic and trigonometric functions and nonfunctions; solve equations and inequalities, including polynomial equations, exponential equations, logarithmic equations, trigonometric equations, systems of linear and nonlinear equations and systems of linear and nonlinear inequalities; and analyze and create algebraic and numerical patterns. 5 hrs./wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$0 to \$100.

MATH 175

Discrete Mathematics and its Applications (3 CR)

Prerequisite: MATH 171 or MATH 173 with a grade of "C" or higher or appropriate score on the math assessment test

This course is designed to present the beauty, scope, practical applications and relevance of mathematics. It will focus on applications of general interest drawn primarily from the social and biological sciences and business. Topics will be placed in a historical context, and mathematical reasoning will be stressed. Many of the applications will be computer-oriented. 3 hrs./wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$0 to \$100.

MATH 181

Statistics (3 CR)

Prerequisite: MATH 171 or MATH 173 or an equivalent course with a grade of "C" or higher or appropriate score on the math assessment test

This is a beginning course in statistical analysis, the skill of making sense of

raw data - constructing graphical representations of data, developing models for making predictions, performing tests to determine significant change and finding intervals for population values. Students will learn the basics of descriptive statistics, probability, sampling, confidence intervals, distributions, hypothesis testing, regression and correlation. Computer applications will be incorporated into course topics. 3 hrs./wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$0 to \$100.

MATH 191

Math & Physics for Games I (4 CR)

Prerequisites: MATH 171 or MATH 173 with a grade of "C" or higher or appropriate score on math assessment test and CS 200

This introductory course focuses on the mathematics and physics concepts needed to program a variety of video game scenarios. Student will learn to use vectors and matrix transformations to model the motion of physical objects in two and three dimensions. Students will also learn various computer programming methods in order to model these mathematical and physical concepts. 3 hrs. lecture and 2 hrs. lab/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$0 to \$100.

MATH 210

Mathematics for Elementary Teachers I (3 CR)

Prerequisite: MATH 171 or MATH 173 with a grade of "C" or higher or appropriate score on math assessment test

This is the first of a two-course sequence for prospective teachers of elementary and middle school mathematics. The focus of this course is an in-depth investigation of the mathematical principles and concepts encountered in grades K-8. Topics include set theory, numeration systems, number sense, critical thinking, and problem-solving strategies. The use of appropriate techniques and tools, such as calculators, computers and manipulatives, will be integrated throughout the course in order to enhance the depth of understanding. 3 hrs. lecture/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$0 to \$100.

MATH 212

Math for Elementary Teachers II (3 CR)

Prerequisite: MATH 210 with a grade of "C" or higher or department approval

This is the second of a two-course sequence for prospective teachers of elementary/middle school mathematics. The focus of this course is an in-depth investigation of the mathematical principles and concepts encountered in grades K-8. Topics include probability, statistics, measurement, and shapes including congruency, similarity, and transformations. The use of appropriate techniques and tools, such as calculators, computers, and manipulatives, will be integrated throughout the course in order to enhance the depth of understanding. 3 hrs. lecture/wk. NOTE: the prerequisite of MATH 210 requires a grade of "C" or higher.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$0 to \$100.

MATH 214

UKan Teach I (1 CR)

Prerequisites: MATH 171 with a grade of "C" or higher OR appropriate score on the math assessment test OR BIOL 135 OR (CHEM 124 and CHEM 125) OR PHYS 220

This course allows math and science students to explore and develop an

appreciation for teaching as a career. To support their learning, students will be introduced to the theory and practice that is necessary to design and deliver quality instruction. They will plan and implement lessons of an inquiry-based curriculum in an elementary classroom during the semester. 3 hrs. lecture/wk.

MATH 225

Mathematics as a Decision Making Tool (3 CR)

Prerequisite: MATH 171 or MATH 173 with a grade of "C" or higher or appropriate score on the math assessment test

The focus of this course is to develop the quantitative skills and reasoning ability necessary to help students read critically and make decisions in our technical information society. A project tying this course to the student's own interest is a course requirement. Major topics include collecting and describing data, inferential statistics and probability, geometric similarity, geometric growth, symmetry and patterns. 3 hrs. lecture/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$0 to \$100.

MATH 231

Business and Applied Calculus I (3 CR)

Prerequisite: MATH 171 or MATH 173 with a grade of "C" or higher or appropriate score on the math assessment test

This is the first course in calculus as it applies to business; the social, behavioral, and biomedical sciences; and other fields. Concepts include measuring the slope of a curve, writing equations of tangent lines, finding maximum and minimum points, determining the rate of change of a function, and measuring the area under a curve. Algebraic skills and application problems are stressed. Specific calculus topics include finding limits, differentiation of algebraic, exponential and logarithmic functions, and integration of algebraic and exponential functions. Trigonometry (MATH 172) can be taken concurrently with MATH 231 for those students planning to enroll in MATH 232 in subsequent semesters. 3 hrs./wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$0 to \$100.

MATH 232

Business and Applied Calculus II (3 CR)

Prerequisites: MATH 231 and either MATH 172 or MATH 173 with a grade of "C" or higher or appropriate score on the math assessment test

This is the second course in a two-semester series on calculus that covers five techniques of integration, differentiation and integration of trigonometric functions, differential equations, and functions of several variables as applied to business, statistics, biology and the social sciences. 3 hrs./wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$0 to \$100.

MATH 237

Calculus for Biology and Medicine (5 CR)

Prerequisite: MATH 172 or MATH 173 or an equivalent course with a grade of "C" or higher or an appropriate score on an assessment test

This course focuses on the study and mathematical modeling of biological systems. Through a host of biological and medical applications, the rudiments of calculus are developed. Concepts include measuring the slope of a curve, writing equations of tangent lines, maximizing and minimizing a function, determining the rate of change of a function, and measuring the area under a curve. Solution techniques, both analytic and numeric, for difference and differential equations are used. Modeling activities are heavily emphasized. Qualitative analysis of solutions of differential equations is incorporated in modeling activities. Application areas include mathematical physiology, pharmacology, cell biology and populations biology. 5 hrs. lecture/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$0 to \$100.

MATH 241

Calculus I (5 CR)

Prerequisite: MATH 172 or MATH 173 or an equivalent course with a grade of "C" or higher or an appropriate score on an assessment test

This is the first of a three-semester sequence on calculus designed for engineering, physics and math majors. Rates of change, areas and volumes will be studied. To accomplish this, the students will study and apply limits and continuity. Differentiation and integration of algebraic, trigonometric and transcendental functions will also be a major focus of this course. 5 hrs./wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$0 to \$100.

MATH 242

Calculus II (5 CR)

Prerequisite: MATH 237 or MATH 241 or an equivalent course with a grade of "C" or higher

This is the second course of a three-semester sequence on calculus. The emphasis will be an analytic, numerical and graphical approach to techniques of integration, infinite series and vectors in the plane including scientific applications. 5 hrs./wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$0 to \$100.

MATH 243

Calculus III (5 CR)

Prerequisite: MATH 242 with a grade of "C" or higher or an equivalent course with a grade of "C" or higher

This is the third course in a three-semester sequence on analytic geometry and calculus. Topics include vector-valued functions, functions of several variables, multiple integration, and vector analysis. 5 hrs./wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$0 to \$100.

MATH 246

Elementary Linear Algebra (3 CR)

Prerequisite: MATH 242 or an equivalent course with a grade of "C" or higher

This sophomore-level introduction to linear algebra uses a matrix-oriented approach, with an emphasis on problem solving and applications. The course focus is on matrix arithmetic, systems of linear equations, properties of Euclidean n-space, eigenvalues and eigenvectors, orthogonality and vector spaces. The use of technology is a major feature of the course. 3 hrs. lecture/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$0 to \$100.

MATH 254

Differential Equations (4 CR)

Prerequisite: MATH 243 with a grade of "C" or higher or an equivalent course with a grade of "C" or higher

This course will cover standard types of equations that involve rates of change. In particular, this is an introductory course in equations that involve ordinary derivatives. Both qualitative and quantitative approaches will be used.

Standard types and methods will be covered, including Laplace transforms, infinite series, and numerical methods. Basic linear algebra will be developed to solve systems of differential equations. 4 hrs. lecture/wk. This course replaces the 3-credit-hour course, MATH 244, effective summer 2009
Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$0 to \$100.

MATH 285

Statistics for Business (4 CR)

Prerequisite: MATH 232 or MATH 242 or an equivalent course with a grade of "C" or higher *Note:* Students transferring MATH 285 to the University of Kansas must have CIS 201 as a corequisite.

This is a beginning course in calculus-based statistical analysis, the skill of making sense of raw data -- constructing graphical representations of data, developing models for making predictions, performing tests to determine significant change and finding intervals for population values. Students must have an understanding of calculus concepts in order to successfully complete this course. Students will learn the basics of descriptive statistics, probability, sampling, confidence intervals, hypothesis testing and linear regression. The course will stress the applications to business with emphasis on quality control. 4 hrs./wk. Students transferring MATH 285 to KU must have CIS 201 as a corequisite.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$0 to \$100.

Metal Fabrication and Welding (MFAB)

MFAB 120

MFAB Tools and Equipment (2 CR)

Upon completion of this course the student should be able to identify, operate, maintain, and explain the proper use of power equipment and the operation of several selected metal fabrication hand tools common to a welding fabrication shop. Instructors will demonstrate the safe use of primary and secondary tools and equipment. The student will be required to provide ANSI-Z-87 safety glasses and other basic personal protective equipment (PPE). This course is recommended for students who have never had an industrial arts or shop class. 1 hr lecture, 1.5 hr lab/wk.

MFAB 121

Intro to Shielded Metal Arc Welding I (SMAW I) (4 CR)

Prerequisite or corequisite: MFAB 120 or MFAB 127

Upon successful completion of this course, the student should be able to perform oxy-fuel cutting (OFC), oxy-fuel welding (OFW) and brazing, shielded metal arc welding (SMAW). The SMAW portion of the course will cover positions but will be limited to AWS U-bend tests with backing and fillet welds. All welds will be tested according to industry standards. The student will be required to provide ANSI Z87 safety glasses and may be expected to provide other basic hand tools and/or equipment. 1 hr. lecture, 6 hrs. lab/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$30 to \$150.

MFAB 125

Advanced Gas and Arc Welding (4 CR)

Prerequisite: MFAB 121

This course is a continuation of Introduction to Welding. The course will cover more advanced projects in oxyacetylene, cutting, shielded metal arc welding

(SMAW) and carbon arc cutting with air (CAC-A). The SMAW process will be used to weld v-groove butt joints in the flat, horizontal, vertical up and overhead positions, with root and face AWS U-bend test being performed on AWS open root joints without backing weld made in the vertical and overhead positions. AWS welder qualification/certification will be awarded to students successfully performing U-bend tests to code. The student will be required to provide ANSI Z87 safety glasses and may be expected to provide other basic hand tools and/or equipment. 1 hr. lecture, 6 hrs. lab/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$30 to \$150.

MFAB 127

Welding Processes (2 CR)

Upon successful completion of this course, the student should be able to identify various welding processes used by industries. Standard shop and maintenance welding processes will be taught and demonstrated. Welds will be tested and inspected according to industry standards. This course can be used by an individual company to train or upgrade train employees and can be customized to fit individual needs. Artists, hobbyist, automotive students or first-time welders will benefit from this class. 1 hr. lecture, 1.5 hrs. lab/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$30 to \$150.

MFAB 130

Introduction to Gas Metal Arc Welding I (GMAW I) (4 CR)

Prerequisite or corequisite: MFAB 120 or MFAB 127

Upon successful completion of this course, the student should be able to identify the theory of gas metal arc welding (GMAW) and flux-cored arc welding (FCAW). The welding of mild steel plate will occur in all positions on both fillet and groove welds with the GMAW process. Standard AWS terms and definitions will be used. The Plasma Arc Cutting (PAC) metal cutting process will be used to conserve material use and plant preparation. A root and face guide U-bend test will be performed on selected weld test coupons. Students successfully completing U-bends will be awarded a document of standards of acceptability. The student will be required to provide ANSI Z87 safety glasses, and may be expected to provide other basic hand tools and/or equipment. 1 hr. lecture, 6 hrs. lab/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$30 to \$150.

MFAB 140

Maintenance Repair Welding (3 CR)

Prerequisite: MFAB 121 or MFAB 130

Upon successful completion of this course, the student should be able to perform oxyfuel cutting (OFC), shielded metal arc welding (SMAW), gas metal arc welding (GMAW) and plasma arc cutting (PAC). Basic blueprint and standard AWS welding symbols will be introduced. Selected welds and assignments will be tested according to industry and AWS standards. The student will be required to provide ANSI Z-87.1 approved safety glasses and may be expected to provide other basic hand tools and/or equipment as required by employers. This course is designed for individuals who have welding experience or who are employed by a company that requires welding skills. This course can be customized for advanced training. 1 hr. lecture, 2 hrs. lab/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$30 to \$150.

MFAB 152

Manufacturing Materials and Processes (3 CR)

This is a beginning course in metal fabrication technology that is appropriate for the metal fabrication major and other interested students. Upon successful

completion of this course, the student should be able to identify various manufacturing materials and processes currently used in industry. The capabilities and applications of machine tool, general fabrication, welding processes, robotics, cut-off equipment and other manufacturing processes and equipment will be studied. Lectures will be supplemented by class tours and demonstrations of various processes and equipment. Students are required to wear safety glasses during demonstrations. 3 hrs. lecture-demonstrations/wk.

MFAB 160

Gas Tungsten Arc Welding (4 CR)

Prerequisite: MFAB 121 or MFAB 130

This course will cover the basic theory of gas tungsten arc welding (GTAW). The student will weld on mild steel, stainless steel and aluminum in a variety of positions on both fillet and groove welds using the GTAW process, with guided AWS U-bend test being performed on mild steel. AWS qualification/certification will be awarded to successful students who qualify weld to code standards. Students will also use the plasma arc cutting system (PAC) on selected assignments. The students will be required to provide ANSI Z87 safety glasses and may be expected to provide other basic hand tools and/or equipment. 1 hrs. lecture, 6 hrs. lab/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$30 to \$150.

MFAB 170

Basic Machine Tool Processes (4 CR)

Upon successful completion of this course, the student should be able to practice the basic principles of machining as well as the setup and operation of machines. This course is a hands-on course that will include the use of lathes, mills, drills, saws, grinders, cut-off and other types of equipment. Machine tool safety will be emphasized throughout the course. 2 hrs. lecture, 4 hrs. lab/wk.

MFAB 180

Blueprint and Symbols Reading for Welders (2 CR)

Upon successful completion of this course, the student should be able to identify basic welding positions and explain, list, sketch, draw, use or describe current American Welding Society (AWS) welding symbols and weld joint configurations. The student will be introduced to several methods of producing welding blueprints, object representatives, and specific meanings of selected lines, surface features, sectional views and basic math formulas used in the welding industry. The student will be able to identify the symbols used for fillet welds and groove welds made with and without backing. Topics such as pipe welding representations, pipe welding connections, pipe welding classifications, welder certification, metallurgical effects of heat on metals and the importance of weld quality and welding safety will be studied. 4 hrs. lecture/wk.

MFAB 230

Gas Metal Arc Welding II (4 CR)

Prerequisite: MFAB 130

Upon successful completion of this course, the student should be able to identify the theory of gas metal arc welding (GMAW). The student will weld with the GMAW process in the flat, horizontal, vertical up and overhead positions on both fillet and groove welds. The GMAW welds will be made on aluminum and stainless steel AWS U-bend test will be made on overhead and horizontal weldments. 1 hr. lecture, 6 hrs. lab/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$30 to \$150.

MFAB 240

Metallurgy (2 CR)

Metallurgy is the study of the science and technology of metals. This course covers the extractive, mechanical and physical phases of metallurgy. Topics include the identification of metals, types and classification of metals, heat treatment procedures and common steel manufacturing processes. AWS terms and definitions will be emphasized throughout the course. 2 hrs. lecture-demonstration/wk.

MFAB 260

Fabrication Practices I (4 CR)

Prerequisite: Metal Fabrication Combination Welder Certificates I and II or have earned the Metal Fabrication Vocational Certificate or equivalent advanced welder training course work to be approved by the department

Upon completion of this class, the student should be able to work from discipline specific drawings to manufacture and assemble a mock building section using already acquired skills. This class is a capstone course and is intended to serve all MFAB graduate students who have completed the fundamental skills coursework within the metal fabrication certificate or degree programs. The Fabrication Practices I class is part one of an advanced comprehensive class intended to put to practical use the skills obtained throughout the existing Metal Fabrication and Welding Technology Career program. This class will put emphasis on structural steel, its erection and assembly. The coursework will focus on modern welding fabrication techniques and practices used in the manufacturing and installation of structural steel, piping systems, and miscellaneous welded mechanical items. Students will work in teams from discipline specific drawings to manufacture and assemble a mock building section using already acquired skills. Completers of this class may elect to test to the AWS Entry Level I Welder program and the National Center for Construction Education and Research (NCCER) accreditation and national registry. 1 hr lecture, 6 hrs lab/wk.

MFAB 261

Fabrication Practices II (4 CR)

Prerequisite: Metal Fabrication Welder Certificates I and II, or have earned the Metal Fabrication Vocational Certificate or equivalent advanced welders training coursework to be approved by the department

Upon completion of this class, the student should be able to work from discipline specific drawings to manufacture and assemble a mock building section using already acquired skills. This class is intended to serve all MFAB graduate students and current MFAB students who have completed the fundamental skills coursework within the metal fabrication certificate or degree programs. The Fabrication Practices II class is part two of an advanced comprehensive class intended to put to practical use the skills obtained throughout the existing Metal Fabrication and Welding Technology Career program. This class will put emphasis on pressure holding tanks and pressure vessels. Coursework will focus on modern welded fabrication techniques and practices used in the manufacturing and installation of steel pipe, tank and vessel systems, and miscellaneous welded mechanical structural items. Students will work in teams of three or four persons. Teams will work from discipline specific drawings to manufacture and assemble a mock tank/vessel section using skills already acquired. Completers of this class may elect to test to the AWS Entry Level II Welder program and the National Center for Construction Education and Research (NCCER) accreditation and national registry. 1 hr. lecture, 6 hrs lab/wk.

MFAB 271

Metal Fabrication Internship (3 CR)

Prerequisite: Department approval

Upon successful completion of this course, the student should be able to apply classroom knowledge to an actual work situation. The internship will provide advanced students with on-the-job experience under the supervision of professionals in the industry. The work will be developed cooperatively with area employers, college staff and each student to provide a variety of actual job experiences directly related to the student's career goals. 1 hrs. lecture, 15 hrs. minimum on-the-job training/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$30 to

Music (MUS)

MUS 121

Introduction to Music Listening (3 CR)

This course is designed to enhance student music listening. Students will learn to identify changes in the elements of music through the different stylistic periods of classical music. Factual and historical information will be presented to broaden the student's cultural and music appreciation. Students will hear recorded examples of music from the Medieval, Renaissance, Baroque, Classical, Romantic and 20th-century eras, as well as popular American forms and music from non-Western cultures. 3 hrs./wk.

MUS 123

Introduction to Music Fundamentals (2 CR)

This course is designed to present the fundamentals of music theory to students who have no previous background or training in that subject. Students will receive detailed instruction in naming notes; scales and chords; building intervals; and correlating these skills to the keyboard. 2 hrs./wk.

MUS 125

Introduction to Jazz Listening (3 CR)

This is an entry-level course for the student with little or no prior knowledge of the American art form of jazz music. Through reading and listening, the student will learn the basic structure of the elements of music and how these are organized to create jazz. Topics to be covered will include rhythm, harmony, and form; Dixieland style; swing style; bop; and contemporary jazz. 3 hrs./wk.

MUS 126

Introduction to World Music (3 CR)

This course provides students with an introduction to the musical heritage of the world. Through an interdisciplinary approach targeting the arts, humanities and social sciences, the course fosters skills necessary to gain a deeper appreciation of both familiar and unfamiliar musical traditions. The course will survey a representative cross section of the major musical traditions of the world, which may include Native American, Black American, sub-Saharan African, Eastern European/Bosnian, Indian, Indonesian, Japanese and Latin American/Brazilian traditions. Note: The course does not require the ability to read music. 3 hrs. lecture/wk.

MUS 128

History of Rock and Roll Music (3 CR)

Through the study of the history of Rock and Roll music, students will discover how the various styles and structures of Rock have evolved, and how these styles reflected the social and cultural events in each stylistic era. By studying this history the students will also learn about the major Rock artists and what their contributions were to the development of the art form and the social climate in which the artist lived. The course will also address the role of technology on the development of the music and the music business. 3 hrs. lecture/wk.

MUS 131

Sight-Singing and Ear Training I (2 CR)

This course is an introduction to sight singing and ear training. Basic methods of reading music are presented and practiced. Students are also trained to recognize aurally and notate the basic elements of music: intervals, diatonic melodies, simple rhythms, chord qualities, and basic harmonic progressions. The content is designed to complement the Harmony I course, though it is not

necessary they be taken in the same semester. 2 hrs./wk.

MUS 132

Sight-Singing and Ear Training II (2 CR)

Prerequisite: MUS 131

This course is a continuation of the class Sight-singing and Ear Training I. The content is designed to complement the Harmony II course though it is not necessary they be taken in the same semester. 2 hrs./wk. This course is typically taught in the spring semester.

MUS 133

Sight-Singing and Ear Training III (2 CR)

Prerequisite: MUS 132

This course is a continuation of the classes Sight-singing and Ear Training I and II. The content is designed to complement the Harmony III course, though it is not necessary they be taken in the same semester. 2 hrs./wk.

MUS 134

Sight-Singing and Ear Training IV (2 CR)

Prerequisite: MUS 133

This course is a continuation of the first three courses in sight-singing and ear training. Students are trained to produce and hear the most complex aspects of music theory in the common practice era (1650-1920). The content is designed to complement the Harmony IV course, though it is not necessary they be taken in the same semester. 2 hrs./wk.

MUS 141

Music Theory: Harmony I (3 CR)

This course is a basic study of the harmonic system sited in Western music composed from 1650 to 1900 and still in use in areas of music composition. Students will learn the basic skills involved in writing and analyzing music of this nature as well as play simple chord progressions on the piano. 3 hrs./wk.

MUS 142

Music Theory: Harmony II (3 CR)

Prerequisite: MUS 141 or passing equivalency test

Harmony II is a continuation of the study of the harmonic system used in music composed from 1650 to 1900 and still in use in certain areas of music composition. The course covers use of non-harmonic tones, supertonic and dominant sevenths, functions of the submediant and mediant triads, advanced melodic writing and secondary dominant chords. Student will learn to harmonize melodies at the keyboard and play simple chord progressions on the piano. Music of the period will be analyzed. Selected software programs will enhance student skills and understanding. 3 hrs./wk. This course is typically taught in the spring semester.

MUS 143

Music Theory: Harmony III (3 CR)

Prerequisite: MUS 142 or passing equivalency test

This is a continuation of the study of the harmonic system used in all music composed from 1650 to 1900 and still in use in many areas of music composition today. Important topics include devices of modulation, binary and ternary, and 12 bar blues musical forms and application of part writing procedures to instrumental music. Particular attention will be paid to the nature and functions of diatonic seventh chords, secondary dominants, borrowed chords and Neopolitan chords. Students will work with keyboard harmony exercises of increasing difficulty. Selected software programs will enhance student skills and understanding. 3 hrs./wk.

MUS 144**Music Theory: Harmony IV (3 CR)**

Prerequisite: MUS 143 or passing equivalency test

Harmony IV is a continuation of the study of the harmonic practices of tonal music and introduction to 20th-century harmony. Topics include augmented sixth chords, enharmonic modulation, and advanced chromatic harmonies. An introduction to 20th-Century harmonic organization includes extended tertian harmony, modal harmony, parallelism, pandiatonicism, atonality, serialism, and aleatory music. Students will work with keyboard harmony exercises of increasing difficulty. Selected software programs will enhance student skills and understanding. 3 hrs./wk.

MUS 145**Jazz/Commercial Music Theory I (3 CR)**

MUS 141

Through the study of Jazz music theory, students will learn the basic elements that comprise the foundation of this style of music. Students will discover how Jazz and Commercial music is constructed, analyzed, and performed by learning intervals, scales, chords, chord progressions, form, and construction of melodies. 3 hrs. lecture/wk.

MUS 151**Mixed Vocal Ensemble I (1 CR)**

Prerequisite: Audition required

Choral ensembles are open to participation by the student body. Choral experience or skill is desired in some ensembles but not in others. The ensemble will learn a varied body of choral materials from the choral traditions of both past and present, performing at student and community activities. The literature will be specific to the nature of the group and the skills of the students involved. 3 hrs./wk.

MUS 152**Mixed Vocal Ensemble II (1 CR)**

Prerequisites: MUS 151 and audition required

Choral ensembles are open to participation by the student body. Choral experience or skill is desired in some ensembles but not in others. The ensemble will learn a varied body of choral materials from the choral traditions of both past and present, performing at student and community activities. The literature will be specific to the nature of the group and the skills of the students involved. 3 hrs./wk.

MUS 153**Mixed Vocal Ensemble III (1 CR)**

Prerequisites: MUS 152 and audition required

Choral ensembles are open to participation by the student body. Choral experience or skill is desired in some ensembles but not in others. The ensemble will learn a varied body of choral materials from the choral traditions of both past and present, performing at student and community activities. The literature will be specific to the nature of the group and the skills of the students involved. 3 hrs./wk.

MUS 154**Mixed Vocal Ensemble IV (1 CR)**

Prerequisites: MUS 153 and audition required

Choral ensembles are open to participation by the student body. Choral experience or skill is desired in some ensembles but not in others. The ensemble will learn a varied body of choral materials from the choral traditions of both past and present, performing at student and community activities. The literature will be specific to the nature of the group and the skills of the

students involved. 3 hrs./wk.

MUS 156**MIDI Music Composition (3 CR)**

MIDI Music Composition I is designed to create a technical and conceptual foundation for further studies in electronic music. Students will learn and demonstrate basic compositional techniques, including form, melody, rhythm and harmony. Also, the student will demonstrate the ability to use computers and software to create and perform music. Emphasis will be on developing skills appropriate to the beginning student for the purpose of creative and technical expression. 2 hrs. lecture, 2 hrs. lab/wk.

MUS 157**Introduction to Digital Audio (3 CR)**

Prerequisite: MUS 156

Introduction to Digital Audio is designed to further develop skills acquired in MIDI Music Composition I. Students will practice using ProTools digital audio software, combined with a digital audio interface to record, edit and play back music. Students will be introduced to basic concepts of sound, and common audio effects, including reverb, delay and compression. Students will also further develop their compositional skills through demonstration and practice, and create audio recordings of their music. 2 hrs. lecture, 2 hrs. lab/wk.

MUS 158**Digital Audio Techniques I (4 CR)**

Prerequisite: MUS 157

This course is designed to develop both the creative abilities and technical skills needed to produce music using modern digital recording techniques and equipment. Students will acquire an increased proficiency with the operation of ProTools, the industry standard digital audio software, and the corresponding digital audio hardware. Students will demonstrate knowledge of microphone types and techniques by conducting simple recording sessions, from set-up to final mix. 3 hrs. lecture, 2 hrs. lab/wk.

MUS 159**Digital Audio Techniques II (4 CR)**

Prerequisites: MUS 158

This course is designed for the student interested in the continued development of the creative abilities and technical skills needed to produce music using modern digital recording techniques and equipment. Students will understand simple copyright types and procedures, and create an itemized budget to establish a digital project studio. Students will demonstrate advanced knowledge of ProTools, and apply final mastering techniques in order to compile a portfolio of original music for personal, academic or professional purposes. 3 lecture, 2 hrs. lab/wk.

MUS 161**Chamber Choir I (1 CR)**

Prerequisite: Audition required

This auditioned choral ensemble is open to participation by the student body. Prior choral experience or a reasonable level of music reading and vocal technique is necessary. The choir will learn a varied body of choral materials from the choral traditions of both past and present, performing at student and community activities. 3 hrs./wk.

MUS 162**Chamber Choir II (1 CR)**

Prerequisites: MUS 161 and audition

This auditioned choral ensemble is open to participation by the student body.

Prior choral experience or a reasonable level of music reading and vocal technique is necessary. The choir will learn a varied body of choral materials from the choral traditions of both past and present, performing at student and community activities. 3 hrs./wk.

MUS 163

Chamber Choir III (1 CR)

Prerequisites: MUS 162 and audition

This auditioned choral ensemble is open to participation by the student body. Prior choral experience or a reasonable level of music reading and vocal technique is necessary. The choir will learn a varied body of choral materials from the choral traditions of both past and present, performing at student and community activities. 3 hrs./wk.

MUS 164

Chamber Choir IV (1 CR)

Prerequisites: MUS 163 and audition

This auditioned choral ensemble is open to participation by the student body. Prior choral experience or a reasonable level of music reading and vocal technique is necessary. The choir will learn a varied body of choral materials from the choral traditions of both past and present, performing at student and community activities. 3 hrs./wk.

MUS 165

Music Composition I (1 CR)

Prerequisite: MUS 141 or department approval

This entry-level course provides instruction in the craft of musical composition. Traditional compositional techniques and concepts will be studied through demonstration and practice. Students will learn correct notational procedures and compose melodies and short pieces for one or two live performers. 1 hr. lecture/wk.

MUS 166

Music Composition II (1 CR)

Prerequisite: MUS 165

This is an intermediate-level course for students seeking instruction in the craft of musical composition. Traditional compositional techniques and concepts will be studied through demonstration and practice. Students will learn to use a computer to notate their compositions, will begin to work with tonal harmony, will write music for a trio and/or quartet, and will have a piece performed during a music department recital. 1 hr. lecture/wk.

MUS 167

Music Composition III (1 CR)

Prerequisite: MUS 166

This class is an intermediate-level course for the student seeking instruction in the craft of musical composition. Traditional compositional techniques and concepts will be studied through demonstration and practice. Students will enhance their ability to use a computer to notate their compositions, will begin to work with nonfunctional tonal harmony, will write music for SATB choir or for vocal soloist, and will have a piece performed during a music department recital. 1 hr. lecture/wk.

MUS 168

Music Composition IV (1 CR)

Prerequisite: MUS 167

This course is an advanced-level class for students seeking further instruction in the craft of musical composition. Traditional compositional techniques and concepts will be studied through demonstration and practice. Students will

refine their ability to use a computer to notate their compositions, will continue to work with nonfunctional tonal harmony, will write music for larger ensembles, will have a piece performed in a music department recital, and will compile a portfolio of their work. 1 hr. lecture/wk.

MUS 171

Voice Class I (1 CR)

This course is designed to introduce the student to beginning vocal technique, vocal vocabulary, performance experience and solo vocal repertoire. 1 hr./wk.

MUS 172

Voice Class II (1 CR)

Prerequisite: MUS 171

This course is designed to continue instruction in proper vocal technique, vocal vocabulary, performance experience and solo vocal repertoire.

MUS 173

Voice Class III (1 CR)

Prerequisite: MUS 172

This course is designed to continue instruction in proper vocal technique, vocal vocabulary, performance experience and solo vocal repertoire.

MUS 174

Voice Class IV (1 CR)

Prerequisite: MUS 173

This course is designed to continue instruction in proper vocal technique, vocal vocabulary, performance experience and solo vocal repertoire.

MUS 176

Jazz Band I (1 CR)

Prerequisite: Audition required

This is an entry-level course in the jazz band performing format for the student with little or no experience in this course of study. The student will learn, through rehearsal and performance, the basic elements of music and how these are utilized in the jazz band. Topics will include simple rhythms, basic melodic construction and major scale construction. 3 hrs./wk.

MUS 177

Jazz Band II (1 CR)

Prerequisite: MUS 176 or audition required

This is a beginning-level course for the student with at least one semester of prior jazz band experience. Through rehearsal and performance, the student will learn beginning elements of music as applied to the jazz band performing format. Topics covered will include syncopated rhythm, Dorian minor scales and blues form. 3 hrs./wk.

MUS 178

Jazz Band III (1 CR)

Prerequisites: MUS 177 and audition required

This is an intermediate-level course for the student with at least two semesters of prior jazz band experience. Through rehearsal and performance, the intermediate levels of jazz band performance will be learned. Topics covered will include Latin style, Mixolydian scales and the 32-bar song form. 3 hrs./wk.

MUS 179**Jazz Band IV (1 CR)**

Prerequisites: MUS 178 and audition required

This is an advanced-level course for the student with at least three semesters of prior jazz band experience. Advanced elements of jazz music will be learned through rehearsal and performance. Topics covered will include Lydian scales and ensemble performance techniques. 3 hrs./wk.

MUS 187**Jazz Improvisation I (2 CR)**

Prerequisite: Audition

This is an entry-level course for the student with little or no jazz improvisation experience. Through written work and performance on the instrument of choice, the student will learn the basic elements of jazz improvisation. Topics to be covered will include identification and performance of basic intervals, major scales, Dorian modes, Mixolydian modes, major seventh chords, minor seventh chords, dominant seventh chords and the basic blues form. 2 hrs./wk.

MUS 188**Jazz Improvisation II (2 CR)**

Prerequisites: MUS 187 and audition required

This is an advanced-level course for the student with at least one semester of jazz improvisation. Through performance on the chosen instrument and written studies, the student will learn advanced concepts of jazz improvisation. Topics to be covered include jazz performance style, construction of the improvised solo and 32-bar song form. 2 hrs./wk.

MUS 191**Concert Band I (1 CR)**

Prerequisite: Audition required

This is an entry-level course in the concert band format for the student with little or no concert band experience. Students will learn the basic elements of music as related to the concert band through rehearsal and performance. Topics include counting and subdividing motifs into melodies; and differentiating between major and minor tonalities. 3 hrs./wk.

MUS 192**Concert Band II (1 CR)**

Prerequisites: MUS 191 and audition required

This is a beginning-level course in the concert band format for the student with at least one semester of prior concert band experience. Students will learn the beginning-level elements of music as related to the concert band through rehearsal and performance. Topics to be covered include odd meters, minor scales and homophonic texture. 3 hrs./wk.

MUS 193**Concert Band III (1 CR)**

Prerequisite: MUS 192 or audition required

This is an intermediate course for the student with at least two semesters of prior concert band experience. Through rehearsal and performance, the student will learn intermediate levels of the elements of music in the concert band format. Topics will include parade march style, concert march style and concert overture style. 3 hrs./wk.

MUS 194**Concert Band IV (1 CR)**

Prerequisite: MUS 193 or audition required

This is an advanced course for the student with at least three semesters of prior concert band performing experience. Through rehearsal and performance, the student will learn the advanced concepts of concert band performance. Topics will include polyphonic texture, concert suite style and medley style. 3 hrs./wk.

MUS 195**Vocal Jazz Ensemble I (1 CR)**

Prerequisite: Audition required

This is an entry-level course in the vocal jazz performing format. Through rehearsal and public performance, the student will learn the basic elements of music as applied to vocal jazz. Topics will include 8th note swing, jazz syncopation and 32-bar song form. 3 hrs./wk.

MUS 196**Vocal Jazz Ensemble II (1 CR)**

Prerequisites: MUS 195 and audition required

This is a beginning-level course in the vocal jazz performing format. Through rehearsal and public performance, the student will learn the basic elements of music as applied to vocal jazz. Topics will include Dorian minor scales, Mixolydian scales and 12-bar blues form. 3 hrs./wk.

MUS 197**Vocal Jazz Ensemble III (1 CR)**

Prerequisites: MUS 196 and audition required

This is an intermediate-level course in the vocal jazz performing format. Through rehearsal and public performance, the student will learn the basic elements of music as applied to vocal jazz. Topics will include beginning improvisation, Latin rhythm and major scales. 3 hrs./wk.

MUS 198**Vocal Jazz Ensemble IV (1 CR)**

Prerequisites: MUS 197 and audition required

This is an advanced-level course in the vocal jazz performing format. Through rehearsal and public performance, the student will learn the basic elements of music as applied to vocal jazz. Topics will include scat, improvisation in 32-bar song form, Lydian scales and ballad style. 3 hrs./wk.

MUS 201**Chamber Ensemble I (1 CR)**

Prerequisite: Audition required

This is an entry-level course for the student with little or no experience in the chamber ensemble performing format. Through written work and performance on the chosen instrument, the student will learn the basic fundamentals of this performing medium. Topics to be covered will include tone quality, intervals and rhythmic patterns. 2 hrs./wk.

MUS 202**Chamber Ensemble II (1 CR)**

Prerequisite: MUS 201 or placement by instructor

This is a beginning-level course for the student with at least one semester of experience in the chamber ensemble performing format. Through written work and performance on the chosen instrument the student will learn the basic fundamental of this performing medium. Topics to be covered will include minor scales, chord construction and compound rhythms. 2 hrs./wk.

MUS 203**Chamber Ensemble III (1 CR)**

Prerequisite: MUS 202 or placement by instructor

This is an intermediate-level course for the student with at least two semesters of chamber ensemble experience. Through written work and performance on the chosen instrument, the student will learn intermediate-advanced concepts of chamber ensemble performance. Topics to be covered include sight reading, intonation and style. 2 hrs./wk.

MUS 204

Chamber Ensemble IV (1 CR)

Prerequisite: MUS 203 or placement by instructor

This is an advanced-level course for the student with at least three semesters of prior ensemble experience. Through performance on the chosen instrument, the student will learn the advanced concepts of chamber ensemble performance. Topics to be covered will include balance and cooperative expression. 2 hrs./wk.

MUS 211

Orchestra I (1 CR)

Prerequisite: Audition required

This is an entry-level course in the orchestra format for the student with little or no orchestra experience. Students will learn the basic elements of music as related to the orchestra through rehearsal and performance. Topics include counting and subdividing duple, triple and quadruple rhythm; assembling melodic motifs into melodies; and differentiating between major and minor tonalities. Students will rehearse and perform with the Overland Park Civic Orchestra. 2 hrs. (1 evening)/wk.

MUS 212

Orchestra II (1 CR)

Prerequisites: MUS 211 and audition required

This is a beginning-level course in the orchestra format for the student with at least one semester of prior orchestra experience. Students will learn the beginning-level elements of music as related to the orchestra through rehearsal and performance. Topics to be covered include odd meters, minor scales and homophonic texture. 2 hrs. (1 evening)/wk.

MUS 213

Orchestra III (1 CR)

Prerequisites: MUS 212 and audition required

This is an intermediate course for the student with at least two semesters of prior orchestra experience. Through rehearsal and performance, the student will learn intermediate levels of the elements of music in the orchestra format. Topics will include parade march style, concert march style and concert overture style. (1 evening)/wk.

MUS 214

Orchestra IV (1 CR)

Prerequisites: MUS 213 and audition required

This is an advanced course for the student with at least three semesters of prior orchestra performing experience. Through rehearsal and performance, the student will learn advanced concepts in orchestral performance. Topics will include polyphonic texture, concert suite style and medley style. 2 hrs. (1 evening)/wk.

MUS 221

Piano Class I (2 CR)

This course provides a basic knowledge of music and the essential techniques required to play the piano. Students will learn essential musical terminology, including musical notation and symbols, major and minor key signatures, and

the harmonization of melodies using tonic and dominant triads. Specific piano-related terminology will include finger exercises, basic keyboard repertoire using major and minor five-finger patterns, major and minor scales, major and minor triads in root position, ensemble playing of two to four parts, and the formation of good practice habits. Group Piano II should follow the successful completion of this course. Private piano lessons are encouraged for students who successfully complete both courses. 2 hrs./wk.

MUS 222

Piano Class II (2 CR)

Prerequisites: MUS 221 and department approval required

This is a beginning-level course that provides a basic knowledge of keyboard instruments. Students will learn and review musical terminology, musical notation and symbols, and specific piano-related terminology. Topics covered will include major and minor key signatures; exercises and repertoire using major and minor scales; exercises and repertoire using major, minor, diminished and augmented triads in root position and inversions; chord progressions; ensemble playing of two to four parts; and use of the damper pedal. This course is the continuation of MUS 221. Completion of this course should precede Applied Piano I. This course is for beginners able to progress at a fast pace, students with minimal previous experience or students who have completed MUS 221. 2 hrs./wk.

MUS 223

Piano Class III (2 CR)

Prerequisite: MUS 222 or department approval

This is an intermediate course that provides a basic knowledge of keyboard instruments. Students will learn and review musical terminology, musical notation and symbols, and specific piano-related terminology. Topics covered will include major and minor key signatures; exercises and repertoire using major and minor scales and modes; exercises and repertoire using major, minor, diminished and augmented triads in root position and inversions; chord progressions; ensemble playing of two to four parts; and use of the damper pedal. This course is the continuation of MUS 222. Completion of this course should precede Applied Piano I. This course is designed for students who have completed one year of study or who have completed MUS 222. 2 hrs./wk.

MUS 224

Piano Class IV (2 CR)

Prerequisite: MUS 223 or permission of the instructor

This is an advanced-level course for the student with at least three semesters of prior piano class instruction. Students will learn the advanced concepts of piano playing. Topics to be covered will include basic music notation, major and minor key signatures, tempo indications, major and minor arpeggios, finger patterns, practice method chord progressions, and the use of the damper pedal. 2 hrs./wk.

MUS 226

Applied Guitar I (Class) (1 CR)

Students will be provided with a foundation in guitar technique upon which to base further study of the instrument. The course consists of an introduction to the use of the guitar as a solo, accompaniment and ensemble instrument. 1 hr./wk.

MUS 227

Applied Guitar II (Class) (1 CR)

Prerequisite: MUS 226 or department approval

This continuation of MUS 226 builds a foundation in guitar technique upon which to base further study of the instrument. The course continues to teach techniques that enable students to use the guitar as a solo, accompaniment and ensemble instrument. 1 hr./wk.

MUS 228**Applied Guitar III (Class)** (1 CR)

Prerequisite: MUS 227 or department approval

This continuation of MUS 227 is designed to move students from the basic skill level to the intermediate skill level. The course continues to teach techniques that enable students to use the guitar as a solo, accompaniment and ensemble instrument. 1 hr./wk.

MUS 229**Applied Guitar IV (Class)** (1 CR)

Prerequisite: MUS 228 or department approval

This is a continuation of MUS 228 at an intermediate level of guitar playing skills. The course continues to teach techniques that enable students to use the guitar as a solo, accompaniment and ensemble instrument. 1 hr./wk.

MUS 231**Applied Voice I (Private)** (1 CR)

This course is designed to introduce the student to beginning vocal technique, vocal vocabulary, performance experience and solo vocal repertoire.

MUS 232**Applied Voice II (Private)** (1 CR)

Prerequisite: MUS 231

This course uses private lessons to continue instruction in beginning vocal technique, vocal vocabulary, performance experience and solo vocal repertoire.

MUS 233**Applied Voice III (Private)** (1 CR)

Prerequisite: MUS 232

This course uses private lessons to continue instruction in beginning intermediate vocal technique, vocal vocabulary, performance experience and solo vocal repertoire.

MUS 234**Applied Voice IV (Private)** (1 CR)

Prerequisite: MUS 233

This course uses private lessons to continue instruction in intermediate vocal technique, vocal vocabulary, performance experience and solo vocal repertoire.

MUS 236**Applied Piano I (Private)** (1 CR)

This is an entry-level course for the student with little or no prior piano training. This course provides a basic knowledge of keyboard instruments. Students will learn essential musical terminology, musical notation and symbols, and specific piano-related terminology. Topics covered will include major and minor key signatures; exercises and repertoire using major and minor five-finger patterns; and exercises and repertoire using major and minor scales.

MUS 237**Applied Piano II (Private)** (1 CR)

Prerequisite: MUS 236

This is a beginning-level course for the student with at least one semester of prior applied piano study. Students will learn the intermediate-level concepts of piano performance. Topics to be covered will include major scales and the natural and harmonic forms of the minor scales, rhythmic patterns and

subdivisions of duple and triple meter and the basic keyboard literature of the intermediate level.

MUS 238**Applied Piano III (Private)** (1 CR)

Prerequisite: MUS 237

This is an intermediate-level course for the student with at least two semesters of prior applied piano study. Students will learn the intermediate-level concepts of piano performance. Topics to be covered will include scale, the melodic form of the minor scale, rhythmic patterns and subdivisions of compound meter, and the basic keyboard literature of the intermediate level.

MUS 239**Applied Piano IV (Private)** (1 CR)

Prerequisite: MUS 238

This is an advanced-level course for the student with at least two semesters of prior applied piano study. Students will learn the intermediate level concepts of piano performance. Topics to be covered will include Dorian and Mixolydian modes, pentatonic scales and performance of a Chopin etude.

MUS 241**Applied Guitar I (Private)** (1 CR)

In this private study in basic guitar technique, emphasis will be upon playing position, posture, tone production and basic music reading skills. Students will begin with studies and short pieces.

MUS 242**Applied Guitar II (Private)** (1 CR)

Prerequisite: MUS 241 or department approval

This is a continuation of private study in basic guitar technique. Emphasis will be upon playing position, posture, tone production and basic music-reading skills. Students will begin with studies and short pieces.

MUS 243**Applied Guitar III (Private)** (1 CR)

Prerequisite: MUS 242 or department approval

In this private study in intermediate guitar technique, emphasis will be on playing position, posture, tone production and intermediate music reading skills. Students will progress toward playing literature requiring intermediate skill levels.

MUS 244**Applied Guitar IV (Private)** (1 CR)

Prerequisite: MUS 243 or department approval

In this continuation of private study in intermediate guitar technique, emphasis will be on playing position, posture, tone production and intermediate music reading skills. Students will progress toward playing literature requiring intermediate skill levels.

MUS 246**Applied Classical Guitar I (Private)** (1 CR)

Private study in basic classical guitar technique and repertoire. Emphasis will be upon classical left- and right-hand technique, playing position, posture, tone production and standard classical guitar literature. Students will begin with studies and short pieces.

MUS 247**Applied Classical Guitar II (Private) (1 CR)**

Prerequisite: MUS 246 or department approval

This continuation of private study in basic classical guitar technique and repertoire will emphasize classical left- and right-hand technique, playing position, posture, tone production and standard classical guitar literature. Students will continue with studies and short pieces, then progress toward longer pieces with the intent of performing these in a recital situation.

MUS 248**Applied Classical Guitar III (Private) (1 CR)**

Prerequisite: MUS 247 or department approval

In this private study in intermediate classical guitar technique and repertoire, emphasis will be on classical left- and right-hand technique, playing position, posture, tone production and standard classical guitar literature. Students will progress toward playing and performing more advanced pieces and guitar studies.

MUS 249**Applied Classical Guitar IV (Private) (1 CR)**

Prerequisite: MUS 248 or department approval

This continuation of private study in intermediate classical guitar technique and repertoire will emphasize classical left- and right-hand technique, playing position, posture, tone production and standard classical guitar literature. Students will progress toward playing and performing more advanced pieces and guitar studies.

MUS 251**Applied Brass I (Private) (1 CR)**

This is an entry-level course for the student with little or no experience in performing on a brass instrument. Through written exercises and performance on the instrument of choice, the student will learn the basic concepts of brass performance. Topics to be covered include tone production, basic musical intervals and major scales.

MUS 252**Applied Brass II (Private) (1 CR)**

Prerequisite: MUS 251 or placement by instructor

This is a beginning-level course for the student with at least one semester of prior brass instrument study. Through written exercises and performance on the instrument of choice, the student will learn the beginning concepts of brass performance. Topics to be covered include embouchure development, minor scales and duple and triple rhythmic patterns.

MUS 253**Applied Brass III (Private) (1 CR)**

Prerequisite: MUS 252 or placement by instructor

This is an intermediate-level course for the student with at least two semesters of prior brass instrument study. Through written exercises and performance on the instrument of choice, the student will learn the intermediate concepts of brass performance. Topics to be covered include the chromatic scale, quadruple rhythmic patterns and chord construction.

MUS 254**Applied Brass IV (Private) (1 CR)**

Prerequisite: MUS 253 or placement by instructor

This is an advanced-level course for the student with at least three semesters of

prior brass instrument study. Through written exercises and performance on the instrument of choice, the student will learn the advanced concepts of brass performance. Topics to be covered include the pentatonic scale, whole tone scale and melodic contours.

MUS 256**Applied Percussion I (Private) (1 CR)**

This is an entry-level course for the student with little or no training in percussion instruments. The student will learn the beginning concepts of percussion performance. Topics to be covered include basic duple and triple rhythm, snare drum rudiments and basic snare drum performance patterns.

MUS 257**Applied Percussion II (Private) (1 CR)**

Prerequisite: MUS 256 or placement by instructor

This is a beginning-level course for the student with at least one semester of prior instruction in percussion instruments. The student will learn beginning concepts of percussion performance. Topics to be covered include compound rhythm, snare drum rudiments and basic timpani skills.

MUS 258**Applied Percussion III (Private) (1 CR)**

Prerequisite: MUS 257 or placement by instructor

This is an intermediate-level course for the student with at least two semesters of prior instruction in percussion instruments. The student will learn beginning concepts of percussion performance. Topics to be covered include snare drum rudiments, basic mallet percussion skills and suspended cymbal skills.

MUS 259**Applied Percussion IV (Private) (1 CR)**

Prerequisite: MUS 258 or placement by instructor

This is an advanced-level course for the student with at least three semesters of prior instruction in percussion instruments. The student will learn advanced concepts of percussion performance. Topics to be covered include snare drum rudiments, crash cymbal techniques and drum set skills.

MUS 261**Applied Woodwind I (Private) (1 CR)**

This is an entry-level course for the student with little or no experience performing on a woodwind instrument. Through written exercises and performance on the instrument of choice, the student will learn the basic elements of woodwind performance. Topics to be covered include tone production, basic intervals and major scales.

MUS 262**Applied Woodwind II (Private) (1 CR)**

Prerequisite: MUS 261 or placement by instructor

This is a beginning-level course for the student with at least one semester of prior woodwind study. The student will learn beginning concepts of woodwind performance on the chosen instrument through written exercises and performance. Topics to be covered include embouchure development, minor scales and duple and triple meters.

MUS 263**Applied Woodwind III (Private) (1 CR)**

Prerequisite: MUS 262 or placement by instructor

This is an intermediate-level course for the student with at least two semesters of prior woodwind study. The student will learn the intermediate concepts of

woodwind performance through written exercises and performance. Topics to be covered include chromatic scale, quadruple rhythmic patterns and chord construction.

MUS 264

Applied Woodwind IV (Private) (1 CR)

Prerequisite: MUS 263 or placement by instructor

This is an advanced-level course for the student with at least three semesters of prior woodwind study. Through written exercises and performance, the student will learn the advanced concepts of woodwind performance. Topics to be covered include pentatonic scale, whole tone scale and melodic contour.

MUS 266

Applied Harp I (Private) (1 CR)

This course is the first college level course for harp students. The student will work in a studio setting with an instructor. Assignments will be based on the individual student's readiness, but work will emphasize growth in areas of technical development, understanding musical styles, developing music vocabulary and building a performance repertoire. 1/2 hr./wk.

MUS 267

Applied Harp II (Private) (1 CR)

Prerequisite: MUS 266

This course continues the work in Applied Harp I. The student will work in a studio setting with an instructor. Assignments will be based on the individual student's readiness. Work will emphasize further growth in areas of technical development, understanding musical styles, developing music vocabulary and building a performance repertoire. 1/2 hr./wk.

MUS 268

Applied Harp III (Private) (1 CR)

Prerequisite: MUS 267

This course continues the work in Applied Harp II. The student will work in a studio setting with an instructor. Assignments will be based on the individual student's readiness. Work will emphasize further growth in areas of technical development, understanding musical styles, developing music vocabulary and building a performance repertoire. 1/2 hr./wk.

MUS 269

Applied Harp IV (Private) (1 CR)

Prerequisite: MUS 268

This course continues the work in Applied Harp III. The student will work in a studio setting with an instructor. Assignments will be based on the individual student's readiness. Work will emphasize further growth in areas of technical development, understanding musical styles, developing music vocabulary and building a performance repertoire. 1/2 hr./wk.

Nursing (NURS)

NURS 124

Foundations of Nursing (9 CR)

Prerequisites: Admission to the Nursing Program and current certification in Kansas as Certified Nursing Assistant (CNA) and Cardiopulmonary Resuscitation Certification (CPR) for Health Care Providers and CHEM 122 and MATH 116 or higher level MATH course and corequisite: BIOL 144 and PSYC 130

This course is the first in a sequence of five nursing courses. Students will acquire nursing knowledge and skills necessary to care for patients across the health care continuum. Students will use a critical thinking approach to apply fundamental principles of nursing to patient care. In the clinical component, students will apply theoretical content and therapeutic interventions to patients with health alterations. Course instruction will occur in the classroom, online, in the health resource center and healthcare agencies. Enrollment in certain courses may require a professional liability fee of \$16.00. Students will be notified via their JCCC student e-mail account if the fee is due and instructions on how to pay the fee. 4 hrs. lecture, 1 hr. lab, 15 hr. clinical/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$540 to \$565.

NURS 126

Nursing Care of the Adult: Health Alterations (9 CR)

Prerequisites: BIOL 144 and PSYC 130 and NURS 124 and prerequisite or corequisite: PSYC 218

This course is the second in a sequence of five nursing courses. Students will build on fundamental nursing knowledge and skills acquired in the first nursing course to care for adult patients across the health care continuum. The content will emphasize nursing care of older adults experiencing complex multi-system conditions. The content will also include nursing care for young, middle-aged, and older adults experiencing alterations in mental health. The student will use a critical thinking approach to apply concepts of adaptation, nursing process, therapeutic interactions, communication, and teaching/learning in the care of the culturally diverse patient. In the critical component, students will apply theoretical content and therapeutic nursing interventions to patients with acute and chronic health alterations. Course instruction will occur in the classroom, online, in the health resource center and health care agencies. Enrollment in certain courses may require a professional liability fee of \$16.00. Students will be notified via their JCCC student e-mail account if the fee is due and instructions on how to pay the fee. 4 hrs. lecture, 1 hr. lab, 15 hr. clinical/wk.

NURS 136

LPN-RN Transition Course (6 CR)

Prerequisites: Completion of LPN program, Current Cardiopulmonary Resuscitation Certificate (CPR) for Health Care Providers and CHEM 122 and MATH 116 or higher and either BIOL 144 or BIOL 140 and BIOL 225 and ENGL 121 and PSYC 130 and PSYC 218

This course is an introduction to the second year of the associate degree nurse (ADN) program for graduates of licensed practical nurse (LPN) programs. The content will emphasize nursing care for patients experiencing alterations in mental health and complex multi-system conditions. The student will use a critical thinking approach to apply concepts of adaptation, nursing process, therapeutic interactions, and teaching learning in the care of the patient. An in-depth examination of physical assessment and psychomotor/communication skills will prepare the student for transition to the associate degree nursing program. Course instruction will occur in the classroom, online, in the Healthcare Simulation Center, in the Health Resource Center, and health care agencies. Theory: 28 clock hours/week for 4 weeks; Clinical: 24 hours/week for 3 weeks.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$320.

NURS 228

Nursing Care of the Childbearing Family (5 CR)

Prerequisites: ENGL 121 and PSYC 218 and NURS 126 and Prerequisite or Corequisites: BIOL 230 and NURS 230 and either SOC 122 or SOC 125

This course is the third or fourth in a sequence of five nursing courses. Students will acquire nursing knowledge and skills necessary to care for the childbearing family. Common alterations, stressors in the family, cultural sensitivity and the art of nursing will be emphasized during the antepartum, intrapartum, postpartum and newborn periods. Students will use principles of therapeutic communication, critical thinking, and teaching/learning to apply

nursing process to both normal and high-risk mothers and newborns. In the clinical component, students will apply theoretical content and therapeutic nursing interventions with a caring approach to a culturally diverse population. Course instruction will occur in the classroom, online, in the health resource center and health care agencies. This course will be taken in the same semester with NURS 230, Nursing Care of Children. Enrollment in certain courses may require a professional liability fee of \$16.00. Students will be notified via their JCCC student e-mail account if the fee is due and instructions on how to pay the fee. 4 hrs. lecture, 1 hr. lab, 15 hrs. clinical/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$160.

NURS 230

Nursing Care of Children (5 CR)

Prerequisites: ENGL 121 and PSYC 218 and NURS 126 and Prerequisite or Corequisites: BIOL 230 and NURS 228 and either SOC 122 or SOC 125

This course is the third or fourth in a sequence of five nursing courses. Students will acquire nursing knowledge skills necessary to care for infants through adolescents on a continuum of health and adaptation that may result in acute or chronic illness. Students will use principles of therapeutic communication, psychosocial concepts, growth and development, critical thinking, and organization to apply the nursing process to culturally diverse populations. In the clinical component, students will apply theoretical content and therapeutic nursing interventions to infants/children/adolescents with acute and/or chronic health alterations. Course instruction will occur in the classroom, online, in the health resource center and health care agencies. Enrollment in certain courses may require a professional liability fee of \$16.00. Students will be notified via their JCCC student e-mail account if the fee is due and instructions on how to pay the fee. 4 hrs. lecture, 1 hr. lab, 15 hrs. clinical/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$160.

NURS 232

Complex Patient Care Management (9 CR)

Prerequisites: NURS 228 and NURS 230

This course is the last in a sequence of five nursing courses that will enable students to care for patients experiencing complex multi-system health alterations across the health care continuum. Students will use a critical thinking approach to apply concepts of management to a group of patients in a health care setting. This course integrates knowledge and skills acquired in the previous four courses and facilitates student transition to professional nursing practice. In the clinical component, students will apply theoretical content and therapeutic nursing interventions to a group of patients/families with complex, acute and chronic health alterations. Course instruction will occur in the classroom, online, in the health resource center and health care agencies. 4 hrs. lecture, 1 hr. lab, 15 hrs. clinical/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$450 to \$550.

NURS 234

Registered Nurse Refresher (9 CR)

Prerequisite: Current or previously licensed as a registered nurse. Corequisite: Current CPR certification for health care providers, professional liability insurance, health and dental records up-to-date, including current immunizations; personal health insurance.

The course will prepare the Registered Nurse (RN) to reenter the acute health care setting for employment after an absence from the patient care arena. The course has a general med-surg focus, and will review adult anatomy and physiology, pathophysiology, pharmacology, lab values and key issues related to patient care. The course includes classroom, lab, simulation, clinical and preceptorship experiences.

Occupational Therapy Assistant (KOT)

KOT 100

Introduction to Occupational Therapy (2 CR)

Introduction to the history, philosophy and practice of occupational therapy. Exploration of diversity and the role it plays in health care. 2 hrs. lecture/wk. Course taught at MCC-Penn Valley Community College. Students should contact the Penn Valley coordinator of the occupational therapy assistant program about the class meeting times and beginning and ending dates of classes. Call 816-759-4000.

KOT 102

Documentation Guidelines (2 CR)

Prerequisite: Formal admission into the occupational therapy assistant program

Guidelines for documentation of occupational therapy services. 2 hrs. lecture/wk. Course taught at MCC-Penn Valley Community College. Students should contact the Penn Valley coordinator of the occupational therapy assistant program about the class meeting times and beginning and ending dates of classes. Call 816-759-4000.

KOT 103

Clinical Conditions (2 CR)

Prerequisite: Formal admission into the occupational therapy assistant program

Etiology, clinical process and prognosis of common diseases and illnesses. Effect of disease or illness on an individual's performance and the impact this has on the person, family and society. 2 hrs. lecture/wk. Course taught at MCC-Penn Valley Community College. Students should contact the Penn Valley coordinator of the occupational therapy assistant program about the class meeting times and beginning and ending dates of classes. Call 816-759-4000.

KOT 106

Therapeutic Interventions I (4 CR)

Prerequisite: Formal admission into the occupational therapy assistant program

Basic therapeutic interventions, techniques, applications and legislation pertinent to OT practice. Learn OT's role in promoting health and wellness. 2.5 hrs. lecture, 3 hrs. lab/wk. Course taught at MCC-Penn Valley Community College. Students should contact the Penn Valley coordinator of the occupational therapy assistant program about the class meeting times and beginning and ending dates of classes. Call 816-759-4000.

KOT 112

Basic Emergency Patient Care (1 CR)

This course introduces current cardiopulmonary resuscitation skills, including adult, child and infant resuscitation, according to American Heart Association standards. Medical and environmental emergencies are reviewed. 1 hr. lecture/wk. Course taught at Penn Valley Community College. Students should contact the Penn Valley coordinator of the occupational therapy assistant program about the class meeting times and beginning and ending dates of classes. Call 816-759-4000.

KOT 116

Level I Fieldwork I (1 CR)

Prerequisite: Formal admission into the occupational therapy assistant program

Introduction to the role, policies and procedures of fieldwork. Directed experience in a specified community setting. 0.5 hr. lecture, 1 hr. lab/ wk. Course taught at MCC-Penn Valley Community College. Students should contact the Penn Valley coordinator of the occupational therapy assistant program about the class meeting times and beginning and ending dates of classes. Call 816-759-4000.

KOT 118

Assistive Technology (2 CR)

Prerequisites: BIOL 144 and BIOL 145, KOT 112, KOT 100, 102, 103, 106 and 116

Hands-on introduction to high-tech assistive technology and augmentative communication. 1 hr. lecture, 2 hrs. lab/wk. Course taught at MCC-Penn Valley Community College. Students should contact the Penn Valley coordinator of the occupational therapy assistant program about the class meeting times and beginning and ending dates of classes. Call 816-759-4000.

KOT 120

Pediatrics (3 CR)

Prerequisites: KOT 112, BIOL 144 and BIOL 145 and KOT 100, KOT 102, KOT 103, KOT 106 and KOT 116

Occupational therapy practice as it relates to individuals from birth to early adolescence. Study of normal growth and development. 3 hrs. lecture/wk. Course taught at MCC-Penn Valley Community College. Students should contact the Penn Valley coordinator of occupational therapy assistant about the class meeting times and beginning and ending dates of classes. Call 816-759-4000.

KOT 121

Level I Fieldwork II

Prerequisites: BIOL 144 and BIOL 145, KOT 112, and KOT 100, KOT 102, KOT 103, KOT 106 and KOT 116 and concurrent enrollment in KOT 120

Directed experience in a specified community setting. Course is .5 credit hour. 1 hr. clinical/wk. Course taught at MCC-Penn Valley Community College. Students should contact the Penn Valley coordinator of the occupational therapy assistant program about the class meeting times and beginning and ending dates of classes. Call 816-759-4000.

KOT 130

Analysis of Physical Performance (3 CR)

Prerequisites: KOT 112, BIOL 144 and BIOL 145, KOT 100, KOT 102 KOT 103 KOT 106 and KOT 116

Analysis and evaluation of the components of physical performance and their relationship to functional activities. 2 hrs. lecture, 2 hrs. lab/wk. Course taught at MCC-Penn Valley Community College. Students should contact the Penn Valley coordinator of the occupational therapy assistant program about the class meeting times and beginning and ending dates of classes. Call 816-759-4000.

KOT 154

Applied Neurology (2 CR)

Prerequisites: BIOL 144 and BIOL 145, MCC BIOL 210, and admission to OTHA or PTHA program.

Foundations of neuroscience necessary for practice as a rehabilitation professional. Anatomy and function of the nervous system. Correlation of Clinical problems with pathology of the nervous system. 2 hrs. lecture/wk. Course taught at MCC-Penn Valley Community College. Students should contact the Penn Valley coordinator of the occupational therapy assistant program about the class meeting times and beginning and ending dates of classes. Call 816-759-4000.

KOT 173

Special Topics (2 CR)

Prerequisite: Concurrent enrollment in physical therapy assistant or occupational therapy assistant programs or completion of an associate or advanced degree in physical therapy or occupational therapy

A study of advanced topics relevant to the current practice of rehabilitation. Cross listed as KPT 173. 2 hrs. lecture/wk. Course taught at Penn Valley Community College. Students should contact the Penn Valley coordinator of the occupational therapy assistant program about the class meeting times and beginning and ending dates of classes. Call 816-759-4000.

KOT 201

Mental Health (2.5 CR)

Prerequisites: KOT 118 and KOT 120 and KOT 121 and KOT 130 and KOT 154

Occupational therapy assessment and treatment techniques in the mental health setting. 2 hrs. lecture, 1 hr. lab/wk. Course taught at MCC-Penn Valley Community College. Students should contact the Penn Valley coordinator of the occupational therapy assistant program about the class meeting times and beginning and ending dates of classes. Call 816-759-4000.

KOT 202

Physical Dysfunction (3 CR)

Prerequisites: KOT 118 and KOT 120 and KOT 121 and KOT 130 and KOT 154

Occupational therapy assessment and treatment used with the physically and cognitively challenged population. 3 hrs. lecture/wk. Course taught at MCC-Penn Valley Community College. Students should contact the Penn Valley coordinator of the occupational therapy assistant program about the class meeting times and beginning and ending dates of classes. Call 816-759-4000.

KOT 203

Gerontology (3 CR)

Prerequisites: KOT 118 and KOT 120 and KOT 121 and KOT 130 and KOT 154

Concepts and processing of aging. The role of occupational therapy with the elderly. 3 hr. lecture/wk. Course taught at MCC-Penn Valley Community College. Students should contact the Penn Valley coordinator of the occupational therapy assistant program about the class meeting times and beginning and ending dates of classes. Call 816-759-4000.

KOT 208

Therapeutic Interventions II (2 CR)

Prerequisites: KOT 118 and KOT 120 and KOT 121 and KOT 130 and KOT 154

Advanced therapeutic interventions and techniques used to enhance functional ability and independence in daily life tasks and occupations. 1 hr. lecture, 2 hrs. lab/wk. Course taught at MCC-Penn Valley Community College. Students should contact the Penn Valley coordinator of the occupational therapy assistant program about the class meeting times and beginning and ending dates of classes. Call 816-759-4000.

KOT 212

Level I Fieldwork III (2 CR)

Prerequisites: KOT 118 and KOT 120 and KOT 121 and KOT 130 and KOT 154

Directed experience in specified community settings. 4 hrs. clinical/wk. Course taught at MCC-Penn Valley Community College. Students should contact the Penn Valley coordinator of the occupational therapy assistant

program about the class meeting times and beginning and ending dates of classes. Call 816-759-4000.

KOT 217

Fieldwork Seminar (3 CR)

Prerequisites: KOT 118 and KOT 120 and KOT 121 and KOT 130 and KOT 154

Preparation for full-time clinical practice, the national certification process, state licensure, and future employment. 3 hrs. lecture/wk. Course taught at MCC-Penn Valley Community College. Students should contact the Penn Valley coordinator of the occupational therapy assistant program about the class meeting times and beginning and ending dates of classes. Call 816-759-4000.

KOT 222

Level II Fieldwork (12 CR)

Prerequisites: KOT 201, KOT 202, KOT 203, KOT 208 and KOT 212 and KOT 217

Directed clinical experience in different practice areas of occupational therapy. 40 hrs. field studies/wk. Course taught at MCC-Penn Valley Community College. Students should contact the Penn Valley coordinator of the occupational therapy assistant program about the class meeting times and beginning and ending dates of classes. Call 816-759-4000.

Philosophy (PHIL)

PHIL 121

Introduction to Philosophy (3 CR)

Students will examine the basic questions of philosophical inquiry, such as the nature of being, and the ways humans acquire knowledge and moral, social, religious and political values. Emphasis is on the application of the study of traditional problems of philosophy to the study of contemporary society. 3 hrs./wk.

PHIL 124

Logic and Critical Thinking (3 CR)

This course is an inquiry into techniques of persuasion and the standards for interpretation and assessment that are the basis for critical thinking. Argumentative and non-argumentative forms of persuasion are examined, including propaganda, exaggeration, stereotyping, slanted news and common fallacies. In addition, the course offers standards for evidential warrants based on samples, probabilities and causal claims. Relations between categorical propositions and Venn diagrams are examined and, finally, the course suggests strategies for fresh attacks on conceptual problems. 3 hrs./wk.

PHIL 138

Business Ethics (1 CR)

This course applies classical and contemporary theories of morality to problems, questions and dilemmas arising in business. Using the major concepts and principles of deontological, consequentialist and perfectionist theories, it examines and analyzes cases involving such areas as employer/employee relations, corporate responsibility, truth telling in business and workplace diversity. Emphasis is on the development of moral reasoning skills that allow for meaningful analysis and evaluation of moral situations. 1 hr./wk.

PHIL 142

History of Asian Philosophy (3 CR)

This course provides a thorough exploration of the philosophical traditions of Asia with a focus on the classical philosophies of India and China. Covered are the origins of Indian philosophy in the Vedas and Upanishads, the development of various Vedic schools of thought. The origins of Buddhism and Jainism are also explored. The development and influence of Confucianism, Daoism and Chinese Buddhism are covered as well, as is the lasting influence of Asian philosophy outside of both India and China including its increasing relevance in the West. In the process, the class provides a comprehensive understanding of the distinctive philosophical foundations of the Asian world view. 3 hrs./wk.

PHIL 143

Ethics (3 CR)

This course provides a systematic and critical study of values related to human conduct. It focuses on both traditional standards of ethical conduct and qualities of personal character. What we hold to be right or wrong, the basis for believing so, and what we consider to be virtues or vices are examined with an eye to understanding our current ethical situation. 3 hrs./wk.

PHIL 154

History of Ancient Philosophy (3 CR)

This course provides a thorough exploration of ancient Greek and Roman philosophical thought from the original efforts of the Pre-Socratics to understand the fundamental operations of the natural world to concerns about the way a person might live successfully in nature and society. Also explored are the notable Athenians of the classical period, Protagoras, Socrates, Plato and Aristotle, and the later schools of thought such as cynicism, skepticism, hedonism and stoicism. In the process, it provides a comprehensive understanding of the philosophical foundations of the Western world view. 3 hrs./wk.

PHIL 176

Philosophy of Religion (3 CR)

This course is an inquiry into the nature of religion, religious thought and religious language. It addresses philosophical topics such as the nature of religious belief, the apparent need of some people for religion, the arguments offered as proof for and against the existence of God, apparent contradictions between scientific and religious teachings, special problems raised by religious language, and the changes religion and philosophy of religion have made to accommodate a modern world view. 3 hrs./wk.

PHIL 210

History of Modern Philosophy (3 CR)

Prerequisite: PHIL 121 or PHIL 143 or HIST 125 or HIST 126

This course takes a historical approach to the development of modern philosophy and covers the period from the Renaissance to the 20th-century. The course will cover the epistemological, metaphysical and relevant axiological issues of the major philosophers and philosophical movements of this period. The course will also examine the influence of modern philosophy on contemporary thought. 3 hrs. lecture/wk.

Photography (PHOT)

PHOT 121

Fundamentals of Photography (3 CR)

This course provides an introduction to the tools, procedures, concepts and application of photographic imaging. Students will use cameras, light meters and darkroom equipment for film developing and printing to make images to meet the requirements of a series of assignments designed to develop specific skills, competencies and points of view and to stimulate the students' creative capacities for personal expression, communication and self-understanding.

Students must provide their own camera with adjustable focus, shutter speeds and aperture. 6 hrs. lecture, lab/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$150 to \$175.

PHOT 122

Advanced Photography (3 CR)

Prerequisite: PHOT 121

This course provides an introduction to advanced techniques, tools, procedures and concepts of photographic imaging, with an emphasis on black-and-white photography as a fine art. Students will use Zone System tests and procedures to produce prints of maximum quality. Students will use advanced techniques, such as split-developers for contrast control, multiple-imaging and archival processing, and print presentation. Several "alternative" printing processes will be discussed and demonstrated. This course also includes a basic introduction to medium format (2 1/4) and large format (4 x 5) camera equipment and technique. Students will apply the above to make images for a series of conceptually advanced, project/series-oriented assignments to stimulate the student's creative capacities for personal expression, communication and self-understanding. 6 hrs. lecture, lab/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$100 to \$150.

PHOT 123

Studio Photography (3 CR)

Prerequisite: PHOT 121

This course provides an introduction to advanced techniques, tools, procedures and concepts of studio and commercial photography. Students will use professional camera and studio equipment, including studio electronic flash and hand-held light/flash meters. This course also includes an introduction to professional medium format (2 1/4) and large format (4"x5") equipment and advanced camera techniques for total image control. Students will use studio lighting for various portraiture styles and for small-product, table-top photography. Applications of digital photography as they apply to studio photographic processes will be introduced. Students will apply the above to make images for a series of advanced studio assignments. 6 hrs. lecture, lab/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$75 to \$150.

PHOT 128

Digital Photography (3 CR)

This course is an introduction to the concepts, tools and technology of digital imaging for photographers. Students will develop competence in the use of digital photographic equipment, software, storage devices and printers to produce digital photographic images satisfying the requirements of a series of assignments designed to develop specific skills and competencies. Students will "capture," import, adjust, correct, transmit, store and output images. They will use digital imaging technology to produce photographs for visual communication and artistic expression. Ethics and cultural implications of the technology will be discussed. 6 hrs. integrated lecture/lab per/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$75 to \$150.

Students will have an opportunity to learn fundamental basketball skills through demonstration and discussion of strategies for team play. Emphasis is on individual participation. 2 hrs./wk. This course will meet the general education requirement for Health and/or Physical Education.

HPER 101

Basketball (Intermediate) (1 CR)

Prerequisite: HPER 100

Students will have an opportunity to learn intermediate basketball skills through demonstration and discussion of strategies for team play. This course will advance the skills of the student who successfully completed the beginning basketball course. Emphasis is on individual participation and competition team play. 2 hrs./wk. This course will meet the general education requirement for Health and/or Physical Education.

HPER 102

Navigation 102: Orientation at JCCC (1 CR)

This course is designed to help students transition from past experiences to college life. The topics will focus on four key areas, including practical life skills, wellness-related presentations, working with diverse individuals and groups, and academic skills enhancement. Thus, the goal of this course is to provide students with a valuable living and learning experience that equips them with the tools necessary to be academically successful and remain in school. This course will help students "navigate" through their first semester at JCCC. 2 hrs. lecture/wk. This course may be offered as a Learning Communities (LCOM) section, see current credit schedule for LCOM details. This course will not meet the general education requirement for Health and/or Physical Education.

HPER 103

Touch/Flag Football (1 CR)

The fundamentals of touch and flag recreational football will be introduced as well as strategies necessary for team play. 2 hrs./wk. This course will meet the general education requirement for Health and/or Physical Education.

HPER 104

Yoga (1 CR)

This class will utilize techniques from yoga which aim to provide mind/body benefits including better posture and increased body awareness. Muscular strength and flexibility will be developed through poses and positions. This class will be geared towards all students, both beginners as well as those who have previous training. 2 hrs. activity/wk. This course will meet the general education requirement for Health and/or Physical Education.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$12 to \$15.

HPER 105

Bowling (Beginning) (1 CR)

The student will have the opportunity to learn and practice the fundamentals of bowling. The student will be introduced to the history of the game, rules, equipment and lane specifications, scoring, handicap calculations, and operation of automatic scoring equipment. 2 hrs./wk. This course will meet the general education requirement for Health and/or Physical Education.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$0 to \$34.

HPER 107

Bowling (Intermediate) (1 CR)

Prerequisite: HPER 105

Physical Ed, Health & Rec (HPER)

HPER 100

Basketball (Beginning) (1 CR)

Students will demonstrate advanced fundamentals of bowling. The student will acquire advanced knowledge of the history of the game, rules, equipment and lane specifications. Intermediate to advanced bowling competition will be explored. 2 hrs./wk. This course will meet the general education requirement for Health and/or Physical Education.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$0 to \$34.

HPER 110

Racquetball (Beginning) (1 CR)

A brief history of rules and terminology of racquetball will be followed by instruction and actual practice and application of the fundamentals. 2 hrs./wk. This course will meet the general education requirement for Health and/or Physical Education.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$45 to \$200.

HPER 112

Racquetball (Intermediate) (1 CR)

Prerequisite: HPER 110

Students will review the rules and terminology of racquetball, as well as demonstrate the basic skills. The student will demonstrate skills and strategies in a competitive format and use the mental preparation and conditioning aspects of the game of racquetball. The intermediate racquetball student will apply skills in a competitive format. 2 hrs./wk. This course will meet the general education requirement for Health and/or Physical Education.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$45 to \$200.

HPER 115

Soccer (1 CR)

The fundamentals of soccer will be introduced as well as strategies necessary for team play. 2 hrs./wk. This course will meet the general education requirement for Health and/or Physical Education.

HPER 117

Power Volleyball (Beginning) (1 CR)

The basic skills of volleyball taught in this class include the forearm pass, overhead set, serve, block and spike (attacking). Elementary offense and defense along with volleyball rules, scoring and officiating will be covered. 2 hrs./wk. This course will meet the general education requirement for Health and/or Physical Education.

HPER 118

Power Volleyball (Intermediate) (1 CR)

Prerequisite: HPER 117

Students will have the opportunity to build upon the basic fundamentals of the Power Volleyball (Beginning) class. Intermediate skills, strategies, offensive and defensive systems and rules will be covered for six-player, four-player, three-player, and two-player volleyball. 2 hrs./wk. This course will meet the general education requirement for Health and/or Physical Education.

HPER 124

Tai Chi I (1 CR)

The class will introduce students to the practice of tai chi. Students will learn the basic structure, footwork, and breathing involved in the execution of routines consisting of a variety of postures. 2 hrs. activity/wk. This course will not meet the general education requirement for Health and/or Physical

Education.

HPER 130

Running Awareness and Exercise (1 CR)

The course will introduce the student to aerobic fitness through the activity of running. The training principles for running and competitive racing will be covered, and the individual will complete a personal running and/or racing training program. 2 hrs./wk. This course will meet the general education requirement for Health and/or Physical Education.

HPER 134

Weight Training (Beginning) (1 CR)

In this class, muscular strength and endurance will be developed through weight training activity. A workout program will be implemented for each student. The muscular system, basic terminology of weight training and weight training theory will be discussed. 2 hrs./wk. This course will meet the general education requirement for Health and/or Physical Education.

HPER 135

Weight Training (Intermediate) (1 CR)

Prerequisite: HPER 134

In this class, muscular strength and endurance will be developed. A self-designed and directed resistance workout program will be implemented. The proper use of a training log and personal fitness evaluation techniques will be discussed. 2 hrs./wk. This course will meet the general education requirement for Health and/or Physical Education.

HPER 137

Tennis (Beginning) (1 CR)

Students will get individualized instruction in this course on the rules, terminology and history of tennis. The student will receive instruction on the basic strokes of tennis, as well as the strategies of singles and doubles play. 2 hrs./wk. This course will meet the general education requirement for Health and/or Physical Education.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$30 to \$40.

HPER 138

Tennis (Intermediate) (1 CR)

Prerequisite: HPER 137

Students will review the rules, terminology and history of tennis. The student will receive instruction on the strokes of tennis, as well as the strategies of singles and doubles play in a competitive format. Emphasis will be on the mental and physical conditioning of the game. 2 hrs./wk. This course will meet the general education requirement for Health and/or Physical Education.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$30 to \$40.

HPER 140

Modern Dance (Beginning) (1 CR)

This course emphasizes the movement between positions rather than the picture-perfect poses of ballet and other dance styles. Moving through space off of and onto the floor, breathing and moving improvisationally will be explored. 2 hrs./wk. This course will meet the general education requirement for Health and/or Physical Education.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$12 to \$40.

HPER 142**Modern Dance (Intermediate) (1 CR)**

Prerequisite: HPER 140

A continuation of Modern Dance (Beginning), this course presents more difficult and longer movement combinations. Students further explore their creativity through elements of improvisations, choreography and performance while gaining greater muscular flexibility and strength. 2 hrs./wk. This course will meet the general education requirement for Health and/or Physical Education.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$12 to \$40.

HPER 150**Aerobics (Beginning) (1 CR)**

Motor skills, jogging and dance steps are combined in this exercise program to improve muscle tone and cardiovascular fitness. 2 hrs. wk. This course will meet the general education requirement for Health and/or Physical Education.

HPER 152**Aerobics (Intermediate) (1 CR)**

Prerequisite: HPER 150

The motor skills, jogging and dance steps are performed at faster pace for a longer period of time than in Aerobics (Beginning). The course will introduce the student to the fitness benefits from increased duration and intensity of aerobic activities. 2 hrs./wk. This course will meet the general education requirement for Health and/or Physical Education.

HPER 155**Ballet (Beginning) (1 CR)**

This progressive ballet system is designed to produce muscular strength and flexibility and a working knowledge of anatomy, plus the aesthetic satisfaction of expressing yourself through a classical art form. Offered to students of all ages and experience, both beginners as well as those who have had some training. 2 hrs./wk. This course will meet the general education requirement for Health and/or Physical Education.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$17 to \$30.

HPER 157**Ballet (Intermediate) (1 CR)**

Prerequisite: HPER 155

A continuation of Beginning Ballet, this progressive ballet system explores multilayered ballet movement in simple dance combinations. 2 hrs./wk. This course will meet the general education requirement for Health and/or Physical Education.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$17 to \$30.

HPER 158**Jazz Dance (Beginning) (1 CR)**

An introduction to the concepts and motor skills involved with jazz dance. Basic body position will be introduced as well as basic terminology, jazz history, various jazz styles and the basic techniques involved, isolations, combinations, choreography and rhythmic influences. 2 hrs./wk. This course will meet the general education requirement for Health and/or Physical Education.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$7 to

\$30.

HPER 159**Jazz Dance (Intermediate) (1 CR)**

Prerequisite: HPER 158 or equivalent

A continuation of Beginning Jazz Dance, this course will require students to assimilate and execute more difficult isolated dance moves as well as use the basic skills acquired in Beginning Jazz Dance to perform complex dance sequences to a variety of music. 2 hrs./wk. This course will meet the general education requirement for Health and/or Physical Education.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$7 to \$30.

HPER 163**Ballroom Dance (Beginning) (1 CR)**

This is an introduction to ballroom dance with emphasis on basic patterns and fundamental steps of the waltz, fox trot, swing, polka and cha-cha. Common rules of dance courtesy and a brief overview of ballroom dance history will be included. Music or dance background is not necessary. 2 hrs./wk. This course will meet the general education requirement for Health and/or Physical Education.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$20 to \$40.

HPER 165**Karate I (1 CR)**

The student will receive instruction in the basic fundamentals of karate, including stances, blocks, kicks, strikes and self-defense techniques. 2 hrs./wk. This course will meet the general education requirement for Health and/or Physical Education.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$20 to \$30.

HPER 166**Karate II (1 CR)**

Prerequisite: HPER 165

The student will review the skills from the prerequisite course of Karate I. Students will demonstrate techniques that include the moving block, kicks and positions for karate. The course will also cover combination moves as well as the defensive technique. 2 hrs./wk. This course will meet the general education requirement for Health and/or Physical Education.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$20 to \$30.

HPER 167**Karate III (1 CR)**

Prerequisite: HPER 166

Students will have the opportunity to achieve higher levels of proficiency, routines, kumite (sport/free fighting) and self-defense. 2 hrs./wk. This course will meet the general education requirement for Health and/or Physical Education.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$20 to \$30.

HPER 168**Karate IV (1 CR)**

Prerequisite: HPER 167 Note: Beginning Japanese is a suggested prerequisite

Students in this course will have the opportunity to achieve the advanced level of karate in the following: taiko (exercise), kata (forms), kumite (sport/free fighting) and self-defense application. 2 hrs./wk. This course will meet the general education requirement for Health and/or Physical Education.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$20 to \$30.

HPER 172

Track and Field (Beginning) (1 CR)

This course will introduce the student to the sport of track and field. Through activity and discussion the student will improve his or her motor ability to perform track and field events. 2 hrs./wk. This course will meet the general education requirement for Health and/or Physical Education.

HPER 174

Coaching and Officiating of Track and Field (2 CR)

Students will have the opportunity to learn the fundamentals of coaching and officiating track and field events. Upon successful completion of the course, students will be prepared for USATF Level 1 certification. 2 hrs./wk. This course will not meet the general education requirement for Health and/or Physical Education.

HPER 175

Fencing (1 CR)

Beginning foil fencing will provide the student with the fundamental rules and techniques of foil fencing. The student will utilize these skills in a fencing bout. The student will also be instructed in the rules and procedures of officiating foil fencing. 2 hrs./wk. This course will meet the general education requirement for Health and/or Physical Education.

HPER 176

Self Defense I (1 CR)

The class will present students with a variety of techniques for escaping a physical attack. Students will receive an introduction to the four ranges of self defense: ground, grappling, striking, and weapons. Students will learn the principles that apply in any self defense situation and the basic positions and structure of each range. The class is appropriate for beginners as well as those with previous self defense or martial arts training. 2 hrs. activity/wk. This course will not meet the general education requirement for Health and/or Physical Education.

HPER 177

Self Defense II (1 CR)

Prerequisite: HPER 176

This class will build on techniques introduced in Self Defense I, adding new techniques, combining techniques, and applying the techniques in a variety of scenarios. Emphasis remains on the principles that apply at any range as well as drills to develop proper structure and mechanics. 2 hrs. activity/wk.

HPER 180

Fencing (Intermediate) (1 CR)

Prerequisite: HPER 175

Intermediate fencing will provide the student with advanced techniques and rules of foil fencing and with fundamental techniques and rules of epee fencing. The student will utilize these skills in a fencing competition. The student will also be instructed in the rules and procedures of refereeing foil fencing and organization of fencing competitions. 2 activity hrs./wk. This course will meet the general education requirement for Health and/or Physical

Education.

HPER 182

Swimming (Beginning) (1 CR)

Students in beginning swimming will learn basic swimming skills and safety information that are fundamental to safe swimming performance. 2 hr./wk. This course will meet the general education requirement for Health and/or Physical Education.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$25 to \$80.

HPER 183

Swimming (Intermediate) (1 CR)

Prerequisite: HPER 182 or the equivalent

Students in intermediate swimming will learn more advanced swimming strokes, skills and safety information along with increasing personal fitness levels through continuous endurance swimming. 2 hr./wk. This course will meet the general education requirement for Health and/or Physical Education.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$25 to \$80.

HPER 185

Archery (1 CR)

Students will receive individualized instruction in the basic skills of archery as a recreational sport lending itself as a lifetime leisure interest. Safety, fundamental care and usage of archery tackle and beginning archery skills will be taught along with a survey of the history of archery. 2 hrs./wk. HPER 185 Archery classes will meet in the lobby in the gym building by room 116. This course will meet the general education requirement for Health and/or Physical Education.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$10 to \$20.

HPER 190

Golf (1 CR)

The beginning golfer will be given instruction in the rules of and basic swing fundamentals for the game of golf. Proper golf equipment, proper use of this equipment and golf etiquette will be reviewed. 2 hrs./wk. This course will meet the general education requirement for Health and/or Physical Education.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$80 to \$400.

HPER 192

Wellness for Life (1 CR)

This course introduces students to the theory and principles upon which the concepts of lifetime fitness and wellness are based. Students will examine the relationship that exists between wellness and lifestyle behaviors. Individual self-assessments will be used to establish current health and fitness levels. 1 hr./wk. This course will meet the general education requirement for Health and/or Physical Education.

HPER 194

Sports Conditioning (Beginning) (1 CR)

Students will have the opportunity to learn the fundamentals of general and sports specific conditioning. All aspects of physical and psychological development are incorporated in this class. Strength, power, speed, acceleration, muscular hypertrophy and endurance, cardiovascular endurance, motor skills and agility drills are taught and practiced. The class will include

general physical preparation sport fitness, plyometrics, agility drills and sport-related specific conditioning. The students will learn about the principle of year-round conditioning, including conditioning appropriate to the off-season, preparatory period, pre-competition period and competition period. 2 hrs./wk. This course will meet the general education requirement for Health and/or Physical Education.

HPER 195

Introduction to Sports Medicine (3 CR)

The purpose of this class is to introduce the basic concepts of sports medicine, specifically Athletic Training. It will address the fundamentals of the human musculoskeletal system, sports related injuries, injury treatment, and other sports medicine related topics. This class is designed for beginning athletic training students and other students interested in the subject. 3 hrs. lecture/wk. This course will not meet the general education requirement for Health and/or Physical Education.

HPER 197

Sports Conditioning (Intermediate) (1 CR)

Prerequisite: HPER 194

Students will have the opportunity to build upon principles and practices of general and sports-specific conditioning learned in Beginning Sports Conditioning. All aspects of physical and psychological development are incorporated in this class. Strength, power, speed, acceleration, muscular hypertrophy and endurance, cardiovascular endurance, motor skills and agility drills are taught and practiced. The class will include general physical preparation, sport fitness and conditioning. Students will continue to learn about the principle of year-round conditioning, including conditioning appropriate to the off-season, preparatory period, pre-competition period and competition period. 2 hrs./wk. This course will meet the general education requirement for Health and/or Physical Education.

HPER 198

Athletic Training Practicum I (1 CR)

Corequisite: HPER 195

At the conclusion of this practicum, the student will be able to explain and demonstrate a variety of basic principles and practices in athletic training, including the essentials of record keeping, athletic injury taping and strapping techniques, an introduction to the supervised use of and safety procedures for therapeutic modalities and therapeutic exercise equipment. Major anatomical landmarks and basic anatomy of the major joints of the human body will be identified and palpated. This practicum, intended for athletic training and other allied health students, will be hands-on and conducted under the direct supervision of a certified/licensed athletic trainer. This course may require a professional liability fee of \$16.00. Students will be notified via their JCCC student e-mail account if the fee is due and instructions on how to pay the fee. 16 hrs. lecture, 112 hrs. practicum This course will not meet the general education requirement for Health and/or Physical Education.

HPER 200

First Aid and CPR (2 CR)

After completing this course, students should be able to perform the basic skills of first aid. The course will cover cause, prevention and first aid care of common emergencies. Certification may be earned in first aid, cardiopulmonary resuscitation and Automated External Defibrillators (AED). 2 hrs./wk. This course will meet the general education requirement for Health and/or Physical Education.

HPER 202

Personal Community Health (3 CR)

This course is designed to provide the student with the knowledge and understanding to make positive, healthy lifestyle choices. In addition, students will learn about issues within the community that affect their daily health both

directly and indirectly. 3 hrs./wk. This course will meet the general education requirement for Health and/or Physical Education.

HPER 204

Care and Prevention of Athletic Injury (3 CR)

Care and Prevention of Athletic Injuries will focus on recognition, evaluation, treatment, and recording of common athletic injuries. Human anatomy will be emphasized through the understanding of athletic movements and physical testing. Additional topics include legal and ethical practices for the athletic trainer and the psychology of today's competitive athlete. Care and Prevention of athletic Injuries is the basic sports medicine class required by most exercise science and coaching degree programs. 3 hrs./wk. This course will not meet the general education requirement for Health and/or Physical Education.

HPER 205

Individual Lifetime Sports (2 CR)

This course provides a basic knowledge of several individual lifetime sports including badminton, bowling, golf, racquetball and tennis. Students will learn fundamental skills for each sport as well as history, benefits, equipment, rules, etiquette, safety, scoring and strategy. 3 hrs./wk. Fall. This course will meet the general education requirement for Health and/or Physical Education.

HPER 207

Athletic Training Practicum 2 (2 CR)

Prerequisites: HPER 195 and HPER 198 and BIOL 140 and BIOL 225 and Corequisite: HPER 204

At the conclusion of this practicum, the student will be able to explain and demonstrate the basic theories supporting the uses of therapeutic modalities and therapeutic exercise, and the evaluation/assessment of injuries to athletes. The student will demonstrate a functional understanding of the major muscle groups of the human body. The student will be able to discuss and explain the duties and responsibilities of a certified athletic trainer (ATC). Direct work with specific athletic teams will facilitate the practicum. This practicum will be hands-on, and conducted under the direct supervision of a certified/licensed athletic trainer. This class is intended for athletic training and other allied health students. This course may require a professional liability fee of \$16.00. Students will be notified via their JCCC student e-mail account if the fee is due and instructions on how to pay the fee. 16 lecture 304 practicum hrs. This course will not meet the general education requirement for Health and/or Physical Education.

HPER 208

Introduction to Exercise Physiology (3 CR)

This introduction to exercise physiology will introduce the effects of exercise on the muscular system, the cardiovascular system and the metabolic system. The course will prepare the student in the design of and principles for an individual exercise program. 3 hrs./wk. This course will not meet the general education requirement for Health and/or Physical Education.

HPER 217

Coaching and Officiating Basketball (2 CR)

This course introduces students to the theory and principles of coaching basketball and the rules and mechanics of officiating. Students will have the opportunity to learn how to organize, coach and plan daily practice sessions. 2 hrs./wk. This course will not meet the general education requirement for Health and/or Physical Education.

HPER 220

Sports Officiating (3 CR)

The rules and practical application of officiating will be covered for the following sports: volleyball, football, basketball, baseball and softball. 3 hrs./wk. This course will not meet the general education requirement for

Health and/or Physical Education.

HPER 224

Outdoor Recreation (3 CR)

This course introduces the student to activities that create interaction between the individual and/or individuals and elements of the outdoor recreational setting. Outdoor Recreation Students plan activity projects such as camping, hiking, nature observation and biking. 3 hrs./wk. or, may be taught online for 16 weeks. This course will not meet the general education requirement for Health and/or Physical Education.

HPER 240

Lifetime Fitness I (1 CR)

This course is designed to provide an effective exercise circuit system to help the student develop overall muscle tone and cardiovascular conditioning. Handouts emphasizing the value of developing a total lifetime fitness attitude and optional lectures are available to enhance the student's knowledge of the benefits of a lifetime fitness program. This course requires an initial orientation/assessment. After the assessment, the class becomes an open-lab format by arrangement. 2 hrs./wk. This course will meet the general education requirement for Health and/or Physical Education.

HPER 241

Lifetime Fitness II (1 CR)

Prerequisite: HPER 240

This course is a continuation and expansion of Lifetime Fitness I. 2 hrs./wk., open-lab format by arrangement. This course will meet the general education requirement for Health and/or Physical Education.

HPER 242

Lifetime Fitness III (1 CR)

Prerequisite: HPER 241

This course is a continuation and expansion of Lifetime Fitness II. 2 hrs./wk., open-lab format by arrangement. This course will meet the general education requirement for Health and/or Physical Education.

HPER 243

Lifetime Fitness IV (1 CR)

Prerequisite: HPER 242

This course is a continuation and expansion of Lifetime Fitness III. 2 hrs./wk., open-lab format by arrangement. This course will meet the general education requirement for Health and/or Physical Education.

HPER 245

Elementary Physical Education (3 CR)

This course is designed to meet the needs of students who wish to teach in the area of elementary physical education and/or elementary education. This course will provide the students with knowledge and background in planning, classroom management techniques, teaching methodology, legal liability, evaluation, wellness, special students, sports, and games related to elementary physical education. The course will include observation and teaching. 3 hrs./wk. This course will not meet the general education requirement for Health and/or Physical Education.

HPER 255

Introduction to Physical Education (3 CR)

This course will introduce the student to the field of physical education and sport. This course will discuss the historical, biomechanical, physiological and psychological foundations of physical education and sport. It will examine the

role of physical activity as a means to help individuals acquire the skills, fitness levels and knowledge that contribute to the arena of physical development and organized competition. It will also discuss the role physical education and sports play in our society. Each individual will develop a personal philosophy for physical education and sports. 3 hrs./wk. This course will meet the general education requirement for Health and/or Physical Education.

Physical Science (PSCI)

PSCI 120

Physical Science (4 CR)

This course is an introduction to the fundamental concepts and principles of physics, chemistry, geology and astronomy. Topics include energy, electricity, magnetism, modern physics and chemical bonding. It is counted toward laboratory science requirements and is intended for non-science majors. It includes presentation of material using audiovisual, computer and other multimedia aids. Three hours of class and three hours of work in a scheduled lab are required each week. 3 hrs. lecture, 3 hrs. lab/wk.

Physical Therapist Assistant (KPT)

KPT 102

Basic Emergency Patient Care (1 CR)

Current cardiopulmonary resuscitation skills, including adult, child and infant resuscitation according to American Heart Association standards. Medical and environmental emergencies review. (Successful completion of the course qualifies the student for the Basic Life Support Course Certification.) 1 hr. lecture/wk. Course taught at Penn Valley Community College. Students should contact the Penn Valley coordinator of the physical therapist assistant program about the class meeting times and beginning and ending dates of classes. Call 816-759-4000.

KPT 151

Introduction to Physical Therapy (2 CR)

Introduction to the basic concepts of the function of a physical therapist and physical therapist assistant as members of the health team and interaction of health care disciplines in the care of the patient. Overview of physical therapy practice, terms, and current issues. Effective interaction with others related to implementation of the physical therapy plan of care. Medical terminology related to the specific discipline. 2 hrs. lecture/wk. Course taught at Penn Valley Community College. Students should contact the Penn Valley coordinator of the physical therapist assistant program about the class meeting times and beginning and ending dates of classes. Call 816-759-4000.

KPT 152

Physical Therapy Fundamentals I (4 CR)

Prerequisite: Formal acceptance into the program.

Basic patient care skills utilized by the physical therapist assistant in carrying out the plan of care established by the physical therapist. Theory and application of basic treatment modalities used in physical therapy, including indications and contraindications. Field trips to observe the clinic and its modalities. 2.5 hrs. lecture, 3 hrs. lab/wk. Course taught at MCC-Penn Valley Community College. Students should contact the Penn Valley coordinator of the physical therapist assistant program about the class meeting times and beginning and ending dates of classes. Call 816-759-4000.

KPT 153**Kinesiology (4 CR)**

Prerequisites: BIOL 144, BIOL 145, KPT 152 and KPT 160

Anatomy and function of the musculoskeletal system. Analysis of various daily activities. Application of data collection techniques to monitor effectiveness of physical therapy interventions as outlined in the plan of care established by the supervising physical therapist. 2 hrs. lecture, 4 hrs. lab/wk. Course taught at MCC-Penn Valley Community College. Students should contact the Penn Valley coordinator of the physical therapist assistant program about the class meeting times and beginning and ending dates of classes. Call 816-759-4000.

KPT 154**Applied Neurology (2 CR)**

Prerequisites: BIOL 144 and BIOL 145, MCC BIOL 210 and admission to OTHA or PTHA program.

Foundations of neuroscience necessary for practice as a rehabilitation professional. Anatomy and function of the nervous system. Correlation of clinical problems with pathology of the nervous system. 2 hrs. lecture/wk. Course taught at MCC-Penn Valley Community College. Students should contact the Penn Valley coordinator of the physical therapist assistant program about the class meeting times and beginning and ending dates of classes. Call 816-759-4000.

KPT 155**Rehabilitation (4 CR)**

Prerequisite: KPT 162

Introduction to the underlying theory, principles, and application of interventions involved in physical rehabilitation. Field trips are required. 3 hrs. lecture, 2 hrs. lab/wk. Course taught at MCC-Penn Valley Community College. Students should contact the Penn Valley coordinator of the physical therapist assistant program about the class meeting times and beginning and ending dates of classes. Call 816-759-4000.

KPT 158**Therapeutic Exercise (4 CR)**

Prerequisite: KPT 162

Introduction to the theory and principles of application of therapeutic exercise, including patient instruction, manual techniques and equipment commonly used by the physical therapist assistant. Field trips to learn various specialized techniques. 2 hrs. lecture, 4 hrs. lab/wk. Course taught at MCC-Penn Valley Community College. Students should contact the Penn Valley coordinator of the physical therapist assistant program about the class meeting times and beginning and ending dates of classes. Call 816-759-4000.

KPT 159**Orthopedic Pathology (2 CR)**

Prerequisites: BIOL 144, BIOL 145, KPT 152 and KPT 160

Orthopedic pathologies commonly seen in physical therapy practice, diagnosis, signs and symptoms, physiological factors and common interventions associated with the physical therapy plan of care. 2 hrs. lecture/wk. Course taught at MCC-Penn Valley Community College. Students should contact the Penn Valley coordinator of the physical therapist assistant program about the class meeting times and beginning and ending dates of classes. Call 816-759-4000.

KPT 160**Medical Diseases (2 CR)**

Prerequisites: Formal acceptance into the program.

Medical diseases commonly seen in physical therapy practice; diagnosis, signs

and symptoms, physiologic factors and common interventions associated with the physical therapy plan of care. 2 hrs. lecture/wk. Course taught at MCC-Penn Valley Community College. Students should contact the Penn Valley coordinator of the physical therapist assistant program about the class meeting times and beginning and ending dates of classes. Call 816-759-4000.

KPT 161**Physical Therapy Fundamentals II (4 CR)**

Prerequisites: BIOL 144, BIOL 145, KPT 152, and KPT 160

Introduction to the theory and practical application of electrotherapy, patient documentation, patient care skills, and selected modalities, including indications and contraindications for use. 2.5 hrs. lecture, 3 hrs. lab/wk. Course taught at MCC-Penn Valley Community College. Students should contact the Penn Valley coordinator of the physical therapist assistant program about the class meeting times and beginning and ending dates of classes. Call 816-759-4000.

KPT 162**Clinical Experience I (2 CR)**

Prerequisites: KPT 153, KPT 154, KPT 159, KPT 161, and KPT 102

Supervised clinical experience in the practical application of techniques and procedures covered in all previous physical therapist assistant courses. Assisting physical therapists and physical therapist assistants in treatment of patients in a variety of clinical settings. 5 hrs. clinical/wk. Course taught at MCC-Penn Valley Community College. Students should contact the Penn Valley coordinator of the physical therapist assistant program about the class meeting times and beginning and ending dates of classes. Call 816-759-4000.

KPT 164**Pediatrics and Gerontology (2 CR)**

Prerequisite: KPT 162

Specialized information related to the treatment of pediatric and older adult populations. 2 hrs. lecture/ wk. Course taught at MCC-Penn Valley Community College. Students should contact the Penn Valley coordinator of the physical therapist assistant program about the class meeting times and beginning and ending dates of classes. Call 816-759-4000.

KPT 170**Clinical Experience II (2 CR)**

Prerequisites: KPT 162 and concurrent enrollment in KPT 155, KPT 158, KPT 164 and KPT 171

Supervised clinical experience in the practical application of techniques and procedures covered in all previous KPT courses. Assisting physical therapists and physical therapist assistants in the treatment of patients in a variety of clinical settings. 5 hrs. clinical/wk. Course taught at MCC-Penn Valley Community College. Students should contact the Penn Valley coordinator of the physical therapist assistant program about the class meeting times and beginning and ending dates of classes. Call 816-759-4000.

KPT 171**Clinical Seminar (2 CR)**

Prerequisite: KPT 162

This course contains current professional and patient care issues and values, administrative policies and procedures, and related clinical topics associated with the practice of physical therapy. Service learning projects required. 2 hrs. lecture/wk. Course taught at MCC-Penn Valley Community College. Students should contact the Penn Valley coordinator of the physical therapist assistant program about the class meeting times and beginning and ending dates of classes. Call 816-759-4000.

KPT 172

Clinical Experience III (12 CR)

Prerequisites: Completion of all other required courses in the KPT program

Practical application of principles learned in prior coursework. Experience rotation internships in selected clinical sites under the guidance of a physical therapist. 40 hrs. field studies/wk. Course taught at MCC-Penn Valley Community College. Students should contact the Penn Valley coordinator of the physical therapist assistant program about the class meeting times and beginning and ending dates of classes. Call 816-759-4000.

KPT 173

Special Topics (2 CR)

Prerequisites: Completion of all previous semesters of physical therapy and biology coursework with a minimum grade of "C"

This course presents specialized topics in physical therapy and the administration of health care. 1 hr. lecture/wk.

Physics (PHYS)

PHYS 130

General Physics I (5 CR)

Prerequisite: MATH 171 or assessment scores

In this introductory course for pre-professional and general education, students will learn the fundamentals of selected areas of classical physics. Using the tools of algebra and trigonometry, the course develops the topics of mechanics, heat and thermodynamics, and concludes with waves. The two-semester PHYS 130/131 sequence is designed to meet the requirements of area pre-professional programs. This is a transfer course that meets the college's requirements for associate's degree programs and also meets transfer requirements of area colleges and universities. This course does not normally fulfill the requirement of engineering programs. The course includes an integrated laboratory component the completion of which is a necessary part of the total instructional package. 4 hrs. lecture, 3 hrs. lab/wk.

PHYS 131

General Physics II (5 CR)

Prerequisite: PHYS 130

In this introductory course for pre-professional and general education, students will learn the fundamentals of selected areas of classical physics. Using the tools of algebra and trigonometry, the course develops the topics of electricity and magnetism, light and optics and some elements of modern physics, such as relativity and quantum physics. The two-semester PHYS 130/131 sequence is designed to meet the requirements of area pre-professional programs. This is a transfer course that meets the college's requirements for associate's degree programs and also meets transfer requirements of area colleges and universities. This course does not normally fulfill the requirement of engineering programs. The course includes an integrated laboratory component the completion of which is a necessary part of the total instructional package. 4 hrs. lecture, 3 hrs. lab/wk.

PHYS 133

Applied Physics (5 CR)

Prerequisite: MATH 135 or higher

This is a one-semester, comprehensive physics course intended for students enrolled in the biotechnology certificate program or an associate of applied science degree program. The course will cover all areas of applied physics, including mechanics, heat, thermodynamics, waves, electricity, magnetism, light, optics and some elements of modern physics. Emphasis will be placed on

concepts and applications to real-life problems. This course includes an integrated laboratory component the completion of which is a necessary part of the total instructional package. 4 hrs. lecture, 3 hrs. lab/wk.

PHYS 191

Math & Physics for Games I (4 CR)

Prerequisite: MATH 171 or MATH 173 with grade of "C" or higher or appropriate score on math assessment test and CS 200

This introductory course focuses on the mathematics and physics concepts needed to program a variety of video game scenarios. Students will learn to use vectors and matrix transformations to model the motion of physical objects in two and three dimensions. Students will also learn various computer programming methods in order to model these mathematical and physical concepts. 3 hrs. lecture and 2 hrs. lab/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$0 to \$100.

PHYS 220

Engineering Physics I (5 CR)

Prerequisite or corequisite: MATH 242

This is an introduction to physics for engineering and science students. Included will be mathematical approaches to the study of mechanics, wave motion and thermodynamics. 4 hrs. lecture, 3 hrs. lab/wk.

PHYS 221

Engineering Physics II (5 CR)

Prerequisites: PHYS 220 and MATH 242

This is an introduction to physics for engineering and science students. Included are mathematical approaches to the study of electricity, magnetism, sound, optics and modern physics. 4 hrs. lecture, 3 hrs. lab/wk.

Political Science (POLS)

POLS 122

Political Science (3 CR)

This course provides students the opportunity to explore the discipline of political science and to discover how political scientists study politics in the contemporary world. 3 hrs. lecture/wk. and online

POLS 124

American National Government (3 CR)

This course examines the components of the public policy-making process. Topics of study include American political culture, constitutional principles, intergovernmental relations, public opinion, political parties, interest groups, media, the influence of the constant campaign of candidate-centered politics, budget construction, bureaucracy, and decision-making institutions. 3 hrs./wk. and online. This course may be offered as a Learning Communities (LCOM) section, see current credit schedule for LCOM details.

POLS 126

State and Local Government (3 CR)

This course examines the executive, legislative, judicial and service functions of state and local government in the United States in general and in Kansas in particular. The course includes guest lectures by elected officials, government personnel and community activists. 3 hrs./wk. This course is typically offered only once each academic year.

POLS 132

Introduction to Comparative Government (3 CR)

This course compares the different political structures of many of the world's most important countries, including economic development, patterns of government and administration, party structures and policy formation. 3 hrs. wk. or online.

POLS 135

International Relations (3 CR)

This course analyzes the conflict and cooperation among nation-states. Students will study contemporary problems and how they relate to power, war, terrorism, diplomacy, international organizations and the future of the nation-state system. 3 hrs./wk. and online

POLS 200

Model United Nations (3 CR)

This course is designed for students who are interested in learning and understanding international organizations and participating in competitive intercollegiate Model United Nations. This course orients students with the history, structure and function of the United Nations and those facets of an assigned country. This orientation will assist students in their preparation for the Model United Nations (MUN) conference during the spring semester. 3 hrs lecture/wk.

POLS 210

Methodology in Social Sciences (3 CR)

Prerequisite: PSYC 130 or SOC 122 or ECON 230 or POLS 122

This course deals with scientific research methods utilized in the social sciences, especially psychology, sociology, political science and anthropology. The course examines a wide range of data collection methodologies including observation, questionnaire construction, and controlled experimentation. The course will be beneficial for analyzing and evaluating the quality of research findings reported in both the popular and academic press. It will also be useful to those who plan to engage in occupations requiring the use of research methodology. This course may not be offered every semester. POLS 210, PSYC 210 and SOC 210 are the same course. Do not enroll in more than one of these three courses. This course is a required corequisite for PSYC 230 Personality Theory. 3 hrs./wk.

POLS 245

Introduction to Public Administration (3 CR)

This course provides students the opportunity to explore public administration and public policy including institutional arrangements for the provision of public services and the study of those arrangements. 3 hrs. lecture/wk.

POLS 270

Political Science Internship (3 CR)

Prerequisite and/or corequisite: By permission of the political science internship coordinator, completion of 6 credit hours in political science courses at JCCC or another college within the last two years, earning a minimum of a 3.0 on a 4.0 scale in those political science courses, and a written recommendation from your political science classroom instructor. Students must complete all necessary arrangements for this program the semester prior to the internship.

Students augment their academic course work with an internship in an appropriate setting under instructional supervision. Internship projects are cooperative efforts between appropriate supervisors in state, local or national government settings or not-for-profit organizations and college staff and students. Internships give students the opportunity to participate in the real-world application of their academic studies. In addition, this synthesis of classroom study with practical experience provides students with skills and insights useful in selecting a career or avocation in community service. The

student spends the equivalent of 10 hours per week performing internship duties over the course of the semester or a total of 150 hours.

Polysomnography/Sleep Tech (PSG)

PSG 125

Introduction to Sleep Medicine (4 CR)

Prerequisite: Admission to the polysomnography program Corequisite: Current AHA BLS Health Care Provider Certification

This course is an introduction to the history of sleep medicine. It also explores the role and the communication, time management, infection control, basic patient assessment, safety and professional expectations of the polysomnographic technologist. Students will have the opportunity to have direct observation in an associated sleep center or lab. Enrollment in certain courses may require a professional liability fee of \$16.00. Students will be notified via their JCCC student e-mail account if the fee is due and instructions on how to pay the fee. 4 hrs. integrated lecture/lab each week and 48 clinical hrs./semester

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$50 to \$150.

PSG 130

Physiology of Sleep Medicine (3 CR)

Prerequisite: Admission to the polysomnography

This course will provide a comprehensive study of neuroanatomy and physiology and normal sleep mechanisms. It will also provide an overview of the cardiovascular and respiratory anatomy and physiology as it relates to sleep medicine. This includes ECG interpretation, oxygenation and ventilation assessment, and mechanisms and basic management of breathing. 3 hrs. lecture/wk.

PSG 140

Sleep Disorders (4 CR)

Prerequisites: PSG 125 with a grade of "C" or higher and PSG 130 with a grade of "C" or higher and Corequisite: Current AHA BLS for Health Care

This course is designed to provide the basic information related to the disease processes and conditions which adversely effect sleep. The etiologies, clinical presentation, diagnosis and therapeutic interventions will be covered for each condition. 3 hrs. lecture and 48 clinical hrs./semester

PSG 145

Sleep Study Instrumentation (4 CR)

Prerequisites: PSG 125 with a grade of "C" or higher and PSG 130 with a grade of "C" or higher

This course will introduce the bio-potential electrophysiologic, polysomnographic, and ancillary equipment involved in patient assessment and the conducting of sleep studies. The basic principles, set up, operation, maintenance, cleaning and troubleshooting will be emphasized. 6 hrs. integrated lecture lab./wk.

PSG 150

Polysomnography I (4 CR)

Prerequisites: PSG 125 with a grade of "C" or higher and PSG 130 with a grade of "C" or higher and Prerequisites or Corequisites: PSG 140 with a grade of "C" or higher and PSG 145 with a grade of "C" or higher

This course provides the didactic preparation that will be needed to supplement the clinical experiences of Polysomnography Clinical I. Students

will develop new knowledge and skills related to patient and equipment preparation, monitoring and documentation and therapeutic interventions associated with polysomnographic procedures. 6 hrs. integrated lecture lab./wk.

PSG 245

Polysomnography Clinical I (6 CR)

Prerequisites: PSG 140 with a grade of "C" or higher and PSG 145 with a grade of "C" or higher and PSG 150 with a grade of "C" or higher and
Corequisites: Current AHA BLS Health Care Provider Certification

This course is the clinical application of entry-level sleep related diagnosis and treatment. Students will have the opportunity to work with patients under close supervision to further develop their skill and understanding of basic polysomnographic procedures. Enrollment in certain courses may require a professional liability fee of \$16.00. Students will be notified via their JCCC student e-mail account if the fee is due and instructions on how to pay the fee. 24 hrs. clinic/wk.

PSG 250

Polysomnography II (4 CR)

Prerequisite: PSG 150 with a grade of "C" or higher

This course provides the didactic preparation that will be needed to supplement the clinical experiences of Polysomnography Clinical II. Students will refine knowledge and skills related to patient and equipment preparation, monitoring and documentation and therapeutic interventions associated with polysomnographic procedures. 6 hrs. integrated lecture lab/wk.

PSG 255

Polysomnography Clinical II (6 CR)

Prerequisites: PSG 245 with a grade of "C" or higher and PSG 250 with a grade of "C" or higher and
Corequisites: Current AHA BLS Health Care Provider Certification

This course is the clinical application of sleep related diagnosis and treatment. Students will have the opportunity to further refine their skills in obtaining and evaluating high quality sleep recordings and gaining clinical competence associated with advanced-level polysomnographic technology skills. Enrollment in certain courses may require a professional liability fee of \$16.00. Students will be notified via their JCCC student e-mail account if the fee is due and instructions on how to pay the fee. 24 hrs. clinical/wk.

PSG 265

Polysomnography Capstone (3 CR)

Prerequisite or Corequisite: PSG 255 with a grade of "C" or higher

This course is designed as a capstone experience to facilitate final preparation for employment and the BRPT examination for the RPSGT credential. Students will demonstrate knowledge and skill competency attainment expected of a polysomnographic technologist. Students will also be required to pass a comprehensive exam based on the current BRPT matrix. 5 hrs. integrated lecture lab./wk.

Practical Nursing (PN)

PN 120

Introduction to Practical Nursing (2 CR)

Prerequisites: Admission to the Practical Nursing Program; current certification in Kansas as Certified Nursing Assistant (CNA); Cardiopulmonary Resuscitation Certification (CPR) for Health Care Providers; and BIOL 144 and PSYC 130 and PSYC 218. *Corequisites:* PN 125 and PN 126 and PN 130 and PN 131 and PN 135 Must maintain a grade

of "C" or higher in all corequisites to remain in the program

This course is the first in a sequence of practical nursing courses. Emphasis is placed on the evolution of nursing practice and education, the importance of professionalism and demonstration in use of medical terminology, basic mathematic skills, and basic nursing care. Course instruction will occur in the classroom and laboratory setting. The in-state tuition is \$116, and the out-of-state tuition is \$438. 15 hrs. lecture, 21 hrs. lab/per semester
Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$70 to \$100.

PN 125

KSPN Foundations of Nursing (4 CR)

Corequisites: PN 120 and PN 126 and PN 130 and PN 131 and PN 135 Must maintain a grade of "C" or higher in all corequisites to remain in the program.

This course utilizes the nursing standards of practice based on principles of biology, psychosocial, spiritual and cultural to meet the needs of clients throughout the lifespan. Emphasis is placed on basic nursing skills, client safety and therapeutic communication. Concepts and skills are enhanced in subsequent courses. The in-state tuition is \$232, and the out-of-state tuition is \$876. 60 hrs lecture/semester

PN 126

KSPN Foundations of Nursing Clinical (2 CR)

Corequisites: PN 120 and PN 125 and PN 130 and PN 131 and PN 135. Must maintain a grade of "C" or higher in all corequisites to remain in the program.

The art and science of nursing are explored in this clinical course. Emphasis is placed on the nursing process, cultural and spiritual awareness, communication, data collection, performance of basic nursing skills, and documentation. Principles of safe medication administration are introduced. The in-state tuition is \$116, and the out-of-state tuition is \$438. Enrollment in certain courses may require a professional liability fee of \$16.00. Students will be notified via their JCCC student e-mail account if the fee is due and instructions on how to pay the fee. 90 clinical hrs./semester

PN 130

KSPN Medical Surgical Nursing I (4 CR)

Corequisites: PN 120 and PN 125 and PN 126 and PN 131 and PN 135. Must maintain a grade of C or higher in all corequisites to remain in the program.

This course focuses on the effect of disorders of selected systems (respiratory, cardiovascular, hematologic & lymphatic, endocrine, integumentary, sensory and musculoskeletal) throughout the lifespan and applies the nursing process in meeting basic needs. Health promotion and maintenance, rehabilitation and continuity of care are emphasized. The role of the practical nurse is incorporated throughout. The in-state tuition is \$232, and the out-of-state tuition is \$876. 60 hrs lecture/semester

PN 131

KSPN Medical Surgical Nursing I Clinical (3 CR)

Corequisites: PN 120 and PN 25 and PN 126 and PN 135. Must maintain a grade of "C" or higher in all corequisites to remain in the program.

Simulated and actual care situations of selected systems throughout the life span, utilizing acute and long-term care settings. An emphasis is placed on critical thinking and clinical decision-making skills. The in-state tuition is \$174, and the out-of-state tuition is \$657. Enrollment in certain courses may require a professional liability fee of \$16.00. Students will be notified via their JCCC student e-mail account if the fee is due and instructions on how to pay the fee. 135 clinical hrs./semester

PN 135**KSPN Pharmacology (3 CR)**

Corequisites: PN 120 and PN 125 and PN 126 and PN 130 and PN 131. Must maintain a grade of "C" or higher in all corequisites to remain in the program.

This course introduces the principles of pharmacology, drug classifications, and the effects of selected medications on the human body. The nursing process is used as the framework for ensuring safe and effective nursing care for clients across the lifespan. The in-state tuition is \$174, and the out-of-state tuition is \$657. 45 hrs. lecture/semester

PN 140**KSPN Maternal Child Nursing (2 CR)**

Prerequisites: Admission to the Practical Nursing Program; current certification in Kansas as Certified Nursing Assistant (CNA); Cardiopulmonary Resuscitation Certification (CPR) for Health Care Providers; BIOL 144 and PSYC 130 and PSYC 218 and PN 120 and PN 125 and PN 126 and PN 130 and PN 131 and PN 135 and Corequisites: PN 141 and PN 145 and PN 146 and PN 150 and PN 151 and PN 155 and PN 160 and PN 165 Students must maintain a grade of "C" or higher in all corequisites to remain in the program.

This course focuses on pre- and post-natal maternal nursing care, as well as, the care of children from infancy to adolescence. Emphasis is given to normal reproduction and frequently occurring biological, cultural, spiritual and psychosocial needs of the child-bearing and child-rearing family. The in-state tuition is \$116, and the out-of-state tuition is \$438. 30 hrs. lecture/semester

PN 141**KSPN Maternal Child Clinical (1 CR)**

Prerequisites: Admission to the Practical Nursing Program; current certification in Kansas as Certified Nursing Assistant (CNA); Cardiopulmonary Resuscitation Certification (CPR) for Health Care Providers; BIOL 144 and PSYC 130 and PSYC 218 and PN 120 and PN 125 and PN 126 and PN 130 and PN 131 and PN 135 and Corequisites: PN 140 and PN 145 and PN 146 and PN 150 and PN 151 and PN 155 and PN 160 and PN 165 Students must maintain a grade of "C" or higher in all corequisites to remain in the program.

This clinical course applies concepts from Maternal Child I. Emphasis is placed on the nursing process and meeting the basic needs of the maternal child client. The in-state tuition is \$58, and the out-of-state tuition is \$219. Enrollment in certain courses may require a professional liability fee of \$16.00. Students will be notified via their JCCC student e-mail account if the fee is due and instructions on how to pay the fee. 45 clinical hrs./semester

PN 145**KSPN Mental Health Nursing (2 CR)**

Prerequisites: Admission to the Practical Nursing Program; current certification in Kansas as Certified Nursing Assistant (CNA); Cardiopulmonary Resuscitation Certification (CPR) for Health Care Providers; BIOL 144 and PSYC 130 and PSYC 218 and PN 120 and PN 125 and PN 126 and PN 130 and PN 131 and PN 135 and Corequisites: PN 140 and PN 141 and PN 146 and PN 150 and PN 151 and PN 155 and PN 160 and PN 165. Students must maintain a grade of "C" or higher in all corequisites to remain in the program.

This course explores basic concepts and trends in mental health nursing. Therapeutic modalities and client behavior management are discussed. Emphasis is placed on using the nursing process and meeting the basic human needs of the mental health client. The in-state tuition is \$116, and the out-of-state tuition is \$438. 30 hrs. lecture/semester

PN 146**Mental Health Nursing Clinical (1 CR)**

Prerequisites: Admission to the Practical Nursing Program; current certification in Kansas as Certified Nursing Assistant (CNA); Cardiopulmonary Resuscitation Certification (CPR) for Health Care Providers; BIOL 144 and PSYC 130 and PSYC 218 and PN 120 and PN 125 and PN 126 and PN 130 and PN 131 and PN 135 and Corequisites: PN 140 and PN 141 and PN 145 and PN 150 and PN 151 and PN 155 and PN 160 and PN 165. Students must maintain a grade of "C" or higher in all corequisites to remain in the program.

This clinical course explores basic concepts and trends in mental health nursing. Therapeutic modalities and client behavior management are discussed. Emphasis is placed on using the nursing process and meeting the basic human needs of the mental health client. The in-state tuition is \$58, and the out-of-state tuition is \$219. Enrollment in certain courses may require a professional liability fee of \$16.00. Students will be notified via their JCCC student e-mail account if the fee is due and instructions on how to pay the fee. 45 hrs. clinical/semester

PN 150**KSPN Medical Surgical Nursing II (4 CR)**

Prerequisites: Admission to the Practical Nursing Program; current certification in Kansas as Certified Nursing Assistant (CNA); Cardiopulmonary Resuscitation Certification (CPR) for Health Care Providers; BIOL 144 and PSYC 130 and PSYC 218 and PN 120 and PN 125 and PN 126 and PN 130 and PN 131 and PN 135 and Corequisites: PN 140 and PN 141 and PN 145 and PN 146 and PN 151 and PN 155 and PN 160 and PN 165. Students must maintain a grade of "C" or higher in all corequisites to remain in the program.

This course focuses on the effect of disorders of selected systems throughout the lifespan using the nursing process in meeting basic needs. Prevention, rehabilitation and continuity of care are emphasized. The role of the practical nurse is incorporated throughout. The in-state tuition is \$232, and the out-of-state tuition is \$876. 60 lecture hrs./semester

PN 151**KSPN Medical Surgical Nursing II Clinical (3 CR)**

Prerequisites: Admission to the Practical Nursing Program; current certification in Kansas as Certified Nursing Assistant (CNA); Cardiopulmonary Resuscitation Certification (CPR) for Health Care Providers; and BIOL 144 and PSYC 130 and PSYC 218 and PN 120 and PN 125 and PN 126 and PN 130 and PN 131 and PN 135 and Corequisites: PN 140 and PN 141 and PN 145 and PN 146 and PN 150 and PN 155 and PN 160 and PN 165. Students must maintain a grade of "C" or higher in all corequisites to remain in the program.

This experience uses simulated and actual care situations of selected systems throughout the lifespan, utilizing acute and long-term care settings. An emphasis is placed on critical thinking and clinical decision-making skill development. Principles of leadership for the practical nurse will be implemented, as well as multi-task management skills for transition as a practical nurse. The in-state tuition is \$174, and the out-of-state tuition is \$657. Enrollment in certain courses may require a professional liability fee of \$16.00. Students will be notified via their JCCC student e-mail account if the fee is due and instructions on how to pay the fee. 135 hrs. clinical/semester

PN 155**KSPN Gerontology Nursing (2 CR)**

Prerequisites: Admission to the Practical Nursing Program; current certification in Kansas as Certified Nursing Assistant (CNA); Cardiopulmonary Resuscitation Certification (CPR) for Health Care Providers and BIOL 144 and PSYC 130 and PSYC 218 and PN 120 and PN 125 and PN 126 PN 130 and PN 131 and PN 135 and Corequisites: PN 140 and PN 141 and PN 145 PN 146 and PN 150 and PN 151 and PN 160 PN 165. Students must maintain a grade of "C" or higher in all corequisites to remain in the program.

This course is designed to explore issues related to the aging adult using the nursing process as the organizing framework. Also discussed are the impact of

ageism, alterations in physiological and psychosocial functioning, and the role of the practical nurse in caring for older adult clients. The in-state tuition is \$116, and the out-of-state tuition is \$438. 30 hrs. lecture/semester

PN 160

Applied Pharmacology (2 CR)

Prerequisites: Admission to the Practical Nursing Program; current certification in Kansas as Certified Nursing Assistant (CNA); Cardiopulmonary Resuscitation Certification (CPR) for Health Care Providers and BIOL 144 and PSYC 130 and PSYC 218 and PN 120 and PN 125 and PN 126 and PN 130 and PN 131 and PN 135 and Corequisites: PN 140 and PN 141 and PN 145 and PN 146 and PN 150 and PN 151 and PN 155 and PN 165 Students must maintain a grade of "C" or higher in all corequisites to remain in the program

This course is designed to build on the knowledge gained in the Introduction to Pharmacology Course as well as all other course perquisites. The course will be presented using case studies and simulation. Focus will be placed on the affects of polypharmacy and the presence of multiple diseases or disorders. Emphasis will be placed on the role of the practical nursing in providing safe competent care for clients across the life span. The in-state-tuition is \$116, and the out-of-state tuition is \$438. 42 hrs. integrated lecture lab/semester

PN 165

Transition to Nursing Practice (2 CR)

Prerequisites: Admission to the Practical Nursing Program; current certification in Kansas as Certified Nursing Assistant (CNA); Cardiopulmonary Resuscitation Certification (CPR) for Health Care Providers and BIOL 144 and PSYC 130 and PSYC 218 and PN 120 and PN 125 and PPN 126 and PN 130 and PN 131 and PN 135 and Corequisites: PN 140 and PN 141 and PN 145 and PN 146 and PN 150 and PN 151 and PN 155 and PN 160. Students must maintain a grade of "C" or higher in all corequisites to remain in the program.

This course facilitates the transition from the role of nursing student to licensed practical nurse. Emphasis is placed on factors that contribute to the scope of practice of the licensed practical nurse, initial employment as a nurse, including leadership and management skills, as well as the obligation to obtain and maintain licensure. The in-state tuition and fee is \$146, and the out-of-state tuition and fee is \$468. hrs. lecture/semester

Psychology (PSYC)

PSYC 121

Applied Psychology (3 CR)

The course will focus on learning how to apply psychological principles in order to better understand one's own experience (cognitive, behavioral and emotional) and that of other people. This course is not a substitute for Introduction to Psychology and will not meet the prerequisite requirement for advanced psychology courses. 3 hrs./wk.

PSYC 130

Introduction to Psychology (3 CR)

Prerequisite: Appropriate score on the COMPASS reading test OR appropriate score on the ACT reading test OR RDG 126 with a grade of "C" or higher

This basic introduction to psychology includes the study of biological aspects of behavior, the brain, consciousness, sensation and perception, motivation and emotion, stress, maturation and development, learning and memory, normal and abnormal personality, and social psychology. This course is the prerequisite for all advanced-level psychology courses. 3 hrs./wk. This course may be offered as a Learning Communities (LCOM) section, see current credit schedule for LCOM details.

PSYC 200

Industrial and Organizational Psychology (3 CR)

Prerequisite: PSYC 130

The course will examine human behavior and psychological principles in an industrial/personnel context. It will also focus on how organizational factors contribute to individual behavior and how individuals affect groups and organizational functioning. Topics include recruiting, selecting and training personnel; evaluating job performance, work motivation, job satisfaction and other attitudes; leadership; and organization and job design. This course may not be offered every semester. 3 hrs./wk.

PSYC 205

Human Sexuality (3 CR)

Prerequisite: PSYC 130

PSYC 205, Human Sexuality, is a balanced and thoughtful account of what is known about sexuality from various perspectives. A broad and representative survey of research is presented in a number of topical areas. Psychobiology, sexual development during childhood and adolescence, sexual interactions, love relationships and behavior, gender issues, sexual orientation, health issues and diseases, and sexual problems and solutions will be studied. Primary emphasis will be placed on the individual and the couple as a unit of analysis. Class discussions of issues relating to human sexuality will be encouraged. 3 hrs. lecture/wk.

PSYC 210

Methodology in Social Sciences (3 CR)

Prerequisite: PSYC 130 or SOC 122 or ECON 230 or POLS 122

This course deals with scientific research methods utilized in the social sciences, especially psychology, sociology, political science and anthropology. The course examines a wide range of data collection methodologies including observation, questionnaire construction, and controlled experimentation. The course will be beneficial for analyzing and evaluating the quality of research findings reported in both the popular and academic press. It will also be useful to those who plan to engage in occupations requiring the use of research methodology. This course may not be offered every semester. PSYC 210, SOC 210 and POLS 210 are the same course. Do not enroll in more than one of these three courses. This course is a required prerequisite or corequisite for PSYC 230 Personality Theory. 3 hrs./wk.

PSYC 215

Child Development (3 CR)

Prerequisite: PSYC 130

This course is a comprehensive account of human development from conception through adolescence. The course integrates genetic, biological, physical and anthropological influences with psychological processes and explores determinants of behavior from a genetic and environmental perspective. 3 hrs./wk.

PSYC 218

Human Development (3 CR)

Prerequisite: PSYC 130

This course is a comprehensive account of human psychological and physical development from conception through infancy, childhood, adolescence, adulthood and death. The course integrates genetic, biological, physiological and anthropological influences with the psychological process and explores determinants of development from both hereditary and environmental perspectives. 3 hrs./wk.

PSYC 220

Social Psychology (3 CR)

Prerequisite: PSYC 130

Social psychology is the study of social influence on behavior and cognition. Social psychology explores our relationships with others, our interdependency, and the mutual influence we have on one another. The course will cover concepts such as attitude formation, attitude change, prejudice, aggression, affiliation, obedience to authority, and conformity; special emphasis will be placed on fostering prosocial behavior and how our attitudes toward self and others are influenced by race, ethnicity, gender, age, religious beliefs, socioeconomic status, sexual orientation, and political beliefs. The course requires students to acquire a critical awareness of research methodology. 3 hrs./wk.

PSYC 221

Environmental Psychology (3 CR)

Prerequisites: PSYC 130 or ITMD 121 or BIOL 130

Environmental psychology will allow students to explore the relationship between the environment and human behavior. The premise of the course is that the social setting, environmental setting, and individual behavior are interrelated. The focus will be on (1) our relationships with the human built environment, (2) our relationships with the natural environment, (3) how humans adapt to changing environments, and (4) how we can coordinate our behavior to achieve sustainable relationships with our environment. The content of the course will appeal to individuals interested in urban planning, architecture, interior design, ecological sustainability, and community physical and psychological well-being. 3 hrs. lecture/wk.

PSYC 225

Educational Psychology (3 CR)

Prerequisite: PSYC 130

This course addresses issues that apply theories of psychology to the educational environment. Topics included in the study of educational psychology include research methodology, theories of human development, principles of learning, the psychology of motivation, theories of intelligence, testing and assessment techniques, and career development. A 20-hour observation in an educational setting is required. This course may not be offered every semester. 3 hrs./wk.

PSYC 230

Personality Theory (3 CR)

Prerequisite: PSYC 130

The general viewpoints of paradigms in psychology will be studied, with emphasis on each system's contribution to understanding human personality. The assumptions of each system will be critically analyzed using evidence from research and criticisms from philosophy. Usefulness of theories will be presented, and the systems will be compared and contrasted. General theories covered will include psychoanalysis, trait, biological, humanistic, behavioral/social and cognitive. This course is typically offered in the spring semester. 3 hrs./wk.

PSYC 250

Health Psychology (3 CR)

Prerequisite: PSYC 130

This course covers content, methods and theory regarding the interplay between psychological and biological determinants of health and illness and examines how these factors relate to health status. The course focus is on the application of psychological methods, principles of maintenance of health, prevention of disease, treatment of illness, and rehabilitation and recovery from impaired health. It follows an interdisciplinary approach to content and instruction. 3 hrs. lecture/wk.

Radiologic Technology (KRAD)

KRAD 150

Introduction to Radiologic Technology (2 CR)

Introduction to the profession of radiologic technology, including the duties of the radiologic technologist in the health care environment. 2 hr. lecture/wk. Course taught at MCC-Penn Valley Community College. Students should contact the Penn Valley coordinator of radiologic technology about the class meeting times and beginning and ending dates of classes. Call 816-759-4000.

KRAD 160

Survey of Radiologic Technology (6 CR)

Prerequisite: Admission to the radiologic technology program

Orientation to the program and clinical responsibilities. Topics related to basic patient interactions, body mechanics, patient transportation, radiographic terminology, radiographic examinations of the chest and abdomen, methods of radiation protection and types of radiographic equipment will be explored. 4.2 hrs. lecture, 6 hrs. clinical/wk. Course taught at MCC-Penn Valley Community College. Students should contact the Penn Valley coordinator of radiologic technology about the class meeting times and beginning and ending dates of classes. Call 816-759-4000.

KRAD 162

Image Processing (2 CR)

Prerequisites: KRAD 160, KRAD 172 and KRAD 173

Materials and factors relating to acquisition, processing, viewing, and storage of radiographs. 1.5 hrs. lecture, 1 hr. lab/wk. Course taught at MCC-Penn Valley Community College. Students should contact the Penn Valley coordinator of radiologic technology about the class meeting times and beginning and ending dates of classes. Call 816-759-4000.

KRAD 165

Patient Care (2 CR)

Prerequisite: KRAD 160

This course will explore patient-health professional interactions, basic patient care and management, medico-legal issues, and medical ethics. 2 hrs. lecture/wk. Course taught at MCC-Penn Valley Community College. Students should contact the Penn Valley coordinator of radiologic technology about the class meeting times and beginning and ending dates of classes. Call 816-759-4000.

KRAD 170

Radiation Biology and Protection (3 CR)

Prerequisite: KRAD 160 with concurrent enrollment in corresponding semester of clinical training

The principles of radiation biology and techniques used to protect the patient and personnel from the effects of exposure to ionizing radiation. 3 hrs. lecture/wk. Course taught at MCC-Penn Valley Community College. Students should contact the Penn Valley coordinator of radiologic technology about the class meeting times and beginning and ending dates of classes. Call 816-759-4000.

KRAD 171

Radiographic Exposures I (3 CR)

Prerequisite: Admission to the program

Factors that affect radiographic image formation and determine image quality. 2.5 hrs. lecture, 1 hr. lab/wk. Course taught at MCC-Penn Valley Community College. Students should contact the Penn Valley coordinator of radiologic technology about the class meeting times and beginning and ending dates of

classes. Call 816-759-4000.

KRAD 172

Radiographic Positioning I (3 CR)

Prerequisite: KRAD 160 and concurrent enrollment in KRAD 165 and KRAD 173

Anatomy, positioning and image evaluation of the digestive and urinary system, upper and lower limbs. 2.5 hrs. lecture, 1 hr. lab/wk. Course taught at MCC-Penn Valley Community College. Students should contact the Penn Valley coordinator of radiologic technology about the class meeting times and beginning and ending dates of classes. Call 816-759-4000.

KRAD 173

Clinical Practice I (3 CR)

Prerequisite: KRAD 160 and concurrent enrollment in KRAD 165 and KRAD 172

Performance of patient examination in a clinical setting under the supervision of a radiologic technologist. 16 hrs. clinical/wk. Course taught at MCC-Penn Valley Community College. Students should contact the Penn Valley coordinator of radiologic technology about the class meeting times and beginning and ending dates of classes. Call 816-759-4000.

KRAD 174

Radiographic Exposures II (3 CR)

Prerequisites: KRAD 160, KRAD 171, KRAD 172 and KRAD 173

Quality control of radiographic images. Technic charts, calibration of equipment, standard exposure systems, and factors used for conversion of technics for variables in the exposure system. Special techniques used in producing radiographic images. 2.5 hrs. lecture, 1 hr. lab/wk. Course taught at MCC-Penn Valley Community College. Students should contact the Penn Valley coordinator of radiologic technology about the class meeting times and beginning and ending dates of classes. Call 816-759-4000.

KRAD 175

Clinical Practice II (4 CR)

Prerequisites: KRAD 165, KRAD 172 and KRAD 173 and concurrent enrollment in KRAD 176

Performance of patient examinations in a clinical setting under the supervision of a radiologic technologist. 24 hrs. field study/wk. Course taught at MCC-Penn Valley Community College. Students should contact the Penn Valley coordinator of radiologic technology about the class meeting times and beginning and ending dates of classes. Call 816-759-4000.

KRAD 176

Radiographic Positioning II (3 CR)

Prerequisites: BIOL 140 and KRAD 165, KRAD 172 and KRAD 173 and concurrent enrollment in KRAD 162 and KRAD 175

Anatomy, radiographic positioning, and film critique of pelvis, bony thorax, vertebral column, cranium, and facial bones. 2.5 hrs. lecture, 1 hr. lab/wk. Course taught at MCC-Penn Valley Community College. Students should contact the Penn Valley coordinator of radiologic technology about the class meeting times and beginning and ending dates of classes. Call 816-759-4000.

KRAD 178

Clinical Practice III (4 CR)

Prerequisites: KRAD 175 and KRAD 176

Performance of patient examinations in a clinical setting under the supervision of a radiologic technologist. 20 hrs. clinical/wk. Course taught at MCC-Penn Valley Community College. Students should contact the Penn Valley

coordinator of radiologic technology about the class meeting times and beginning and ending dates of classes. Call 816-759-4000.

KRAD 278

Imaging Modalities and Pathology (3 CR)

Prerequisites: KRAD 279, KRAD 280, KRAD 281 and concurrent enrollment in KRAD 282

Human disease processes and their relationship to patient examination in the radiology department. Radiographic pathology and imaging modalities. 3 hrs. lecture/wk. Course taught at MCC-Penn Valley Community College. Students should contact the Penn Valley coordinator of radiologic technology about the class meeting times and beginning and ending dates of classes. Call 816-759-4000.

KRAD 279

Radiographic Positioning III (2 CR)

Prerequisites: KRAD 176 and KRAD 178 and concurrent enrollment in KRAD 280, KRAD 281 and KRAD 285

Anatomy and positioning of the biliary system, mammary glands and temporal bone; procedural adaptations for pediatric and trauma patients and mobile radiographic procedures. Advanced film critique of radiographs of all routine radiographic examinations. 2 hrs. lecture. Course taught at MCC-Penn Valley Community College. Students should contact the Penn Valley coordinator of radiologic technology about the class meeting times and beginning and ending dates of classes. Call 816-759-4000.

KRAD 280

Clinical Practice IV (4 CR)

Prerequisites: KRAD 162, KRAD 176 and KRAD 178, and concurrent enrollment in KRAD 279, KRAD 281 and KRAD 285

Performance of patient examinations in a clinical setting under the supervision of a radiological technologist. 24 hrs. clinical/wk. Course taught at MCC-Penn Valley Community College. Students should contact the Penn Valley coordinator of radiologic technology about the class meeting times and beginning and ending dates of classes. Call 816-759-4000.

KRAD 281

Radiation Physics (3 CR)

Prerequisite: PHYS 162 and KRAD 171

Application of fundamental physics principles relating to energy, electricity, and magnetism and their relevance to the study of x-rays and x-ray equipment. 2.5 hrs. lecture, 1 hr. lab/wk. Course taught at MCC-Penn Valley Community College. Students should contact the Penn Valley coordinator of radiologic technology about the class meeting times and beginning and ending dates of classes. Call 816-759-4000.

KRAD 282

Clinical Practice V (4 CR)

Prerequisites: KRAD 279, KRAD 280, KRAD 281 and KRAD 285 and concurrent enrollment in KRAD 278

Performance of patient examinations in a clinical setting under the supervision of a radiologic technologist. 24 hrs. clinical/wk. Course taught at MCC-Penn Valley Community College. Students should contact the Penn Valley coordinator of radiologic technology about the class meeting times and beginning and ending dates of classes. Call 816-759-4000.

KRAD 283

Final Seminar (2 CR)

Prerequisites: KRAD 174 and KRAD 279 and KRAD 280

Preparation for the National Registry examination. Simulation of American Registry of Radiologic Technologists examination. 2 hrs. lecture/wk. Course taught at MCC-Penn Valley Community College. Students should contact the Penn Valley coordinator of radiologic technology about the class meeting times and beginning and ending dates of classes. Call 816-759-4000.

KRAD 285

Special Procedures (2 CR)

Prerequisites: KRAD 170 and KRAD 171 and KRAD 178, and concurrent enrollment in KRAD 279 and KRAD 280 and KRAD 281

Anatomy, positioning, equipment and special tasks related to performance of special contrast media studies. Vascular, neurological, lymphatic, skeletal, and pulmonary systems. 2 hrs. lecture/wk. Course taught at MCC-Penn Valley Community College. Students should contact the Penn Valley coordinator of radiologic technology about the class meeting times and beginning and ending dates of times and beginning and ending dates of classes. Call 816-759-4000.

Railroad Conductor (RRTC)

RRTC 123

Introduction to Conductor Service (4 CR)

Prerequisite: Admission to the JCCC railroad operations program, conductor option
Prerequisite: BNSF/JCCC Training Director Approval

This is an introductory course for the conductor service option within the railroad operations program. Upon successful completion of this course, the student should be able to describe railroad organization and general operations, policies and practices to ensure railroad safety, and the basic responsibilities of conductors. 5 hrs. lecture, demonstration/wk. Selective admission program - see a counselor about special requirements.

RRTC 175

Conductor Mechanical Operation (2 CR)

Prerequisites: Admission to the JCCC railroad operations program, conductor option, and successful completion of RRTC 123 with a grade of "C" or higher and BNSF/JCCC Training Director Approval

This course covers mechanical operations that relate to conductor service. This is the second course in the conductor option of the railroad operations degree program. Upon successful completion of this course, the student should be able to describe the importance and application of freight care mechanical policies and practices to ensure safe railroad operations. 2.5 hrs. lecture/wk. Selective admission program - see a counselor about special requirements.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$36.

RRTC 261

Conductor Service (2 CR)

Prerequisite: Admission to the JCCC railroad operations program, conductor option, and successful completion of RRTC 175 with a grade of "C" or higher and BNSF/JCCC Training Director Approval

Upon successful completion of this course, the student should be able to describe and apply railroad organization and general operations, policies and practices to ensure railroad safety and basic responsibilities of conductors. This course includes safety and the general rules with which conductors must comply and teaches the techniques and administrative procedures conductors use on the job to perform safely and effectively. 2.5 hrs. lecture/wk. Selective admission program - see a counselor about special requirements.

RRTC 263

General Code of Operating Rules (4 CR)

Prerequisite: Admission to the JCCC railroad operations program, conductor option, and successful completion of RRTC 261 with a grade of "C" or higher and BNSF/JCCC Training Director Approval

This is the fourth course in the conductor option for the railroad operations degree program. Conductors must maintain a thorough understanding of the General Code of Operating Rules (GCOR). This course provides an in-depth study of the GCOR. Upon completion of this course, the student should be able to demonstrate abilities to apply the General Code of Operating Rules to safe and efficient train movement and operations. 5 hrs. lecture/wk. Selective admission program - see a counselor about special requirements.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$25.

RRTC 267

Conductor Field Application (4 CR)

Prerequisite: Admission to the JCCC railroad operations program, conductor option, and successful completion of RRTC 263 with a grade of "C" or higher and BNSF/JCCC Training Director Approval

Upon successful completion of this course, the student will have observed actual operations and be able to apply skills learned in classroom-based instruction to those operations. The student will observe and perform operations under the supervision of experienced conductor mentors in an actual field location. The student prepares a daily reflective journal of the hands-on (OJT) railyard experience. 1 hr. lecture, 8 hrs on-the-job training/day for 7 days.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$100.

Railroad Dispatcher (RRTD)

RRTD 122

Introduction to Railroad Dispatching (2 CR)

Prerequisite: Admission to the JCCC railroad operations program, dispatcher option

Upon successful completion of this course, the student should be able to describe railroad organization and general operations, policies and practices to ensure railroad safety and basic dispatching functions. 2.5 hrs. lecture/wk. Class currently held at Tarrant County Junior College, Ft. Worth, Texas.

RRTD 271

Apprentice Railroad Dispatching Training I (6 CR)

Prerequisites: Admission to the JCCC railroad operations program, dispatcher option, and successful completion of RRTD 275 with a grade of "C" or higher

Upon successful completion of this course, the student should demonstrate abilities to apply the General Code of Operating Rules, maintenance of way operating rules and the train dispatcher's manual of policies and practices to safe and effective train movement and maintenance operations. This is an intensive course that prepares students to observe actual dispatching operations. 7.5 hrs. lecture/wk. Class currently held at Tarrant County Junior College, Ft. Worth, Texas.

RRTD 272

Apprentice Railroad Dispatching Training II (6 CR)

Prerequisites: Admission to the JCCC railroad operations program, dispatcher option, and successful completion of RRTD 271 with a grade of "C" or higher

Upon successful completion of this course, students should demonstrate their ability to use centralized traffic control equipment, computerized track warrant control equipment, and management information systems that record and

report train movement. Students will also identify and resolve traffic conflicts safely and effectively. This is an intensive course in which students observe, practice and demonstrate rail traffic dispatching functions in a laboratory setting. In addition, the student will spend an additional week observing dispatching-related activities in the field in conjunction with this course. 4.5 hrs. lecture, 3 hrs. lab/wk. Class currently held at Tarrant County Junior College, Ft. Worth, Texas.

RRTD 275

Railroad Dispatching Field Observation (3 CR)

Prerequisites: Admission to the JCCC railroad operations program, dispatcher option, and RRTD 122 with a grade of "C" or higher

Upon successful completion of this course, the student will have observed actual dispatching operations and should be able to identify major responsibilities. Students will observe operations under the supervision of experienced dispatcher mentors in actual dispatching offices. 1 hr. lecture, minimum 15 hrs. on-the-job training/wk. Class currently held at Tarrant County Junior College, Ft. Worth, Texas.

RRTD 276

Railroad Dispatching Field Applications (5 CR)

Prerequisites: Admission to the JCCC railroad operations program, dispatcher option, and RRTD 272 with a grade of "C" or higher

Railroad Dispatching Field Applications is a 10-week period in which students will observe and practice operations under the supervision of experienced dispatcher mentors in actual dispatching offices. Upon successful completion of this course, students will be able to apply skills learned in classroom-based dispatching instruction to those operations. Minimum 15 hrs. on-the-job training/wk. Class currently held at Tarrant County Junior College, Ft. Worth, Texas.

Railroad Electronics (RREL)

RREL 110

Introduction to Railroad Signal Systems (4 CR)

Prerequisite: Approval of the railroad training administrator and the JCCC department approval

This course is the first of a series of four designed to provide entry (apprentice) level training to new signal employees, or those seeking to enter this trade. Upon successful completion of this course, the student should be able to describe basic company organization, operating and safety rules pertaining to signalmen, basic principles of electricity and measurement as well as protective devices. Also he or she should have a basic understanding of signal systems, track circuits, and Federal Railroad Administration (FRA) rules. 44 hrs. lecture 16 hrs. instructional lab/total

RREL 112

Track Circuits and Systems (4 CR)

Prerequisites: Successful completion of RREL 110 and approval of the railroad training administrator and the JCCC department approval

This course is the second of a series of four designed to provide entry (apprentice) level training to new signal employees, or those seeking to enter this trade. Upon successful completion of this course, the student should be able to describe and explain the operation of various track circuits, relay and control circuits, traffic control systems, locks, and applicable rules and standards. 44 hrs. lecture 16 hrs. instructional lab studio/total

RREL 114

Traffic Control, Switch Machines & Locks (4 CR)

Prerequisite: RREL 112 and approval of the railroad training administrator and the JCCC department approval

This course is the third of a series of four designed to provide entry (apprentice) level training to new signal employees, or those seeking to enter this trade. Upon successful completion of this course the student should be able to describe and maintain automatic block signaling systems, centralized traffic systems, power switches and locks. He should also be familiar with ground testing and isolation, as well as applicable rules and standards. 44 hrs. lecture 16 hrs. instructional lab studio/total

RREL 116

Interlocking, Classification, Crossings & Gates (4 CR)

Prerequisite: RREL 114 and approval of the railroad training administrator and the JCCC department approval

This course is the last of a series of four designed to provide entry (apprentice) level training to new signal employees, or those seeking to enter this trade. Upon successful completion of this course, the student should be able to perform interlocking plant and route plant analysis, explain classification yards, grade crossing warning systems, gates, and other devices, as well as applicable rules and standards. 44 hrs. lecture 16 hrs instructional lab/total

RREL 144

Introduction to Programmable Logic Controllers (2 CR)

Prerequisites: Approval of the railroad training director and the JCCC department approval

This course is an introduction to programmable logic controllers using Allen Bradley PLC-5 processors and is designed for electricians and maintenance personnel. Upon successful completion of this course, the student should be able to identify the components of programmable controllers, configure and set up the controllers for specific operations, write and test basic programs, and apply troubleshooting procedures to locate problems. 1 hr. lecture, 1.5 hrs. lab/wk.

RREL 172

Programmable Logic Controllers Applications (2 CR)

Prerequisites: Approval of the railroad training director and the JCCC department approval

This course is designed for electricians and maintenance personnel. It is intended as an advanced course for people with basic knowledge in programmable logic controllers operation. Allen Bradley PLC-5 family of processors is used for hands-on-training. Upon successful completion of this course, the student should be able to use advanced PLC instructions such as file, block transfer, stack concepts/operations and sequences, and configure and operate a network of processors. 1 hr. lecture, 1.5 hrs. lab/wk.

RREL 180

Introduction to Railroad Electronics (1 CR)

Prerequisites: Approval of the railroad training administrator and the JCCC department approval

This course is designed to meet the needs of railroad electronic maintainers. Upon successful completion of this course, the student should be able to state basic safety procedures in electronics, explain basic principles of electronics, perform basic electronic calculations and use basic electronic tools. 2.5 hrs. lecture, 2.5 hrs. lab/wk.

RREL 181

Circuit Analysis DC/AC (6 CR)

Prerequisites: RREL 180 and the approval of the railroad training administrator and the JCCC department approval

This course is designed to meet the needs of the railroad electronic

maintainers. Upon successful completion of this course, the student should be able to identify and use fundamental DC circuit concepts such as Kirchhoff's laws, power and energy formulas, Ohm's Law, Thevenin's Theorem and Norton's Theorem as they apply to resistive circuits. Also upon successful completion of this course, the student should be able to analyze circuits involving resistors, capacitors and inductors driven by time-variant sources. This analysis will involve both time and frequency responses. 3 hrs. lecture, 2 hrs. lab, 3 hrs. alternate deliver/wk.

RREL 182

Semiconductor Devices and Circuits (6 CR)

Prerequisites: RREL 181 and the approval of the railroad training administrator and the JCCC department approval

This course is designed to meet the needs of railroad electronic maintainers. Upon successful completion of this course, the student should be able to describe the characteristics of basic semiconductor devices, explain practical circuits using semiconductor devices and analyze these circuits for DC and AC quantities. 3 hrs. lecture, 2 hrs. lab., 3 hrs. alternate delivery/wk.

RREL 183

Digital Techniques (6 CR)

Prerequisites: RREL 182 and approval of the railroad training administrator and the JCCC department approval

This course is designed to meet the needs of railroad electronic maintainers. Upon successful completion of this course, the student should be able to analyze basic digital circuitry consisting of arrangements of gates and flip-flops using TTL and CMOS integrated circuits, as well as relay logic. This analysis will include the application of elementary Boolean algebra, truth tables and timing diagrams. 3 hrs. lecture, 2 hrs. lab., 3 hrs. alternate delivery/wk.

RREL 284

Electronic Communications (6 CR)

Prerequisites: RREL 183 and approval of the railroad training director and the JCCC department approval

This course is designed to meet the needs of railroad electronic maintainers. Upon successful completion of this course, the student should be able to state the principles of amplitude, frequency, phase and pulse modulation and describe the technologies of transmitters, receivers, antennas, local area networks, wide-area networks and telephone systems. 3 hrs. lecture, 2 hrs. lab, 3 hrs. activity/wk.

RREL 285

Microprocessor Techniques (6 CR)

Prerequisites: RREL 183 and approval of the railroad training director and the JCCC department approval

This course is designed to meet the needs of railroad electronic maintainers. Upon successful completion of this course, the student should be able to analyze and troubleshoot 6800 family microprocessor circuitry as well as microprocessor interface circuitry. 3 hrs. lecture, 2 hrs. lab, 3 hrs. activity/wk.

RREL 286

Applied Microprocessors (2 CR)

Prerequisites: RREL 285 and approval of the railroad training director and the JCCC department approval

This course is designed to provide an introduction to advanced microcomputer concepts and applications. This course is a continuation of topics introduced in the microprocessor course, with specific applications in general-purpose microcomputers (PCs) and dedicated microprocessor-based control systems. Included are hardware and software training in operating systems, peripherals, monitors, processors, storage media, maintenance, diagnostics and

troubleshooting. Analog and digital data acquisition and processing, as well as voice digitization and playback, will be demonstrated. Presentations and labs will include incorporation of these functions into a PC, Harmon HLC and the Servo 9000 hot box detector. 1 hr. lecture, 2 hrs. lab/wk.

Railroad Industrial Technology (RRIT)

RRIT 122

Elements of Welding (3 CR)

Prerequisites: Approval of the BNSF manager of track and roadway maintenance training and the JCCC department approval

Upon successful completion of this course, the student should be able to cut and weld using oxyfuel (OFC) and shielded metal arc welding (SMAW). OFC will cover straight-line cutting, beveling, piercing and gouging. The SMAW portion will cover flat position and will be limited to fillet welds. The student should be able to discuss electrical safety in shielded metal arc welding (SMAW), handle welding cables properly, understand eye hazards, list safe clothing requirements and discuss environmental safety. This knowledge will be evidenced by achieving the specified score on the unit test. 2 hrs. lecture, 3 hrs. lab/wk.

RRIT 123

Basic Welding (3 CR)

Prerequisites: RRIT 122 or approval of the BNSF manager of engineering and maintenance training and the JCCC department approval

Upon successful completion of this course, the student should be able to properly use oxy-fuel cutting (OFC), shielded metal arc welding (SMAW) and air carbon arc cutting (CAC-A) equipment. The SMAW portion of the course will concentrate on 1G and 2F welds with bend tests being performed on selected weldments. 1 hr. lecture, 4 hrs. lab/wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$180 to \$400.

RRIT 127

Welding Processes (2 CR)

Prerequisites: Approval of the BNSF training director and the JCCC department approval

Upon successful completion of this course, the student should be able to identify various welding processes used by the railroad and other industries. Standard shop and maintenance welding processes will be taught and demonstrated. Welds will be tested and inspected according to industry standards. 1 hr. lecture, 1.5 hrs. lab/wk.

RRIT 132

Thermite Welding (3 CR)

Prerequisites: Approval of the BNSF manager of engineering and maintenance training and the JCCC department approval

Upon successful completion of this course, the student should be able to produce in a safe manner high-quality, sound thermite welds on standard rail and mismatched rail. This course is intended for people who are employed in the railroad industry. It will include specific in-depth industrial training. Students will be required to make various rail alignments and to grind various new and worn rails. 1 hr. lecture, 4 hrs. lab/wk.

RRIT 136

Rail and Switch Point Repair Welding (3 CR)

Prerequisites: RRIT 123 and approval of the BNSF manager of engineering and maintenance training and the JCCC department approval

Upon successful completion of this course, the student should be able to identify and/or produce in a safe manner high-quality welding repairs and correct welding techniques to railroad track components to include maintenance, grinding, welding and repairs of switches, track rail ends, track wheel burns, battered welds, rail transition ramp building methods, Pandrol weld on shoulders, proper placement of work piece connections, and approved switch point welding procedures, as specified by the Burlington Northern Santa Fe Railway. This course will involve the study of different welding processes, welding safety, proper grounding techniques, rail heater and metallurgy. The effects of heat in relationship to specific rail steel components will be discussed. Students will be required to experience all appropriate methods and processes including welding, cutting, grinding, straight edging rail steel and preparing switch points for proper mating surface according to current industry standards. Evaluation will be a classroom and laboratory setting. 1 hr. lecture, 4 hrs. lab/wk.

RRIT 137

Structural Welding SMAW (3 CR)

Prerequisites: RRIT 123 and approval of the BNSF manager of engineering and maintenance training and the JCCC department approval

Upon successful completion of this course, the student should be qualified to weld with SMAW according to AWS D1.1.96 code. All welds will be made in the vertical (3G) and overhead (4G) positions. Passing or failing will be determined by the student's ability to successfully produce welds according to prescribed standards in AWS D1.1.96. 1 hr. lecture, 4 hrs. lab/wk.

RRIT 138

Structural Welding FCAW (3 CR)

Prerequisites: RRIT 137 and approval of the BNSF manager of engineering and maintenance training and the JCCC department approval

Upon successful completion of this course, the student should be qualified to weld with FCAW according to AWS D1.1.96 code. All welding will be made in the vertical (3G and 3F) and overhead (4G and 4F) positions. Passing or failing will be determined by the student's ability to successfully produce welds according to prescribed standards in AWS D1.1.96. 1 hr. lecture, 4 hrs. lab/wk.

RRIT 139

Structural Welding Pipe (3 CR)

Prerequisites: RRIT 137 and approval of the BNSF manager of engineering and maintenance training and the JCCC department approval

Upon successful completion of this course, the student should be qualified to weld on pipe using the SMAW process. All welding will be made in the vertical uphill fixed position (5G). Passing or failing will be determined by the student's ability to successfully produce test welds. 1 hr. lecture, 4 hrs. lab/wk.

RRIT 140

Structural Quality SMAW (3 CR)

Prerequisites: RRIT 127 or approval of the BNSF training director and the JCCC department approval

Upon successful completion of this course, the student should be qualified to weld with shielded metal arc welding (SMAW) according to industrial standards. Test welds will be made in the vertical up (3G) positions; limited thickness. Passing or failing will be determined by the student's ability to successfully produce welds according to prescribed American Welding Society (AWS) standards. The oxyfuel cutting (OFC) portion will include cutting metal to specific sizes and shapes. 1 hr. lecture, 4 hrs. lab/wk.

RRIT 141

Structural Quality GMAW (3 CR)

Prerequisites: RRIT 127 or approval of the BNSF training director and the JCCC department approval

Upon successful completion of this course, the student should be able explain the theory of gas metal arc (GMAW) identify materials and use equipment related to the processes. The student will weld on mild steel plate in all positions producing both fillet and groove welds with the GMAW process with a U-bend test being performed in selected positions according to industry standards. Selected welding codes and specifications will be used as a reference for this class. The oxy-fuel (OFC) will be used to prepare mild steel for welding. 1 hr. lecture, 4 hrs. lab/wk.

RRIT 142

Structural Pile Welding (3 CR)

Prerequisites: RRIT 137 and RRIT 138 and approval of the BNSF manager of engineering and maintenance training and the JCCC department approval

Upon successful completion of this course, the student should be able to splice pipe and H-beam piling and install cap plate gussets according to Burlington Northern Santa Fe (BNSF) standard blueprints. This course shall make use of oxy-fuel cutting (OFC), grinding, shielded metal arc welding (SMAW), and flux cored arc welding (FCAW) to prepare, fit and weld piling. Selected welds will have test strips bent to check for soundness of welds. These strips should meet basic American Welding Society (AWS) test standards. Basic metallurgy will be discussed as it applies to the need for preheat and post heat in the building of railroad bridges. 1 hr. lecture, 4 hrs. lab/wk.

RRIT 143

Thermite Welding for Supervisors (2 CR)

Prerequisites: Approval of the BNSF manager of engineering and maintenance training and the JCCC department approval

Upon successful completion of this course, the student should be able to produce in a safe manner high-quality, sound thermite welds on standard rail and mismatched rail. This course is intended for people who are employed in the railroad industry. This will be specific, in-depth, industrial training. Students will be required to make various rail alignments and grind various new and worn rails. The students should also be able to clean a used crucible, assemble a crucible and temper new and used crucibles. 1.5 hrs. lecture, 1 hr. lab/wk.

RRIT 145

Frog Welding (3 CR)

Prerequisites: RRIT 123 and approval of the BNSF manager of engineering and maintenance training and the JCCC department approval

Upon successful completion of this course, the student should be able to repair by welding a manganese frog casting according to Burlington Northern Santa Fe Railway standards. This course will involve the study of different welding and cutting processes, with emphasis on the FCAW process. Metallurgy and the effects of heat in relationship to austenitic manganese steel will be discussed. Students will be required to cut, grind, straight edge, dye penetrant test, weld and monitor heat input during the repair process on austenitic steel frog casting for evaluation in an actual laboratory setting. 1 hr. lecture, 4 hrs. lab/wk.

RRIT 147

Component Welding for Supervisors (2 CR)

Prerequisites: Approval of the BNSF manager of engineering and maintenance training and the JCCC department approval

Upon successful completion of this course, the student should be able to describe methods and processes used to weld railroad track components. This course will introduce the student to various types of welding and cutting processes. Metallurgy and the effects of heat on rail steel and manganese frog castings will be discussed. Instructor demonstration and student hands-on experience will be provided regarding welding, cutting and grinding on rail steel, frog castings, carbon arc cutting with air (CAC-A), straight edging,

temperature monitoring and dye penetrants on both rail steel and frog castings in an actual laboratory setting. 1.5 hrs. lecture, 1 hr. lab/wk.

RRIT 155

Railroad Welding Review (2 CR)

Prerequisites: Approval of the BNSF manager of engineering and maintenance training and the JCCC department approval

Upon successful completion of this course, the student should be able to identify currently used rail, frogs, switch points, crossings, Conley's and insulated joint plugs. The student should be able to locate operating procedures in an approved manual and apply them to the appropriate component. In addition, the student should be able to describe the proper application of OFC, OFW, heating, SMAW, FCAW, CAC-A and thermite welding procedures. 1.5 hrs. lecture, 1 hr. lab/wk.

RRIT 156

Rail and Frog Welding Review (3 CR)

Prerequisites: Approval of BNSF manager of engineering maintenance training and the JCCC department approval

Upon successful completion of this course, the student should be able to identify currently used types and sizes of rail, frogs, switch points and insulated joints. The student should be able to locate operation procedures in an approved manual and apply them to the appropriate component. In addition, the student should be able to describe the proper application of oxygen fuel cutting (OFC), oxy-fuel heating, shielded metal arc welding (SMAW), flux core arch welding (FCAW), carbon arc cutting with air (CAC-A), thermite welding (TW) and grinding procedures. 3 hrs. lecture/wk.

RRIT 271

Railroad Welding Internship (6 CR)

Prerequisites: Admission to the JCCC railroad program, welding option, and successful completion of RRIT 122 and RRIT 123 and RRIT 136 and RRIT 145 and RRIT 132 with a grade of "C" or higher

Upon successful completion of this course, the student should be able to apply classroom knowledge to an actual work situation. The internship will provide advanced students with on-the-job experience under the supervision of professionals in the railroad industry. The work will be developed cooperatively with railroads, college staff and each student to provide a variety of actual job experiences directly related to the student's career goals. Minimum of 120 workdays required.

Railroad Maintenance of Way (RRMW)

RRMW 132

Railroad Structures Layout (3 CR)

Prerequisites: Approval of the railroad training administrator and the JCCC department approval

This is a beginning course for railroad maintenance-of-way personnel working with bridge and building personnel working with bridge and building construction. Students will learn to read construction blueprints used in railroad projects and perform layout work for railroad construction. Also, students will learn how to use basic surveying principles and equipment typically used at railroad construction sites. 2 hrs. lecture, 3 hrs. lab/wk.

RRMW 135

Concrete Technology (2 CR)

Prerequisites: Approval of the railroad training administrator and the JCCC

department approval

This course contains information that will help experienced and inexperienced students understand the principles of quality concrete. The emphasis will be on allowing concrete to reach its highest level of durability through proper mix design, placing and finishing techniques, and curing methods. 1.5 hrs. lecture, 1 hr. lab/wk.

Railroad Operations (RRT)

RRT 120

History of Railroad (3 CR)

This course covers the history and traditions of railroading and the industry's role in North American economic development. Upon successful completion of this course, students will be able to list and explain the significance of major events in North American railroading. 3 hrs. lecture/wk. This course is only taught in the fall semester. This course is only taught in the fall semester.

RRT 121

Railroad Technical Careers (3 CR)

This course includes information about technical careers in railroading, enabling students to choose suitable career paths. This course includes field trips that will demonstrate the relationships among technical work groups in day-to-day railroad operations. Upon successful completion of this course, students should be able to describe basic technical job functions, requirements and characteristics. 3 hrs. lecture/wk. This course is only taught in the fall semester.

RRT 150

Railroad Operations (3 CR)

This course includes information about the industry, its major assets, structure and typical operations. Upon successful completion of this course, students will be able to define the current North American railroading industry characteristics, basic operations components and processes, and industry structure and administrative processes. 3 hrs. lecture/wk. This course is only taught in the spring semester.

RRT 165

Railroad Safety, Quality and Environment (3 CR)

This course covers the importance of safety, quality, personal health and environmental awareness to the railroad industry and emphasizes the basic tools and techniques for improving these conditions on the job. Upon successful completion of this course, students should be able to define and explain the need for improved safety, quality, health and environmental awareness; describe their basic principles; explain the elements of successful programs; and apply these elements to typical tasks on the job. 3 hrs. lecture/wk. This course is only taught in the spring semester.

Railroad Operations-Mechanical (RRTM)

RRTM 124

Orientation to the Railroad Mechanical Craft (2 CR)

Prerequisite: Admission to the JCCC railroad operations program, mechanical option

This course is designed to familiarize the student with work in railroad mechanical crafts. Upon successful completion of the course, students should

be able to describe apprenticeship program structures, benefits, organizational goals, basic safety and quality principles, and other aspects of mechanical craftwork. 2.5 hrs. lecture/wk.

RRTM 130

Freight Car Yard Inspection (3 CR)

Prerequisites: Approval of the railroad training administrator and the JCCC department approval

This course is the first of a series of three for freight car training. It is designed to introduce the student to the safe inspection, testing, and repairing of freight cars in a repair track environment in accordance with Federal Railroad Administration (FRA), Association of American Railroads (AAR), and BNSF Railway procedures and policies. 32 hrs. lecture, 8 hrs. instructional lab/total

RRTM 131

Freight Car Repair Track Inspector (3 CR)

Prerequisites: RRTM 130 and approval of the railroad training administrator and JCCC department approval

This course is the second of a series of three for freight car training. It is designed to introduce the student to the safe inspection, testing, and repairing of freight cars in a repair track environment in accordance with Federal Railroad Administration (FRA), Association of American Railroads (AAR), and BNSF Railway procedures and policies. 32 hrs. lecture, 8 hrs. instructional lab/total

RRTM 135

Basic EMD Mechanical (3 CR)

Prerequisite: Approval of the railroad training administrator and JCCC department approval

This is the first in a series of four courses in Locomotive Mechanics. This course is designed to introduce the student to the basic operation, maintenance, repair requirements and trouble shooting for EMD diesel engines and support systems. 40 hrs. integrated lecture lab/total

RRTM 136

Basic GE Mechanical (3 CR)

Prerequisite: Approval of the railroad training administrator and the JCCC department approval

This is the second in a series of four courses in Locomotive Mechanics. This course is designed to introduce the student to the basic operation, maintenance, repair requirements and trouble shooting for GE diesel engines and support systems. 40 hrs. integrated lecture lab/total

RRTM 137

Locomotive Air Brake (3 CR)

Prerequisite: Approval of the railroad training administrator and the JCCC department approval

This course is the third in a series of four courses in Locomotive Mechanics. It is designed to provide the student an introduction to the operation, testing, maintenance, and troubleshooting for 26L and 30 ACDW locomotive air brake systems. This course also emphasizes FRA air brake requirements applicable to locomotives. 40 hrs. integrated lecture lab/total

RRTM 138

Locomotive FRA (3 CR)

Prerequisite: Approval of the railroad training administrator and the JCCC department approval

This course is the fourth in a series of four courses in Locomotive Mechanics. This course is designed to introduce the student to the Federal Railway

Administration and Department of Transportation Code of Federal Regulations Title 49, Parts 209, 218, 229, 231, and 232. 40 hrs. integrated lecture lab/total

RRTM 142

Locomotive Electricity (3 CR)

Prerequisite: Approval of the railroad training administrator and the JCCC department approval

This is the first in a series of four courses in Locomotive Electrical. This course is designed to introduce the student to the basic electrical theory and concepts related to locomotive electrical systems. 40 hrs. integrated lecture lab/total

RRTM 143

Low Horsepower Electrical (3 CR)

Prerequisite: Approval of the railroad training administrator and the JCCC program assistant dean

This is the second in a series of four courses in locomotive electrical. This course is designed to introduce the student to the operation, maintenance, and troubleshooting of EMD Low Horsepower locomotive electrical systems. 40 hrs. integrated lecture lab/total

RRTM 144

EMD Basic Electrical (3 CR)

Prerequisite: Approval of the railroad training administrator and the JCCC department approval

This is the third in a series of four courses in Locomotive Electrical, this course is designed to introduce the student to the basic operation, maintenance, repair requirements and trouble shooting of EMD diesel engines and support systems. 40 hrs. integrated lecture lab/total

RRTM 145

GE Dash 8/9 Electrical Systems (3 CR)

Prerequisite: Approval of the railroad training administrator and the JCCC department approval

This is the last in a series of four courses in Locomotive Electrical. This course is designed to introduce the student to the basic operation, maintenance, repair requirements and trouble shooting of GE Dash 8/9 locomotive systems. 40 hrs. integrated lecture lab/total

RRTM 150

Freight Car Open Top Loading Rules (3 CR)

Prerequisite: Approval of the railroad training administrator and the JCCC department approval

This course is designed to provide the student with a thorough knowledge of Freight Car Open Top Loading Rules as well as a firm understanding of other pertinent Association of American Railroads (AAR) and Federal Railroad Administration (FRA) requirements, with an emphasis on safe work practices. 40 hrs. integrated lecture lab/total

RRTM 152

Freight Car Air Brakes, Basic (2 CR)

Prerequisite: Approval of the railroad training administrator and the JCCC department approval

This course is designed to provide the student with a basic working knowledge of Freight Car Air Brake Equipment as well as a firm understanding of both Association of American Railroads (AAR) and Federal Railroad Administration (FRA) rules and requirements with emphasis on safe work practices. 40 hrs. integrated lecture lab/total

RRTM 154

Freight Car Air Brakes, Adv (2 CR)

Prerequisite: RRTM 152 and approval of the railroad training administrator and the JCCC department approval

This course is designed to provide the student with a thorough working knowledge and advanced diagnostic ability of Freight Car Air Brake Equipment as well as a firm understanding of both AAR and Federal rules and requirements with emphasis on safe work practices. 40 hrs. integrated lecture lab/total

RRTM 156

Freight Car AAR Billing (2 CR)

Prerequisite: Approval of the railroad training administrator and the JCCC department approval

This course is designed to provide the student a thorough working knowledge of the Freight Car AAR Billing system (CRB), the use of Handheld Computers for billing purposes, preparation of Original Records of Repairs and a firm understanding of both AAR and Federal rules and requirements. 40 hrs. integrated lecture lab/total

RRTM 158

Freight Car Intermodal (2 CR)

Prerequisite: Approval of the railroad training administrator and the JCCC program assistant dean

This course is designed to provide the student a thorough working knowledge of Freight Car Intermodal Equipment as well as a firm understanding of both BNSF and Federal Railroad Administration (FRA) rules and requirements with emphasis on safe work practices. 40 hrs integrated lecture lab/total

RRTM 160

Freight Car Computer (Com C) (2 CR)

Prerequisite: Enrollment restricted to BNSF employees only. Approval of the railroad training administrator and the JCCC department approval

This course is designed to provide a thorough working knowledge of computer programs used by BNSF Railway. Upon completion, the student should be able to navigate easily through both the TSS and MEMS computer programs used by BNSF Railway. 40 hrs. integrated lecture lab/total

RRTM 170

Railroad Mechanical Safety and Health (2 CR)

Prerequisites: Admission to the JCCC's railroad operations program, mechanical option, and completion of RRTM 124 with a grade of "C" or higher

This course is designed to teach the principles and policies governing railroad safety and health. Upon successful completion of this course, the student should be able to describe safety and health rules and policies, including applying a team process to improving safety and health, use and care of personal protective equipment, back injury prevention, hazard communications, lockout/tagout procedures, and hearing conservation. Students will be qualified to perform first aid and CPR and will be able to conduct a job safety analysis. 2.5 hrs. lecture/wk.

RRTM 251

Locomotive Diesel Engine Fundamentals (2 CR)

Prerequisites: Admission to the JCCC railroad operations program, mechanical option, and completion of RRTM 124 and RRTM 170 with a grade of "C" or higher

This course teaches the principles of diesel engine operation. Upon successful completion of this course, students will be able to identify 2-cycle and 4-cycle

diesel engine parts and describe how diesel engine lubricating, cooling and fuel systems operate. 1.5 hrs. lecture, 1 hr. lab/wk.

RRTM 253

Freight Car Fundamentals (2 CR)

Prerequisites: Admission to the JCCC's railroad operations program, mechanical option, and completion of RRTM 124 and RRTM 170 with a grade of "C" or higher

This course teaches the basic types and purposes of railroad freight cars. Upon successful completion of this course, students will be able to identify five types of railroad freight cars, explain their functions, describe their basic construction and explain purposes and references for AAR rules and regulations governing freight cars. 1.5 hrs. lecture, 1 hr. lab/wk.

RRTM 254

Basic Locomotive Electricity and Electronics (2 CR)

Prerequisites: Admission to the JCCC's railroad operations program, mechanical option and completion of RRTM 124 and RRTM 170 with a grade of "C" or higher

This course teaches the theory and operation of electrical and electronic circuitry on board modern locomotives and complements EMD and GE electrical systems classes. Upon successful completion of this course, students will be able to describe the theory and purpose of the processes and operation of locomotive electrical system components and maintenance techniques. 1.5 hrs. lecture, 1 hr. lab/wk.

Railroad Work Equipment (RRWE)

RRWE 136

Basic Electronics (2 CR)

Prerequisites: Approval of the railroad training director and the JCCC department approval

This course is an introduction to electronics with a review of basic electrical concepts. Instruction is provided on the operation and use of an oscilloscope, function generator, DC power supply, digital multi-meter and watt-meter. The course also includes an introduction to electronic devices, schematics, basic electronic formulas and programmable logic controllers. 1 hr. lecture, 1.5 hrs. lab/wk.

RRWE 138

Work Equipment Symbols (2 CR)

Prerequisites: Approval of the railroad training administrator and the JCCC department approval

This course is designed to introduce the mechanic to the different types of symbols found on railroad track equipment. Major symbols families that will be discussed include mechanical, hydraulic, pneumatic, ladder and logic devices. At the end of each major topic, several small projects will be assigned to ensure that understanding has been achieved. As a final project, students will be assigned a project that will test their ability to use correctly several different families of symbols in one complete working drawing. 1 1/2 hrs. lecture, 1 hr. lab/wk.

RRWE 146

Hydraulic Principles (2 CR)

Prerequisites: Approval of the railroad training administrator and the JCCC department approval

This course is designed for operators and maintenance personnel who use hydraulic systems in their work. Upon successful completion of this course,

the student should be able to apply hydraulic principles to improve operational availability of equipment. Students will learn to read hydraulic diagrams and perform preventive maintenance and troubleshooting. In order to explain component operation, there will be extensive use of cut-away components. 1 hr. lecture, 1.5 hrs. lab/wk.

RRWE 148

Electronic Principles (2 CR)

Prerequisites: Approval of the railroad training administrator and the JCCC department approval

This introductory course is designed to familiarize the student with the basic principles of electricity/electronics, the proper usage of a VOM or DMM, the reading of electrical prints in performing basic troubleshooting and the ability to identify basic hardware found in electrical circuits on maintenance-of-way equipment. 1 hr. lecture, 1.5 hrs. lab/wk.

RRWE 157

Fluid Power Systems (2 CR)

Prerequisites: Approval of the railroad training administrator and the JCCC department approval

This course is designed to introduce the field of fluid power. Major topics that will be discussed include the two types of fluid power systems, major parts in a fluid power system and their purpose, the calculations needed to size motors and cylinders, the proper preventive maintenance procedures needed to keep the system operating at peak efficiency, and the troubleshooting methods used to isolate the problem in a system that is not working correctly. 2 hrs. lecture/wk.

RRWE 190

Advanced Hydraulic Principles (2 CR)

Prerequisites: RRWE 146 and the approval of the railroad training administrator and the JCCC department approval

This advanced course contains information on hydraulic components found on the more complex maintenance-of-way equipment. Upon successful completion of this course, the student should be able to understand symbols, describe the theory of operation of and perform basic troubleshooting tasks on these components. 1 hr. lecture, 1.5 hrs. lab/wk.

RRWE 192

Advanced Electronic Principles (2 CR)

Prerequisites: RRWE 146 and the approval of the railroad training administrator and the JCCC department approval

This advanced course contains information on electronic components and circuits found on the more complex maintenance-of-way equipment. Upon successful completion of this course, the student should be able to understand symbols, describe the theory of operation of and perform basic troubleshooting tasks on these components. 1 hr. lecture, 1.5 hrs. lab/wk.

Reading (RDG)

RDG 125

Fundamentals of Reading (3 CR)

Prerequisite: Appropriate assessment score

This is a mandatory reading course based on JCCC assessment results, and successful completion of the course (defined as a "C" or higher) is required for students to progress in the assessment mandated sequence of reading courses. It is designed for students who need to improve their understanding of written expression. The focus is on the development of vocabulary, dictionary usage,

comprehension and written communication. The next course, RDG 126 Reading Skills Improvement, is also required to complete the mandatory reading program. RDG 125 does not fulfill degree requirements. 3 hrs./wk. Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$2 to \$5.

RDG 126

Reading Skills Improvement (3 CR)

Prerequisites: Appropriate test score; or either RDG 125 with a grade of "C" or higher; or EAP 111 and EAP 115 and EAP 122

This is the final mandatory reading course based on JCCC assessment scores, and successful completion of this course (defined as a grade of "C" or higher) is required to exit the assessment mandated sequence of reading courses. It is designed for students who need to improve their understanding of written expression. The focus of the course is on higher-level comprehension and vocabulary skills. Students use news articles and other materials to apply and practice skills learned in the class and to provide a background for written assignments. This course does not fulfill degree requirements. 3 hrs./wk. Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$2 to \$5.

RDG 127

College Reading Skills (3 CR)

Prerequisite: RDG 126 or appropriate assessment score

In this advanced course, designed for students who wish to further improve their reading, students will develop critical reading skills, expand background knowledge through reading, increase vocabulary, develop flexible reading techniques, and improve study and writing skills. Students use selected periodicals to apply and practice skills learned in the class and to provide a background for written assignments and class discussions. 3 hrs./wk. Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$2 to \$5.

Religion (REL)

REL 120

Exploring World Religions (3 CR)

This course is a comparative study of the world's major religious traditions. The basic beliefs of Hinduism, Buddhism, Confucianism, Daoism, Judaism, Christianity and Islam will be explored. A comparative framework for religious studies will be provided, and essential differences between Eastern and Western religions will be noted. Literary texts and iconographic images will be studied as appropriate. 3 hrs. lecture/wk.

REL 125

Religions of the East (3 CR)

Religions of the East is a detailed examination of the rich and diverse religious traditions of India, Tibet, China and Japan. Students will explore the histories, mutual influences, beliefs, and practices of Hinduism, Buddhism, the Jain religion, the Sikh religion, Confucianism, Daoism, the Tibetan religions, and Shinto, stressing the characteristics they share, as well as those that differentiate them from each other and from Western religions. Primary and secondary texts, as well as the iconographic and artistic traditions of these religions, will be examined as appropriate. 3 hrs. lecture/wk.

REL 126

Religions of the West (3 CR)

Religions of the West is a detailed examination of the rich and diverse religious traditions that originated in the ancient Near East (Judaism, Christianity, Islam), examples of indigenous traditions of Africa and North

America, and examples of "alternative religions" of modern/contemporary Western culture. The student will explore the histories, cultural influences, beliefs and practices of these religions, stressing the characteristics that they share and those that differentiate them, both from one another and from the religious traditions of South and East Asian cultures. The primary texts, as well as the iconographic and artistic traditions of these religions, will be examined as appropriate. 3 hrs. lecture/wk.

REL 150

Islam: Religion & Civilization (3 CR)

This course covers the context in which Islam arose; the career of the Prophet Muhammad; the main teachings and practices of the religion; the Qur'an and other early Islamic literature; subsequent political developments in the religion and its spread; its main religious branches; its history during the Middle Ages; the Christian crusades and their consequences; the major components of Islamic civilization including law, the arts, literature, philosophy, science, and mathematics; Sufi; the effects of Western imperialism upon Islamic states; major developments in Islamic thought and practice since the seventeenth century; the Islamic diaspora; and Islam today. REL 150 is the same course as HIST 150 and HUM 150; enroll in one only. 3 hrs. lecture/wk.

Respiratory Care (RC)

RC 125

Beginning Principles of Respiratory Care (4 CR)

Prerequisite: Admission to the respiratory care program

This is an introduction to the basic therapeutic modalities used in respiratory care, including patient safety and comfort considerations, infection control and standard precautions, medical gas delivery, humidity and aerosol therapy, basic respiratory pharmacology, secretion clearance techniques and lung expansion therapy. Emphasis is on patient assessment, clinical application of therapies, therapy evaluation and communication techniques. The roles of respiratory care in the health care system and basic respiratory care service scope, organization and operation are also introduced. Students will have the opportunity to work with patients after two to three weeks of introductory lecture and lab demonstration and practice. Enrollment in certain courses may require a professional liability fee of \$16.00. Students will be notified via their JCCC student e-mail account if the fee is due and instructions on how to pay the fee. 6 hrs. lecture, 16 hrs. lab/wk. Summer.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$150 to \$250.

RC 130

Respiratory Care Equipment (4 CR)

Prerequisite: Admission to the respiratory care program

This course is an introduction to basic respiratory care equipment. The operation, function, calibration, troubleshooting and maintenance for oxygen administration devices, aerosol generators, humidifiers and hyperinflation devices will be addressed. Medical gas production and storage will also be addressed. 6 hrs. lecture, 8 hrs. lab/wk. Summer

RC 135

Cardiopulmonary Medicine I (1 CR)

Prerequisite: Admission to the respiratory care program

This is the first of three courses that provide a detailed review of the respiratory and cardiac system anatomy and physiology and the clinical implications of normal and abnormal function. 2 hrs./wk. Summer.

RC 220

Cardiopulmonary Physiology (2 CR)

Prerequisite: Successful completion of the summer sequence of respiratory care courses

This is a comprehensive study of the physiology and pathophysiology of the pulmonary, cardiovascular and renal systems as they relate to respiratory care. 2 hrs./wk. Fall.

RC 230

Clinical Topics and Procedures I (4 CR)

Prerequisite: Successful completion of the summer sequence of respiratory care courses

This course supplements the fall clinical experiences. Concepts, techniques and procedures learned in the summer semester are reinforced. The student will develop new understandings and skills in the acute care, basic emergency care and introductory-level critical care settings. Emphasis will be on arterial blood gas procurement and analysis, cardiac rhythm assessment and management, airway equipment and management procedures, patient management of obstructive lung disorders, perioperative care and chest trauma. In addition, basic mechanical ventilation concepts and techniques will be addressed as they relate to physiologic effects, ventilator commitment, management and basic troubleshooting. 3 hrs. lecture, 3 hrs. lab/wk. Fall

RC 231

Clinical Topics and Procedures II (4 CR)

Prerequisite: Successful completion of the fall sequence of respiratory care courses

This course supplements the spring clinical experiences. Concepts, techniques and procedures learned in the fall semester are reinforced. The student will refine understandings of and skills in the acute care, basic emergency care and critical care settings. Emphasis will be on ventilator management of patients with specific lung insults, neurological compromise and cardiac problems. Advanced mechanical ventilation concepts and techniques will be addressed as they relate to physiologic effects, management and troubleshooting. Home care, pulmonary rehabilitation, physician-assisted procedures, cardiopulmonary stress testing, patient case management and department management will be addressed. 3 hrs. lecture, 3 hrs. lab/wk. Spring.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$100 to \$200.

RC 233

Respiratory Care of Children (2 CR)

Prerequisite: RC 230

The focus will be on the respiratory care of neonatal and pediatric patients, with emphasis on the management of cardiopulmonary disease states unique to children. Information will be based on developmental anatomy and physiology, pathology, diagnostic/laboratory assessments, and associated patient management in the acute, critical, emergency care, transport and home care settings. 2 hrs./wk. Spring.

RC 235

Cardiopulmonary Medicine II (2 CR)

Prerequisite: Successful completion of the summer sequence of respiratory care courses

This is the second in a series of three courses that provide a detailed review of the physical and diagnostic assessments of the cardiopulmonary patient and the related clinical implications of the assessment finding. 2 hrs. lecture/wk. Fall

RC 236**Cardiopulmonary Medicine III (2 CR)**

Prerequisite: Successful completion of the fall sequence of respiratory care courses

This is the third in a series of three courses that provide a detailed review of pulmonary disorders, their pathology and their management. 2 hrs. lecture/wk. Spring

RC 240**Cardiopulmonary Pharmacology (2 CR)**

Prerequisite: Successful completion of the summer sequence of respiratory care courses

This course acquaints the student with general principles of pharmacology and provides a comprehensive review of all drugs and drug groups that are either administered by respiratory-care practitioners or play an integral part in the management of patients they may encounter. Emphasis is on the clinical application of pharmacological agents, their therapeutic effects, mechanism of action and adverse effects, rather than the biochemistry involved. 2 hrs. lecture/wk. Fall.

RC 271**Clinical Practice I (6 CR)**

Prerequisite: Successful completion of the summer sequence of respiratory care courses

This course is the clinical application of respiratory care therapeutic and diagnostic procedures. Students will have the opportunity to work with patients under close supervision to further develop their skill and understanding of basic respiratory care procedures for adults and children. The course objectives progress throughout the semester to involve the student initially in basic care of the less critically ill patient. As their comfort level and exposures progress, students are allowed to work with the more critically ill patients. Enrollment in certain courses may require a professional liability fee of \$16.00. Students will be notified via their JCCC student e-mail account if the fee is due and instructions on how to pay the fee. 24 hrs./wk. Fall.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$100 to \$200.

RC 272**Clinical Practice II (6 CR)**

Prerequisite: Successful completion of the fall sequence of respiratory care courses

This course is the clinical application of respiratory care therapeutic and diagnostic procedures. Students will have the opportunity to work with patients under close supervision to further develop their skill and understanding of critical respiratory care procedures for adults and children. Students will also be involved in specialty activities to include physician rounds, pulmonary rehabilitation, home care, and pulmonary function. Enrollment in certain courses may require a professional liability fee of \$16.00. Students will be notified via their JCCC student e-mail account if the fee is due and instructions on how to pay the fee. 24 hrs./wk. Spring.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$100 to \$200.

Introduction to Sociology introduces students to sociology, the "science of society," and its approach to human social life. The course shows students how sociologists conduct research, and it describes the basic concepts and theories sociologists use to explain the social world. This course may be offered as a Learning Communities (LCOM) section, see current credit schedule for LCOM details.

SOC 125**Social Problems (3 CR)**

Selected social problems will be analyzed. Problems associated with race, gender, class, deviance, crime and ecology will be examined as perennial issues in contemporary society. In addition, other topics will be analyzed as they arise or as the instructor and students determine them to be significant. The history and development of each problem, as well as possible solutions, will be examined from a variety of perspectives. 3 hrs. lecture/wk.

SOC 127**Criminology (3 CR)**

This class will explore various explanations for criminal behavior including choice, biosocial, psychological, social structure and social process theories. Society's responses to crime will also be examined. 3 hrs. lecture/wk. ADMJ 127 and SOC 127 are the same course. Do not enroll in both.

SOC 131**Marriage and the Family (3 CR)**

This is a sociological examination of marriage and the family as a social institution. It will emphasize changing roles, family formation, socialization, domestic conflict, interaction among family members and marriage partners, and the role of marriage and the family in society. 3 hrs./wk. This course may be offered as a Learning Communities (LCOM) section, see current credit schedule for LCOM details.

SOC 146**Introduction to Social Work and Social Welfare (3 CR)**

This course will introduce the student to the profession of social work and to the history and development of social welfare and social service systems in the United States. This is a required introductory course in the sequence of study leading to a professional degree (BSW, MSW or DSW) in social work. 3 hrs./wk.

SOC 147**Social Work and Social Justice (3 CR)**

The history of social movements in the United States will be integrated into exploration of current economic, political, religious and psychosocial issues, at micro and macro practice levels, relevant to the professional practice of social work at the BSW or MSW level of practice. This course is designed to support the National Association of Social Workers (NASW) Code of Ethics and Council of Social Work Education (CSWE) requirements for culturally competent practice. 3 hrs./wk.

SOC 152**Perspectives on Aging (3 CR)**

Social aspects of aging will be identified. Areas of special interest will include research themes and demographic trends; aging and its relationship to family, the economy, politics, religion and education; the effect of cultural values on behavior; and the future of the elderly. 3 hrs./wk.

SOC 165**Chinese Society: Past and Present (3 CR)**

An introduction to Chinese society since 1949, this course examines Chinese society and culture and focuses on contemporary social change while tracing

Sociology (SOC)**SOC 122****Introduction to Sociology (3 CR)**

the historical roots of Chinese culture and institutions. Social processes such as social movements, institutional development, political change, social organization and conflict are examined and analyzed. 3 hrs. lecture/wk. This course is typically offered in the spring semester.

SOC 200

Intercultural Applications (3 CR)

Prerequisite or corequisite: SPD 180

This course will provide students with direct experience with people from other cultures and in community organizations. Through their work with international representatives and service agencies, students will gain experiential and reflective knowledge of various cultures, social institutions and social issues and will develop skills needed to successfully negotiate intercultural settings. Enrollment in the course requires participation in a weekend retreat and some additional hours in activities outside the classroom. 3 hrs. lecture/wk. This course is typically offered in the spring semester.

SOC 205

Sociology of Food (3 CR)

Through this exploration of food in society, students will discover the fundamental significance of the relationships between people and food. In studying the ways food is produced and consumed, we will also discover the ways food shapes and expresses relationships among people. This most basic of human needs is easily taken for granted by those who have plenty, while the causes of hunger are easily dismissed or misunderstood. This course will address such misunderstandings, as well as issues of culture, meaning, identity, power, and ecology, all through a focus on food. 3 hrs. lecture/wk.

SOC 210

Methodology in Social Sciences (3 CR)

Prerequisite: PSYC 130 or SOC 122 or ECON 230 or POLS 122

This course deals with scientific research methods utilized in the social sciences, especially psychology, sociology, political science, and anthropology. The course examines a wide range of data collection methodologies including observation, questionnaire construction, and controlled experimentation. The course will be beneficial for analyzing and evaluating the quality of research findings reported in both the popular and academic press. It will also be useful to those who plan to engage in occupations requiring the use of research methodology. 3 hrs. lecture/wk. SOC 210, PSYC 210 and POLS 210 are the same course. Do not enroll in more than one of these courses.

Speech/Debate (SPD)

SPD 120

Interpersonal Communication (3 CR)

This course focuses on the principles of effective speech communication in small group and one-to-one relationships. Theory and practice of interpersonal communication are studied and applied to a variety of life situations. The course focuses on perception, self-concept, listening, conflict, language, nonverbal communication and culture as they relate to interpersonal relationships. 3 hrs./wk. This course may be offered as a Learning Communities (LCOM) section, see current credit schedule for LCOM details. Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$5 to \$10.

SPD 121

Public Speaking (3 CR)

This course is designed to meet the needs of people who wish to improve their ability to prepare and deliver effective oral presentations before an audience.

This fundamental speech course emphasizes creation of ideas, research techniques, outlining, audience analysis, organization and delivery techniques. Students will deliver a variety of speech types including informative and persuasive. 3 hrs./wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$5 to \$10.

SPD 125

Personal Communication (3 CR)

This course is concerned with the most frequently used human communication skills, interpersonal communication and public speaking. The course demonstrates the natural relationships between communicating one-to-one and in public, showing that skills in one can be employed in the other and giving practice in both. Focus is on communication theory, listening, concepts of self, language, research techniques, perception and various types of public speaking, such as impromptu, group panel, informative and persuasive. 3 hrs./wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$5 to \$10.

SPD 128

Business and Professional Speech (3 CR)

Students will improve their verbal communication skills both formally and informally by studying interviewing, delivering effective presentations, working in groups, negotiating, practicing listening, and recognizing verbal and nonverbal messages. The course is designed for the student presently working in business or planning to pursue a business degree. 3 hrs./wk.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$5 to \$10.

SPD 130

Elementary Debate (3 CR)

This course is designed for those students interested in participating in competitive intercollegiate debate. Through the course, students will learn debate theory, debate skills and techniques, and methods of becoming successful intercollegiate competitors. Students are expected to travel to tournaments in order to develop skills in research, argument construction, debate format, intercollegiate debate speaking style and refutation. Students enrolling in this course will be required to participate as members of the intercollegiate debate team and will attend an appropriate number of weekend intercollegiate debate tournaments a semester. 3 hrs./wk.

SPD 132

Intermediate Debate I (3 CR)

Prerequisite: SPD 130 or the equivalent

This course is designed for those students interested in participating in competitive intercollegiate debate. Through the course, students will learn debate theory, debate skills and techniques, and methods of becoming successful intercollegiate competitors. Students are expected to travel to tournaments in order to develop skills in research, argument construction, debate format, intercollegiate debate speaking style and refutation. Students enrolling in this course will be required to participate as members of the intercollegiate debate team and will attend an appropriate number of weekend intercollegiate debate tournaments a semester. 3 hrs./wk.

SPD 140

Oral Interpretation of Literature (3 CR)

The student will develop techniques for effective spoken performance of literature. Using poetry, fiction and nonfiction, students will create literary interpretations and then master both the verbal and nonverbal methods necessary for effective spoken expression of those interpretations. This course

includes topics such as selecting literary works for performance, interpretation of literary works, audience analysis and performance. Skills acquired in this course will be essential to actors, broadcast journalists, educators and other public speakers. 3 hrs./wk.

SPD 141

Voice and Speech (3 CR)

The student will develop techniques to expand breath support, vocal range and dynamics; develop precise articulation; and strengthen the connection between thought and sound. Through the use of exercises to free, develop and strengthen the voice, the student will be better able to communicate the full range of human emotion and all the nuances of thought. Skills acquired in this course are essential for actors, broadcast journalists, educators and other public speakers. 3 hrs./wk.

SPD 180

Intercultural Communication (3 CR)

The intercultural communication course is concerned with communication theory as it relates to cross-culture interactions. This course utilizes concepts drawn from sociology, psychology, anthropology and communication. Focus is on identifying the cultural bases of beliefs, attitudes, values and behaviors. Objectives include recognizing commonalities across cultures, tolerating ambiguity in a variety of situations, developing a more global multicultural perspective, identifying and appreciating other cultural orientations, and recognizing and assigning cultural explanations to specific behaviors. 3 hrs/wk.

SPD 230

Intermediate Debate II (3 CR)

Prerequisite: SPD 132 or equivalent course

This course is designed for students interested in participating in competitive intercollegiate debate. Through the course, students will learn debate theory, debate skills and techniques, and methods of becoming successful intercollegiate competitors. Students are expected to travel to tournaments in order to develop skills in research, argument construction, debate format, intercollegiate debate speaking style and refutation. Students enrolling in this course will be required to participate as members of the intercollegiate debate team and will attend an appropriate number of weekend intercollegiate debate tournaments a semester. 3 hrs./wk.

SPD 235

Advanced Debate (3 CR)

Prerequisite: SPD 230 or equivalent course

This course is designed for students interested in participating in competitive intercollegiate debate. Through the course, students will learn debate theory, debate skills and techniques, and methods of becoming successful intercollegiate competitors. Students are expected to travel to tournaments in order to develop skills in research, argument construction, debate format, intercollegiate debate speaking style and refutation will be developed. Students enrolling in this course will be required to participate as members of the intercollegiate debate team and will attend an appropriate number of weekend intercollegiate debate tournaments a semester. 3 hrs./wk.

Surgical Technology (KST)

KST 100

Introduction to Surgical Technology (2 CR)

Explores historical aspects of surgery, health care facilities, and organizations. Includes the roles, duties, and responsibilities of the surgical team members. Ethical, legal and moral issues in health care and surgery are addressed.

Focuses on effective communication skills, accurate medical terminology, and the impact of transcultural psychosocial outcomes for clients in the surgical setting. Also includes organization and physical layout of the operating room suite. 2 hrs. lecture/wk. Course taught at MCC-Penn Valley Community College. Students should contact the Penn Valley coordinator of surgical technology about the class meeting times and beginning and ending dates of classes. Call 816-759-4000.

KST 102

Introduction to Fundamentals I (5 CR)

Prerequisites: The student must meet the entrance requirements and be accepted into the surgical technology program.

Applies principles of medical and surgical asepsis. Focuses on preparation and maintenance of the sterile field, identification, care and handling of instruments, sutures, supplies and equipment. Emphasis is on basic skills of the surgical technologist in preparation for and during the operative procedure. Practices maintaining a safe client environment and includes the responsibilities and duties of surgery personnel. Common surgical techniques and procedures. 3 hrs. lecture, 4 hrs. lab/week. Course taught at MCC-Penn Valley Community College. Students should contact the Penn Valley coordinator of surgical technology about the class meeting times and beginning and ending dates of classes. Call 816-759-4000.

KST 103

Introduction to Fundamentals II (6 CR)

Prerequisites: KST 100 and KST 102 and KST 106

Duties of the surgical technologist that include maintaining a safe client environment and emphasizes the role of the surgical technologist in the first scrub role. Common surgical techniques and procedures are introduced. 3 hrs. lecture, 4 hrs. lab/wk, 1 hr. clinical/week. Course taught at MCC-Penn Valley Community College. Students should contact the Penn Valley coordinator of surgical technology about the class meeting times and beginning and ending dates of classes. Call 816-759-4000.

KST 104

Body Structure and Function (2 CR)

Prerequisites: Students must meet entrance requirements and must be accepted into the surgical technology program.

Introduces students to the major structures and functions of the human body. Is taught according to body systems. Laboratory time is used to introduce and reinforce classroom instruction. 1 hr. lecture, 1 hr. lab/wk. Course taught at Penn Valley Community College. Students should contact the Penn Valley coordinator of surgical technology about the class meeting times and beginning and ending dates of classes. Call 816-759-4000.

KST 105

Pharmacology for the Surgical Technologist (2 CR)

Metric, apothecary, household and linear systems of measurement. Anesthetic agents and stages of anesthesia are introduced. Emphasis on the use and preparation of drugs and solutions commonly used during operative procedures. 2 hrs. lecture/wk. Course taught at MCC-Penn Valley Community College. Students should contact the Penn Valley coordinator of surgical technology about the class meeting times and beginning and ending dates of classes. Call 816-759-4000.

KST 106

Microbiology for the Surgical Technologist (3 CR)

Study of structure, function and pathogenicity of micro-organisms, with an emphasis placed on the infectious process, principles of sterilization, disinfecting, environmental sanitation, treatment, and the immune response. 3 hrs. lecture/wk. Course taught at MCC-Penn Valley Community College. Students should contact the Penn Valley coordinator of surgical technology

about the class meeting times and beginning and ending dates of classes. Call 816-759-4000.

KST 109

Surgical Procedures I (8 CR)

Focus is on the diagnosis, pathology and surgical sequence of general surgery, gynecological surgery, genitourinary surgery and laparoscopic surgery. Included is discussion of postoperative care and complications. 4 hrs. lecture, 12 hrs clinical/wk. Course taught at MCC-Penn Valley Community College. Students should contact the Penn Valley coordinator of surgical technology about the class meeting times and beginning and ending dates of classes. Call 816-759-4000.

KST 110

Surgical Procedures II (8 CR)

Pathology and surgical sequence of surgical specialties, including preoperative care and client outcomes for: ophthalmology, otorhinolaryngology, head and neck surgery, plastic/reconstructive/burn, and orthopedics. 4 hrs. lecture, 12 hrs. clinical/wk. Course taught at MCC-Penn Valley Community College. Students should contact the Penn Valley coordinator of surgical technology about the class meeting times and beginning and ending dates of classes. Call 816-759-4000.

KST 111

Career Development for the Surgical Technologist (2 CR)

This course emphasizes skills in developing employability. Included is an exploration of the advanced practice role as a first assistant in the hospital operating room setting as well as other areas of employment. The process of becoming certified and requirements for maintaining certification are explored. 2 hrs. lecture/wk. Course taught at MCC-Penn Valley Community College. Students should contact the Penn Valley coordinator of surgical technology about the class meeting times and beginning and ending dates of classes. Call 816-759-4000.

KST 114

Surgical Procedures III (8 CR)

Focus is on diagnosis, pathology and surgical sequence with complex surgical specialties: neurosurgery, cardiovascular and peripheral vascular, thoracic, pediatric, geriatric, trauma and surgery. 4 hrs. lecture, 12 hrs. clinical/wk. Course taught at MCC-Penn Valley Community College. Students should contact the Penn Valley coordinator of surgical technology about the class meeting times and beginning and ending dates of classes. Call 816-759-4000.

Theater (THEA)

THEA 120

Introduction to Theater (3 CR)

Students will be introduced to a variety of theatrical experiences, read great plays and see live theater presentations. They also will discuss theater practices, dramatic literature and the history of the theater. Includes 12 required shop hours. 3 hrs./wk.

THEA 121

Fundamentals of Acting (3 CR)

This course is designed to teach the fundamentals of acting for those students who have little or no experience in the theatre. We will overview all the tools used by actors, including improvisation, vocal, physical, and psychological warm-ups, building trust, relaxation, and discipline techniques. Students will complete a minimum of two in-class performances. 3 hrs. lecture/wk.

THEA 123

Improvisation for the Theater (2 CR)

Prerequisite: THEA 130

The student will be introduced to theater improvisation, which will emphasize creative stage activities not requiring a written script. Participation in activities of this course will release and enhance the work of serious acting students and show the students how to approach characterization viscerally rather than intellectually, spontaneously rather than intentionally. 2 hrs. lecture/wk.

THEA 130

Acting I (3 CR)

Prerequisite: THEA 121 or permission of instructor

This course will expand on the skills learned in Fundamentals of Acting and will concentrate on developing scene work. Emphasis will be on discovering and expanding creative potential through exercises in self-awareness, posture, movement, voice and personality projection. Students will complete a minimum of three in-class performances. 3 hrs./wk. plus rehearsals and performances.

THEA 131

Voice and Speech (3 CR)

The student will develop techniques to expand breath support, vocal range and dynamics; learn precise articulation; and strengthen the connection between thought and sound. Through the use of exercises to free, develop and strengthen the voice, the student will be better able to communicate the full range of human emotion and all the nuances of thought. Skills acquired in this course are essential for actors, broadcast journalists, educators and other public speakers. 3 hrs. lecture/wk. This course is typically taught in the fall semester.

THEA 133

Technical Practicum I (1 CR)

Students gain practical experience in technical theater in this course. The student completes the course objectives by working in the theatre department's productions and/or working in the scene/costume shop during the semester. 2 hrs. lab/wk.

THEA 134

Performance Practicum I (1 CR)

This course will enable students to gain practical experience in performance-related aspects of college theater productions. Admission may be granted upon being cast in a JCCC production. 2 hrs. lab/wk.

THEA 135

Stage Makeup (2 CR)

An introductory course designed to provide an understanding of, and practical skill in, the design and application of makeup for theatrical performance. 1 hr. lecture, 1 hr. lab/wk. This course is typically taught in the spring semester. Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$30 to \$60.

THEA 136

Basic Costuming (3 CR)

This is a survey of the theory, techniques and skills used in costume creation for the theater and film. Areas of study and practice include basic construction, patterning and cutting; fabrics, design and realization; millinery; craftwork; and organization. 2 hrs. lecture, 2 hrs. lab/wk. This course is typically taught in the fall semester.

THEA 137**Movement for the Stage (3 CR)**

The student will develop techniques to expand kinesthetic awareness, flexibility, physical freedom and the language of movement. Through the use of exercises to free, develop and strengthen physical vocabulary, the student will be better able to communicate the physical life of a character. Skills acquired in this course will include mime, stage combat, commedia, improvisation and circus techniques. 3 hrs. lecture/wk. This course is typically taught in the spring semester.

THEA 138**Oral Interpretation of Literature (3 CR)**

The student will develop techniques for effective spoken performance of literature. Using poetry, fiction and nonfiction, students will create literary interpretations and then master both the verbal and nonverbal methods necessary for effective spoken expression of those interpretations. This course includes topics such as selecting literary works for performance, interpretation of literary works, audience analysis and performance. Skills acquired in this course will be essential to actors, broadcast journalists, educators and other public speakers. 3 hrs. lecture/wk. This course is typically taught in the fall semester.

THEA 140**Basic Stagecraft (3 CR)**

This course introduces the general student and theater major to basic stagecraft. Through lectures, in-class demonstrations and hands-on experiences, the student will gain a working and appreciative knowledge of technical theater. The course includes 15 lab hours and attendance at two live theatrical productions. 2 hrs. lecture, 2 hrs. lab/wk. This course is typically offered in the fall semester.

THEA 145**Introduction to Theater Design (3 CR)**

This lecture and studio class introduces the theory and practice of theater design and the graphics and standards of entertainment technology. Emphasis will be on the processes and practices used in designing for the performing arts. Using course-taught computer and hand-based drawing techniques, the student will create a portfolio of his or her work through in-class projects. 2 hrs. lecture, 2 hrs. lab/wk. This course is typically offered in the spring semester.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be \$20 to \$80.

THEA 209**Script Analysis (3 CR)**

Script Analysis introduces students to those methods used in the theater for the study and/or analysis of plays. Directors, actors and designers use script analysis during their preparatory work and then continue to use it through the rehearsal process until, and sometimes even after, the production has finished. This course is of value to the student because it focuses on the crucial elements of a play encountered during the production process including dramatic structure, content and meaning. 3 hrs. lecture/wk. This course is typically offered in the fall semester only.

THEA 225**Reader's Theater (3 CR)**

Students will combine acting, interpretation and rhetoric as they analyze and perform poetry, prose and dramatic literature and present public performances. Through the process of reading, studying, investing, rehearsing and performing literary and nonliterary works, the student will learn to pay particular attention to the voice embodied in a given text and the cultural and social context within which that voice speaks. 3 hrs./wk. plus rehearsals. This course is typically

taught in the spring semester.

THEA 230**Acting II (3 CR)**

Prerequisite: THEA 130

This continuation of Acting I will focus on more in-depth character analysis and development, emphasizing the actor's responsibility in creating the character. 3 hrs./wk. plus rehearsals and performances.

THEA 232**Play Reading and Production (3 CR)**

Prerequisite: THEA 120

This course is an introductory survey in the process of reading and producing plays. The focus of the course will be on reading a play and understanding the steps necessary to create a production of that play. Some of the topics explored will include play selection, script analysis, the audition process, the rehearsal process, stage management, directing, and the actor-audience-director relationship. 3 hrs. lecture/wk.

THEA 233**Technical Practicum II (1 CR)**

Prerequisite: THEA 133

Students gain practical experience in technical theater in this course. The student completes the course objectives by working on the theatre department's productions and/or working in the scene/costume shop during the semester. 4 hrs.lab/wk.

THEA 234**Performance Practicum II (1 CR)**

Prerequisite: THEA 134

This course will enable students to gain further practical experience in the performance-related aspects of college theater productions. Admission may be granted upon being cast in a JCCC production. 2 hrs.lab/wk.

THEA 235**Technical Practicum III (2 CR)**

Prerequisite: Permission of instructor

Students will gain professional technical theater experience in this course by working as an apprentice for the theater department and an outside professional performing arts agency. While on campus and/or on location, students will build and install a stage and/or scenery as they work alongside theater professionals to execute theatrical productions. 4 hrs. lab/wk. This course is offered in summer only; permission from instructor is required to enroll.

THEA 240**Costuming (1 CR)**

A 16-week course designed to introduce basic techniques in costume design and research and to provide an overview of the scope and impact of costume as a technical and artistic aspect of theater and film. 1 hr. lecture, 1 hr. lab/wk. This course is typically taught in the spring semester.

THEA 275**Selected Topics in Theatre I (3 CR)**

Prerequisite: Permission of instructor

This course periodically offers specialized or advanced discipline-specific content related to performance, not normally taught in the curriculum, to

interested and qualified students within the program. 3 hrs. lecture/wk.

THEA 276

Selected Topics in Theatre II (3 CR)

Prerequisite: Permission of instructor

This course periodically offers specialized or advanced discipline-specific content related to technical theatre and theatre design, not normally taught in the curriculum, to interested and qualified students within the program. 3 hrs. lecture/wk.

Veterinary Technology (KSAH)

KSAH 100

Introduction to Veterinary Technology (2 CR)

Orientation to career opportunities available in veterinary technology. Professional ethics, public relations and the psychological adjustment of the student in terms of understanding the need for physical treatment and care of animals. Client relations, vaccination programs, regulatory organizations, receptionist duties, breeds and breed characteristics neutering, puppy care, diets and hospital management. 2 hrs. lecture/wk. Course taught at MCC-Maple Woods Community College. Students should contact the Maple Woods coordinator of veterinary technology about the class meeting times and beginning and ending dates of classes. Call 816-437-3000.

KSAH 101

Principles of Animal Science I (3 CR)

Principles of handling, housing and management of animals. Basic dietary and sanitation requirements. Restraint and handling, administration of medications, bathing, skin scraping, and basic laboratory tests. Emphasis on animal physiology including the cell, muscle, nervous, respiratory and cardiovascular systems. Introduction to anesthesia and general animal nursing. 2 hrs. lecture, 2 hrs. lab/wk. Course taught at MCC-Maple Woods Community College. Students should contact the Maple Woods coordinator of veterinary technology about the class meeting times and beginning and ending dates of classes. Call 816-437-3000.

KSAH 108

Clinical Mathematics for Veterinary Technicians (1 CR)

Prerequisites: Admission into the Veterinary Technician Program

Vocabulary. Metric and apothecary conversions. Drug and dosage calculations. Preparation of solutions based on percents, ratios and drugs. Infusion flow rates and constant rate infusion. 1 hr./wk. Course taught at Maple Woods Community College. Students should contact the Maple Woods coordinator of veterinary technology about the class meeting times and beginning and ending dates of classes. Call 816-437-3000.

KSAH 110

Principles of Animal Science II (3 CR)

Prerequisite: KSAH 101

Anesthesia and the physiology of the digestive, urinary, endocrine and reproductive systems. Blood and specimen collection, basic bandaging and introduction to surgical preparation and radiographic processing. 2 hrs. lecture, 2 hrs. lab/wk. Course taught at MCC-Maple Woods Community College. Students should contact the Maple Woods coordinator of veterinary technology about the class meeting times and beginning and ending dates of classes. Call 816-437-3000.

KSAH 111

Sanitation and Animal Care (2 CR)

Introduction to microorganisms, sanitation, disinfectants, sterilization and Zoonotic diseases and public health problems. Introduction to parasitology, vermin control, specimen preservation, instrument identification, cleaning and sterilization, and sanitary procedures in patient care. 1 hr. lecture, 2 hrs. lab/wk. Course taught at MCC-Maple Woods Community College. Students should contact the Maple Woods coordinator of veterinary technology about the class meeting times and beginning and ending dates of classes. Call 816-437-3000.

KSAH 200

Veterinary Hospital Technology I (3 CR)

Prerequisites: KSAH 101 and KSAH 110

Administration of anesthetics and surgical assisting, bandaging, casting, blood transfusions, surgical preparations and postoperative procedures, parenteral fluid administration, and intravenous hookups. Introduction to orthopedics, electrocardiography, bone marrow cytology, and pharmacology. 1 hr. lecture, 4 hrs. lab/wk. Course taught at MCC-Maple Woods Community College. Students should contact the Maple Woods coordinator of veterinary technology about the class meeting times and beginning and ending dates of classes. Call 816-437-3000.

KSAH 201

Clinical Pathology Techniques I (4 CR)

Introduction to laboratory procedures including preparation of blood smears, cell identification, fecal analysis and parasitology. Urinalysis and urine sediment valuation. 1 hr. lecture, 6 hrs. lab. Course taught at MCC-Maple Woods Community College. Students should contact the Maple Woods coordinator of veterinary technology about the class meeting times and beginning and ending dates of classes. Call 816-437-3000.

KSAH 202

Veterinary Anatomy (5 CR)

Prerequisite: BIOL 101 (Maple Woods) or BIOL 127 and KSAH 101 and 110

Basic principles of anatomy using a systemic approach. Physiology as it relates to anatomy and applicable pathology involving the animal body systems. Comparison of the animal species using the cat for dissection. 3 hrs. lecture, 4 hrs. lab/wk. Course taught at MCC-Maple Woods Community College. Students should contact the Maple Woods coordinator of veterinary technology about the class meeting times and beginning and ending dates of classes. Call 816-437-3000.

KSAH 203

Laboratory Animal Technology (2 CR)

Prerequisites: KSAH 101, KSAH 110 and KSAH 201

Restraint and handling of laboratory animals and birds. Blood collection, restraint, identification, medicating, anesthesia and specimen collection. Technical skills for laboratory animal research. 1 hr. lecture, 2 hrs. lab/wk. Course taught at MCC-Maple Woods Community College. Students should contact the Maple Woods coordinator of veterinary technology about the class meeting times and beginning and ending dates of classes. Call 816-437-3000.

KSAH 209

Equine Medicine and Management (3 CR)

Prerequisite: KSAH 212

Breeds and types of horses and their use. A study of conformation as it relates to soundness, horse psychology, fitting, conditioning, first aid and restraint. Parasites and their control, farm management for safety, nutrition, mare care, breeding, foaling, hoof soundness, equine diseases and their prevention.

Laboratory procedures. 2 hrs. lecture, 2 hrs. lab/wk. Course taught at MCC-Maple Woods Community College. Students should contact the Maple Woods coordinator of veterinary technology about the class meeting times and beginning and ending dates of classes. Call 816-437-3000.

KSAH 210

Veterinary Hospital Technology II (3 CR)

Prerequisite: KSAH 200

Introduction of anesthetics, surgical assisting, bandaging, casting, blood transfusions, surgical preparations and postoperative care. Administration of parenteral fluid and emergency treatments. Introduction to ophthalmology and dermatology. 1 hrs. lecture, 4 hrs. lab/wk. Course taught at MCC-Maple Woods Community College. Students should contact the Maple Woods coordinator of veterinary technology about the class meeting times and beginning and ending dates of classes. Call 816-437-3000.

KSAH 211

Clinical Pathology Techniques II (5 CR)

Prerequisite: KSAH 201

Theory and performance in hematologic, urinalysis, clinical chemistry and parasitology. Introduction to simple immunologic tests, blood coagulation tests, and bone marrow evaluation. Emphasis on hematology and hemoparasites. 2 hrs. lecture, 6 hrs. lab/wk. Course taught at MCC-Maple Woods Community College. Students should contact the Maple Woods coordinator of veterinary technology about the class meeting times and beginning and ending dates of classes. Call 816-437-3000.

KSAH 212

Large Animal Technology (4 CR)

Prerequisites: KSAH 101 and KSAH 110

Techniques necessary to assist the veterinarian in a large animal or mixed practice and in research facilities. Bovine, porcine, ovine and caprine medicine and management, including restraint, blood collection, medicating and nursing techniques. 2 hrs. lecture, 4 hrs. lab/wk. Course taught at MCC-Maple Woods Community College. Students should contact the Maple Woods coordinator of veterinary technology about the class meeting times and beginning and ending dates of classes. Call 816-437-3000.

KSAH 213

Radiology and Electronic Procedures (2 CR)

Intensive study and practice in radiological techniques, radiographic exposure techniques, film processing, contrast radiography and machine electronics. 1 hr. lecture, 2 hrs. lab/wk. Course taught at MCC-Maple Woods Community College. Students should contact the Maple Woods coordinator of veterinary technology about the class meeting times and beginning and ending dates of classes. Call 816-437-3000.

KSAH 214

Veterinary Technician Internship (6 CR)

Prerequisite: Two semesters of first-year veterinary technology courses

Supervised intensive clinical study under the direction of a cooperating veterinarian to provide 420 hours of actual work experience. 40 hrs. field study/wk. Course taught at MCC-Maple Woods Community College. Students should contact the Maple Woods coordinator of veterinary technology about the class meeting times and beginning and ending dates of classes. Call 816-437-3000.

Women and Gender Studies (WGS)

WGS 201

Global Women's Studies (3 CR)

The course is intended to increase student understanding of the history and experiences of women. It principally focuses on the ways in which gender interacts with race/ethnicity, social class, sexual orientation, religion, age, nationality and other cultural identities to create differences and similarities in gendered lives. Students will critically examine and compare through a multidisciplinary approach the voices and experiences of women representing both domestic and global diversities. Selected topics may include: gender socialization; the female body and the sociopolitical context of reproduction, body image, appearance and of sexuality; similarities and differences between the genders; marriage and the family; work roles, inequalities and the global economy; health issues; violence against and by women; women in religion and politics; and, an historical and contemporary look at global feminism. 3 hrs. lecture/wk.

WGS 220

The Many Women of Islam (3 CR)

This course introduces students to Islam and the many ways in which Islam views women. It explores the relationship of the ideal teachings of the Qur'an to the everyday realities of marriage, family, divorce, education, religious participation, health, reproduction, violence, body image, economics, the workplace, political participation, and other topics in the context of the many nations and cultures in which Muslim women reside. Underlying the unity of the Islamic world is a diversity of interpretations and practices that are mediated by those many nations and cultures which compose it. This diversity within unity is reflected in the lives of the many women of Islam. 3 hrs. lecture/wk.

Graduation Requirements

One semester prior to your graduation:

Complete an Application for Graduation Form and turn it in at the Success Center, second floor, Student Center, or mail to the attention of the Records office, 12345 College Blvd., Overland Park, Kan. 66210-1299.

Graduation Application Deadlines:

- **June 15** for summer graduation
- **October 15** for fall graduation
- **February 15** for spring graduation

Requirements for degree or certificate of graduation

- For an associate's degree, 15 credit hours must be earned in residence at JCCC. Advanced standing credit will not count toward satisfying this credit hour requirement.
- For the associate of arts and associate of science degrees, a student must complete an approved cultural diversity course.
- For certificates, a student must complete a minimum of 50 percent of the required coursework at JCCC.
- Graduates must have earned both a 2.0 grade point average at JCCC and have a cumulative 2.0 or better on all completed course work.
- Developmental and/or prerequisite courses, required before enrollment in college-level courses, will not count toward fulfilling graduation degree/certificate requirements.
- Students must be enrolled in classes at JCCC during the semester they anticipate completing degree/certificate requirements and wish to graduate.

Rules to determine a student's graduation catalog term

Students are considered continuously enrolled if they complete at least one class during each regular fall and spring semester. If students do not maintain continuous enrollment, they will be required to follow the graduation

requirements that are in effect at the time of re-enrollment.

Graduation Verification Process

1. When an Application for Graduation is received in the Records office, an initial verification will be completed to ensure degree and/or certificate requirements will be satisfied.
2. A letter will be sent to the student once the verification is complete. If you do not receive a letter, please contact the Admissions office to verify your mailing address.
3. A student's degree and/or certificate status will be recorded on a student's permanent transcript once grades have been posted and a final verification is done to ensure that all graduation requirements have been completed.

Graduation Application Deadline Appeal Process

If a student misses the application deadline, a student may submit a Graduation Appeal Form. This form can be picked up in the Success Center, second floor, Student Center, or found online at <http://www.jccc.edu/StudentRecords>.

JCCC General Education Statement and Requirements

Associate of Arts

Associate of Science

Associate of Applied Science

Associate of General Studies

JCCC Statement of General Education Requirements

General education at Johnson County Community College combines essential thinking skills with knowledge from areas such as the arts, communication, humanities, language, mathematics, natural sciences, and social sciences. It prepares students to become lifelong learners capable of making informed, ethical decisions in an increasingly complex and diverse global community.

Students who pursue a course of study at JCCC will be expected to:

- Access and evaluate information from credible sources.
- Collaborate respectfully with others.
- Communicate effectively through the clear and accurate use of language.
- Demonstrate an understanding of the broad diversity of the human experience.
- Process numeric, symbolic, and graphic information.
- Read, analyze, and synthesize written material.
- Select and apply appropriate problem-solving techniques.
- Use current technology efficiently and responsibly.

Associate of Arts

The associate of arts degree from JCCC

- is designed for students who plan to transfer to another college or university to earn a bachelors degree.
- requires completion of 64 college-level credit hours within specified categories with a 2.0 or higher GPA.
- requires the completion of a cultural diversity course from a list of approved courses. Some of the courses in this list will also meet

humanities, social science or non-lab science requirements for this degree.

The credit hours necessary to complete the associate of arts degree include the following:

- Communications (9 credit hours)
- Humanities (6 credit hours)
 - History is included in the Humanities category
- Social Science and/or Economics (6 credit hours)
- Science and Mathematics (9 credit hours)**
 - **Must include one course from a lab science and one from mathematics
- Health and/or Physical Education (1 credit)

Note: The associate of arts degree is designed as a transfer curriculum. Students should refer to the transfer program sheets in the Student Success Center. Students interested in a specific major or degree should talk with a JCCC counselor.

General Education Requirements

Communications - 9 hours

A. English Composition - 6 hours

ENGL 121	Composition I*	3
	Prerequisite: ENGL 106 or appropriate placement test score or EAP 113 and EAP 117	
ENGL 122	Composition II*	3
	Prerequisite: ENGL 121	
	*Prerequisite/Corequisite required	

B. Oral Communication - 3 hours

SPD 120	Interpersonal Communication	3
SPD 121	Public Speaking	3
SPD 125	Personal Communication	3
SPD 180	Intercultural Communication^	3
	^Also meets Cultural Diversity Requirement	

Humanities - 6 hours

No more than one course from each of the five areas may count toward the six required hours.

A. Literature/Theatre

ENGL 130	Introduction to Literature*	3
	Prerequisite: ENGL 121	
ENGL 215	U.S. Latino and Latina Literature**	3
	Prerequisite or corequisite: ENGL 122	
ENGL 217	Literature by Women**^	3
	Prerequisite or corequisite: ENGL 122	
ENGL 227	Introduction to Poetry*	3
	Prerequisite: ENGL 122	
ENGL 230	Introduction to Fiction*	3
	Prerequisite: ENGL 122	
ENGL 231	American Prose*	3
	Prerequisite: ENGL 122	
ENGL 235	Drama as Literature*	3
	Prerequisite: ENGL 122	
ENGL 250	World Masterpieces*	3
	Prerequisite: ENGL 122	
ENGL 254	Masterpieces of the Cinema*	3
	Prerequisite: ENGL 122	
ENGL 256	American Poetry*	3
	Prerequisite: ENGL 122	
THEA 120	Introduction to Theater	3
	*Prerequisite/Corequisite required	
	^Also meets Cultural Diversity Requirement	

B. Foreign Language

FL 178	Intermediate Russian I*	3
	Prerequisite: FL 151 or two years of high-school Russian	
FL 179	Intermediate Russian II*	3
	Prerequisite: FL 178	

		or three years of high-school Russian	
FL	182	Intermediate Japanese I*	5
		Prerequisite: FL 171 or two years of high-school Japanese and department approval	
FL	192	Intermediate Chinese I*	3
		Prerequisite: FL 166 or equivalent	
FL	193	Intermediate Chinese II*	3
		Prerequisite: FL 192 or equivalent	
FL	195	Intermediate Arabic I*	3
		Prerequisite: FL 156	
FL	220	Intermediate German I*	3
		Prerequisite: FL 121 or two years of high-school German	
FL	221	Intermediate German II*	3
		Prerequisite: FL 220 or three years of high-school German	
FL	230	Intermediate Spanish I*	3
		Prerequisites: FL 131 with a grade of "C" or higher or three years of high-school Spanish or the appropriate score on the placement test	
FL	231	Intermediate Spanish II*	3
		Prerequisite: FL 230 with a grade of "C" or higher or or four years of high-school Spanish or the appropriate score on the placement test	
FL	240	Intermediate French I*	3
		Prerequisite: FL 141 or two years of high-school French	
FL	241	Intermediate French II*	3
		Prerequisite: FL 240 or three years of high-school French	

C. History

HIST	125	Western Civilization: Readings and Discussion I	3
HIST	126	Western Civilization: Readings and Discussion II	3
HIST	128	Medieval History	3
HIST	129	Early Modern Europe 1500-1789	3
HIST	130	European History Since 1789	3
HIST	135	Eastern Civilization^	3
HIST	137	African American Studies^	3
HIST	140	U.S. History to 1877	3
HIST	141	U.S. History Since 1877	3
HIST	151	World History I: Traditional World^	3
HIST	152	World History II: Modern World^	3
HIST	160	Modern Russian History^	3
HIST	162	Modern Latin America^	3

D. Humanities

ARTH	180	Art History: Ancient to Renaissance	3
ARTH	182	Art History: Renaissance to Modern	3
ARTH	184	Art History: Twentieth Century	3
ARTH	188	History of Photography	3
HUM	122	Introduction to Humanities	3
HUM	145	Introduction to World Humanities I^	3
HUM	146	Introduction to World Humanities II^	3
HUM	155	Classical Mythology	3
HUM	164	Civilization	3
HUM	167	Introduction to Japanese Culture^	3
JOUR	120	Mass Media and Society	3
MUS	121	Introduction to Music Listening	3
MUS	125	Introduction to Jazz Listening	3
MUS	126	Introduction to World Music^	3
REL	120	Exploring World Religions^	3
REL	125	Religions of the East^	3
REL	126	Religions of the West^	3

E. Philosophy

PHIL	121	Introduction to Philosophy	3
PHIL	124	Logic and Critical Thinking	3
PHIL	143	Ethics	3
PHIL	154	History of Ancient Philosophy	3
PHIL	176	Philosophy of Religion	3

Social Science/Economics - 6 hours

No more than one course from each of the six areas may count toward the six required hours.

A. Anthropology

ANTH	125	Cultural Anthropology^	3
ANTH	126	Physical Anthropology	3
ANTH	130	World Cultures^	3
ANTH	142	World Prehistory	3

B. Economics

ECON	132	Survey of Economics	3
ECON	230	Economics I	3

ECON	231	Economics II	3
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C. Political Science

POLS	122	Political Science	3
POLS	124	American National Government	3
POLS	126	State and Local Government	3
POLS	132	Introduction to Comparative Government^	3
POLS	135	International Relations^	3

D. Psychology

PSYC	121	Applied Psychology	3
PSYC	130	Introduction to Psychology*	3

E. Sociology

SOC	122	Introduction to Sociology^	3
SOC	125	Social Problems^	3
SOC	131	Marriage and the Family	3

F. Gender and Ethnic Studies

WGS	201	Global Women's Studies^	3
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Science and Mathematics - 9 hours

Must include at least one course from a lab science and one from mathematics.

A. Life Science

BIOL	121	Introductory Biology for Non-Majors	4
BIOL	122	Principles of Biology	3
BIOL	123	Principles of Biology Lab*	1
		Prerequisite or corequisite: BIOL 122 or department approval	
BIOL	124	Oceanus: Essentials of Oceanography	3
BIOL	125	General Botany	5
BIOL	127	General Zoology	5
BIOL	130	Environmental Science	3
BIOL	131	Environmental Science Lab*	1
		Prerequisite or corequisite: BIOL 130	
BIOL	135	Principles of Cell and Molecular Biology	4
BIOL	140	Human Anatomy	4
BIOL	144	Human Anatomy and Physiology	5
BIOL	150	Biology of Organisms*	5
		Prerequisite: BIOL 135 or department approval	
BIOL	225	Human Physiology*	4
		Prerequisites or corequisites: Either CHEM 122 or (CHEM 124 and CHEM 125) and either BIOL 140 or BIOL 144	
BIOL	230	Microbiology*	3
		Prerequisite: CHEM 122 or CHEM 124 and CHEM 125 or one year of high school chemistry	
BIOL	231	Microbiology Lab*	2
		BIOL 231 students must be currently enrolled in BIOL 230 or have successfully completed BIOL 230 within the last three years.	

B. Physical Science

ASTR	120	Fundamentals of Astronomy	3
ASTR	122	Astronomy	4
CHEM	120	Chemistry in Society	4
CHEM	122	Principles of Chemistry	5
CHEM	124	General Chemistry I Lecture*	4
		Prerequisite or corequisite: MATH 171 or assessment test and Corequisite: CHEM 125	
CHEM	125	General Chemistry I Lab*	1
		Corequisite: CHEM 124	
		Students who withdraw from GENERAL CHEMISTRY I LECTURE must also withdraw from the corresponding laboratory GENERAL CHEMISTRY I LABORATORY	
		Students may not withdraw from the laboratory course GENERAL CHEMISTRY I LABORATORY without withdrawing from CHEMISTRY I LECTURE.	
CHEM	131	General Chemistry II Lecture*	4
		Prerequisites: CHEM 124 and CHEM 125 and Corequisite: CHEM 132	
CHEM	132	General Chemistry II Lab*	1

Prerequisites: CHEM 124 and CHEM 125 and Corequisite: CHEM 131 Students who withdraw from GENERAL CHEMISTRY II LECTURE must also withdraw from the corresponding laboratory GENERAL CHEMISTRY II LABORATORY. Students may not withdraw from the laboratory course GENERAL CHEMISTRY II LABORATORY without withdrawing from CHEMISTRY II LECTURE.

CHEM 140	Principles of Organic & Biological Chemistry*	5
	Prerequisites: BIOL 135 and either CHEM 122 or (CHEM 124 and CHEM 125) or department approval	
GEOS 130	General Geology	5
GEOS 140	Physical Geography	3
GEOS 141	Physical Geography Lab*	2
	Prerequisite or corequisite: GEOS 140 or the equivalent	
GEOS 145	World Regional Geography^	3
PHYS 130	General Physics I*	5
	Prerequisite: MATH 171 or assessment scores	
PHYS 131	General Physics II*	5
	Prerequisite: PHYS 130	
PHYS 220	Engineering Physics I*	5
	Prerequisite or corequisite: MATH 242	
PHYS 221	Engineering Physics II*	5
	Prerequisites: PHYS 220 and MATH 242	
PSCI 120	Physical Science	4
	*Prerequisite/Corequisite required	
	^Also meets Cultural Diversity Requirement	

C. Mathematics

MATH 165	Finite Mathematics*	3
	Prerequisite: MATH 116 with a grade of "C" or higher or appropriate score on the math assessment test	
MATH 171	College Algebra**	3
	Prerequisite: MATH 116 with a grade of "C" or higher or MATH 131 with a grade of "C" or higher or MATH 134 with a grade of "C" or higher or appropriate score on the math assessment test	
MATH 172	Trigonometry**	3
	Prerequisite: MATH 171 with a grade of "C" or higher or appropriate score on the math assessment test	
MATH 173	Precalculus**	5
	Prerequisite: MATH 116 with a grade of "C" or higher or appropriate score on the math assessment test	
MATH 175	Discrete Mathematics and its Applications*	3
	Prerequisite: MATH 171 or MATH 173 with a grade of "C" or higher or appropriate score on the math assessment test	
MATH 181	Statistics*	3
	Prerequisite: MATH 171 or MATH 173 or an equivalent course with a grade of "C" or higher or appropriate score on the math assessment test	
MATH 225	Mathematics as a Decision Making Tool*	3
	Prerequisite: MATH 171 or MATH 173 with a grade of "C" or higher or appropriate score on the math assessment test	
MATH 231	Business and Applied Calculus I*	3
	Prerequisite: MATH 171 or MATH 173 with a grade of "C" or higher or appropriate score on the math assessment test	
MATH 232	Business and Applied Calculus II*	3
	Prerequisites: MATH 231 and either MATH 172 or MATH 173 with a grade of "C" or higher or appropriate score on the math assessment test	
MATH 241	Calculus I*	5
	Prerequisite: MATH 172 or MATH 173 or an equivalent course with a grade of "C" or higher or an appropriate score on an assessment test	
MATH 242	Calculus II*	5
	Prerequisite: MATH 237 or MATH 241 or an equivalent course with a grade of "C" or higher	
MATH 243	Calculus III*	5
	Prerequisite: MATH 242 with a grade of "C" or higher or an equivalent course with a grade of "C" or higher	
MATH 254	Differential Equations*	4
	Prerequisite: MATH 243 with a grade of "C" or higher or an equivalent course with a grade of "C" or higher	
	*Prerequisite/Corequisite required	

Note: +MATH 173 is not available for credit to students who have completed MATH 171 and/or MATH 172. Students who have credit in MATH 173 will not receive credit for MATH 171 and/or MATH 172.

Health and/or Physical Education - 1 hour

HPER	Any Activity Course	1
EMS 121	CPR I - Basic Life Support for Healthcare Provider	1
BIOL 132	Introduction to Public Health	3
HMEC 151	Nutrition and Meal Planning	3
HPER 192	Wellness for Life	1
HPER 200	First Aid and CPR	2
HPER 202	Personal Community Health	3
HPER 205	Individual Lifetime Sports	2
HPER 255	Introduction to Physical Education	3

NOTE: The following HPER courses do NOT meet the general education requirement for Health and/or Physical Education--HPER 102, 124, 174, 176, 177, 195, 198, 204, 207, 208, 217, 220, 224, 245.

Cultural Diversity Courses

ANTH 125	Cultural Anthropology~	3
ANTH 130	World Cultures~	3
ANTH 134	Native Americans	3
ANTH 135	American Indian Artistic Tradition	3
ANTH 142	World Prehistory	3
ANTH 150	People and Cultures of Mesoamerica	3
ARTH 186	Art History: Introduction to Asian Art	3
BIOL 132	Introduction to Public Health	3
BUS 235	Introduction to International Business	3
ENGL 215	U.S. Latino and Latina Literature**	3
	Prerequisite or corequisite: ENGL 122	
ENGL 217	Literature by Women**	3
	Prerequisite or corequisite: ENGL 122	
ENGL 244	Literature of American Popular Music	3
	Prerequisite: ENGL 122	
FL 145	Field Study in Russian Language & Culture	2
GEOS 145	World Regional Geography~	3
HC 125	International Awareness Field Study	2
HIST 135	Eastern Civilization~	3
HIST 137	African American Studies~	3
HIST 150	Islam: Religion & Civilization	3
HIST 151	World History I: Traditional World~	3
HIST 152	World History II: Modern World~	3
HIST 160	Modern Russian History~	3
HIST 162	Modern Latin America~	3
HIST 167	Introduction to History: Japan	3
HIST 195	History of the Middle East	3
HUM 137	Introduction to Russian Culture	3
HUM 145	Introduction to World Humanities I~	3
HUM 146	Introduction to World Humanities II~	3
HUM 150	Islam: Religion & Civilization	3
HUM 156	Contemporary Approaches to World Myths	3
HUM 167	Introduction to Japanese Culture~	3
INTR 145	Introduction to the Deaf Community	3
	Prerequisite: Acceptance to interpreter training program and Prerequisite or corequisite: ANTH 125 and SPD 120 for Interpreter Training Program	
	Corequisites for Interpreter Training Program: INTR 122 and INTR 126 and INTR 130 and INTR 147 all with a grade of "C" or higher	
	Note: Prerequisite or corequisite of INTR 120 or ASL 120 or FL 180 required for students in the American Sign Language Studies Certificate	
MUS 126	Introduction to World Music~	3
PHIL 142	History of Asian Philosophy	3
POLS 132	Introduction to Comparative Government	3
POLS 135	International Relations~	3
POLS 200	Model United Nations	3
PSYC 205	Human Sexuality*	3
	Prerequisite: PSYC 130	
PSYC 220	Social Psychology*	3
	Prerequisite: PSYC 130	
REL 120	Exploring World Religions~	3
REL 125	Religions of the East~	3
REL 126	Religions of the West~	3
REL 150	Islam: Religion & Civilization	3
SOC 122	Introduction to Sociology~	3
SOC 125	Social Problems~	3
SOC 146	Introduction to Social Work and Social Welfare	3
SOC 165	Chinese Society: Past and Present	3
SOC 200	Intercultural Applications	3
	Prerequisite or corequisite: SPD 180	
SPD 180	Intercultural Communication~	3
WGS 201	Global Women's Studies~	3
WGS 220	The Many Women of Islam	3
	*Prerequisite/Corequisite required	
	~also meets a General Education requirement	

Associate of Science

The associate of science degree from JCCC

- requires an emphasis in a specific career program.
- requires a minimum of 64 college-level credit hours that fulfill the requirements of the selected program, with a 2.0 or higher GPA.
- requires the completion of a cultural diversity course from a list of approved courses. Some courses in the approved list will also meet humanities, social science or non-lab science requirements for this degree.

The credit hours necessary to complete the associate of science degree include

the following general education requirements plus the courses listed for the specific career program:

- Communications (9 hours)
- Humanities (6 hours)
- Social Science and/or Economics (6 hours)
- Science and Mathematics (12 hours)
- Health and/or Physical Education (1 hour)
- Cultural Diversity (1 course)

General Education Requirements

A. Communications - 9 hours

ENGL 121 Composition I*.....3
 Prerequisite: ENGL 106 or appropriate placement
 test score or EAP 113 and EAP 117
 *Prerequisite/Corequisite required

B. Communications Elective - 6 hours

(two of the following)

ENGL 122 Composition II*.....3
 Prerequisite: ENGL 121
 ENGL 123 Technical Writing I*.....3
 Prerequisite: ENGL 121
 ENGL 140 Writing for Interactive Media*.....3
 Prerequisite: ENGL 121
 BUS 150 Business Communications*.....3
 Prerequisite: ENGL 121
 SPD 120 Interpersonal Communication.....3
 SPD 121 Public Speaking.....3
 SPD 125 Personal Communication.....3
 SPD 180 Intercultural Communication^.....3
 *Prerequisite/Corequisite required
 ^Also meets Cultural Diversity Requirement

Humanities - 6 hours

Two courses from any of the following categories may count toward the six required hours.

A. Literature/Theater

ENGL 130 Introduction to Literature*.....3
 Prerequisite: ENGL 121
 ENGL 215 U.S. Latino and Latina Literature**.....3
 Prerequisite or corequisite: ENGL 122
 ENGL 217 Literature by Women**.....3
 Prerequisite or corequisite: ENGL 122
 ENGL 227 Introduction to Poetry*.....3
 Prerequisite: ENGL 122
 ENGL 230 Introduction to Fiction*.....3
 Prerequisite: ENGL 122
 ENGL 231 American Prose*.....3
 Prerequisite: ENGL 122
 ENGL 235 Drama as Literature*.....3
 Prerequisite: ENGL 122
 ENGL 250 World Masterpieces*.....3
 Prerequisite: ENGL 122
 ENGL 254 Masterpieces of the Cinema*.....3
 Prerequisite: ENGL 122
 ENGL 256 American Poetry*.....3
 Prerequisite: ENGL 122
 THEA 120 Introduction to Theater.....3
 *Prerequisite/Corequisite required
 ^Also meets Cultural Diversity Requirement

B. Foreign Language

FL 178 Intermediate Russian I*.....3
 Prerequisite: FL 151 or two years of high-school Russian
 FL 179 Intermediate Russian II*.....3
 Prerequisite: FL 178
 or three years of high-school Russian
 FL 182 Intermediate Japanese I*.....5
 Prerequisite: FL 171 or two years of high-school Japanese
 and department approval
 FL 192 Intermediate Chinese I*.....3
 Prerequisite: FL 166 or equivalent
 FL 193 Intermediate Chinese II*.....3

Prerequisite: FL 192 or equivalent
 FL 195 Intermediate Arabic I*.....3
 Prerequisite: FL 156
 FL 220 Intermediate German I*.....3
 Prerequisite: FL 121 or two years of high-school German
 FL 221 Intermediate German II*.....3
 Prerequisite: FL 220 or three years of high-school German
 FL 230 Intermediate Spanish I*.....3
 Prerequisites: FL 131 with a grade of "C" or higher or
 three years of high-school Spanish or the appropriate
 score on the placement test
 FL 231 Intermediate Spanish II*.....3
 Prerequisite: FL 230 with a grade of "C" or higher or
 or four years of high-school Spanish or the appropriate
 score on the placement test
 FL 240 Intermediate French I*.....3
 Prerequisite: FL 141 or two years of high-school French
 FL 241 Intermediate French II*.....3
 Prerequisite: FL 240 or three years of high-school French
 *Prerequisite/Corequisite required

C. History

HIST 125 Western Civilization: Readings and Discussion I.....3
 HIST 126 Western Civilization: Readings and Discussion II.....3
 HIST 128 Medieval History.....3
 HIST 129 Early Modern Europe 1500-1789.....3
 HIST 130 European History Since 1789.....3
 HIST 135 Eastern Civilization^.....3
 HIST 137 African American Studies^.....3
 HIST 140 U.S. History to 1877.....3
 HIST 141 U.S. History Since 1877.....3
 HIST 151 World History I: Traditional World^.....3
 HIST 152 World History II: Modern World^.....3
 HIST 160 Modern Russian History^.....3
 HIST 162 Modern Latin America^.....3
 ^Also meets Cultural Diversity Requirement

D. Humanities

ARTH 180 Art History: Ancient to Renaissance.....3
 ARTH 182 Art History: Renaissance to Modern.....3
 ARTH 184 Art History: Twentieth Century.....3
 ARTH 188 History of Photography.....3
 HUM 122 Introduction to Humanities.....3
 HUM 145 Introduction to World Humanities I^.....3
 HUM 146 Introduction to World Humanities II^.....3
 HUM 155 Classical Mythology.....3
 HUM 164 Civilization.....3
 HUM 167 Introduction to Japanese Culture^.....3
 JOUR 120 Mass Media and Society.....3
 MUS 121 Introduction to Music Listening.....3
 MUS 125 Introduction to Jazz Listening.....3
 MUS 126 Introduction to World Music^.....3
 REL 120 Exploring World Religions^.....3
 REL 125 Religions of the East^.....3
 REL 126 Religions of the West^.....3
 ^Also meets Cultural Diversity Requirement

E. Philosophy

PHIL 121 Introduction to Philosophy.....3
 PHIL 124 Logic and Critical Thinking.....3
 PHIL 143 Ethics.....3
 PHIL 154 History of Ancient Philosophy.....3
 PHIL 176 Philosophy of Religion.....3

Social Science/Economics - 6 hours

Two courses from any of the following categories may count toward the six required hours.

A. Anthropology

ANTH 125 Cultural Anthropology^.....3
 ANTH 126 Physical Anthropology.....3
 ANTH 130 World Cultures^.....3
 ANTH 142 World Prehistory.....3
 ^Also meets Cultural Diversity Requirement

B. Economics

ECON 132 Survey of Economics.....3
 ECON 230 Economics I.....3
 ECON 231 Economics II.....3

C. Political Science

POLS 122 Political Science.....3
 POLS 124 American National Government.....3

POLS 126	State and Local Government.....	3
POLS 132	Introduction to Comparative Government^.....	3
POLS 135	International Relations^.....	3
^Also meets Cultural Diversity Requirement		

D. Psychology

PSYC 121	Applied Psychology.....	3
PSYC 130	Introduction to Psychology*.....	3
Prerequisite: Appropriate score on the COMPASS reading test OR appropriate score on the ACT reading test OR RDG 126 with a grade of "C" or higher		

E. Sociology

SOC 122	Introduction to Sociology^.....	3
SOC 125	Social Problems^.....	3
SOC 131	Marriage and the Family.....	3
^Also meets Cultural Diversity Requirement		

F. Gender and Ethnic Studies

WGS 201	Global Women's Studies^.....	3
^Also meets Cultural Diversity Requirement		

Science and Mathematics -12 hours

Must include at least one course in mathematics and at least one in a lab science.

A. Mathematics

MATH 116	Intermediate Algebra*.....	3
Prerequisite: MATH 115 with a grade of "C" or higher or appropriate score on the math assessment test		
MATH 118	Geometry*.....	3
Prerequisite: MATH 115 with a grade of "C" or higher or appropriate score on the math assessment test		
MATH 120	Business Mathematics*.....	3
Prerequisite: MATH 111 with a grade of "C" or higher or appropriate score on the math assessment test		
MATH 122	Mathematics in Our Culture*.....	3
Prerequisite: MATH 111 with a grade of "C" or higher or appropriate score on the math assessment test		
MATH 130	Technical Mathematics I*.....	3
Prerequisite: MATH 111 with a grade of "C" or higher or an appropriate score on the math assessment test		
MATH 131	Technical Mathematics II*.....	3
Prerequisites: MATH 130 or MATH 133 with a grade of "C" or higher or an equivalent course with a grade of "C" or higher		
MATH 165	Finite Mathematics*.....	3
Prerequisite: MATH 116 with a grade of "C" or higher or appropriate score on the math assessment test		
MATH 171	College Algebra*.....	3
Prerequisite: MATH 116 with a grade of "C" or higher or MATH 131 with a grade of "C" or higher or MATH 134 with a grade of "C" or higher or appropriate score on the math assessment test		
MATH 172	Trigonometry*.....	3
Prerequisite: MATH 171 with a grade of "C" or higher or appropriate score on the math assessment test		
MATH 173	Precalculus*.....	5
Prerequisite: MATH 116 with a grade of "C" or higher or appropriate score on the math assessment test		
MATH 175	Discrete Mathematics and its Applications*.....	3
Prerequisite: MATH 171 or MATH 173 with a grade of "C" or higher or appropriate score on the math assessment test		
MATH 181	Statistics*.....	3
Prerequisite: MATH 171 or MATH 173 or an equivalent course with a grade of "C" or higher or appropriate score on the math assessment test		
MATH 225	Mathematics as a Decision Making Tool*.....	3
Prerequisite: MATH 171 or MATH 173 with a grade of "C" or higher or appropriate score on the math assessment test		
MATH 231	Business and Applied Calculus I*.....	3
Prerequisite: MATH 171 or MATH 173 with a grade of "C" or higher or appropriate score on the math assessment test		
MATH 232	Business and Applied Calculus II*.....	3
Prerequisites: MATH 231 and either MATH 172 or MATH 173 with a grade of "C" or higher or appropriate score on the math assessment test		
MATH 241	Calculus I*.....	5
Prerequisite: MATH 172 or MATH 173 or an equivalent course with a grade of "C" or higher or an appropriate score on an assessment test		
MATH 242	Calculus II*.....	5
Prerequisite: MATH 237 or MATH 241 or an equivalent course with a grade of "C" or higher		
MATH 243	Calculus III*.....	5

MATH 254	Differential Equations*.....	4
Prerequisite: MATH 243 with a grade of "C" or higher or an equivalent course with a grade of "C" or higher		

A. Science

(Life Science)

BIOL 121	Introductory Biology for Non-Majors.....	4
BIOL 122	Principles of Biology.....	3
BIOL 123	Principles of Biology Lab*.....	1
Prerequisite or corequisite: BIOL 122 or department approval		
BIOL 124	Oceanus: Essentials of Oceanography.....	3
BIOL 125	General Botany.....	5
BIOL 127	General Zoology.....	5
BIOL 130	Environmental Science.....	3
BIOL 131	Environmental Science Lab*.....	1
Prerequisite or corequisite: BIOL 130		
BIOL 135	Principles of Cell and Molecular Biology.....	4
BIOL 140	Human Anatomy.....	4
BIOL 144	Human Anatomy and Physiology.....	5
BIOL 150	Biology of Organisms*.....	5
Prerequisite: BIOL 135 or department approval		
BIOL 225	Human Physiology*.....	4
Prerequisites or corequisites: Either CHEM 122 or (CHEM 124 and CHEM 125) and either BIOL 140 or BIOL 144		
BIOL 230	Microbiology*.....	3
Prerequisite: CHEM 122 or CHEM 124 and CHEM 125 or one year of high school chemistry		
BIOL 231	Microbiology Lab*.....	2
BIOL 231 students must be currently enrolled in BIOL 230 or have successfully completed BIOL 230 within the last three years.		

*Prerequisite/Corequisite required

(Physical Science)

ASTR 120	Fundamentals of Astronomy.....	3
ASTR 122	Astronomy.....	4
CHEM 120	Chemistry in Society.....	4
CHEM 122	Principles of Chemistry.....	5
CHEM 124	General Chemistry I Lecture*.....	4
Prerequisite or corequisite: MATH 171 or assessment test and Corequisite: CHEM 125		
CHEM 125	General Chemistry I Lab*.....	1
Corequisite: CHEM 124 Students who withdraw from GENERAL CHEMISTRY I LECTURE must also withdraw from the corresponding laboratory GENERAL CHEMISTRY I LABORATORY Students may not withdraw from the laboratory course GENERAL CHEMISTRY I LABORATORY without withdrawing from CHEMISTRY I LECTURE.		
CHEM 131	General Chemistry II Lecture*.....	4
Prerequisites: CHEM 124 and CHEM 125 and Corequisite: CHEM 132		
CHEM 132	General Chemistry II Lab*.....	1
Prerequisites: CHEM 124 and CHEM 125 and Corequisite: CHEM 131 Students who withdraw from GENERAL CHEMISTRY II LECTURE must also withdraw from the corresponding laboratory GENERAL CHEMISTRY II LABORATORY. Students may not withdraw from the laboratory course GENERAL CHEMISTRY II LABORATORY without withdrawing from CHEMISTRY II LECTURE.		
CHEM 140	Principles of Organic & Biological Chemistry*.....	5
Prerequisites: BIOL 135 and either CHEM 122 or (CHEM 124 and CHEM 125) or department approval		
GEOS 130	General Geology.....	5
GEOS 140	Physical Geography.....	3
GEOS 141	Physical Geography Lab*.....	2
Prerequisite or corequisite: GEOS 140 or the equivalent		
GEOS 145	World Regional Geography^.....	3
PHYS 130	General Physics I*.....	5
Prerequisite: MATH 171 or assessment scores		
PHYS 131	General Physics II*.....	5
Prerequisite: PHYS 130		
PHYS 220	Engineering Physics I*.....	5
Prerequisite or corequisite: MATH 242		
PHYS 221	Engineering Physics II*.....	5
Prerequisites: PHYS 220 and MATH 242		
PSCI 120	Physical Science.....	4
*Prerequisite/Corequisite required ^Also meets Cultural Diversity Requirement		

Any remaining hours for this requirement beyond the one math and one lab science requirement may be satisfied by taking additional courses from the approved math and lab science courses.

Health and/or Physical Education - 1 hour

HPER	Any Activity Course.....	1
BIOL 132	Introduction to Public Health.....	3
EMS 121	CPR I - Basic Life Support for Healthcare Provider...1	1
HMEC 151	Nutrition and Meal Planning.....	3
HPER 192	Wellness for Life.....	1
HPER 200	First Aid and CPR.....	2
HPER 202	Personal Community Health.....	3
HPER 205	Individual Lifetime Sports.....	2
HPER 255	Introduction to Physical Education.....	3

NOTE: The following HPER courses do NOT meet the general education requirement for Health and/or Physical Education--HPER 102, 124, 174, 176, 177, 195, 198, 204, 207, 208, 217, 220, 224, 245.

Cultural Diversity Courses

ANTH 125	Cultural Anthropology~.....	3
ANTH 130	World Cultures~.....	3
ANTH 134	Native Americans.....	3
ANTH 135	American Indian Artistic Tradition.....	3
ANTH 142	World Prehistory.....	3
ANTH 150	People and Cultures of Mesoamerica.....	3
ARTH 186	Art History: Introduction to Asian Art.....	3
BIOL 132	Introduction to Public Health.....	3
BUS 235	Introduction to International Business.....	3
ENGL 215	U.S. Latino and Latina Literature*~.....	3
	Prerequisite or corequisite: ENGL 122	
ENGL 217	Literature by Women*~.....	3
	Prerequisite or corequisite: ENGL 122	
FL 145	Field Study in Russian Language & Culture.....	2
GEOS 145	World Regional Geography.....	3
HC 125	International Awareness Field Study.....	2
HIST 135	Eastern Civilization~.....	3
HIST 137	African American Studies~.....	3
HIST 150	Islam: Religion & Civilization.....	3
HIST 151	World History I: Traditional World~.....	3
HIST 152	World History II: Modern World~.....	3
HIST 160	Modern Russian History~.....	3
HIST 162	Modern Latin America~.....	3
HIST 167	Introduction to History: Japan.....	3
HIST 195	History of the Middle East.....	3
HUM 137	Introduction to Russian Culture.....	3
HUM 145	Introduction to World Humanities I~.....	3
HUM 146	Introduction to World Humanities II~.....	3
HUM 150	Islam: Religion & Civilization.....	3
HUM 167	Introduction to Japanese Culture~.....	3
INTR 145	Introduction to the Deaf Community.....	3
	Prerequisite: Acceptance to interpreter training program and Prerequisite or corequisite: ANTH 125 and SPD 120 for Interpreter Training Program	
	Corequisites for Interpreter Training Prog: INTR 122 and INTR 126 and INTR 130 and INTR 147	
	all with a grade of "C" or higher	
	Note: Prerequisite or corequisite of INTR 120 or ASL 120 or FL 180	
	required for students in the American Sign Language Studies Certificate	
MUS 126	Introduction to World Music~.....	3
POLS 132	Introduction to Comparative Government.....	3
POLS 135	International Relations~.....	3
POLS 200	Model United Nations.....	3
PSYC 205	Human Sexuality*.....	3
	Prerequisite: PSYC 130	
PSYC 220	Social Psychology*.....	3
	Prerequisite: PSYC 130	
REL 120	Exploring World Religions~.....	3
REL 125	Religions of the East~.....	3
REL 126	Religions of the West~.....	3
REL 150	Islam: Religion & Civilization.....	3
SOC 122	Introduction to Sociology~.....	3
SOC 125	Social Problems~.....	3
SOC 146	Introduction to Social Work and Social Welfare.....	3
SOC 165	Chinese Society: Past and Present.....	3
SOC 200	Intercultural Applications.....	3
	Prerequisite or corequisite: SPD 180	
SPD 180	Intercultural Communication~.....	3
WGS 201	Global Women's Studies~.....	3
WGS 220	The Many Women of Islam.....	3
	*Prerequisite/Corequisite required	
	~also meets a General Education requirement	

within specified course distribution areas, including emphasis of study, with a 2.0 GPA.

The credit hours necessary to complete the associate of applied science degree include 16 credits of general education requirements plus the courses listed for the specific career program. At a minimum, the distribution must include:

- Communications (3 hours)
- Humanities (3 hours)
- Social Science and/or Economics (3 hours)
- Science and Mathematics (3 hours)
- 3 additional credit hours to be selected from one of the above categories
- Health and/or Physical Education (1 hour)

Specific courses that meet the associate of applied science degree requirements are:

General Education Requirements

A. Communications - 3 hours

ENGL 121	Composition I*.....	3
	Prerequisite: ENGL 106 or appropriate placement test score or EAP 113 and EAP 117	
	*Prerequisite/Corequisite required	

If your specific degree program requires a communications elective, choose three hours from the following:

ENGL 122	Composition II*.....	3
	Prerequisite: ENGL 121	
ENGL 123	Technical Writing I*.....	3
	Prerequisite: ENGL 121	
ENGL 140	Writing for Interactive Media*.....	3
	Prerequisite: ENGL 121	
BUS 150	Business Communications*.....	3
	Prerequisite: ENGL 121	
SPD 120	Interpersonal Communication.....	3
SPD 121	Public Speaking.....	3
SPD 125	Personal Communication.....	3
SPD 180	Intercultural Communication.....	3
	*Prerequisite/Corequisite required	

Humanities - 3 hours

One course from any of the following categories may count toward the three required hours.

A. Literature/Theater

ENGL 130	Introduction to Literature*.....	3
	Prerequisite: ENGL 121	
ENGL 215	U.S. Latino and Latina Literature*.....	3
	Prerequisite or corequisite: ENGL 122	
ENGL 217	Literature by Women*.....	3
	Prerequisite or corequisite: ENGL 122	
ENGL 227	Introduction to Poetry*.....	3
	Prerequisite: ENGL 122	
ENGL 230	Introduction to Fiction*.....	3
	Prerequisite: ENGL 122	
ENGL 231	American Prose*.....	3
	Prerequisite: ENGL 122	
ENGL 235	Drama as Literature*.....	3
	Prerequisite: ENGL 122	
ENGL 250	World Masterpieces*.....	3
	Prerequisite: ENGL 122	
ENGL 254	Masterpieces of the Cinema*.....	3
	Prerequisite: ENGL 122	
ENGL 256	American Poetry*.....	3
	Prerequisite: ENGL 122	
THEA 120	Introduction to Theater.....	3
	*Prerequisite/Corequisite required	

B. Foreign Language

FL 178	Intermediate Russian I*.....	3
	Prerequisite: FL 151 or two years of high-school Russian	
FL 179	Intermediate Russian II*.....	3
	Prerequisite: FL 178 or three years of high-school Russian	

Associate of Applied Science

The associate of applied science degree from JCCC

- is designed with an emphasis in a specific career program.
- requires completion of a minimum of 64 college-level credit hours

FL 182	Intermediate Japanese I*	5
	Prerequisite: FL 171 or two years of high-school Japanese and department approval	
FL 192	Intermediate Chinese I*	3
	Prerequisite: FL 166 or equivalent	
FL 193	Intermediate Chinese II*	3
	Prerequisite: FL 192 or equivalent	
FL 195	Intermediate Arabic I*	3
	Prerequisite: FL 156	
FL 220	Intermediate German I*	3
	Prerequisite: FL 121 or two years of high-school German	
FL 221	Intermediate German II*	3
	Prerequisite: FL 220 or three years of high-school German	
FL 230	Intermediate Spanish I*	3
	Prerequisites: FL 131 with a grade of "C" or higher or three years of high-school Spanish or the appropriate score on the placement test	
FL 231	Intermediate Spanish II*	3
	Prerequisite: FL 230 with a grade of "C" or higher or or four years of high-school Spanish or the appropriate score on the placement test	
FL 240	Intermediate French I*	3
	Prerequisite: FL 141 or two years of high-school French	
FL 241	Intermediate French II*	3
	Prerequisite: FL 240 or three years of high-school French	

*Prerequisite/Corequisite required

C. History

HIST 125	Western Civilization: Readings and Discussion I	3
HIST 126	Western Civilization: Readings and Discussion II	3
HIST 128	Medieval History	3
HIST 129	Early Modern Europe 1500-1789	3
HIST 130	European History Since 1789	3
HIST 135	Eastern Civilization	3
HIST 137	African American Studies	3
HIST 140	U.S. History to 1877	3
HIST 141	U.S. History Since 1877	3
HIST 151	World History I: Traditional World	3
HIST 152	World History II: Modern World	3
HIST 160	Modern Russian History	3
HIST 162	Modern Latin America	3

D. Humanities

ARTH 180	Art History: Ancient to Renaissance	3
ARTH 182	Art History: Renaissance to Modern	3
ARTH 184	Art History: Twentieth Century	3
ARTH 188	History of Photography	3
HUM 122	Introduction to Humanities	3
HUM 145	Introduction to World Humanities I	3
HUM 146	Introduction to World Humanities II	3
HUM 155	Classical Mythology	3
HUM 164	Civilization	3
HUM 167	Introduction to Japanese Culture	3
JOUR 120	Mass Media and Society	3
MUS 121	Introduction to Music Listening	3
MUS 125	Introduction to Jazz Listening	3
MUS 126	Introduction to World Music	3
REL 120	Exploring World Religions	3
REL 125	Religions of the East	3
REL 126	Religions of the West	3

E. Philosophy

PHIL 121	Introduction to Philosophy	3
PHIL 124	Logic and Critical Thinking	3
PHIL 143	Ethics	3
PHIL 154	History of Ancient Philosophy	3
PHIL 176	Philosophy of Religion	3

Social Science/Economics - 3 hours

One course from any of the following categories may count toward the three required hours.

A. Anthropology

ANTH 125	Cultural Anthropology	3
ANTH 126	Physical Anthropology	3
ANTH 130	World Cultures	3
ANTH 142	World Prehistory	3

B. Economics

ECON 132	Survey of Economics	3
ECON 230	Economics I	3
ECON 231	Economics II	3

C. Political Science

POLS 122	Political Science	3
POLS 124	American National Government	3
POLS 126	State and Local Government	3
POLS 132	Introduction to Comparative Government	3
POLS 135	International Relations	3

D. Psychology

PSYC 121	Applied Psychology	3
PSYC 130	Introduction to Psychology*	3
	Prerequisite: Appropriate score on the COMPASS reading test OR appropriate score on the ACT reading test OR RDG 126 with a grade of "C" or higher	

E. Sociology

SOC 122	Introduction to Sociology	3
SOC 125	Social Problems	3
SOC 131	Marriage and the Family	3

F. Gender and Ethnic Studies

WGS 201	Global Women's Studies	3
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Science and/or Mathematics - 3 hours

A. Mathematics

MATH 116	Intermediate Algebra*	3
	Prerequisite: MATH 115 with a grade of "C" or higher or appropriate score on the math assessment test	
MATH 118	Geometry*	3
	Prerequisite: MATH 115 with a grade of "C" or higher or appropriate score on the math assessment test	
MATH 120	Business Mathematics*	3
	Prerequisite: MATH 111 with a grade of "C" or higher or appropriate score on the math assessment test	
MATH 122	Mathematics in Our Culture*	3
	Prerequisite: MATH 111 with a grade of "C" or higher or appropriate score on the math assessment test	
MATH 130	Technical Mathematics I*	3
	Prerequisite: MATH 111 with a grade of "C" or higher or an appropriate score on the math assessment test	
MATH 131	Technical Mathematics II*	3
	Prerequisites: MATH 130 or MATH 133 with a grade of "C" or higher or an equivalent course with a grade of "C" or higher	
MATH 165	Finite Mathematics*	3
	Prerequisite: MATH 116 with a grade of "C" or higher or appropriate score on the math assessment test	
MATH 171	College Algebra*	3
	Prerequisite: MATH 116 with a grade of "C" or higher or MATH 131 with a grade of "C" or higher or MATH 134 with a grade of "C" or higher or appropriate score on the math assessment test	
MATH 172	Trigonometry*	3
	Prerequisite: MATH 171 with a grade of "C" or higher or appropriate score on the math assessment test	
MATH 173	Precalculus*	5
	Prerequisite: MATH 116 with a grade of "C" or higher or appropriate score on the math assessment test	
MATH 175	Discrete Mathematics and its Applications*	3
	Prerequisite: MATH 171 or MATH 173 with a grade of "C" or higher or appropriate score on the math assessment test	
MATH 181	Statistics*	3
	Prerequisite: MATH 171 or MATH 173 or an equivalent course with a grade of "C" or higher or appropriate score on the math assessment test	
MATH 225	Mathematics as a Decision Making Tool*	3
	Prerequisite: MATH 171 or MATH 173 with a grade of "C" or higher or appropriate score on the math assessment test	
MATH 231	Business and Applied Calculus I*	3
	Prerequisite: MATH 171 or MATH 173 with a grade of "C" or higher or appropriate score on the math assessment test	
MATH 232	Business and Applied Calculus II*	3
	Prerequisites: MATH 231 and either MATH 172 or MATH 173 with a grade of "C" or higher or appropriate score on the math assessment test	
MATH 241	Calculus I*	5
	Prerequisite: MATH 172 or MATH 173 or an equivalent course with a grade of "C" or higher or an appropriate score on an assessment test	
MATH 242	Calculus II*	5
	Prerequisite: MATH 237 or MATH 241 or an equivalent course with a grade of "C" or higher	
MATH 243	Calculus III*	5
	Prerequisite: MATH 242 with a grade of "C" or higher or an equivalent course with a grade of "C" or higher	
MATH 254	Differential Equations*	4

Prerequisite: MATH 243 with a grade of "C" or higher or an equivalent course with a grade of "C" or higher

B. Life Science

BIOL 121	Introductory Biology for Non-Majors.....	4
BIOL 122	Principles of Biology.....	3
BIOL 123	Principles of Biology Lab*.....	1
	Prerequisite or corequisite: BIOL 122 or department approval	
BIOL 124	Oceanus: Essentials of Oceanography.....	3
BIOL 125	General Botany.....	5
BIOL 127	General Zoology.....	5
BIOL 130	Environmental Science.....	3
BIOL 131	Environmental Science Lab*.....	1
	Prerequisite or corequisite: BIOL 130	
BIOL 135	Principles of Cell and Molecular Biology.....	4
BIOL 140	Human Anatomy.....	4
BIOL 144	Human Anatomy and Physiology.....	5
BIOL 150	Biology of Organisms*.....	5
	Prerequisite: BIOL 135 or department approval	
BIOL 225	Human Physiology*.....	4
	Prerequisites or corequisites: Either CHEM 122 or (CHEM 124 and CHEM 125) and either BIOL 140 or BIOL 144	
BIOL 230	Microbiology*.....	3
	Prerequisite: CHEM 122 or CHEM 124 and CHEM 125 or one year of high school chemistry	
BIOL 231	Microbiology Lab*.....	2
	BIOL 231 students must be currently enrolled in BIOL 230 or have successfully completed BIOL 230 within the last three years.	

*Prerequisite/Corequisite required

C. Physical Science

ASTR 120	Fundamentals of Astronomy.....	3
ASTR 122	Astronomy.....	4
CHEM 120	Chemistry in Society.....	4
CHEM 122	Principles of Chemistry.....	5
CHEM 124	General Chemistry I Lecture*.....	4
	Prerequisite or corequisite: MATH 171 or assessment test and Corequisite: CHEM 125	
CHEM 125	General Chemistry I Lab*.....	1
	Corequisite: CHEM 124	
	Students who withdraw from GENERAL CHEMISTRY I LECTURE must also withdraw from the corresponding laboratory GENERAL CHEMISTRY I LABORATORY	
	Students may not withdraw from the laboratory course GENERAL CHEMISTRY I LABORATORY without withdrawing from CHEMISTRY I LECTURE.	
CHEM 131	General Chemistry II Lecture*.....	4
	Prerequisites: CHEM 124 and CHEM 125 and Corequisite: CHEM 132	
CHEM 132	General Chemistry II Lab*.....	1
	Prerequisites: CHEM 124 and CHEM 125 and Corequisite: CHEM 131	
	Students who withdraw from GENERAL CHEMISTRY II LECTURE must also withdraw from the corresponding laboratory GENERAL CHEMISTRY II LABORATORY.	
	Students may not withdraw from the laboratory course GENERAL CHEMISTRY II LABORATORY without withdrawing from CHEMISTRY II LECTURE.	
CHEM 140	Principles of Organic & Biological Chemistry*.....	5
	Prerequisites: BIOL 135 and either CHEM 122 or (CHEM 124 and CHEM 125) or department approval	
GEOS 130	General Geology.....	5
GEOS 140	Physical Geography.....	3
GEOS 141	Physical Geography Lab*.....	2
	Prerequisite or corequisite: GEOS 140 or the equivalent	
GEOS 145	World Regional Geography.....	3
PHYS 130	General Physics I*.....	5
	Prerequisite: MATH 171 or assessment scores	
PHYS 131	General Physics II*.....	5
	Prerequisite: PHYS 130	
PHYS 220	Engineering Physics I*.....	5
	Prerequisite or corequisite: MATH 242	
PHYS 221	Engineering Physics II*.....	5
	Prerequisites: PHYS 220 and MATH 242	
PSCI 120	Physical Science.....	4

*Prerequisite/Corequisite required

Note: MATH 173 is not available for credit to students who have completed MATH 171 and/or MATH 172. Students who have credit in MATH 173 will not receive credit for MATH 171 and/or MATH 172.

Health and/or Physical Education - 1 hour

HPER	Any Activity Course.....	1
EMS 121	CPR I - Basic Life Support for Healthcare Provider.....	1
BIOL 132	Introduction to Public Health.....	3

HMEC 151	Nutrition and Meal Planning.....	3
HPER 192	Wellness for Life.....	1
HPER 200	First Aid and CPR.....	2
HPER 202	Personal Community Health.....	3
HPER 205	Individual Lifetime Sports.....	2
HPER 255	Introduction to Physical Education.....	3

NOTE: The following HPER courses do NOT meet the general education requirement for Health and/or Physical Education--HPER 102, 124, 174, 176, 177, 195, 198, 204, 207, 208, 217, 220, 224, 245.

Associate of General Studies

The associate of general studies degree from JCCC

- requires completion of 64 college-level credit hours within specified course categories with a 2.0 or higher GPA.
- is designed for students who wish to receive a degree for completion of a more general program of study
- does not require an academic major or an emphasis in a specific career program.

The credit hours necessary to complete the associate of general studies degree include the following:

General Education Requirements (26 credit hours)

- The Arts (3 hours)
- Communication Skills (6 hours)
- Culture and Ethics (6 hours)
- Health, Physical Education, Recreation (2 hours)
- Mathematics (3 hours)
- Modes of Inquiry (6 hours)

Computer Skills (3 credit hours)

Global Issues/Diversity (3 credit hours)

College level electives (32 credit hours)

Courses may not be used to satisfy requirements in more than one category.

The Arts - 3 hours

ARTH 180	Art History: Ancient to Renaissance.....	3
ARTH 182	Art History: Renaissance to Modern.....	3
ARTH 184	Art History: Twentieth Century.....	3
ARTH 188	History of Photography.....	3
FL 178	Intermediate Russian I*.....	3
	Prerequisite: FL 151 or two years of high-school Russian	
FL 179	Intermediate Russian II*.....	3
	Prerequisite: FL 178 or three years of high-school Russian	
FL 192	Intermediate Chinese I*.....	3
	Prerequisite: FL 166 or equivalent	
FL 193	Intermediate Chinese II*.....	3
	Prerequisite: FL 192 or equivalent	
FL 220	Intermediate German I*.....	3
	Prerequisite: FL 121 or two years of high-school German	
FL 221	Intermediate German II*.....	3
	Prerequisite: FL 220 or three years of high-school German	
FL 230	Intermediate Spanish I*.....	3
	Prerequisites: FL 131 with a grade of "C" or higher or three years of high-school Spanish or the appropriate score on the placement test	
FL 231	Intermediate Spanish II*.....	3
	Prerequisite: FL 230 with a grade of "C" or higher or four years of high-school Spanish or the appropriate score on the placement test	
FL 240	Intermediate French I*.....	3
	Prerequisite: FL 141 or two years of high-school French	
FL 241	Intermediate French II*.....	3
	Prerequisite: FL 240 or three years of high-school French	
HUM 122	Introduction to Humanities.....	3
HUM 145	Introduction to World Humanities I.....	3
HUM 146	Introduction to World Humanities II.....	3
HUM 155	Classical Mythology.....	3
HUM 164	Civilization.....	3

MUS 121	Introduction to Music Listening.....	3
MUS 125	Introduction to Jazz Listening.....	3
MUS 126	Introduction to World Music.....	3
THEA 120	Introduction to Theater.....	3
*Prerequisite/Corequisite required		

PHIL 121	Introduction to Philosophy.....	3
PHIL 143	Ethics.....	3
PHIL 154	History of Ancient Philosophy.....	3
PHIL 176	Philosophy of Religion.....	3
POLS 122	Political Science.....	3
POLS 124	American National Government.....	3
POLS 135	International Relations.....	3
REL 120	Exploring World Religions.....	3
REL 125	Religions of the East.....	3
REL 126	Religions of the West.....	3
SOC 122	Introduction to Sociology.....	3
SOC 131	Marriage and the Family.....	3
*Prerequisite/Corequisite required		

Culture and Ethics - 6 hours

Historical Perspective - 3 hours

ENGL 130	Introduction to Literature*.....	3
Prerequisite: ENGL 121		
ENGL 230	Introduction to Fiction*.....	3
Prerequisite: ENGL 122		
ENGL 231	American Prose*.....	3
Prerequisite: ENGL 122		
ENGL 235	Drama as Literature*.....	3
Prerequisite: ENGL 122		
ENGL 241	British Writers*.....	3
ENGL 250	World Masterpieces*.....	3
Prerequisite: ENGL 122		
ENGL 256	American Poetry*.....	3
Prerequisite: ENGL 122		
GEOS 130	General Geology.....	5
GEOS 140	Physical Geography.....	3
GEOS 141	Physical Geography Lab*.....	2
Prerequisite or corequisite: GEOS 140 or the equivalent		
HIST 125	Western Civilization: Readings and Discussion I.....	3
HIST 126	Western Civilization: Readings and Discussion II.....	3
HIST 128	Medieval History.....	3
HIST 130	European History Since 1789.....	3
HIST 135	Eastern Civilization.....	3
HIST 137	African American Studies.....	3
HIST 140	U.S. History to 1877.....	3
HIST 141	U.S. History Since 1877.....	3
HIST 151	World History I: Traditional World.....	3
HIST 152	World History II: Modern World.....	3
HIST 160	Modern Russian History.....	3
HIST 162	Modern Latin America.....	3
PHIL 154	History of Ancient Philosophy.....	3
POLS 124	American National Government.....	3
POLS 126	State and Local Government.....	3
*Prerequisite/Corequisite required		

Cultural Perspective - 3 hours

ANTH 125	Cultural Anthropology.....	3
ANTH 130	World Cultures.....	3
ENGL 130	Introduction to Literature*.....	3
Prerequisite: ENGL 121		
ENGL 230	Introduction to Fiction*.....	3
Prerequisite: ENGL 122		
ENGL 231	American Prose*.....	3
Prerequisite: ENGL 122		
ENGL 235	Drama as Literature*.....	3
Prerequisite: ENGL 122		
ENGL 241	British Writers*.....	3
ENGL 250	World Masterpieces*.....	3
Prerequisite: ENGL 122		
ENGL 254	Masterpieces of the Cinema*.....	3
Prerequisite: ENGL 122		
ENGL 256	American Poetry*.....	3
Prerequisite: ENGL 122		
FL 178	Intermediate Russian I*.....	3
Prerequisite: FL 151 or two years of high-school Russian		
FL 179	Intermediate Russian II*.....	3
Prerequisite: FL 178		
or three years of high-school Russian		
FL 182	Intermediate Japanese I*.....	5
Prerequisite: FL 171 or two years of high-school Japanese and department approval		
FL 192	Intermediate Chinese I*.....	3
Prerequisite: FL 166 or equivalent		
FL 193	Intermediate Chinese II*.....	3
Prerequisite: FL 192 or equivalent		
FL 195	Intermediate Arabic I*.....	3
Prerequisite: FL 156		
FL 220	Intermediate German I*.....	3
Prerequisite: FL 121 or two years of high-school German		
FL 221	Intermediate German II*.....	3
Prerequisite: FL 220 or three years of high-school German		
FL 230	Intermediate Spanish I*.....	3
Prerequisites: FL 131 with a grade of "C" or higher or three years of high-school Spanish or the appropriate score on the placement test		
FL 231	Intermediate Spanish II*.....	3
Prerequisite: FL 230 with a grade of "C" or higher or four years of high-school Spanish or the appropriate score on the placement test		
FL 240	Intermediate French I*.....	3
Prerequisite: FL 141 or two years of high-school French		
FL 241	Intermediate French II*.....	3
Prerequisite: FL 240 or three years of high-school French		
GEOS 145	World Regional Geography.....	3
HUM 167	Introduction to Japanese Culture.....	3
JOUR 120	Mass Media and Society.....	3

Computer Skills - 3 hours

CIS 124	Introduction to Computer Concepts and Applications...	3
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OR

Three hours from the following courses:

	any CPCA* course.....	1
	any CWEB* course.....	1
	any CDTF* course.....	1
LIBR 125	Introduction to Library Research.....	1

OR

MATH 181	Statistics*.....	3
Prerequisite: MATH 171 or MATH 173 or an equivalent course with a grade of "C" or higher or appropriate score on the math assessment test		

*Prerequisite/Corequisite required

Communication Skills - 6 hours

Writing - 3 hours		
ENGL 121	Composition I*.....	3
Prerequisite: ENGL 106 or appropriate placement test score or EAP 113 and EAP 117		
*Prerequisite/Corequisite required		

Speaking - 3 hours

SPD 120	Interpersonal Communication.....	3
SPD 121	Public Speaking.....	3
SPD 125	Personal Communication.....	3
SPD 180	Intercultural Communication.....	3

Global Issues/Diversity - 3 hours

ADMJ 127	Criminology.....	3
ANTH 125	Cultural Anthropology.....	3
ANTH 130	World Cultures.....	3
ANTH 134	Native Americans.....	3
ARTH 186	Art History: Introduction to Asian Art.....	3
BIOL 130	Environmental Science.....	3
BIOL 131	Environmental Science Lab*.....	1
Prerequisite or corequisite: BIOL 130		
BUS 235	Introduction to International Business.....	3
ENGL 217	Literature by Women*.....	3
Prerequisite or corequisite: ENGL 122		
FL 116	Elementary Latin I.....	3
FL 117	Elementary Latin II*.....	3
Prerequisite: FL 116 or one year of high-school Latin		
FL 120	Elementary German I.....	5
FL 121	Elementary German II*.....	5
Prerequisite: FL 120 or one year of high-school German		
FL 130	Elementary Spanish I.....	5
FL 131	Elementary Spanish II*.....	5
Prerequisite: FL 130 with a grade of "C" or higher or two years of high-school Spanish; or the appropriate score on the placement test		
FL 133	Basic Spanish for Hospitality Management.....	2
FL 140	Elementary French I.....	5
FL 141	Elementary French II*.....	5
Prerequisite: FL 140 or one year of high-school French		
FL 150	Elementary Russian I.....	5
FL 151	Elementary Russian II*.....	5
Prerequisite: FL 150 or one year of high-school Russian		
FL 160	Elementary Italian I.....	5
FL 161	Elementary Italian II*.....	5
Prerequisite: FL 160 or one year of high-school Italian		
FL 165	Elementary Chinese I.....	5
FL 166	Elementary Chinese II*.....	5
Prerequisite: FL 165 or equivalent college-level course with a grade of "D" or higher or one year of high-school Chinese with a grade of "D" or higher		
FL 170	Elementary Japanese I.....	5
FL 171	Elementary Japanese II*.....	5

	Prerequisite: FL 170 or one year of high-school Japanese	
FL 175	Elementary Brazilian Portuguese I.....	5
FL 176	Elementary Brazilian Portuguese II*.....	5
	Prerequisite: FL 175	
FL 205	Conversational Japanese*.....	2
	Prerequisite: FL 171 or two years of high-school Japanese	
FL 223	Conversational German*.....	2
	Prerequisite: FL 121 or two years of high-school German	
FL 234	Conversational Spanish*.....	2
	Prerequisite: FL 230 with a grade of "B" or higher; or FL 231 with a grade of "C" or higher; or four years of high-school Spanish; or the score equivalent to FL 231 on the placement test	
FL 243	Conversational French*.....	2
	Prerequisite: FL 141 or two years of high-school French	
FL 246	Conversational Russian*.....	2
	Prerequisite: FL 151 or two years of high-school Russian	
HC 125	International Awareness Field Study.....	2
HIST 128	Medieval History.....	3
HIST 135	Eastern Civilization.....	3
HIST 137	African American Studies.....	3
HIST 151	World History I: Traditional World.....	3
HIST 152	World History II: Modern World.....	3
HIST 160	Modern Russian History.....	3
HIST 162	Modern Latin America.....	3
HUM 137	Introduction to Russian Culture.....	3
HUM 145	Introduction to World Humanities I.....	3
HUM 146	Introduction to World Humanities II.....	3
INTR 145	Introduction to the Deaf Community*.....	3
	Prerequisite: Acceptance to interpreter training program and Prerequisite or corequisite: ANTH 125 and SPD 120 for Interpreter Training Program Corequisites for Interpreter Training Prog: INTR 122 and INTR 126 and INTR 130 and INTR 147 all with a grade of "C" or higher Note: Prerequisite or corequisite of INTR 120 or ASL 120 or FL 180 required for students in the American Sign Language Studies Certificate	
MUS 126	Introduction to World Music.....	3
POLS 122	Political Science.....	3
POLS 132	Introduction to Comparative Government.....	3
POLS 135	International Relations.....	3
POLS 200	Model United Nations.....	3
RDG 127	College Reading Skills.....	3
	Prerequisite: RDG 126 or appropriate assessment score Exploring World Religions.....	3
REL 120	Religions of the East.....	3
REL 125	Religions of the West.....	3
REL 126	Religions of the West.....	3
SOC 125	Social Problems.....	3
SOC 165	Chinese Society: Past and Present.....	3
SOC 200	Intercultural Applications*.....	3
	Prerequisite or corequisite: SPD 180	
SPD 128	Business and Professional Speech.....	3
SPD 180	Intercultural Communication.....	3
	*Prerequisite/Corequisite required	

Modes of Inquiry - 6 hours

Scientific - 3 hours		
ANTH 126	Physical Anthropology.....	3
ASTR 120	Fundamentals of Astronomy.....	3
ASTR 122	Astronomy.....	4
BIOL 121	Introductory Biology for Non-Majors.....	4
BIOL 122	Principles of Biology.....	3
BIOL 123	Principles of Biology Lab*.....	1
	Prerequisite or corequisite: BIOL 122 or department approval	
BIOL 124	Oceanus: Essentials of Oceanography.....	3
BIOL 125	General Botany.....	5
BIOL 127	General Zoology.....	5
BIOL 130	Environmental Science.....	3
BIOL 131	Environmental Science Lab*.....	1
	Prerequisite or corequisite: BIOL 130	
BIOL 135	Principles of Cell and Molecular Biology.....	4
BIOL 140	Human Anatomy.....	4
BIOL 144	Human Anatomy and Physiology.....	5
BIOL 150	Biology of Organisms*.....	5
	Prerequisite: BIOL 135 or department approval	
BIOL 225	Human Physiology*.....	4
	Prerequisites or corequisites: Either CHEM 122 or (CHEM 124 and CHEM 125) and either BIOL 140 or BIOL 144	
BIOL 230	Microbiology*.....	3
	Prerequisite: CHEM 122 or CHEM 124 and CHEM 125 or one year of high school chemistry	
BIOL 231	Microbiology Lab*.....	2
	BIOL 231 students must be currently enrolled in BIOL 230 or have successfully completed BIOL 230 within the last three years.	
CHEM 120	Chemistry in Society.....	4
CHEM 122	Principles of Chemistry.....	5
CHEM 124	General Chemistry I Lecture*.....	4
	Prerequisite or corequisite: MATH 171 or assessment test and Corequisite: CHEM 125	
CHEM 125	General Chemistry I Lab*.....	1
	Corequisite: CHEM 124 Students who withdraw from GENERAL CHEMISTRY I	

	LECTURE must also withdraw from the corresponding laboratory GENERAL CHEMISTRY I LABORATORY Students may NOT withdraw from the laboratory course GENERAL CHEMISTRY I LABORATORY without withdrawing from CHEMISTRY I LECTURE.	
CHEM 131	General Chemistry II Lecture*.....	4
	Prerequisites: CHEM 124 and CHEM 125 and Corequisite: CHEM 132	
CHEM 132	General Chemistry II Lab*.....	1
	Prerequisites: CHEM 124 and CHEM 125 and Corequisite: CHEM 131 Students who withdraw from GENERAL CHEMISTRY II LECTURE must also withdraw from the corresponding laboratory GENERAL CHEMISTRY II LABORATORY. Students may not withdraw from the laboratory course GENERAL CHEMISTRY II LABORATORY without withdrawing from CHEMISTRY II LECTURE.	
CHEM 140	Principles of Organic & Biological Chemistry*.....	5
	Prerequisites: BIOL 135 and either CHEM 122 or (CHEM 124 and CHEM 125) or department approval	
GEOS 130	General Geology.....	5
GEOS 140	Physical Geography.....	3
GEOS 141	Physical Geography Lab*.....	2
	Prerequisite or corequisite: GEOS 140 or the equivalent	
PHIL 124	Logic and Critical Thinking.....	3
PHYS 130	General Physics I*.....	5
	Prerequisite: MATH 171 or assessment scores	
PHYS 131	General Physics II*.....	5
	Prerequisite: PHYS 130	
PHYS 220	Engineering Physics I*.....	5
	Prerequisite or corequisite: MATH 242	
PHYS 221	Engineering Physics II*.....	5
	Prerequisites: PHYS 220 and MATH 242	
PSCI 120	Physical Science.....	4
PSYC 130	Introduction to Psychology*.....	3
	Prerequisite: Appropriate score on the COMPASS reading test OR appropriate score on the ACT reading test OR RDG 126 with a grade of "C" or higher	
	*Prerequisite/Corequisite required	
Social - 3 hours		
ECON 132	Survey of Economics.....	3
ECON 230	Economics I.....	3
ECON 231	Economics II.....	3
GEOS 145	World Regional Geography.....	3
POLS 126	State and Local Government.....	3
POLS 132	Introduction to Comparative Government.....	3
PSYC 121	Applied Psychology.....	3
PSYC 130	Introduction to Psychology*.....	3
	Prerequisite: Appropriate score on the COMPASS reading test OR appropriate score on the ACT reading test OR RDG 126 with a grade of "C" or higher	
SOC 122	Introduction to Sociology.....	3
SOC 125	Social Problems.....	3
SOC 131	Marriage and the Family.....	3

Mathematics - 3 hours

MATH 120	Business Mathematics*.....	3
	Prerequisite: MATH 111 with a grade of "C" or higher or appropriate score on the math assessment test	
MATH 122	Mathematics in Our Culture*.....	3
	Prerequisite: MATH 111 with a grade of "C" or higher or appropriate score on the math assessment test	
MATH 130	Technical Mathematics I*.....	3
	Prerequisite: MATH 111 with a grade of "C" or higher or an appropriate score on the math assessment test	
MATH 131	Technical Mathematics II*.....	3
	Prerequisites: MATH 130 or MATH 133 with a grade of "C" or higher or an equivalent course with a grade of "C" or higher	
MATH 165	Finite Mathematics*.....	3
	Prerequisite: MATH 116 with a grade of "C" or higher or appropriate score on the math assessment test	
MATH 171	College Algebra*.....	3
	Prerequisite: MATH 116 with a grade of "C" or higher or MATH 131 with a grade of "C" or higher or MATH 134 with a grade of "C" or higher or appropriate score on the math assessment test	
MATH 172	Trigonometry*.....	3
	Prerequisite: MATH 171 with a grade of "C" or higher or appropriate score on the math assessment test	
MATH 173	Precalculus*.....	5
	Prerequisite: MATH 116 with a grade of "C" or higher or appropriate score on the math assessment test	
MATH 175	Discrete Mathematics and its Applications*.....	3
	Prerequisite: MATH 171 or MATH 173 with a grade of "C" or higher or appropriate score on the math assessment test	
MATH 181	Statistics*.....	3
	Prerequisite: MATH 171 or MATH 173 or an equivalent course with a grade of "C" or higher or appropriate score on the math assessment test	
MATH 225	Mathematics as a Decision Making Tool*.....	3
	Prerequisite: MATH 171 or MATH 173 with a grade of "C" or higher or appropriate score on the math assessment test	

MATH 231	Business and Applied Calculus I*	3
	Prerequisite: MATH 171 or MATH 173 with a grade of "C" or higher or appropriate score on the math assessment test	
MATH 232	Business and Applied Calculus II*	3
	Prerequisites: MATH 231 and either MATH 172 or MATH 173 with a grade of "C" or higher or appropriate score on the math assessment test	
MATH 241	Calculus I*	5
	Prerequisite: MATH 172 or MATH 173 or an equivalent course with a grade of "C" or higher or an appropriate score on an assessment test	
MATH 242	Calculus II*	5
	Prerequisite: MATH 237 or MATH 241 or an equivalent course with a grade of "C" or higher	
MATH 243	Calculus III*	5
	Prerequisite: MATH 242 with a grade of "C" or higher or an equivalent course with a grade of "C" or higher	
MATH 254	Differential Equations*	4
	Prerequisite: MATH 243 with a grade of "C" or higher or an equivalent course with a grade of "C" or higher	
PHYS 220	Engineering Physics I*	5
	Prerequisite or corequisite: MATH 242	
PHYS 221	Engineering Physics II*	5
	Prerequisites: PHYS 220 and MATH 242	

*Prerequisite/Corequisite required

Health and/or Physical Education - 2 hours

HPER	Any Activity Course	1
EMS 121	CPR I - Basic Life Support for Healthcare Provider	1
BIOL 132	Introduction to Public Health	3
HMEC 151	Nutrition and Meal Planning	3
HPER 192	Wellness for Life	1
HPER 200	First Aid and CPR	2
HPER 202	Personal Community Health	3
HPER 205	Individual Lifetime Sports	2
HPER 255	Introduction to Physical Education	3

NOTE: The following HPER courses do NOT meet the general education requirement for Health and/or Physical Education--HPER 102, 124, 174, 176, 177, 195, 198, 204, 207, 208, 217, 220, 224, 245.

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