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Catalog of Courses Fall 2009

JCCC Statement of General Education

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Transfer Guides

JCCC’s transfer programs range from accounting to theater. Credits from JCCC can be transferred to many colleges and universities in the United States.

Degree and Certificate Program List

JCCC’s career programs provide the opportunity for students to study specific careers and enter the job market directly. Each program has been designed with the assistance of a community advisory committee of men and women currently working in the field who are well aware of the requirements and job potential in today's market.

Although career program courses usually are not intended to be transfer programs, some of the courses may transfer to four-year colleges and universities. Specific information on course transferability can be found in the Success Center on campus or on the transfer information Web site (http://web.jccc.net/academic/transfer). Several of the career programs enable students to gain valuable work experience in the community while taking the career program courses.

Students who are interested in a career program should contact a JCCC counselor for more information. Counselors can assist students with entrance requirements, course selection and sequence, and job possibilities. Careful planning and course selection can be just as important in a career program as dedication in the classroom.

Johnson County Community College and the Metropolitan Community College District (MCC) have developed cooperative agreements that allow Johnson County residents to enroll in selected career programs at MCC, while paying Johnson County resident credit hour tuition. Reverse Cooperative Programs allow Missouri residents to enroll in selected career programs at JCCC, while paying the MCC tuition rates. For more information, see the student handbook cooperative programs.

Accreditation

Johnson County Community College is officially accredited by the North Central Association of Colleges and Schools. In addition, individual programs are accredited by associated professional organizations:

- Accounting, Business Office Technology, Business Entrepreneurship, Business Administration and Marketing and Management - Association of Collegiate Business Schools and Programs
- Dental Hygiene - American Dental Hygienists Association and American Dental Association
- Early Childhood Education - National Association for the Education of Young Children
- Fire Service Administration - International Fire Service Accreditation Congress
- Hospitality Food and Beverage and Chef Apprentice - American Culinary Federation
- Interior Design – National Kitchen and Bath Association
- Mobile Intensive Care Technician - Joint Review Committee on Educational Programs for the EMT-Paramedic
- Nursing - Kansas State Board of Nursing and National League for Nursing and National League of Nursing
- Paralegal and Legal Nurse Consulting - American Bar Association
- Police Academy - University of Kansas
- Respiratory Care - Commission on Accreditation of Allied Health Education Programs (www.caajep.org) upon recommendation of the Committee on Accreditation for Respiratory Care

Notice of Nondiscrimination

Johnson County Community College is committed to a policy of nondiscrimination.

Johnson County Community College
Series 400: Personnel
Section 411: Application of Personnel Policies

Johnson County Community College is a place where freedom of expression and civility are encouraged. In valuing diversity, the college recognizes the individual differences based on unique ethnic, cultural, gender and political backgrounds, and the differences represented by staff in age, education and physical ability. In a diverse environment, it becomes the responsibility of each employee to respect these individual differences and to refrain from imposing personal viewpoints on other staff or students.

All personnel policies of the Johnson County Community College shall be applied without regard to a person's race, color, age, sex, religion, marital status, national origin, disability, veteran's status, sexual orientation or other factors which can not be lawfully considered, to the extent specified by applicable federal and state laws.

Date of Adoption: Revised: 3/2/00, 4/10/06

Johnson County Community College does not discriminate on the basis of sex, race, color, national origin, disability, age, religion, marital status, veteran’s status, sexual orientation, or other factors that cannot be lawfully considered in its programs and activities as required by all applicable laws and regulations. Inquiries concerning the college’s compliance with its non-discrimination policies may be referred to the Dean of Student Services or Director of Human Resources, Johnson County Community College, 12345 College Blvd, Overland Park, KS 66210, 913-469-8500; or to Office for Civil Rights, 8930 Ward Parkway, Suite 2037, Kansas City, MO 64114, 816-268-0550.

JCCC provides a range of services to allow persons with disabilities to participate in educational programs and activities. If you desire support services, contact the office of Access Services for Students With Disabilities (913) 469-8500, ext. 3521, or TDD (913) 469-3885. The Access Services office is located in the Success Center on the second floor of the Student Center.

JCCC Statement of General Education

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.
Graduation Requirements

One semester prior to your graduation:

Complete an Application for Degree and/or Certificate of Completion 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 degree and arts degree, 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 Degree and/or Certificate of Completion Form 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 when grades have been posted and a final verification is done to ensure that all graduation requirements have been completed.

Application for Degree and/or Certificate of Completion Form

Graduation Application Deadline appeal Process

If a student misses the application deadline, the student may submit an Application for 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.

Associate's Degrees and Certificates

Associate's Degrees Offered at JCCC

Graduation Requirements

To officially graduate, an application for graduation must be filed in the Records Office by the appropriate deadline.

Students graduating with an associate of arts degree or an associate of science degree must complete an approved cultural diversity course. This diversity requirement will be waived for students graduating before August 2009.

Cultural Diversity Requirement

Degree and Certificate Program List

Associate of Arts

Associate of Science

Associate of Applied Science

Certificate of General Studies

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

Certificates

Certificate programs at Johnson County Community College provide specialized training for a specific career. To earn a certificate, students must successfully complete approved certificate requirements with a cumulative grade point average of 2.0 or higher and a JCCC GPA of 2.0 or higher. Students must complete a minimum of 50 percent of the required coursework at JCCC.

Students must be enrolled at the college during the semester they anticipate completing certificate requirements and must submit an Application for Graduation to the JCCC Student Success Center.

Certificates are issued at the end of each semester.

Graduation exercises are held once a year at the completion of the spring semester. Students who have completed the requirements for a certificate in prior semesters of the same academic year will be invited to participate in graduation.

JCCC offers two types of certificates:

- Certificate of Completion: A certificate of completion may be awarded for a specified course of study not exceeding 15 credit hours.
- Career Certificate: A career certificate may be awarded for programs of 16 to 59 credit hours.

Associate of Arts

The associate of arts degree from JCCC

- is designed for students who plan to transfer to a baccalaureate college or university.
- requires completion of 64 college-level credit hours within specified course distribution areas 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 64 hours of credit 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

Graduation Application Deadlines:
- August 15 for fall graduation
- December 15 for spring graduation
- March 15 for summer graduation
• 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.

The following is an example of a first year schedule for an undecided transfer student. Students interested in a specific major or degree should talk with a JCCC counselor.

First Semester - CR (Credit Hours)
ENGL 121 Composition I 3
Social Science Elective 3
Math/Natural Science Elective 3-5
Humanities Elective 3
General Elective 3
Total Credit Hours 15-17

Second Semester - CR (Credit Hours)
ENGL 122 Composition II 3
Oral Communication Elective 3
Math/Natural Science Elective 3-5
Social Science/Humanities Elective 3
General Elective 3
Total Credit Hours 15-17

An associate of arts program is designed specifically to meet your educational objectives and needs by allowing you to complete general education requirements.

General Education Requirements

Communications - 9 hours

A. English Composition - 6 hours
ENGL 121 Composition I*...........................................3
Prerequisite: ENGL 106 or appropriate 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

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

ENGL 230 Introduction to Fiction*...............................3
ENGL 231 American Prose*........................................3
ENGL 235 Drama as Literature*..................................3
ENGL 250 World Masterpieces*..................................3
ENGL 254 Masterpieces of the Cinema*........................3
ENGL 256 American Poetry*......................................3

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
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
Prerequisite: 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
*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
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
No more than one course from each of the six
areas may count toward the six required hours.

A. Anthropology

ANTH 125 Cultural Anthropology

ANTH 126 Physical Anthropology

ANTH 130 World Cultures

ANTH 142 World Prehistory

*Also meets Cultural Diversity Requirement

B. Economics

ECON 132 Survey of Economics

ECON 230 Economics I

ECON 231 Economics II

C. Political Science

POLS 122 Political Science

POLS 124 American National Government

POLS 126 State and Local Government

POLS 132 Introduction to Comparative Government

POLS 135 International Relations

*Also meets Cultural Diversity Requirement

D. Psychology

PSYC 121 Applied Psychology

PSYC 130 Introduction to Psychology

E. Sociology

SOC 122 Introduction to Sociology

SOC 125 Social Problems

SOC 131 Marriage and the Family

*Also meets Cultural Diversity Requirement

F. Gender and Ethnic Studies

WGS 201 Global Women’s Studies

*Also meets Cultural Diversity Requirement

Science and/or Mathematics - 9 hours

Must include at least one course from a lab science and one from mathematics.

A. Life Science

BIOL 122 Principles of Biology

BIOL 123 Principles of Biology Lab

Prerequisite or corequisite: BIOL 122 or department approval

BIOL 124 Oceanus: Essentials of Oceanography

BIOL 125 General Botany

BIOL 127 General Zoology

BIOL 130 Environmental Science

BIOL 131 Environmental Science Lab

Prerequisite or corequisite:

BIOL 135 Principles of Cell and Molecular Biology

BIOL 140 Human Anatomy

BIOL 144 Human Anatomy and Physiology

BIOL 150 Biology of Organisms

Prerequisite: BIOL 130 or department approval

BIOL 225 Human Physiology

Prerequisites or corequisites: Either CHEM 122 or (CHEM 124 and CHEM 125) and either BIOL 140 or BIOL 144

BIOL 230 Microbiology

Prerequisite: CHEM 122 or CHEM 124 and CHEM 125 or one year of high school chemistry

BIOL 231 Microbiology Lab

Prerequisite: BIOL 230 or BIOL 231 Microbiology Lab

*Prerequisite/Co-requisite required

B. Physical Science

ASTR 120 Fundamentals of Astronomy

ASTR 122 Astronomy

CHEM 120 Chemistry in Society

CHEM 122 Principles of Chemistry

CHEM 124 General Chemistry I Lecture

Prerequisite or corequisite: MATH 171 or assessment

CHEM 125 General Chemistry I Lab

Prerequisite or Corequisite: MATH 124

Students who withdraw from GENERAL CHEMISTRY I must also withdraw from the corresponding laboratory course.

CHEM 131 General Chemistry II Lecture

Prerequisites: CHEM 124 and MATH 125 and Corequisite: CHEM 132

CHEM 132 General Chemistry II Lab

Prerequisites: CHEM 124 and MATH 125 and Corequisite: CHEM 131 Students who withdraw from GENERAL CHEMISTRY II must also withdraw from the corresponding laboratory course.

CHEM 140 Principles of Organic & Biological Chemistry

Prerequisites: BIOL 135 and either CHEM 122 or (CHEM 124 and CHEM 125) or department approval

GEOS 130 General Geology

GEOS 140 Physical Geography

GEOS 141 Physical Geography Lab

Prerequisite or corequisite: GEOS 140 or the equivalent

GEOS 145 World Regional Geography

PHYS 130 General Physics I

PHYS 131 General Physics II

PHYS 220 Engineering Physics I

PHYS 221 Engineering Physics II

PHYS 222 Engineering Physics III

Prerequisite: PHYS 220 and MATH 242

PSCI 120 Physical Science

*Also meets Cultural Diversity Requirement

C. Mathematics

MATH 165 Finite Mathematics

Prerequisite: MATH 116 with a grade of "C" or higher or appropriate score on the math assessment test

MATH 171 College Algebra

Prerequisite: MATH 116 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

Prerequisite: MATH 131 with a grade of "C" or higher or appropriate score on the math assessment test

MATH 173 Precalculus

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

Prerequisite: MATH 171 or MATH 173 with a grade of "C" or higher or appropriate score on the math assessment test

MATH 181 Statistics

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

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

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

Prerequisite: 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

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

Prerequisite: MATH 237 or MATH 241 or an equivalent course with a grade of "C" or higher or an appropriate score on an assessment test

MATH 243 Calculus III

Prerequisite: MATH 242 or MATH 241 or an equivalent course with a grade of "C" or higher

MATH 244 Differential Equations

Prerequisite: MATH 243 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
HMEC 151 Nutrition and Meal Planning..........................3
HPER 200 First Aid and CPR.................................2
HPER 202 Personal Community Health............................2
HPER 205 Individual Lifetime Sports..............................2
HPER 240 Lifetime Fitness I........................................1
HPER 255 Introduction to Physical Education....................3

Cultural Diversity Requirement - 1 course

ANTH 125 Cultural Anthropology.................................3
ANTH 130 World Cultures........................................3
ANTH 134 Native Americans.......................................3
ANTH 135 American Indian Artistic Tradition....................3
ANTH 152 World Prehistory........................................3
ANTH 150 People and Cultures of Mesoamerica..................3
ARTS 186 Architectural Introduction to Asian Art...............3
BUS 235 Introduction to International Business.................3
ENGL 215 U.S. Latino and Latina Literature***................3
ENGL 217 Literature by Women**.................................3
FL 145 Field Study in Russian Language & Culture...............2
GRUS 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 152 Modern Latin America.................................3
HIST 167 Introduction to History: Japan........................3
HIST 195 History of the Middle East............................3
HUM 127 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
INTR 145 Introduction to the Deaf Community..................3

Prerequisite or corequisite: ENGL 122
Prerequisite: Acceptance to Interpreter Training Program and
Corequisites for Interpreter Training Prog: INTR 122
and INTR 124 and INTR 130 and INTR 147
all with a grade of "C" or higher
Note: Prerequisites or corequisites 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 203 Human Sexuality.......................................3
PSYC 220 Social Psychology.......................................3
Prerequisite: PSYC 130
Prerequisite or corequisite: 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
SOM 122 Introduction to Sociology..............................3
SOC 125 Social Structure.........................................3
SOC 146 Introduction to Social Work and Social Welfare.....3
SOC 154 Chinese Society: Past and Present...................3
SOC 200 Intercultural Applications...............................3
Prerequisite or corequisite: SPD 180
SPD 180 Intercultural Communication..........................3
WS 201 Global Women's Studies................................3
WS 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

- is designed with an emphasis in a specific career program.
- requires completion of a minimum of 64 college-level credit hours
  within specified course distribution areas, including the emphasis of
  study, 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 64 hours of credit 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)

Specific courses that meet the associate of science degree requirements are:

General Education Requirements

(available for career programs only)

A. Communications - 9 hours

ENGL 121 Composition I*.................................3
ENGL 121 Composition II*..........................3
ENGL 121 Technical Writing*..........................3
ENGL 140 Writing for Interactive Media*..................3
ENGL 121 First Year English.......................3
BUS 150 Business Communications.......................3
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

B. Communications Elective - 6 hours

(two of the following)

ENGL 122 Composition I*.................................3
ENGL 122 Composition II*..........................3
ENGL 122 Technical Writing*..........................3
ENGL 140 Writing for Interactive Media*..................3
ENGL 122 First Year English.......................3
BUS 150 Business Communications.......................3
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
ENGL 215 U.S. Latino and Latina Literature***................3
ENGL 217 Literature by Women**.................................3
ENGL 217 Literature by Women**.................................3
ENGL 227 Introduction to Poetry*..............................3
ENGL 230 Introduction to Fiction*..............................3
ENGL 231 American Prose*.................................3
ENGL 235 Drama as Literature*...............................3
ENGL 250 World Masterpieces*...............................3
ENGL 254 Masterpieces of the Cinema*.......................3
ENGL 256 American Poetry*.................................3
THEA 120 Introduction to Theater............................3
*Prerequisite/Corequisite required
*Also meets Cultural Diversity Requirement

B. Foreign Language

FL 178 Intermediate Russian I*.................................3
FL 179 Intermediate Russian II*.................................3
FL 178 Intermediate Russian II*.................................3
*Prerequisite: FL 178 or three years of high school Russian
### A. Science

<table>
<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
<td>BIOL 122 Principles of Biology</td>
<td>3</td>
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<tr>
<td>BIOL 123 Principles of Biology Lab*</td>
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<tr>
<td>BIOL 124 Oceanography</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 125 General Botany</td>
<td>5</td>
</tr>
<tr>
<td>BIOL 127 General Zoology</td>
<td>5</td>
</tr>
<tr>
<td>BIOL 130 Environmental Science Lab*</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 131 Environmental Science Lab*</td>
<td>1</td>
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<tr>
<td>BIOL 133 Principles of Cell and Molecular Biology</td>
<td>4</td>
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<td>BIOL 140 Human Anatomy</td>
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<td>BIOL 144 Human Anatomy and Physiology</td>
<td>5</td>
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<tr>
<td>BIOL 150 Biology of Organisms*</td>
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<tr>
<td>BIOL 225 Human Physiology</td>
<td>4</td>
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<tr>
<td>BIOL 230 Microbiology*</td>
<td>3</td>
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<td>BIOL 231 Microbiology Lab*</td>
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<td>CHEM 125 General Chemistry I Lab*</td>
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<tr>
<td>CHEM 126 General Chemistry I Lecture*</td>
<td>4</td>
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<tr>
<td>CHEM 131 General Chemistry II Lecture*</td>
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<tr>
<td>CHEM 132 General Chemistry II Lab*</td>
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### B. Economics

<table>
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<th>Course</th>
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<tr>
<td>ECON 132 Survey of Economics</td>
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<tr>
<td>ECON 230 Economics I</td>
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<tr>
<td>ECON 231 Economics II</td>
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### C. Political Science

<table>
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<td>POLS 124 American National Government</td>
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<tr>
<td>POLS 126 State and Local Government</td>
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<td>POLS 132 Introduction to Comparative Govt</td>
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### D. Psychology

<table>
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<th>Course</th>
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<td>PSYC 121 Applied Psychology</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 130 Introduction to Psychology</td>
<td>3</td>
</tr>
</tbody>
</table>

### E. Sociology

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOC 121 Marriage and the Family</td>
<td>3</td>
</tr>
<tr>
<td>SOC 125 Social Problems</td>
<td>3</td>
</tr>
</tbody>
</table>

### F. Gender and Ethnic Studies

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>WGS 201 Global Women's Studies</td>
<td>3</td>
</tr>
</tbody>
</table>

### Science and Mathematics - 12 hours

Must include at least one course in mathematics and at least one in a lab science.

The mathematics requirement will be satisfied by any mathematics course except Fundamentals of Mathematics and Elementary Algebra.

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>FL 192 Intermediate Chinese I*</td>
<td>3</td>
</tr>
<tr>
<td>FL 193 Intermediate Chinese II*</td>
<td>3</td>
</tr>
<tr>
<td>FL 220 Intermediate German I*</td>
<td>3</td>
</tr>
<tr>
<td>FL 221 Intermediate German II*</td>
<td>3</td>
</tr>
<tr>
<td>FL 230 Intermediate Spanish I*</td>
<td>3</td>
</tr>
<tr>
<td>FL 240 Intermediate French I*</td>
<td>3</td>
</tr>
<tr>
<td>FL 241 Intermediate French II*</td>
<td>3</td>
</tr>
</tbody>
</table>

*Prerequisite/Corequisite required

### C. History

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIST 125 Western Civilization: Readings and Discussion I</td>
<td>3</td>
</tr>
<tr>
<td>HIST 126 Western Civilization: Readings and Discussion II</td>
<td>3</td>
</tr>
<tr>
<td>HIST 128 Medieval History</td>
<td>3</td>
</tr>
<tr>
<td>HIST 129 Early Modern Europe 1500-1789</td>
<td>3</td>
</tr>
<tr>
<td>HIST 130 European History Since 1789</td>
<td>3</td>
</tr>
<tr>
<td>HIST 135 Eastern Civilization*</td>
<td>3</td>
</tr>
<tr>
<td>HIST 137 African American Studies*</td>
<td>3</td>
</tr>
<tr>
<td>HIST 140 U.S. History to 1877</td>
<td>3</td>
</tr>
<tr>
<td>HIST 141 U.S. History since 1877</td>
<td>3</td>
</tr>
<tr>
<td>HIST 151 World History I: Traditional World</td>
<td>3</td>
</tr>
<tr>
<td>HIST 152 World History II: Modern World</td>
<td>3</td>
</tr>
<tr>
<td>HIST 160 Modern Russian History*</td>
<td>3</td>
</tr>
</tbody>
</table>

*Also meets Cultural Diversity Requirement

### D. Humanities

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ART 180 Art History: Ancient to Renaissance</td>
<td>3</td>
</tr>
<tr>
<td>ART 182 Art History: Renaissance to Modern</td>
<td>3</td>
</tr>
<tr>
<td>ART 184 Art History: Twentieth Century</td>
<td>3</td>
</tr>
<tr>
<td>ART 188 History of Photography</td>
<td>3</td>
</tr>
<tr>
<td>HUM 122 Introduction to Humanities</td>
<td>3</td>
</tr>
<tr>
<td>HUM 145 Introduction to World Humanities I</td>
<td>3</td>
</tr>
<tr>
<td>HUM 146 Introduction to World Humanities II</td>
<td>3</td>
</tr>
<tr>
<td>HUM 155 Classical Mythology</td>
<td>3</td>
</tr>
<tr>
<td>HUM 164 Civilization</td>
<td>3</td>
</tr>
<tr>
<td>MUS 121 Introduction to Music Listening</td>
<td>3</td>
</tr>
<tr>
<td>MUS 125 Introduction to Jazz</td>
<td>3</td>
</tr>
<tr>
<td>MUS 126 Introduction to World Music</td>
<td>3</td>
</tr>
<tr>
<td>REL 120 Exploring World Religions*</td>
<td>3</td>
</tr>
<tr>
<td>REL 125 Religions of the East*</td>
<td>3</td>
</tr>
<tr>
<td>REL 126 Religions of the West*</td>
<td>3</td>
</tr>
</tbody>
</table>

*Also meets Cultural Diversity Requirement

### E. Philosophy

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHIL 121 Introduction to Philosophy</td>
<td>3</td>
</tr>
<tr>
<td>PHIL 142 Logic and Critical Thinking</td>
<td>3</td>
</tr>
<tr>
<td>PHIL 143 Ethics</td>
<td>3</td>
</tr>
<tr>
<td>PHIL 154 History of Ancient Philosophy</td>
<td>3</td>
</tr>
<tr>
<td>PHIL 176 Philosophy of Religion</td>
<td>3</td>
</tr>
</tbody>
</table>

*Also meets Cultural Diversity Requirement

### Social Science/Economics - 6 hours

Two courses from any of the following categories may count toward the six required hours.

### A. Anthropology

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTR 125 Cultural Anthropology*</td>
<td>3</td>
</tr>
<tr>
<td>ANTR 126 Physical Anthropology</td>
<td>3</td>
</tr>
<tr>
<td>ANTR 130 World Cultures</td>
<td>3</td>
</tr>
<tr>
<td>ANTR 142 World Prehistory</td>
<td>3</td>
</tr>
</tbody>
</table>

*Also meets Cultural Diversity Requirement

### B. Economics

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECON 132 Survey of Economics</td>
<td>3</td>
</tr>
<tr>
<td>ECON 230 Economics I</td>
<td>3</td>
</tr>
<tr>
<td>ECON 231 Economics II</td>
<td>3</td>
</tr>
</tbody>
</table>

### C. Political Science

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>POLS 122 Political Science</td>
<td>3</td>
</tr>
<tr>
<td>POLS 124 American National Government</td>
<td>3</td>
</tr>
<tr>
<td>POLS 126 State and Local Government</td>
<td>3</td>
</tr>
<tr>
<td>POLS 132 Introduction to Comparative Govt</td>
<td>3</td>
</tr>
</tbody>
</table>

POLS 135 International Relations*..............3

"Also meets Cultural Diversity Requirement"
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 or CHEM 125 or department approval

GEOG 130 General Geology.........................................................5
GEOG 140 Physical Geography.....................................................5
GEOG 141 Physical Geography Lab*..........................................2
Prerequisite or corequisite: GEOG 140 or the equivalent

GEOG 145 World Regional Geography*.................................3
PHYS 130 General Physics I*..................................................5
PHYS 131 General Physics II*................................................5
PHYS 220 Engineering Physics I*..............................................5
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
EMS 121 CPR I - Basic Life Support for Healthcare Provider..........................1
NMB 111 Nutrition and Meal Planning.............................................1
HPER 192 Wellness for Life......................................................1
HPER 200 First Aid and CPR.....................................................2
HPER 202 Personal Community Health...........................................2
HPER 205 Individual Lifetime Sports.............................................2
HPER 240 Lifetime Fitness I......................................................2
HPER 255 Introduction to Physical Education..................................3

Cultural Diversity Requirement - 1 course

ANTH 125 Cultural Anthropology.............................................3
ANTH 130 World Cultures.........................................................3
ANTH 134 Native Americans.....................................................3
ANTH 135 American Indian Artistic Tradition.................................3
ANTH 182 World Prehistory......................................................3
ANTH 150 People and Cultures of Mesoamerica..............................3
ARTH 186 Art History: Introduction to Asian Art................................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..........................3
GEOG 145 World Regional Geography*.................................3

HC 125 International Awareness Field Study..................................3

HIST 135 Eastern Civilization..................................................3
HIST 137 African American Studies............................................3
HIST 150 Islam: Religion & Civilization........................................3
HIST 151 World History I: Traditional Worlds...............................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 168 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
INTR 145 Introduction to the Deaf Community...............................3
Prerequisite: Acceptance to interpreter training program

Prerequisite or corequisite: ANTH 125 and SPD 120 for Interpreter Training Program

Corequisites for Interpreter Training Program: INT 122 and INT 124 and INT 130 and INT 147
all with a grade of “C” or higher

Notes: Prerequisite or corequisite of INT 120 or ASL 120 or FL 180 required for students in the American Sign Language Studies Certificate

MDS 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

SOCI 125 Social Problems.......................................................3
SOCI 146 Introduction to Social Work and Social Welfare..................3
SOCI 165 Chinese Society: Past and Present..................................3
SPD 181 Intercultural Communication.........................................3
WGS 201 Global Women's Studies..............................................3
WGS 225 The Many Women of Islam...........................................3

Health and/or Physical Education (1 hour)

HPER Any Activity Course......................................................1

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 within specified course distribution areas, including emphasis of study, with a 2.0 GPA.

The 64 hours of credit necessary to complete the associate of applied science degree include 15 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

(available for career programs only)

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*..................................................3
Prerequisite: ENGL 121

ENGL 140 Writing for Interactive Media*.................................3
Prerequisite: ENGL 121

BUS 150 Business Communications........................................3

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

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ENGL 217 Literature by Women*.................................3
Prerequisite or corequisite: ENGL 122
ENGL 227 Introduction to Poetry*.................................3
Prerequisite or corequisite: 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
THSB 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
or three years of high school Russian
FL 179 Intermediate Russian II*.................................3
Prerequisite: FL 178
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 223 Intermediate Spanish I*.................................3
Prerequisite: 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

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 Latin American History.................................3
HIST 162 Modern Latin America.................................3

D. Humanities

ARTW 180 Art History: Ancient to Renaissance.................................3
ARTW 182 Art History: Renaissance to Modern.................................3
ARTW 184 Art History: Twentieth Century.................................3
ARTW 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
MUS 121 Introduction to Chinese 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 133 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

POLI 122 Political Science.................................3
POLI 124 American National Government.................................3
POLI 126 State and Local Government.................................3
POLI 132 Introduction to Comparative Government.................................3
POLI 135 International Relations.................................3

D. Psychology

PSYC 121 Applied Psychology.................................3
PSYC 130 Introduction to Psychology.................................3

E. Sociology

SOCI 122 Introduction to Sociology.................................3
SOCI 125 Social Problems.................................3
SOCI 131 Marriage and the Family.................................3

F. Gender and Ethnic Studies

NGS 201 Global Women's Studies.................................3

Science and/or Mathematics - 3 hours

Any mathematics course except Fundamentals of Mathematics or Elementary Algebra will satisfy this requirement, or the requirement can be satisfied by any of the following courses.

A. Life Science

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 129 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 Lab*.................................1
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
BIOL 231 Microbiology Lab*.................................2
*Prerequisites: CHEM 122 or CHEM 124 and
one year of high school chemistry
BIOL 231 Microbiology Lab*.................................2
*Prerequisites: CHEM 122 or CHEM 124 and
one year of high school chemistry
BIOL 231 Microbiology Lab*.................................2
*Prerequisites: CHEM 122 or CHEM 124

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 Lectures.................................4
*Prerequisite or corequisite: MATH 171 or assessment
test and Corequisite: CHEM 125
CHEM 125 General Chemistry I Lab*.................................1
*Prerequisite or Corequisite: CHEM 124

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Students who withdraw from GENERAL CHEMISTRY I LECTURE must also withdraw from the corresponding laboratory GENERAL CHEMISTRY I LABORATORY.

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.

CHEM 140 Principles of Organic & Biological Chemistry*. 5
Prerequisites: BIOL 135 and either CHEM 122 or (CHEM 124 and CHEM 125) or department approval

PHYS 120 Introduction to Physics*. 5
Prerequisite: MATH 171 or assessment scores

PHYS 121 Introduction to Physics II*. 5
Prerequisite: MATH 171 and MATH 172.

PHYS 220 Introduction to Modern Physics*. 5
Prerequisite: MATH 242

PHYS 221 Introduction to Modern 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 Physical Education - 1 hour

HPER Any Activity Course. 1

EMS 121 CPR I - Basic Life Support for Healthcare Provider. 1

HMHC 151 Nutrition and Meal Planning. 3

HPER 192 Wellness for Life. 2

HPER 200 First Aid and CPR. 3

HPER 202 Personal Community Health. 3

HPER 205 Individual Lifetime Sports. 3

HPER 240 Lifetime Fitness I. 3

HPER 255 Introduction to Physical Education. 3

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 179 Intermediate Russian I*. 3
Prerequisite: FL 151 or two 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
Prerequisite: 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

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 155 Classical Mythology. 3

HUM 156 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

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
Prerequisite: ENGL 122

ENGL 250 World Masterpieces*. 3
Prerequisite: ENGL 122

ENGL 256 American Poetry*. 3
Prerequisite: ENGL 122

ENGL 130 General Geology. 3

ENGL 140 General Chemistry. 3

ENGL 141 Physical Geography Lab*. 2
Prerequisite or corequisite: GEOS 140 or the equivalent

HIST 126 Western Civilization: Readings and Discussion I. 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 166 State and Local Government. 3

*Prerequisite/Corequisite required

Cultural Perspective - 3 hours

ARTH 180 Cultural Anthropology. 3

ARTH 184 Art History: Twentieth Century. 3

ENGL 121 Introduction to Literature*. 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
**Computer Skills - 3 hours**

**CIS 124** Introduction to Computer Concepts and Applications ........................................... 3

**Math 181 Statistics** .................................................................................................................. 3

**Writing - 3 hours**

**ENGL 121** Composition I ........................................................................................................ 3

Prerequisite: ENGL 160 or appropriate placement

**Writing 1** or EAP 117

*Prerequisite/Corequisite required

**Speaking - 3 hours**

**SPD 120** Interpersonal Communication .................................................................................... 3

**SPD 121** Public Speaking ............................................................................................................ 3

**SPD 125** Persuasion Communication ......................................................................................... 3

**SPD 180** Intercultural Communication ....................................................................................... 3

**Global Issues/Diversity - 3 hours**

**AGM 127** Criminology .............................................................................................................. 3

**ANTR 125** Culture and Anthropology. ....................................................................................... 3

**ANTR 130** World Cultures ......................................................................................................... 3

**ANTR 134** Intermediate Russian I ............................................................................................... 3

Prerequisite: FL 121 or two years of high school French

**ARH 186** Art History: Introduction to Asian Art ........................................................................... 3

**Biol 130** Environmental Science ................................................................................................ 3

Prerequisite or corequisite: BIOL 110

**Modes of Inquiry - 6 hours**

**Math 126** Physical Anthropology ................................................................................................ 3

**Astr 120** Fundamentals of Astronomy ......................................................................................... 3

**Astr 122** Astronomy .................................................................................................................... 3

**Biol 122** Principles of Biology ..................................................................................................... 3

**Biol 123** Principles of Biology Lab .............................................................................................. 3

Prerequisite or pre-lab: SCI 100

Prerequisite or corequisite: SCI 100

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
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 Organism*...............................5
Prerequisite: BIOL 135 or department approval
BIOL 225 Human Physiology*..................................4
Prerequisites or corequisites: Either CHEM 122 or CHEM 125 and either BIOL 140 or BIOL 144
BIOL 230 Microbiology*........................................3
Prerequisites: 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: CHEM 125 or assessment test and Corequisite: CHEM 125
CHEM 125 General Chemistry I Lab*...........................1
Prerequisite or Corequisite: CHEM 124
CHEM 127 General Chemistry II Lecture*...................4
Prerequisites: CHEM 124 and CHEM 125 and Corequisite: CHEM 132
CHEM 132 General Chemistry II Lab*...........................1
Prerequisite or Corequisite: 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 I LABORATORY. Students may not withdraw from the laboratory course GENERAL CHEMISTRY I LABORATORY without withdrawing from CHEMISTRY I LECTURE.
CHEM 133 General Chemistry II Laboratory.........................5
Prerequisites: CHEM 124 and CHEM 125 or Department approval
CHEM 140 General Chemistry II Laboratory*..................5
Prerequisites: BIOL 135 and either CHEM 122 or CHEM 124 and CHEM 125 or Department approval

CHEM 120 Chemistry in Society................................4
CHEM 122 Principles of Chemistry...............................5
CHEM 124 General Chemistry I Lecture*.....................4
Prerequisite or corequisite: CHEM 125 or assessment test and Corequisite: CHEM 125
CHEM 125 General Chemistry I Lab*...........................1
Prerequisite or Corequisite: CHEM 124
CHEM 127 General Chemistry II Lecture*...................4
Prerequisites: CHEM 124 and CHEM 125 and Corequisite: CHEM 132 Students who withdraw from GENERAL CHEMISTRY II 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 133 General Chemistry II Laboratory.........................5
Prerequisites: CHEM 124 and CHEM 125 or Department approval

Degree and Certificate Program 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.

Mathematics - 3 hours
MATH 120 Business Math and Higher*............................3
Prerequisite: MATH 111 with a grade of "C" or higher or appropriate score on the math assessment test
MATH 220 Engineering Physics I*................................5
Prerequisite or corequisite: MATH 242
MATH 221 Engineering Physics II*...............................5
Prerequisites: MATH 220 and MATH 242

Health, Physical Education, Recreation - 2 hours
HPER Any Activity Course.................................1
Academic Bridges to Learning Effectiveness (ABLE)  
ABLE  

Accounting  
Accounting, A.A.S.  
Bookkeeping Entrepreneurship Certificate  
Tax Preparation Entrepreneurship 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)  
Cert Medication Aide Update (see Health Occupations)  
Certified Nurse Aide (see Health Occupations)  
Certified Nurse Aide Refresher (see Health Occupations)  
Chef Apprenticeship (see Hospitality Management)  

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  

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
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<td>Civil Engineering Technology, A.A.S.</td>
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<td>Engineered Plumbing Systems Certificate</td>
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<tr>
<td>Commercial Electrical Design Certificate</td>
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<td>Commercial Wiring (see Electrical Technology)</td>
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<td>Energy Performance &amp; Resource Management</td>
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<td>Fashion Merchandising Entrepren Cert (see Fash Merch-Design)</td>
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<td>Game Entrepreneurship Advanced Certificate (see Game)</td>
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<td>Health Care Interpreting Entrepreneurship Certificate (see Interpreter Training)</td>
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<td>Horticulture Entrepreneurship Certificate (see Horticulture)</td>
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<td>Medical Admin Asst Entrepren Cert (see Business Office Tech)</td>
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<td>Multimedia Design Entrepreneur. Cert.(see Interactive Media)</td>
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| 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) |
| Web Design Entrepreneurship Cert. (see Interactive Media) |

| Esthetics Certificate (see Cosmetology) |
| Esthetics Advanced Training (see Cosmetology) |

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<td>Visual Merchandising Certificate</td>
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<td>Game Development, A.A.S.</td>
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<td>Game Entrepreneurship Advanced Certificate</td>
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<td>Game Narrative Advanced Certificate</td>
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Game Programming Advanced Certificate

Geographic Information Systems
Geographic Info Systems Cert

Graphic Design
Graphic Design, A.A.S.

Health Care Interpreting (see Interpreter Training)

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

Health Care Interpreting (see Interpreter Training)

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.

Information Systems (see Computer Information Systems)

Information Technology
Information Technology, A.A.S.
Networking Administration: UNIX Certificate
Networking Administration: Windows Certificate
Network Connectivity Certificate

Interactive Media
Interactive Media, A.A.S.
Multimedia Design Certificate
Multimedia Design Entrepreneurship Certificate
Web Design Certificate
Web Design Entrepreneurship 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
Health Care Interpreting Certificate
Health Care Interpreting Entrepreneurship Certificate

IV Therapy for LPN Certificate (see Health Occupations)

Land Surveying
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<tr>
<td><strong>Landscape Technician</strong></td>
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<tr>
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<td>Legal Nurse Consultant Certificate</td>
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<td><strong>Locomotive Electrical and Mechanical</strong></td>
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<tr>
<td><strong>Introduction to Manufacturing</strong></td>
<td>Cert (see Metal Fab/Welding)</td>
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<td>Marketing Specialist Entrepreneurship Certificate</td>
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<td>Retail Sales Representative Certificate</td>
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<td>Sales and Customer Relations Certificate</td>
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<td><strong>Medical Office Assistant</strong></td>
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<td>Welder Fabricator Advanced Certificate</td>
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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.

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)

Sign Language Communication Cert (see Interpreter Training)

Smart House Technology Integrator (see Electronics)

Supervision Management Cert (see Marketing and Management)

Surgical Technology (see Health Occupations)

Tax Preparation Entrepreneurship Cert (see Accounting)

Teleservice Technology (see Marketing and Management)

Teletrac Certificate (see Marketing and Management)

Veterinary Technology

- Veterinary Technology, A.A.S.

Visual Merchandising Cert (see Fashion Merch and Design)

Web Application Certificate (see Interactive Media)

Web Design Certificate (see Interactive Media)

Web Developer Advanced Certificate (see Computer Info Sys)

Welding (see Metal Fabrication or Railroad)

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 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 Longview Community College ABLE program, 816-672-2053, or Penn Valley Community College ABLE program, 816-759-4089.

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.

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 career facilitator (skleiner@jccc.edu) or a JCCC counselor.

(Major Code 2400; CIP Code 52.0302)

Accounting Careers

**Associate of Applied Science Degree**

First Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 121 Composition I*</td>
<td>3</td>
</tr>
<tr>
<td>Prerequisite: ENGL 106 or appropriate placement test score or EAP 113 and EAP 117</td>
<td></td>
</tr>
<tr>
<td>ACCT 121 Accounting I*</td>
<td>3</td>
</tr>
<tr>
<td>Prerequisite: ACCT 122</td>
<td></td>
</tr>
<tr>
<td>ACCT 122 Accounting II*</td>
<td>3</td>
</tr>
<tr>
<td>Prerequisite: ACCT 121</td>
<td></td>
</tr>
<tr>
<td>MATH 171 College Algebra or higher*</td>
<td>3</td>
</tr>
<tr>
<td>Prerequisite: MATH 116 with a grade of &quot;C&quot; or higher or a satisfactory score on the math assessment test</td>
<td></td>
</tr>
<tr>
<td>BOT 101 Computerized Keyboarding</td>
<td>1</td>
</tr>
<tr>
<td>Business Electives</td>
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</tr>
<tr>
<td>Total Semester Credit Hours</td>
<td>16</td>
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Second Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACCT 215 Accounting for Nonprofit Organizations*</td>
<td>3</td>
</tr>
<tr>
<td>Prerequisite: ACCT 121</td>
<td></td>
</tr>
<tr>
<td>or</td>
<td>3</td>
</tr>
<tr>
<td>ACCT 231 Intermediate Accounting II*</td>
<td>3</td>
</tr>
<tr>
<td>Prerequisite: ACCT 122</td>
<td></td>
</tr>
<tr>
<td>ACCT 240 Fraud Examination*</td>
<td>3</td>
</tr>
<tr>
<td>Prerequisite: ACCT 121 and ACCT 122 and ACCT 222</td>
<td></td>
</tr>
<tr>
<td>ACCT 131 Federal Income Taxes I</td>
<td>3</td>
</tr>
<tr>
<td>ACCT 133 Computerized Accounting Applications*</td>
<td>3</td>
</tr>
<tr>
<td>Prerequisite: ACCT 121 and ACCT 111</td>
<td></td>
</tr>
<tr>
<td>ACCT 285 Accounting Capstone*</td>
<td>3</td>
</tr>
<tr>
<td>Prerequisite: ACCT 121 and ACCT 111</td>
<td></td>
</tr>
<tr>
<td>ECON 120 Business Electives</td>
<td>3</td>
</tr>
<tr>
<td>Health and/or Physical Education Elective</td>
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<td>Total Semester Credit Hours</td>
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</table>

Third Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACCT 285 Accounting Capstone*</td>
<td>3</td>
</tr>
<tr>
<td>Prerequisite: ACCT 121 and ACCT 111</td>
<td></td>
</tr>
<tr>
<td>MATH 171 College Algebra or higher*</td>
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</tr>
<tr>
<td>Prerequisite: MATH 116 with a grade of &quot;C&quot; or higher or a satisfactory score on the math assessment test</td>
<td></td>
</tr>
<tr>
<td>BOT 101 Computerized Keyboarding</td>
<td>1</td>
</tr>
<tr>
<td>Business Electives</td>
<td>1</td>
</tr>
<tr>
<td>Total Semester Credit Hours</td>
<td>16</td>
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</table>

Fourth Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACCT 240 Fraud Examination*</td>
<td>3</td>
</tr>
<tr>
<td>Prerequisite: ACCT 121 and ACCT 122 and ACCT 222</td>
<td></td>
</tr>
<tr>
<td>ACCT 131 Federal Income Taxes I</td>
<td>3</td>
</tr>
<tr>
<td>ACCT 133 Computerized Accounting Applications*</td>
<td>3</td>
</tr>
<tr>
<td>Prerequisite: ACCT 121 and ACCT 111</td>
<td></td>
</tr>
<tr>
<td>ACCT 285 Accounting Capstone*</td>
<td>3</td>
</tr>
<tr>
<td>Prerequisite: ACCT 121 and ACCT 111</td>
<td></td>
</tr>
<tr>
<td>MATH 171 College Algebra or higher*</td>
<td>3</td>
</tr>
<tr>
<td>Prerequisite: MATH 116 with a grade of &quot;C&quot; or higher or a satisfactory score on the math assessment test</td>
<td></td>
</tr>
<tr>
<td>BOT 101 Computerized Keyboarding</td>
<td>1</td>
</tr>
<tr>
<td>Business Electives</td>
<td>1</td>
</tr>
<tr>
<td>Total Semester Credit Hours</td>
<td>16</td>
</tr>
</tbody>
</table>

*Prerequisite/Corequisite required

**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

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 121 Composition I*</td>
<td>3</td>
</tr>
<tr>
<td>Prerequisite: ENGL 106 or appropriate placement test score or EAP 113 and EAP 117</td>
<td></td>
</tr>
<tr>
<td>ACCT 121 Accounting I*</td>
<td>3</td>
</tr>
<tr>
<td>Prerequisite: ACCT 122</td>
<td></td>
</tr>
<tr>
<td>ACCT 122 Accounting II*</td>
<td>3</td>
</tr>
<tr>
<td>Prerequisite: ACCT 121</td>
<td></td>
</tr>
<tr>
<td>BOT 101 Computerized Keyboarding</td>
<td>1</td>
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<td>Business Electives</td>
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</tr>
<tr>
<td>Total Semester Credit Hours</td>
<td>10</td>
</tr>
</tbody>
</table>

Second Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUS 150 Business Communications*</td>
<td>3</td>
</tr>
<tr>
<td>Prerequisite: ACCT 122</td>
<td></td>
</tr>
<tr>
<td>ACCT 231 Intermediate Accounting II*</td>
<td>3</td>
</tr>
<tr>
<td>Prerequisite: ACCT 122</td>
<td></td>
</tr>
<tr>
<td>ACCT 285 Accounting Capstone*</td>
<td>3</td>
</tr>
<tr>
<td>Prerequisite: ACCT 121 and ACCT 111</td>
<td></td>
</tr>
<tr>
<td>MATH 171 College Algebra or higher*</td>
<td>3</td>
</tr>
<tr>
<td>Prerequisite: MATH 116 with a grade of &quot;C&quot; or higher or a satisfactory score on the math assessment test</td>
<td></td>
</tr>
<tr>
<td>BOT 101 Computerized Keyboarding</td>
<td>1</td>
</tr>
<tr>
<td>Business Electives</td>
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<tr>
<td>Total Semester Credit Hours</td>
<td>12</td>
</tr>
</tbody>
</table>

Third Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENTR 142 Fast Track Business Plan</td>
<td>3</td>
</tr>
<tr>
<td>Prerequisite: ACCT 122</td>
<td></td>
</tr>
<tr>
<td>ACCT 222 Managerial Accounting*</td>
<td>3</td>
</tr>
<tr>
<td>Prerequisite: ACCT 122</td>
<td></td>
</tr>
<tr>
<td>ACCT 231 Intermediate Accounting II*</td>
<td>3</td>
</tr>
<tr>
<td>Prerequisite: ACCT 122</td>
<td></td>
</tr>
<tr>
<td>MATH 171 College Algebra or higher*</td>
<td>3</td>
</tr>
<tr>
<td>Prerequisite: MATH 116 with a grade of &quot;C&quot; or higher or a satisfactory score on the math assessment test</td>
<td></td>
</tr>
<tr>
<td>BOT 101 Computerized Keyboarding</td>
<td>1</td>
</tr>
<tr>
<td>Business Electives</td>
<td>1</td>
</tr>
<tr>
<td>Total Semester Credit Hours</td>
<td>31</td>
</tr>
</tbody>
</table>

*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.

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENTR 160 Legal Issues for Small Businesses</td>
<td>2</td>
</tr>
<tr>
<td>Prerequisite: BUS 230</td>
<td></td>
</tr>
<tr>
<td>ENTR 195 Franchising*</td>
<td>3</td>
</tr>
<tr>
<td>Prerequisite: BUS 230</td>
<td></td>
</tr>
<tr>
<td>ENTR 220 Entrepreneurial Marketing*</td>
<td>3</td>
</tr>
<tr>
<td>Prerequisite: BUS 230</td>
<td></td>
</tr>
<tr>
<td>ENTR 230 Information Technology*</td>
<td>3</td>
</tr>
<tr>
<td>Prerequisite: BUS 230</td>
<td></td>
</tr>
</tbody>
</table>

**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

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACCT 121</td>
<td>Accounting I</td>
<td>3</td>
</tr>
<tr>
<td>ACCT 135</td>
<td>Computerized Accounting Applications</td>
<td>3</td>
</tr>
<tr>
<td>ENTR 120</td>
<td>Introduction to Entrepreneurship</td>
<td>2</td>
</tr>
<tr>
<td>ENTR 220</td>
<td>Entrepreneurial Marketing</td>
<td>2</td>
</tr>
<tr>
<td>BUS 230</td>
<td>Management</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Semester Credit Hours: 15

Second Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACCT 122</td>
<td>Accounting II*</td>
<td>3</td>
</tr>
<tr>
<td>ACCT 278</td>
<td>Accounting Internship</td>
<td>4</td>
</tr>
<tr>
<td>ACCT 285</td>
<td>Accounting Capstone</td>
<td>3</td>
</tr>
<tr>
<td>ENTR 195</td>
<td>Franchising*</td>
<td>3</td>
</tr>
<tr>
<td>ENTR 196</td>
<td>Social Science Course**</td>
<td>3</td>
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</table>

Total Semester Credit Hours: 15

Third Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACCT 133</td>
<td>Computerized Accounting Applications*</td>
<td>3</td>
</tr>
<tr>
<td>ACCT 140</td>
<td>Computerized Accounting Problems*</td>
<td>3</td>
</tr>
<tr>
<td>ACCT 278</td>
<td>Accounting Internship</td>
<td>1</td>
</tr>
<tr>
<td>ACCT 285</td>
<td>Accounting Capstone</td>
<td>3</td>
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</tbody>
</table>

Total Semester Credit Hours: 14

Fourth Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACCT 127</td>
<td>Accounting II</td>
<td>3</td>
</tr>
<tr>
<td>ENTR 195</td>
<td>Franchising*</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Semester Credit Hours: 15

**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.

ADMJ 121 Social Science Course**

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

Students graduating with an Associate of Arts degree or an Associate of Science degree must complete an approved cultural diversity course. Some of these courses are able to meet both a diversity requirement and a general education requirement.

First Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACCT 121</td>
<td>Accounting I</td>
<td>3</td>
</tr>
<tr>
<td>ENTR 120</td>
<td>Introduction to Entrepreneurship</td>
<td>2</td>
</tr>
<tr>
<td>ENTR 220</td>
<td>Entrepreneurial Marketing</td>
<td>2</td>
</tr>
<tr>
<td>BUS 230</td>
<td>Management</td>
<td>3</td>
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</table>

Second Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACCT 122</td>
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<td>ACCT 278</td>
<td>Accounting Internship</td>
<td>4</td>
</tr>
<tr>
<td>ACCT 285</td>
<td>Accounting Capstone</td>
<td>3</td>
</tr>
<tr>
<td>ENTR 195</td>
<td>Franchising*</td>
<td>3</td>
</tr>
</tbody>
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Third Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACCT 127</td>
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<td>3</td>
</tr>
<tr>
<td>ENTR 195</td>
<td>Franchising*</td>
<td>3</td>
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</table>

Fourth Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACCT 127</td>
<td>Accounting II</td>
<td>3</td>
</tr>
<tr>
<td>ENTR 195</td>
<td>Franchising*</td>
<td>3</td>
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</tbody>
</table>

**Prerequisite/Corequisite required

ADMJ Program Electives

9 hours - any three courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADMJ 130</td>
<td>Crime Prevention</td>
<td>3</td>
</tr>
<tr>
<td>ADMJ 133</td>
<td>Juvenile Delinquency</td>
<td>3</td>
</tr>
<tr>
<td>ADMJ 141</td>
<td>Criminal Law**</td>
<td>3</td>
</tr>
<tr>
<td>ADMJ 143</td>
<td>Crime Analysis</td>
<td>3</td>
</tr>
<tr>
<td>ADMJ 145</td>
<td>Fundamentals of Private Security</td>
<td>3</td>
</tr>
<tr>
<td>ADMJ 146</td>
<td>Retail Security</td>
<td>3</td>
</tr>
<tr>
<td>ADMJ 148</td>
<td>Family Violence/Sequel Abuse</td>
<td>3</td>
</tr>
<tr>
<td>ADMJ 154</td>
<td>Fundamentals of Criminal Investigation**</td>
<td>3</td>
</tr>
</tbody>
</table>

ADMJ 170 | Introduction to Substance Use and Abuse | 3 |
ADMJ 201 | Police Interrogation | 3 |
ADMJ 221 | Introduction to Forensics | 3 |
ADMJ 224 | Introduction to Terrorism | 3 |
ADMJ 230 | Community Based Corrections | 3 |
ADMJ 281 | Readings in Policing | 3 |
ADMJ 285 | Administration of Justice Internship** | 3 |

ADMJ 170 | Introduction to Substance Use and Abuse | 3 |
ADMJ 201 | Police Interrogation | 3 |
ADMJ 221 | Introduction to Forensics | 3 |
ADMJ 224 | Introduction to Terrorism | 3 |
ADMJ 230 | Community Based Corrections | 3 |
ADMJ 281 | Readings in Policing | 3 |
ADMJ 285 | Administration of Justice Internship** | 3 |

** 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.
Prerequisites for Required Courses

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

COTP 135 Desktop Photo Manipulation 1: Photoshop
COTP 140 Digital Imaging and Video
Prerequisite: CDTP 145
CWEB 105 Introduction to Web Pages: Dreamweaver
Prerequisite: CWEB 101
CWEB 130 Introduction to Flash
Prerequisite: CPCE 161 or CWEB 105 or CWEB 106

First Semester
CIM 130 Interactive Media Concepts
Prerequisite: COTP 145
CIM 140 Interactive Media Assets
Prerequisites: COTP 135 and COTP 145 and CWEB 105 and CWEB 130
CIM 133 Screen Design
Prerequisite: COTP 135
CIM 145 Introduction to 3D Animation
Prerequisites or corequisites: CIM 130
NOTE: Students that have completed ANI 120 should contact the department for a waiver.
ENGL 121 Composition I
Prerequisite: ENGL 106 or appropriate placement
Total Semester Credit Hours

Second Semester
ANI 245 Character Animation
Prerequisite: ANI 145
ENGL 140 Writing for Interactive Media
Prerequisite: ENGL 130
ANI 260 Animation Elective
Prerequisite: ANI 145
CIM 135 Principles of Management
Elective
Total Semester Credit Hours

Third Semester
ANI 255 Advanced Animation and Effects
Prerequisite: ANI 245
ENGL 150 Digital Narrative
Prerequisite: ENGL 121
MUS 156 MD1 Music Composition
Total Semester Credit Hours

Fourth Semester
ANI 260 Animation Capstone
Prerequisite: ANI 255
ANI 273 Career Preparation
Prerequisite or corequisite: ANI 260
ENGL 122 Principles of Management
Elective
Total Semester Credit Hours

Animation Electives

GAME 101 Computer Game Creation
GAME 110 Flash Gaming
GAME 200 Game Design
CIS 134 Programming Fundamentals
CIS 162 Database Programming
Prerequisite: CIS 134 or the equivalent
CS 180 Introduction to Artificial Intelligence
Prerequisite: CIS 145 or CIS 146 or CIS 150 or CS 200
CIM 135 Digital Imaging and Video
Prerequisite: CDTP 135
Recommended: PHOT 121
CIM 154 Interactive Authoring I: Director
Prerequisite: CIM 130
CIM 156 Interactive Authoring I: Web
Prerequisite: CIM 130
CIM 200 Interactive Communication Form
Prerequisite or corequisite: CIM 130
CIM 235 Advanced Digital Video
Prerequisite: CIM 135
CIM 254 Interactive Authoring II: Director
Prerequisite: CIM 154
ART 130 Drawing I
ART 131 Drawing II
Prerequisite: ART 130

Note: This is a prerequisite for ADMJ 230.
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**

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

**First Semester**

- AUTO 125 Introduction to Automotive Shop Practices
- AUTO 260 Automotive Service Management
- AUTO 261 Automotive Service Techniques
- BUS 140 Principles of Supervision
- Total Semester Credit Hours

**Second Semester**

- AUTO 163 Automotive Steering and Suspension
- AUTO 234 Automotive Electrical Systems
- AUTO 260 Automotive Service Management
- ENGL 121 Composition I
- Total Semester Credit Hours

**Third Semester**

- AUTO 250 Automatic Transmissions and Transaxles
- AUTO 254 Automotive Engine Performance
- AUTO 256 Automotive Air Conditioning
- AUTO 260 Automotive Service Management
- BUS 140 Principles of Supervision
- Total Semester Credit Hours

**Fourth Semester**

- AUTO 260 Automotive Service Management
- AUTO 261 Automotive Service Techniques
- AUTO 271 Automotive Technology Internship
- BUS 140 Principles of Supervision
- Total Semester Credit Hours

**Technical/Related Electives**

- AUTO 121 Small Engine Service
- AUTO 122 Introduction to Automotive Glass
- AUTO 123 Motorcycle Maintenance and Repair
- AUTO 128 Automotive Parts Specialist
- AUTO 130 Diesel Fundamentals
- AUTO 201 ASE Certification Seminar
- AUTO 210 Advanced Engine Repair
- AUTO 271 Automotive Technology Internship
- AUTO 291 Independent Study
- MATH 133 Technical Mathematics I
- PHYS 133 Applied Physics
- Total PROGRAM CREDIT HOURS

*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.
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

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
MFA B 127 Welding Processes................................................2
Total Semester Credit Hours.................................................11

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...............................................14

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

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

(Major Code 4180; CIP Code 47.0604)

Automotive Technology Entrepreneurship 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
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 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 66-68 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 Department

Associate of Applied Science Degree

First Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>ENGL 121</td>
<td>Composition I</td>
<td>3</td>
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<tr>
<td>MATH 133</td>
<td>Technical Mathematics I or higher</td>
<td>3-5</td>
</tr>
<tr>
<td>BIOL 135</td>
<td>Principles of Cell and Molecular Biology</td>
<td>4</td>
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</table>

Second Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>BIOT 160</td>
<td>Introduction to Biotechnology</td>
<td>2</td>
</tr>
<tr>
<td>BIOL 164</td>
<td>Human Anatomy and Physiology</td>
<td>5</td>
</tr>
<tr>
<td>ENGL 123</td>
<td>Technical Writing</td>
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Third Semester

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<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>BIOT 260</td>
<td>Biotechnology Methods</td>
<td>5</td>
</tr>
<tr>
<td>BIOT 265</td>
<td>Biotechnology Internship</td>
<td>3</td>
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Fourth Semester

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<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>BIOL 144</td>
<td>Human Anatomy and Physiology Dissection</td>
<td>1</td>
</tr>
<tr>
<td>CHEM 140</td>
<td>Principles of Organic &amp; Biological Chemistry</td>
<td>5</td>
</tr>
</tbody>
</table>

*Prerequisites/Corequisites 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 78-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 Department

Associate of Science Degree

Students graduating with an Associate of Arts degree or an Associate of Science degree must complete a specific course from the approved cultural diversity list. This course may meet both a diversity requirement and general education requirement.

First Semester

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>MATH 181</td>
<td>Statistics*</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 135</td>
<td>Principles of Cell and Molecular Biology</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 124</td>
<td>General Chemistry I Lecture*</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 125</td>
<td>General Chemistry I Lab*</td>
<td>1</td>
</tr>
<tr>
<td>ENGL 121</td>
<td>Composition I*</td>
<td>3</td>
</tr>
<tr>
<td>SPO 121</td>
<td>Public Speaking</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 111</td>
<td>Technical Writing I*</td>
<td>3</td>
</tr>
<tr>
<td>HIST 125</td>
<td>Western Civilization: Readings and Discussion I</td>
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<td>Total Semester Credit Hours</td>
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Second Semester

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<tr>
<td>BIOT 160</td>
<td>Introduction to Biotechnology*</td>
<td>2</td>
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<tr>
<td>BIOL 135</td>
<td>Principles of Cell and Molecular Biology</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 131</td>
<td>General Chemistry II Lecture*</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 132</td>
<td>General Chemistry II Lab*</td>
<td>1</td>
</tr>
<tr>
<td>ENGL 123</td>
<td>Technical Writing I*</td>
<td>3</td>
</tr>
<tr>
<td>HIST 125</td>
<td>Western Civilization: Readings and Discussion I</td>
<td>3</td>
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<tr>
<td>Total Semester Credit Hours</td>
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Summer

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<tr>
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<th>Course Title</th>
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<tbody>
<tr>
<td>BIOT 165</td>
<td>Laboratory Safety*</td>
<td>1</td>
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<tr>
<td>BIOL 135</td>
<td>Principles of Cell and Molecular Biology</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 122</td>
<td>Principles of Chemistry</td>
<td>5</td>
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<tr>
<td>Total Semester Credit Hours</td>
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Third Semester

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<tr>
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<th>Course Title</th>
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<tbody>
<tr>
<td>BIOT 230</td>
<td>Microbiology for Biotechnology*</td>
<td>5</td>
</tr>
<tr>
<td>BIOL 205</td>
<td>General Genetics*</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 135</td>
<td>Principles of Cell and Molecular Biology</td>
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<td>Total Semester Credit Hours</td>
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Fourth Semester

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<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>BIOT 260</td>
<td>Biotechnology Methods*</td>
<td>5</td>
</tr>
<tr>
<td>CHEM 220</td>
<td>Organic Chemistry I*</td>
<td>5</td>
</tr>
<tr>
<td>PHYS 131</td>
<td>General Physics II*</td>
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<td>Total Semester Credit Hours</td>
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Optional Course

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<tbody>
<tr>
<td>BIOT 265</td>
<td>Biotechnology Internship-Optional*</td>
<td>4</td>
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<tr>
<td>Total PROGRAM CREDIT HOURS</td>
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*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 Department

Career Certificate

First Semester

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tr>
<td>CHEM 122</td>
<td>Principles of Chemistry</td>
<td>5</td>
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<td>Total Semester Credit Hours</td>
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Second Semester

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>BIOL 135</td>
<td>Principles of Cell and Molecular Biology</td>
<td>4</td>
</tr>
<tr>
<td>BIOT 160</td>
<td>Introduction to Biotechnology*</td>
<td>2</td>
</tr>
<tr>
<td>BIOL 135</td>
<td>Principles of Cell and Molecular Biology</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 135</td>
<td>Principles of Cell and Molecular Biology</td>
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</tr>
<tr>
<td>Total Semester Credit Hours</td>
<td>4</td>
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</tbody>
</table>
Fall-2009

Third Semester

**BIOT 165 Laboratory Safety**
- Prerequisite: CHEM 122 and prerequisite or corequisite BIOL 135 or CHEM 124 and CHEM 125 and prerequisites or corequisites BIOL 135 and either BIOL 160 or BIOL 165 All prerequisites and corequisites require a grade of "C" or higher

**BIOT 230 Microbiology for Biotechnology**
- Prerequisite: BIOL 135 and BIOL 140 and BIOL 160 and BIOL 165 All prerequisites and corequisites require a grade of "C" or higher

**BIOT 260 Biotechnology Methods**
- Prerequisites: Either BIOT 160 or BIOL 160 and either BIOL 165 or BIOL 165 and prerequisite or corequisites: BIOL 120 or BIOL 220 All prerequisites and corequisites require a grade of "C" or higher

**CHEM 140 Principles of Organic & Biological Chemistry**
- Prerequisites: BIOL 135 and either CHEM 122 or CHEM 124 and CHEM 125 or department approval

Fourth Semester (optional)

**BIOT 265 Biotechnology Internship**
- Prerequisites: BIOT 260 and either BIOL 160 or BIOL 165 and either BIOL 165 or BIOL 165 and department approval. **Total Program Credit Hours:** 35-41

*Prerequisite/Corequisite required

**Business Administration, A.A.S.**

Business Administration 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**
- Prerequisite: ENGL 106 or appropriate placement test score or EAP 113 and EAP 117

**MATH 120 Business Math or higher**
- Prerequisite: MATH 111 with a grade of "C" or higher or appropriate score on the math assessment test

**BUS 121 Introduction to Business**

**BUS 225 Human Relations**

**CIS 124 Introduction to Computer Concepts and Applications**

**Note:** CPA/CTP electives will not meet this one hour requirement.

- or
- CPA/CTP electives

- or
- CIS 134 Programming Fundamentals

**Total Semester Credit Hours:** 14-16

Second Semester

**ACCT 121 Accounting I**

**BUS 141 Principles of Management**

**BUS 145 Small Business Management**

**BUS 150 Business Communications**

**ECON 230 Economics I**

**HIST 141 U.S. History Since 1877**

**Third Semester**

**ACCT 122 Accounting II**

**PHIL 138 Business Ethics**

**ECON 231 Economics II**

**BUS 230 Marketing**

**BUS 261 Business Law I**

**HUM 122 Introduction to Humanities**

**Fourth Semester**

**ACCT 222 Managerial Accounting**

**BUS 123 Personal Finance**

**BUS 215 Savings and Investments**

**BUS 263 Business Law II**

**BUS 243 Human Resource Management**

**BUS 235 Introduction to International Business**

**BIOL 130 Environmental Science**

**ENGL 106 or appropriate placement**

**Total Semester Credit Hours:** 16

**Recommended Electives**

**BUS 120 Management Attitudes and Motivation**

**BUS 140 Principles of Supervision**

**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**

**MATH 120 Business Math or higher**

**BUS 121 Introduction to Business**

**BUS 141 Principles of Management**

Second Semester

**BUS 225 Human Relations**

**Total Semester Credit Hours:** 15

**Recommended Electives**

**BUS 120 Management Attitudes and Motivation**

**BUS 140 Principles of Supervision**

**Business Communications**

**Fall-2009**

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**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 816-226-6532 or visit www.mccck.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
- **ECON 230** Economics I...............................3
- **MATH 120** Business Mathematics*...................3
- **PSYC 130** Introduction to Psychology................3
- **SOP 121** Public Speaking................................3
- **SOP 125** Personal Communication....................3

**American Institutions**

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

**Specific Program Requirements taken at JCCC**

- **ACCT 121** Accounting I................................3
- **ACCT 231** Cost Accounting*............................3
- **ACCT 222** Managerial Accounting*....................3
- **BUS 230** Marketing.....................................3
- **BUS 150** Business Communications*................3
- **CIS 124** Introduction to Computer Concepts and Applications...3
- **CPCA 128** PC Applications: MS Office.................3
- **BUS 261** Business Law I*..............................3
- **Bot 106** Intro to Business Computer Applications*....3
- **Bot 110** Skillbuilding I*...............................1
- **Bot 130** Office Systems Concepts......................3
- **MATH 120** Business Mathematics*....................3
- **Prerequisite:** MATH 111 with a grade of “C” or higher

**Specific Program Electives**

- **ACCT 111** Small Business Accounting................3
- **ACCT 122** Accounting I*.............................3
- **ACCT 135** Computerized Accounting Applications*......3
- **ACCT 221** Cost Accounting*............................3
- **ACCT 222** Managerial Accounting*....................3
- **ACCT 231** Intermediate Accounting I*................3
- **BUS 103** Business English.............................3
- **BUS 121** Introduction to Business....................3
- **BUS 225** Small Business Management................3
- **BUS 243** Human Resource Management.................3
- **BUS 263** Business Law II*............................3
- **BUS 285** Business and Professional Speech............3

**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

**First Semester**

- **Bot 103** Business English.............................3
- **Bot 106** Intro to Business Computer Applications*....3
- **Bot 110** Skillbuilding I*...............................1
- **Bot 130** Office Systems Concepts......................3
- **MATH 120** Business Mathematics*....................3

- **Prerequisite:** MATH 111 with a grade of “C” or higher

*Prerequisite/Corequisite required

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**Fall-2009**

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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

---

**Second Semester**

- **BOT 155** Word Processing Application I*..................2
  Prerequisite: BOT 105 and BOT 106

- **BOT 225** Human Relations.....................................3

- **ACCT 121** Accounting I.......................................3

- **BUS 121** Introduction to Business............................3

- **BOT 150** Records Management...................................3

- **BOT 180** Business Spreadsheet Applications*................1
  Prerequisite: BOT 106

- **BOT 185** Business Database Applications*..................1
  Prerequisite: BOT 106

**Third Semester**

- **LAW 121** Introduction to Law...................................3

- **BOT 125** Document Formatting*.................................3
  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

- **BOT Electives**..................................................3

**Fourth Semester**

- **ECON 132** Survey of Economics.................................3
  or

- **ECON 230** Economics I.........................................3

- **BOT 275** Office Internship II*.................................3
  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
  Prerequisite: BOT 106
  (This capstone course should be taken near the end of the degree or certificate program. This course is offered in the spring semester only.

- **BOT 260** Desktop Publishing for the Office*..................3
  Prerequisite: BOT 155

- **BOT Electives**..................................................4

**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

**First Semester**

- **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 121
  Legal Transcription*.............................................3
  Prerequisite: ENGL 121 with a grade of "C" or higher
  or appropriate placement test score or EAP 113 and EAP 117

**Second Semester**

- **BOT 155** Word Processing Application I*..................2
  Prerequisite: BOT 105 and BOT 106

- **BOT 110** Skillbuilding II*....................................3
  Prerequisite: BOT 105

- **BOT 150** Records Management...................................3

- **MATH 120** Business Mathematics*..............................3
  Prerequisite: MATH 111 with a grade of "C" or higher

- **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 105

**Third Semester**

- **LAW 223** Law Office Computing*...............................3
  Prerequisite: Paralegal program students - admission to the paralegal program and completion of BOT 106
  or

- **BOT 160** Legal Transcription*.................................3
  Prerequisite: BOT 155

- **BOT 225** Human Relations.....................................3

- **BOT 255** Word Processing Applications II*...................2
  Prerequisite: BOT 155

- **BOT 125** Document Formatting*.................................1
  Prerequisite: BOT 155

**Fourth Semester**

- **ECON 132** Survey of Economics.................................3
  or

- **ECON 230** Economics I.........................................3

- **BOT 265** Computerized Office Applications*..................3
  Prerequisite: BOT 105
  or

- **BOT 275** Office Internship II*.................................1
  Prerequisite: Admission to the business office technology program. This course should be taken near the end of the degree or certificate program.

- **BOT 275** Office Internship II*.................................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

- **BOT Electives**..................................................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

---
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

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

Third Semester

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
ACCT 121 Accounting I............................................3
BOT 255 Word Processing Applications II.....................2
Prerequisite: BOT 155
BUS 150 Business Communications*...........................3
Prerequisite: ENGL 121
Humanities Elective.............................................3
Total Semester Credit Hours.................................16

Fourth Semester

ECON 132 Survey of Economics.................................3
or ECON 230 Economics I........................................3
BOT 165 Medical Transcription*...............................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. This course is offered in the spring semester only.
BOT 275 Office Internship II....................................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
BOT Electives......................................................2
Total Semester Credit Hours.................................15
TOTAL PROGRAM CREDIT HOURS.............................64

BOT Electives

BOT 118 Skillbuilding III*......................................1
Prerequisite: BOT 118
BOT 180 Business Spreadsheet Applications*................1
Prerequisite: BOT 106
BOT 185 Business Database Applications*.....................1
BOT 275 Professional Image Development......................1
Prerequisite: BOT 275

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
Prerequisite or corequisite: BOT 105
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 170 Medical Coding and Billing*..........................3
Prerequisite: AAC 130
BOT 150 Records Management..................................3
BOT 115 Electronic Calculators.................................3
MATH 120 Business Mathematics*.............................3
Prerequisite: MATH 111 with a grade of "C" or higher or appropriate score on the mathematics test
BUS 225 Human Relations........................................3
BOT 180 Business Spreadsheet Applications*..................1
Prerequisite: BOT 106
BOT 185 Business Database Applications*.....................1
Prerequisite: BOT 106
Total Semester Credit Hours.................................17

Third Semester

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
ACCT 121 Accounting I............................................3
BOT 255 Word Processing Applications II.....................2
Prerequisite: BOT 155
BUS 150 Business Communications*...........................3
Prerequisite: ENGL 121
Humanities Elective.............................................3
Total Semester Credit Hours.................................16

Second Semester

BOT 110 Skillbuilding II.........................................1
Prerequisite: BOT 105
BOT 115 Electronic Calculators.................................1
BOT 150 Records Management..................................3
BOT 155 Word Processing Application I........................2
Prerequisites: BOT 185 and BOT 186
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

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### Business Administrative Assistant Certificate

The business administrative assistant certification will prepare 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)

**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
- **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 **Prerequisite: BOT 105 and BOT 106**
- **BOT 125** Document Formatting*.......................1 **Prerequisite: BOT 155**
- **BUS 230** Marketing..................................3
- **BOT 180** Business Spreadsheet Applications*......1 **Prerequisite: BOT 106** **Total Semester Credit Hours..........................10**

**Third Semester**

- **BOT 255** Word Processing Applications II*........2 **Prerequisite: BOT 155** **Total Semester Credit Hours..........................12**

**Fourth Semester**

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

**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)

**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
- **ENTR 120** Introduction to Entrepreneurship........2 **Total Semester Credit Hours..........................12**

**Second Semester**

- **BOT 110** Skillbuilding I*..........................1 **Prerequisite: BOT 105**
- **BOT 155** Word Processing Application I*...........2 **Prerequisite: BOT 155 and BOT 125**
- **BOT 125** Document Formatting*.......................1 **Prerequisite: BOT 155**
- **BUS 230** Marketing..................................3
- **BOT 180** Business Spreadsheet Applications*......1 **Prerequisite: BOT 106** **Total Semester Credit Hours..........................10**

**Third Semester**

- **BOT 125** Document Formatting*.......................1 **Prerequisite: BOT 155**
- **BOT 180** Legal Transcription*.......................3
- **BOT 255** Word Processing Applications II*.........2 **Prerequisite: BOT 155**
- **LAW 223** Law Office Computing*....................3 **Prerequisite: Paralegal program students - admission to the paralegal program and completion of BOT 106** **Total Semester Credit Hours..........................9**

**Fourth Semester**

- **BOT 260** Computerized Office Applications*............3 **Prerequisite: BOT 106 and BOT 130 and BOT 255**
- **BOT 265** Computerized Office Applications*.........3 **Prerequisite: BOT 106 and BOT 130 and BOT 255**
- **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..........................9**

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.

First Semester

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tr>
<td>AAC 130</td>
<td>Medical Terminology</td>
<td>3</td>
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<tr>
<td>BOT 105</td>
<td>Keyboarding and Formatting I*</td>
<td>4</td>
</tr>
<tr>
<td>BOT 106</td>
<td>Intro to Business Computer Applications*</td>
<td>3</td>
</tr>
<tr>
<td>BOT 130</td>
<td>Office Systems Concepts*</td>
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<td>ENTR 120</td>
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Second Semester

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<tr>
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<td>Skillbuilding I*</td>
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<td>BOT 155</td>
<td>Word Processing Applications I*</td>
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<tr>
<td>BOT 170</td>
<td>Medical Coding and Billing*</td>
<td>3</td>
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<tr>
<td>BOT 180</td>
<td>Business Spreadsheet Applications*</td>
<td>1</td>
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<tr>
<td>ENTR 180</td>
<td>Opportunity Analysis</td>
<td>2</td>
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<td><strong>Total Semester Credit Hours</strong></td>
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Third Semester

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<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>BOT 122</td>
<td>Medical Keyboarding*</td>
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</tr>
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<td>BOT 255</td>
<td>Word Processing Applications II*</td>
<td>2</td>
</tr>
<tr>
<td>BOT 185</td>
<td>Business Database Applications*</td>
<td>1</td>
</tr>
<tr>
<td>ENTR 142</td>
<td>Fast Trac Business Plan</td>
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Fourth Semester

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<th>Course Title</th>
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<tr>
<td>BOT 265</td>
<td>Computerized Office Applications*</td>
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<tr>
<td></td>
<td>Prerequisites: BOT 106 and BOT 130 and BOT 255</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(This capstone course should be taken near the end of the degree or certificate program) This course is offered in the spring semester only.</td>
<td></td>
</tr>
<tr>
<td>BOT 275</td>
<td>Office Internship I*</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Prerequisite: Admission to the business office technology program. This course should be taken near the end of the BOT degree or certificate program.</td>
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</tr>
<tr>
<td></td>
<td><strong>Total Semester Credit Hours</strong></td>
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<td></td>
<td><strong>TOTAL PROGRAM CREDIT HOURS</strong></td>
<td><strong>34</strong></td>
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</table>

*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.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>BUS 230</td>
<td>Marketing</td>
<td>3</td>
</tr>
<tr>
<td>ENTR 160</td>
<td>Legal Issues for Small Business*</td>
<td>2</td>
</tr>
<tr>
<td>ENTR 220</td>
<td>Entrepreneurial Marketing*</td>
<td>2</td>
</tr>
<tr>
<td>ENTR 195</td>
<td>Franchising*</td>
<td>3</td>
</tr>
<tr>
<td>ENTR 131</td>
<td>Financial Management for Small Business*</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Prerequisites: ACCT 111 or ACCT 121</td>
<td></td>
</tr>
</tbody>
</table>

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

<table>
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>BOT 103</td>
<td>Business English</td>
<td>3</td>
</tr>
<tr>
<td>BOT 105</td>
<td>Keyboarding and Formatting I*</td>
<td>2</td>
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<tr>
<td>BOT 106</td>
<td>Intro to Business Computer Applications*</td>
<td>3</td>
</tr>
<tr>
<td>AAC 130</td>
<td>Medical Terminology</td>
<td>3</td>
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<td></td>
<td><strong>Total Semester Credit Hours</strong></td>
<td><strong>12</strong></td>
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Second Semester

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<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>BOT 110</td>
<td>Skillbuilding I*</td>
<td>1</td>
</tr>
<tr>
<td>BOT 155</td>
<td>Word Processing Application I*</td>
<td>2</td>
</tr>
<tr>
<td>BOT 170</td>
<td>Medical Coding and Billing*</td>
<td>3</td>
</tr>
<tr>
<td>BOT 125</td>
<td>Document Formatting*</td>
<td>1</td>
</tr>
<tr>
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<td><strong>Total Semester Credit Hours</strong></td>
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Third Semester

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<th>Course Title</th>
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<tr>
<td>BOT 165</td>
<td>Medical Transcription*</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Prerequisites: AAC 130 and BOT 155</td>
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</tr>
<tr>
<td></td>
<td><strong>Total Semester Credit Hours</strong></td>
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Fourth Semester

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>BUS 230</td>
<td>Marketing</td>
<td>3</td>
</tr>
<tr>
<td>ENTR 160</td>
<td>Legal Issues for Small Business*</td>
<td>2</td>
</tr>
<tr>
<td>ENTR 220</td>
<td>Entrepreneurial Marketing*</td>
<td>2</td>
</tr>
<tr>
<td>ENTR 195</td>
<td>Franchising*</td>
<td>3</td>
</tr>
<tr>
<td>ENTR 131</td>
<td>Financial Management for Small Business*</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Prerequisites: ACCT 111 or ACCT 121</td>
<td></td>
</tr>
</tbody>
</table>

*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...................3
BOT 106 Intro to Business Computer Applications*......3
AAC 130 Medical Terminology............................3
Total Semester Credit Hours..........................12

Second Semester
BOT 122 Medical Keyboarding*..........................1
BOT 155 Word Processing Application*..................2
BOT 170 Medical Coding and Billing*....................3
BOT 220 Pharmacology Terminology*....................2
BIOG 140 Human Anatomy................................4
Total Semester Credit Hours..........................12

Third Semester
BOT 165 Medical Transcription*.........................3
BOT 255 Word Processing Applications II*..............2
Total Semester Credit Hours..........................5

Fourth Semester
BOT 270 Advanced Medical Transcription*..............3
BOT 275 Office Internship I*.............................1
Total Semester Credit Hours..........................4

*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...................3
BOT 106 Intro to Business Computer Applications*......3
BOT 130 Office Systems Concepts........................3
Total Semester Credit Hours..........................12

Second Semester
BOT 110 Skillbuilding I*.................................1
BOT 115 Electronic Calculators..........................1
BOT 155 Word Processing Application I*...............2
BOT 180 Business Spreadsheet Applications*...........1
BOT 185 Business Database Applications*...............1
BOT 125 Document Formatting*...........................1
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 64 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
DRAF 129 Interpreting Architectural Drawings............2
ENGR 131 Engineering Graphics I*......................4
Technical Mathematics I*..............................4
Prerequisite: MATH 133 or MATH 171 or MATH 172 or MATH 173 or MATH 241
MATH 133 Technical Mathematics I*......................4
Prerequisite: MATH 111 with a grade of “C” or higher or appropriate score on the math assessment test
CET 125 Construction Specifications*...................2
CET 105 Construction Methods..........................3
INHT 155 Workplace Skills..............................1
Total Semester Credit Hours..........................16

Second Semester
CET 129 Construction Management......................3
DRAF 244 Land Development Desktop/CIVIL 3D...........2
Prerequisite: DRAF 230 or ENGR 131 or department approval
DRAF 225 Civil Drafting*.................................3
Prerequisite: DRAF 230 or department approval
ENGR 134 Technical Mathematics II*.....................3
Prerequisite: MATH 133 or an equivalent course with a grade of “C” or higher
MATH 134 Technical Mathematics II*.....................5
Total Semester Credit Hours..........................16

Third Semester
CET 227 Construction Cost Estimating*...................3
Prerequisite: CET 105 and CET 125 or department approval
CET 211 Technical Statics and Design*...................3
Prerequisite: MATH 134 or MATH 172 or MATH 173 or
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.

Fourth Semester
- CET 140 Civil Engineering Materials* 3
- CET 270 Fluid Mechanics* 3
- DR AF 252 Structural Drafting* 3
- DR AF 150 Construction Safety 3
- Total Semester Credit Hours 16

*Prerequisite/Corequisite required

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
- CET 120 Engineered Plumbing Systems I 3
- Total Semester Credit Hours 3

Second Semester
- CET 122 Engineered Plumbing Systems II 3
- CET 270 Fluid Mechanics* 3
- DR AF 150 Construction Safety 3
- Total Semester Credit Hours 6

*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.

Management Electives
- BUS 141 Principles of Management 3
- BUS 145 Small Business Management 3
- BUS 243 Human Resource Management 3

Computer Information Systems
(Specialization 1500; CIP Code 15.0201)

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

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: CPFP 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 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 Options........................................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 CS 250

SPD 125 Personal Communication..................................3
or
ENGL 123 Technical Writing I........................................3
Prerequisite: ENGL 121
Total Semester Credit Hours........................................17

Third Semester

Level Two Programming Language Options........................................4

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

Fourth Semester

Level Three Programming Language Options........................................4

CIS 264 Application Development and Programming*..................4
Prerequisites: CIS 242 and either CIS 260 or CIS 162
or
CIS 260 Database Management*....................................4
Prerequisites: CIS 250 or CIS 250 or CIS 235 or CIS 238 or CIS 246

CIS 262 Project Management*...........................................3
Prerequisite: CIS 242
CIS Elective..........................................................3
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: CIS 260 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 260 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 Three Programming Language Options:

Option in C++:
CIS 269 GUI Programming*.............................................4
Prerequisite: CIS 235 or CS 250

Option in JAVA:
CS 280 Advanced Topics in JAVA II*.................................4
Prerequisite: CIS 260

Option in VISUAL BASIC:
CIS 277 Active Server Pages.Net*.....................................4
Prerequisites: CS 200 or CS 201 or CS 205 or CS 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
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.................................3

First Five Week Session

CIS 206 Programming in PERL*.........................................4
Prerequisites: CIS 201 and CPCA 139

CIS 223 Law for Information*...........................................3
Prerequisites: Paralegal program students - admission to the paralegal program and either CIS 124 or CIS 128 or three hours of CPCA 108 and CPCA 110 and CPCA 114

CIS 235 Object-Oriented Programming Using C++*......................4
Prerequisite: CIS 200 using C++

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

CIS 240 Advanced Topics in JAVA II*..................................4
Prerequisite: CIS 239 or CIS 255 or CIS 256 or CIS 260

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: CIS 250 or CIS 235 or CIS 255

CIS 254 UNIX System Administration*................................4
Prerequisite: CIS 204

CIS 258 Operating Systems**............................................4
Prerequisite: CIS 138 or CIS 148 or CIS 200 or CIS 201 or CIS 205

CIS 269 GUI Programming*.............................................4
Prerequisite: CIS 235 or CIS 250

CIS 270 Information Systems Internship***.............................3
Prerequisite: CIS 250 or CIS 255 or CIS 235 or CIS 238 or CIS 248 and department approval

CIS 275 Web-Enabled Database Programming*..........................4
Prerequisite: CIS 200 or CIS 201 or CIS 205 or CIS 216 and either CPCA 139 or CIS 204 and either CPCA 161 or CPCA 158

CIS 277 Active Server Pages.Net*.......................................4
Prerequisite: CIS 200 or CIS 201 or CIS 205 or CIS 216 and either CPCA 139 or CIS 204 and either CPCA 161 or CPCA 158

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

CFOR 150 Introduction to Computer Forensics*..........................3
Prerequisite: 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

TOTAL PROGRAM CREDIT HOURS........................................32

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: CIS 105 or CIS 104 or CIS 128 or CIS 124 or an appropriate score on an assessment test

Second Five Week Session

CPCA 115 Databases I: MS Access*.................................2
Prerequisite: CIS 114

ONER 101 Introduction to the Web using Internet Explorer........1
Prerequisites: CIS 105 or CIS 104 or CIS 128 or CIS 124 or an appropriate score on an assessment test

Third Five Week Session

CPCA 141 Internet I*..................................................1
Prerequisite: CIS 105 or CIS 104 or CIS 128 or CIS 124 or an appropriate score on an assessment test

Total Semester Credit Hours...........................................9

Second Semester

Full Semester Courses

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

First Five Week Session

CPCA 138 Windows for Microcomputers*..............................1
Prerequisite: CIS 105 or CIS 104 or CIS 128 or CIS 124 or an appropriate score on an assessment test

Second Five Week Session

CPCA 115 Databases I: MS Access*.................................2
Prerequisite: CIS 114

ONER 101 Introduction to the Web using Internet Explorer........1
Prerequisites: CIS 105 or CIS 104 or CIS 128 or CIS 124 or an appropriate score on an assessment test

Total Semester Credit Hours...........................................9

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: CIS 235 or CIS 236 or CIS 239 or CIS 248

CIS 242 Introduction to System Design and Analysis*................3
Prerequisite: CIS 138 or CIS 200 or CIS 201 or CIS 205

Total Semester Credit Hours...........................................7

TOTAL PROGRAM CREDIT HOURS....................................32
*Prerequisite/Corequisite required

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.

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.
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.

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, or have obtained a waiver from the program administrator.

CIS 134 Programming Fundamentals.........................4

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 or
CS 205 Concepts of Programming Algorithms using JAVA*........4
Prerequisite: CIS 134 or ENGR 171 or equivalent experience
CS 210 Discrete Structures*................................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: CIS 205 or equivalent
or
CS 250 Basic Data Structures using C++*.....................4
Prerequisite: CIS 205 or equivalent or corequisite: CIS 210 for students transferring to most four-year computer science programs
or
CS 255 Basic Data Structures using JAVA*....................4
Prerequisite: CIS 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
Prerequisite: CS 205 or CS 200 or CIS 201 or CS 205
CS 201 and CPCA 139
Total Semester Credit Hours................................10

Third Semester

CIS 269 GUI Programming*....................................4
Prerequisite: CIS 235 or CS 235 or
CIS 240 Advanced Topics in JAVA I*.........................4
Prerequisite: CIS 235 or CS 235 or CS 235 or CS 235 or
CIS 262 Project Management*...............................3
Prerequisite: CIS 242
CIS 260 Database Management*................................4
Prerequisite: CIS 235 or CS 235 or CIS 235 or CIS 235 or
CIS 238 or CIS 248
Total Semester Credit Hours................................11

Fall-2009

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Required courses that cover skills a student already has may be replaced with other CDTP 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 have taken 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

CPCA 134 Managing Your Macintosh*............................1
Prerequisite: CPCA 106 or an appropriate score on an assessment test or
CPCA 138 Windows for Microcomputers*.......................1
Prerequisites: CPCA 105 or CPCA 106 or CSPA 128 or CIS 124 or an appropriate score on an assessment test
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

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 CSPA 128 or an appropriate score on a waiver test
CPCA 123 E-Presentation: MS PowerPoint*........................1
Prerequisites: CPCA 105 or CPCA 106 or CIS 124 or CSPA 128 or an appropriate score on a waiver test
CPCA 125 Word Processing II: MS Word*.........................1
Prerequisite: CPCA 105
CNEB 105 Introduction to Web Pages: Dreamweaver*............1
Prerequisite: CNEB 101
CNEB 106 Introduction to Microsoft FrontPage*..................1
Prerequisite: CNEB 101
CNEB 115 Intermediate Web Pages: Dreamweaver*..............1
Prerequisite: CNEB 105
CNEB 125 Introduction to Dynamic Web Pages: Dreamweaver*...1
Prerequisite: CNEB 115 and CNEB 114
CNEB 130 Introduction to Flash*..................................1
Prerequisites: CNEB 105 or CPCA 105 or CNEB 106
CNEB 140 Intermediate Flash*.....................................1
Prerequisite: CNEB 130
CNEB 150 Advanced Flash*........................................1
Prerequisite: CNEB 140
TOTAL PROGRAM CREDIT HOURS:................................14
*Prerequisite/Corequisite required
Personal Computer Application Specialist

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 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 - 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 Introduction to Personal Computers: Windows........1 or CPCA 125 Introduction to Personal Computers: Macintosh........1

Second Five Week Session
CPCA 106 Word Processing I: MS Word*..........................1 Prerequisite: CPCA 105 or CPCA 106 or CIS 124 or CIS 128 or an appropriate score on a waiver test
CPCA 110 Spreadsheets I: MS Excel*............................1 Prerequisite: CPCA 105 or CPCA 106 or CIS 124 or CIS 128 or an 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 III: 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 CIS 124 or CIS 128 or an appropriate score on a waiver test
CPCA 141 Internet I*..........................................1 Prerequisite: CPCA 105 or CPCA 106 or CIS 124 or CIS 128 or an appropriate score on a waiver 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..................8 TOTAL PROGRAM CREDIT HOURS..........................32

*Prerequisite/Corequisite required

CPCA Electives

CPCA 118 Groupware: Outlook*.................................1 Prerequisite/Corequisite required
CPCA 121 Introduction to Project Management*................1 Prerequisite: CPCA 105 or CPCA 106 or CIS 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 105, 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 Prerequisite: CPCA 105 or CPCA 106 or CIS 124 or CIS 128 or an appropriate score on a waiver test
CPCA 110 Spreadsheets I: MS Excel*............................1 Prerequisite: CPCA 105 or CPCA 106 or CIS 124 or CIS 128 or an appropriate score on a waiver test
CPCA 114 Databases I: MS Access*............................1 Prerequisite: CPCA 105 or CPCA 106 or CIS 128 or CIS 124 or an appropriate score on a waiver test

Second Five Week Session
CPCA 123 Introduction to Personal Computers: Windows........1 or CPCA 125 Introduction to Personal Computers: Macintosh........1
CPCA 138 Windows for Microcomputers*......................1 Prerequisite: CPCA 105 or CPCA 106 or CIS 124 or CIS 128 or an appropriate score on an assessment test

Third Five Week Session
CPCA 111 Introduction to Web Pages using HTML*.............1
CPCA 125 Word Processing III: MS Word*......................1 Prerequisite: CPCA 114
CPCA 151 Internet I*..........................................1 Prerequisite: CPCA 141 or an appropriate score on an assessment test
CPCA 161 Introduction to Web Pages using HTML*.............1

TOTAL PROGRAM CREDIT HOURS..........................11

*Prerequisite/Corequisite required

CPCA Electives

CPCA 118 Groupware: Outlook*.................................1
CPCA 121 Introduction to Project Management*................1
CPCA 151 Internet I*.........................................1
CPCA 161 Introduction to Web Pages using HTML*.............1

TOTAL PROGRAM CREDIT HOURS..........................32

*Prerequisite/Corequisite required

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 Introduction to Personal Computers: Windows........1 or CPCA 125 Introduction to Personal Computers: Macintosh........1

Second Five Week Session
CPCA 106 Word Processing I: MS Word*.......................1 Prerequisite: CPCA 105 or CPCA 106 or CIS 124 or CIS 128 or an appropriate score on a waiver test
CPCA 110 Spreadsheets I: MS Excel*............................1 Prerequisite: CPCA 105 or CPCA 106 or CIS 124 or CIS 128 or an 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 III: 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 CIS 124 or CIS 128 or an appropriate score on a waiver test
CPCA 141 Internet I*..........................................1 Prerequisite: CPCA 105 or CPCA 106 or CIS 124 or CIS 128 or an 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..................8 TOTAL PROGRAM CREDIT HOURS..........................32

*Prerequisite/Corequisite required

CPCA Electives

CPCA 118 Groupware: Outlook*.................................1
CPCA 121 Introduction to Project Management*................1
CPCA 151 Internet I*.........................................1
CPCA 161 Introduction to Web Pages using HTML*.............1

TOTAL PROGRAM CREDIT HOURS..........................32

*Prerequisite/Corequisite required

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
CPCA 110 Spreadsheets I: MS Excel*............................1
CPCA 114 Databases I: MS Access*............................1

Second Five Week Session
CPCA 123 Introduction to Personal Computers: Windows........1
CPCA 138 Windows for Microcomputers*......................1
CPCA 111 Introduction to Web Pages using HTML*.............1

Third Five Week Session
CPCA 125 Word Processing III: MS Word*......................1
CPCA 151 Internet I*..........................................1
CPCA 161 Introduction to Web Pages using HTML*.............1

TOTAL PROGRAM CREDIT HOURS..........................32

*Prerequisite/Corequisite required

CPCA Electives

CPCA 118 Groupware: Outlook*.................................1
CPCA 121 Introduction to Project Management*................1
CPCA 151 Internet I*.........................................1
CPCA 161 Introduction to Web Pages using HTML*.............1

TOTAL PROGRAM CREDIT HOURS..........................32

*Prerequisite/Corequisite required

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 Introduction to Personal Computers: Windows........1 or CPCA 125 Introduction to Personal Computers: Macintosh........1

Second Five Week Session
CPCA 106 Word Processing I: MS Word*.......................1 Prerequisite: CPCA 105 or CPCA 106 or CIS 124 or CIS 128 or an appropriate score on a waiver test
CPCA 110 Spreadsheets I: MS Excel*............................1 Prerequisite: CPCA 105 or CPCA 106 or CIS 124 or CIS 128 or an 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 III: 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 CIS 124 or CIS 128 or an appropriate score on a waiver test
CPCA 141 Internet I*..........................................1 Prerequisite: CPCA 105 or CPCA 106 or CIS 124 or CIS 128 or an appropriate score on an assessment test
Web Applications 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 following prerequisites, 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

First Semester

First Five Week Session
CMEB 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

Second Five Week Session
CMEB 106 Introduction to Microsoft FrontPage*.....................1
Prerequisite: CPCA 105 or CPCA 106

Third Five Week Session
CMEB 111 Intermediate Web Concepts/Techniques using Explorer*...1
Prerequisite: CPCA 105
CMEB 116 Intermediate Microsoft FrontPage*........................1
Prerequisites: CPCA 105 or CPCA 128
CMEB 115 Intermediate Web Pages: Dreamweaver*.....................1
Prerequisite: CPCA 105
Elective from First Semester List of Electives....................1

Total Semester Credit Hours........................................7

FIRST SEMESTER LIST OF ELECTIVES

CIS 162 Database Programming*......................................4
Prerequisite: CIS 105 or an appropriate score on an assessment test

CIS 134 Programming Fundamentals..................................4
Prerequisite: CIS 105 or an appropriate score on an assessment test

CIS 140 Desktop Publishing I: InDesign..............................1
or
CIS 135 Desktop Photo Manipulation I: Photoshop..................1
Prerequisite: CIS 134 or the equivalent

CIS 200 Concepts of Programming Algorithms Using C++............4
Prerequisite: CIS 134 or ENGR 171 or equivalent experience

CIS 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: CIS 200 or C++
or
CIS 255 Basic Data Structures using JAVA............................4
Prerequisite: CIS 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: CPCA 105 or CPCA 128

CIS 204 UNIX Operating Systems......................................4
Prerequisites: CIS 200 or CIS 205 or CIS 201 and CPCA 139

CIS 260 Database Management........................................4
Prerequisite: CIS 200 or CIS 205 or CIS 235 or CIS 255
or
CIS 255 Basic Data Structures using JAVA............................4
Prerequisite: CIS 205

Second Semester

CIS 240 Advanced Topics in JAVA*....................................4
Prerequisite: CIS 200 or CIS 205

CIS 260 Database Management*........................................4
Prerequisite: CIS 200 or CIS 205 or CIS 235 or CIS 255
or
CIS 275 Web-Enabled Database Programming*........................4
Prerequisites: CIS 200 or CIS 205 or CIS 235 or CIS 255 or either CPCA 139 or CIS 204 and either CPCA 161 or CPCA 158

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
Prerequisite: CIS 105 or an appropriate score on an assessment test

CIS 162 Database Programming*......................................4
Prerequisite: CIS 105 or an appropriate score on an assessment test

CIS 134 Programming Fundamentals.................................4
Prerequisite: CIS 105 or an appropriate score on an assessment test

CIS 140 Desktop Publishing I: InDesign..............................1
or
CIS 135 Desktop Photo Manipulation I: Photoshop..................1
Prerequisite: CIS 134 or the equivalent

CIS 200 Concepts of Programming Algorithms Using C++............4
Prerequisite: CIS 134 or ENGR 171 or equivalent experience

CIS 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: CIS 200 or C++
or
CIS 255 Basic Data Structures using JAVA............................4
Prerequisite: CIS 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: CPCA 105 or CPCA 128

CIS 204 UNIX Operating Systems......................................4
Prerequisites: CIS 200 or CIS 205 or CIS 201 and CPCA 139

CIS 260 Database Management........................................4
Prerequisite: CIS 200 or CIS 205 or CIS 235 or CIS 255
or
CIS 255 Basic Data Structures using JAVA............................4
Prerequisite: CIS 205

Second Semester

CIM 133 Interactive Media Concepts....................................2
Prerequisite: CIS 204

CIS 254 UNIX System Administration*...............................4
Prerequisite: CIS 204

CIS 275 Web-Enabled Database Programming*........................4
Prerequisites: CIS 200 or CIS 205 or CIS 162 and either CPCA 139
or CIS 204 and either CPCA 161 or CPCA 158
or
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

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 500 hours of esthetics training from an esthetics institution.
TOTAL PROGRAM CREDIT HOURS..........................6
*Prerequisite/Corequisite required

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

Option 2 - With Nail Technology License
AVCO 110 Introduction to Cosmetology..........................21
Prerequisite: Selective Admission Approval
AVCO 114 Advanced Cosmetology*..........................12
Prerequisite: Selective Admission Approval
AVCO 115 Cosmetology with Nail Technology License*........12
Prerequisites: AVCO 110 and current Kansas nail technology license

Option 3 - With Esthetics License
AVCO 110 Introduction to Cosmetology..........................21
Prerequisite: Selective Admission Approval
AVCO 116 Cosmetology with Esthetics License*.................12
Prerequisites: AVCO 110 and current Kansas esthetics license

Option 4 - With Both Nail Technology & Esthetics License
AVCO 110 Introduction to Cosmetology..........................21
Prerequisite: Selective Admission Approval
AVCO 114 Advanced Cosmetology*..........................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

ENGL 121 Composition I*..........................3
Prerequisites: ENGL 106 or appropriate placement test score or EAP 113 and EAP 117
Communication Elective..........................3
Humanities Elective..........................3
Social Science and/or Economics Electives..........................3
Science and/or Math Elective..........................3
Electives..........................1
Health and/or Physical Education Elective..........................1
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 and a physical examination. Contact the salon at 913-469-8500, ext. 4723 or 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
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 12.0410)

Cosmetology/Esthetics/Nail Technology

Certificate of Completion

Required Course

AVCO 212 Cosmetology Instructor Training*..........................9
Prerequisite: Selective Admission Approval

*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.

Upon approval by the Kansas Board of Regents, the new courses beginning in the fall 2009 semester are listed below

First Semester

CO 120 Esthetics 14 credit hours/193 contact hours
CO 123 Esthetics Lab 12 credit hours/271 contact hours
CO 125 Esthetics Clinical 4 credit hours/176 contact hours

Second Semester

CO 127 Advanced Esthetics 7 credit hours/96 contact hours
CO 129 Advanced Esthetics Lab 4 credit hours/88 contact hours
CO 131 Advanced Esthetics Clinical 3 credit hours/176 contact hours

See link for course information.

http://www.jccc.net/pending/catalog.php/fall-2009/creditclasses/CO

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

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 an interview, testing and a physical examination. Contact the salon at 913-469-8500, ext. 6402 or 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

*Prerequisite/Corequisite required

Career Certificate
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

Before beginning clinical courses

Chemistry
CHEM 122 Principles of Chemistry..............................................5
ENGL 121 Composition I*..................................................3

Biology
Biol 140 Human Anatomy..........................................................4
PSYC 130 Introduction to Psychology........................................3
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
Note: For all BIOL 231 students, current 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 or 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-Clinico*............................5
Prerequisites: Admission to the Dental Hygiene Program, a minimum 2.0 GPA in curriculum courses and CHEM 122 or ENGL 121 and BIOL 140 and PSYC 130 and BIOL 230
Corequisites: DHYG 125 and DHYG 138

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
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 PSYC 130 and BIOL 140 and admission to the Dental Hygiene Program

DHYG 138 Head and Neck Anatomy*............................................2
Prerequisites: DHYG 121 and CHEM 122 and ENGL 121 and PSYC 130 and BIOL 140 and admission to the Dental Hygiene Program

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 DHYG 149

DHYG 142 Dental Radiology*.....................................................2
Prerequisites: DHYG 121
Corequisites: DHYG 140 and DHYG 142 and DHYG 148

DHYG 146 Periodontics*.........................................................3
Prerequisite: DHYG 121
Corequisites: DHYG 140 and DHYG 142 and DHYG 146

DHYG 148 Dental Health Education*.........................................2
Prerequisite: DHYG 121
Corequisites: DHYG 140 and DHYG 142 and DHYG 146

BIOL 225 Introduction to Sociology...........................................4
Prerequisites or corequisites: Either CHEM 122 or CHEM 124 and CHEM 125 or either BIOL 140 or BIOL 144
Total Semester Credit Hours: 15

Summer

BIOL 235 General Nutrition*..................................................3
Prerequisites: Choice CHEM 122 or (CHEM 124 and CHEM 125) and (BIOL 144 or BIOL 140).

Note: CHEM 140 is used as the prerequisite, BIOL 225 must also be taken as a prerequisite or corequisite with department approval.

Total Semester Credit Hours: 3

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 225 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

DHYG 245 Nitrous Oxide Analgesia*........................................1
Prerequisite: DHYG 221
Corequisite: DHYG 245

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
Health and/or Physical Education Elective..............................1
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...

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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 67 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 an equivalent transfer course, or have passed the waiver test (if applicable), or have obtained a waiver from the program administrator.

DRF 120 Introduction to Drafting.........................2
DRF 101 Computerized Keyboarding......................1
DRF 130 Introduction to CAD Concepts - AutoCAD: 2008*..................3
Prerequisite: DRF 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 CISP 124 or an appropriate score on an assessment test
CIPA 142 Internet I*......................................1
Prerequisite: CPCA 105 or CPCA 106 or CPCA 128 or CISP 124 or an appropriate score on an assessment test

First Semester

DRF 129 Interpreting Architectural Drawings.................2
DRF 123 Interpreting Machine Drawings...................2
Prerequisite or corequisite: DRF 120 or department approval
DRF 135 Graphic Analysis*..................................3
Prerequisite: DRF 120 or DRF 130 or department approval
DRF 230 Intermediate CAD: AutoCAD*.......................3
Prerequisite: DRF 130 or department approval
ENGL 121 Composition I*.....................................3
Prerequisite: ENGL 104 or an appropriate placement test score or EAP 113 and EAP 117
MATH 133 Technical Mathematics I*..........................4
Prerequisite: MATH 111 with a grade of “C” or higher, or an appropriate score on the math assessment test
Total Semester Credit Hours..................................17

Second Semester

DRF 238 Architectural Drafting*.................................3
Prerequisite: DRF 129 and DRF 230
DRF 231 CAD 3-D.............................................3
Prerequisite: DRF 230
DRF 252 Structural Drafting*.................................3
Prerequisite: DRF 230 or ENGR 131
Corequisite: MATH 134
Technical Electives.............................................3
MATH 134 Technical Mathematics II*..........................5
Prerequisite: MATH 133 or an equivalent course with a grade of “C” or higher
Total Semester Credit Hours..................................17

Third Semester

CET 211 Technical Statics and Design*.......................3
Prerequisite: MATH 134 or MATH 272 or MATH 173 or MATH 241
DRF 222 Mechanical Drafting*................................3
Prerequisite: DRF 123 and DRF 230
DRF 250 Electrical Drafting*..................................3
Prerequisites: MATH 133 and DRF 230 or ENGR 131
Health and/or Physical Education Elective.....................1
ENGL 123 Technical Writing II*..............................1
Prerequisite: ENGL 121
CET 270 Fluid Mechanics*.....................................3
Prerequisites: MATH 172 or MATH 134
Total Semester Credit Hours..................................16

Fourth Semester

DRF 228 Industrial Design Applications*....................3
Prerequisite: CET 211 and DRF 222 and DRF 250 and DRAFT 252
DRF 243 Architectural Desktop: Revit*.......................3
Prerequisite: DRAFT 230 or ENGR 131 or department approval
or
DRF 244 Land Development Desktop/CIVIL 3D*..................2
Prerequisite: DRAFT 230 or ENGR 131 or department approval
or
DRF 245 Mechanical Desktop: Inventor*......................2
Prerequisite: DRAFT 230 or ENGR 131 or department approval
or
DRF 225 Civil Drafting*.......................................3
Prerequisite: DRAFT 230 or ENGR 131
Corequisite: MATH 134
Social Science and/or Economics Elective.....................3
Humanities Elective..............................................3
Technical Elective..............................................3
Total Semester Credit Hours..................................17
TOTAL PROGRAM CREDIT HOURS.................................67

Technical Electives

CPCA 108 Word Processing I: MS Word*.........................1
Prerequisite: CPCA 105 or CPCA 106 or CISP 124 or CPCA 128 or an appropriate score on a waiver test
CPCA 110 Spreadsheets I: MS Excel*............................1
Prerequisite: CPCA 105 or CPCA 106 or CISP 124 or CPCA 128 or an 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 CISP 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 CISP 124 or CPCA 128 or an appropriate score on a waiver test
CPCA 123 E-Presentation: MS PowerPoint*......................1
Prerequisite: CPCA 105 or CPCA 106 or CISP 124 or CPCA 128 or an appropriate score on a waiver test
CPCA 125 Word Processing II: MS Word*.......................1
Prerequisite: CPCA 106
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
CPCA 140 Topics in CAD I*.....................................2
Prerequisite: CPCA 105 or CPCA 106 or CISP 124 or CPCA 128 or an appropriate score on a waiver test
CPCA 162 CAD Applications Workstation Environment*...........2
Prerequisite: CPCA 230 or department approval
CPCA 232 CAD Administration...................................2
Prerequisite: CPCA 230 or department approval
CPCA 240 Introduction to AutoCAD*............................2
Prerequisite: DRAFT 230 or department approval
CPCA 242 Topics in CAD II*.....................................2
Prerequisite: DRAFT 230 or department approval
CPCA 243 Architectural Desktop: Revit*.......................2
Prerequisite: DRAFT 230 or ENGR 131 or department approval
CPCA 244 Land Development Desktop/CIVIL 3D*..................2
Prerequisite: DRAFT 230 or ENGR 131 or department approval
CPCA 245 Mechanical Desktop: Inventor*......................2
Prerequisite: DRAFT 230 or ENGR 131 or department approval
CPCA 271 Drafting Internship I*...............................3
Prerequisite: Department approval
CPCA 272 Drafting Internship II*...............................3
Prerequisite: DRAFT 271 and department approval
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)

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 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 Elective.............................................1

DRAF 130 Introduction to CAD Concepts - AutoCAD: 2008*....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

Fourth Semester

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

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

Students graduating with an Associate of Arts degree or an Associate of Science degree must complete an approved cultural diversity course. Some of these courses are able to meet both a diversity requirement and a general education requirement.

First Semester

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 Child Development*...............................3

Prerequisite: PSYC 130

Second Semester

EDUC 131 Early Childhood Curriculum I*.......................3

Prerequisite or corequisite: EDUC 130

EDUC 250 Child Health, Safety and Nutrition..................3

Health/Physical Education*....................................1-2

Science course with Lab**.................................4-5

PSYC 215 Child Development*...............................3

Prerequisite: PSYC 130

PSYC 218 Human Development*...............................3

Prerequisite: PSYC 130

Third Semester

ENGL 122 Composition II*....................................3

Prerequisite: ENGL 121

Cultural Anthropology^.......................................3

or

Cultural Anthropology*......................................3

or

ANTH 130 World Cultures*...................................3

or

ANTH 125 Marriage and the Family...........................3

or

SOCI 131 Science or Math....................................3

TOTAL PROGRAM CREDIT HOURS.........................14-16

Summer Semester

ENGL 122 Composition II*....................................3

Prerequisite: ENGL 121

Cultural Anthropology*......................................3

or

SOCI 131 Science or Math....................................3

TOTAL PROGRAM CREDIT HOURS.........................16-17

Fourth Semester

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
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

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

**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 134 with a grade of “C” or higher
or appropriate score on the math assessment test

***Recommended courses for the science requirement

Life Science

BIOL 122 Principles of Biology....................................3
BIOL 123 Principles of Biology Lab* ..............................1
Prerequisite or corequisite: BIOL 122 or department approval
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* .................................1
Prerequisite or corequisite: GEOS 140 or the equivalent
PSCI 120 Physical Science* ............................................4
Prerequisite/Corequisite required

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 ICC student e-mail account if they are required to pay a $16 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 on 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: Program Facilitator 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

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

NOTE: **Prerequisite/Corequisite required

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

**Career Certificate**

**Suggested/Sample Course Sequence**

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

<table>
<thead>
<tr>
<th>First Semester</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>DRAF 120 Introduction to Drafting*</td>
<td>2</td>
</tr>
<tr>
<td>DRAF 130 Introduction to CAD Concepts - AutoCAD: 2008*</td>
<td>3</td>
</tr>
<tr>
<td>Prerequisite: DRAF 120 or department approval</td>
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</tr>
<tr>
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<td>4</td>
</tr>
<tr>
<td>Prerequisite: MATH 111 with a grade of &quot;C&quot; or higher or appropriate score on</td>
<td></td>
</tr>
<tr>
<td>the math assessment test</td>
<td></td>
</tr>
<tr>
<td>ELTE 123 Electromechanical Systems</td>
<td>4</td>
</tr>
<tr>
<td>Total Semester Credit Hours</td>
<td>13</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Second Semester</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>ELTE 200 Commercial Wiring Methods*</td>
<td>4</td>
</tr>
<tr>
<td>Prerequisite or corequisite: HVAC 123 or ELTE 123</td>
<td></td>
</tr>
<tr>
<td>ENGL 121 Composition I*</td>
<td>3</td>
</tr>
<tr>
<td>Prerequisite or corequisite: ENGL 106 or appropriate placement test score or</td>
<td></td>
</tr>
<tr>
<td>EAP 113 and EAP 117</td>
<td></td>
</tr>
<tr>
<td>DRAF 230 Intermediate CAD: AutoCAD*</td>
<td>3</td>
</tr>
<tr>
<td>Prerequisite: DRAF 130 or department approval</td>
<td></td>
</tr>
<tr>
<td>ELTE 122 National Electrical Code I</td>
<td>4</td>
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<td>Total Semester Credit Hours</td>
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<table>
<thead>
<tr>
<th>Third Semester</th>
<th></th>
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<tbody>
<tr>
<td>ENGL 123 Technical Writing I*</td>
<td>3</td>
</tr>
<tr>
<td>Prerequisite: ENGL 121</td>
<td></td>
</tr>
<tr>
<td>DRAF 250 Electrical Drafting*</td>
<td>3</td>
</tr>
<tr>
<td>Prerequisites: MATH 133 and DRAF 230 or ENGR 131</td>
<td></td>
</tr>
<tr>
<td>ELTE 202 Electrical Estimating*</td>
<td>3</td>
</tr>
<tr>
<td>Prerequisites: ELTE 122 and ELTE 125 or ELTE 200 or department approval</td>
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</tr>
<tr>
<td>Total Semester Credit Hours</td>
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<tr>
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<td>36</td>
</tr>
</tbody>
</table>

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

### 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)

**Associate of Applied Science Degree**

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 65-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**

<table>
<thead>
<tr>
<th>First Semester</th>
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</thead>
<tbody>
<tr>
<td>ELTE 122 National Electrical Code I</td>
<td>4</td>
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<tr>
<td>ELTE 123 Electromechanical Systems</td>
<td>4</td>
</tr>
<tr>
<td>Prerequisite or corequisite: HVAC 123 or ELTE 123</td>
<td></td>
</tr>
<tr>
<td>INDT 125 Industrial Safety</td>
<td>3</td>
</tr>
<tr>
<td>INDT 155 Workplace Skills</td>
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<tr>
<td>TOTAL PROGRAM CREDIT HOURS</td>
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</table>

*Prerequisite/Corequisite required

<table>
<thead>
<tr>
<th>Second Option</th>
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</thead>
<tbody>
<tr>
<td>First Option</td>
<td></td>
</tr>
<tr>
<td>Fall Semester</td>
<td></td>
</tr>
<tr>
<td>ELTE 122 National Electrical Code I</td>
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</tr>
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<tr>
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*Prerequisite/Corequisite required

<table>
<thead>
<tr>
<th>Spring Semester</th>
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</tr>
</thead>
<tbody>
<tr>
<td>INDT 125 Industrial Safety</td>
<td>3</td>
</tr>
<tr>
<td>ELTE 200 Commercial Wiring Methods*</td>
<td>4</td>
</tr>
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<td>Prerequisite or corequisite: HVAC 123 or ELTE 123</td>
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</tr>
<tr>
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</tbody>
</table>

*Prerequisite/Corequisite required

**Suggested/Sample Course Sequence**

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<table>
<thead>
<tr>
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<tbody>
<tr>
<td>DRAF 130 Introduction to Drafting*</td>
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</tr>
<tr>
<td>TOTAL PROGRAM CREDIT HOURS</td>
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</tr>
</tbody>
</table>

*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 65-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**

<table>
<thead>
<tr>
<th>Associate of Applied Science Degree</th>
<th></th>
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</thead>
<tbody>
<tr>
<td>First Semester</td>
<td></td>
</tr>
<tr>
<td>ELTE 122 National Electrical Code I</td>
<td>4</td>
</tr>
<tr>
<td>ELTE 125 Residential Wiring Methods*</td>
<td>4</td>
</tr>
<tr>
<td>Prerequisite or corequisite: HVAC 123 or ELTE 123</td>
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</tr>
<tr>
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</tr>
<tr>
<td>IND 125 Industrial Safety</td>
<td>3</td>
</tr>
<tr>
<td>IND 155 Workplace Skills</td>
<td>1</td>
</tr>
<tr>
<td>Total Semester Credit Hours</td>
<td>16</td>
</tr>
</tbody>
</table>

*Prerequisite/Corequisite required
### Fall-2009

**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)

**Career Certificate**

**Electrical Technology Program**

**Suggested/Sample Course Sequence**

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

**First Semester**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
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</tr>
<tr>
<td>ELTE 125</td>
<td>Residential Wiring Methods*</td>
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<td>ELTE 123</td>
<td>HVAC 123 or ELTE 123</td>
<td></td>
</tr>
<tr>
<td>IND T 125</td>
<td>Industrial Safety</td>
<td>3</td>
</tr>
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<td></td>
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<tr>
<td></td>
<td><strong>TOTAL PROGRAM CREDIT HOURS</strong></td>
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**Second Semester**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ELTE 200</td>
<td>Commercial Wiring Methods*</td>
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<tr>
<td>ELTE 210</td>
<td>Code Certification Review*</td>
<td>3</td>
</tr>
<tr>
<td>ELTE 271</td>
<td>Electrical Internship I*</td>
<td>3</td>
</tr>
<tr>
<td>IND T 155</td>
<td>Workplace Skill I*</td>
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<td></td>
<td><strong>Total Semester Credit Hours</strong></td>
<td>15</td>
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<td><strong>TOTAL PROGRAM CREDIT HOURS</strong></td>
<td>29</td>
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</table>

**Technical Electives**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>ELEC 133</td>
<td>Principles of HVAC*</td>
<td>4</td>
</tr>
<tr>
<td>MFAB 121</td>
<td>Intro to Shielded Metal Arc Welding I (SMAW I)*</td>
<td>4</td>
</tr>
<tr>
<td>BUS 140</td>
<td>Principles of Supervision</td>
<td>3</td>
</tr>
<tr>
<td>BUS 145</td>
<td>Small Business Management</td>
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<tr>
<td>ERTR 142</td>
<td>Fast Trac Business Plan</td>
<td>3</td>
</tr>
<tr>
<td>RRT 145</td>
<td>Railroad Safety, Quality and Environment</td>
<td></td>
</tr>
</tbody>
</table>

**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**

**Suggested/Sample Course Sequence**

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

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

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>DRAP 120</td>
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</tr>
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<td>ELEC 123</td>
<td>Electromechanical Systems</td>
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</tr>
<tr>
<td>ELTE 125</td>
<td>Residential Wiring Methods*</td>
<td>4</td>
</tr>
<tr>
<td>INDT 155</td>
<td>Workplace Skills</td>
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</table>

Total Semester Credit Hours: 15

Second Semester

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>INDT 125</td>
<td>Industrial Safety</td>
<td>3</td>
</tr>
<tr>
<td>INDT 155</td>
<td>Workplace Skills</td>
<td>1</td>
</tr>
</tbody>
</table>

Total Semester Credit Hours: 26

*Prerequisite/Corequisite

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).

Electrical Technology Program

Career Certificate

Fall Semester

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ELTE 122</td>
<td>National Electrical Code I</td>
<td>4</td>
</tr>
<tr>
<td>ELTE 125</td>
<td>Residential Wiring Methods*</td>
<td>4</td>
</tr>
<tr>
<td>INDT 155</td>
<td>Workplace Skills</td>
<td>1</td>
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</tbody>
</table>

Total Semester Credit Hours: 16

*Prerequisite/Corequisite

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 highly 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.

Program requirements also include the opportunity for students who are transferring to JCCC with significant numbers of electronics technology credits to be aware that at least 9 credit hours of approved electronics 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.

Electronics Technology

Associate of Applied Science Degree

First Semester

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
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</thead>
<tbody>
<tr>
<td>ELEC 120</td>
<td>Introduction to Electronics</td>
<td>3</td>
</tr>
<tr>
<td>ELEC 125</td>
<td>Digital Electronics I</td>
<td>4</td>
</tr>
<tr>
<td>MATH 133</td>
<td>Technical Mathematics I or higher*</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 121</td>
<td>Composition I*</td>
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Total Semester Credit Hours: 18

*Prerequisite/Corequisite
Second Semester

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<tbody>
<tr>
<td>ELEC 122</td>
<td>Circuit Analysis I*</td>
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<td>ELEC 225</td>
<td>Digital Electronics II*</td>
<td>3</td>
</tr>
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<td>MATH 134</td>
<td>Technical Mathematics II or higher*</td>
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<td>SPD 125</td>
<td>Personal Communication</td>
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First Semester

<table>
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<tr>
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<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>ELEC 131</td>
<td>Introduction to Sensors and Actuators</td>
<td>3</td>
</tr>
<tr>
<td>ELEC 133</td>
<td>Programmable Controllers</td>
<td>3</td>
</tr>
</tbody>
</table>

Second Semester

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ELEC 165</td>
<td>Advanced Programmable Controllers*</td>
<td>3</td>
</tr>
</tbody>
</table>

**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 a 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)

**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**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ELEC 126</td>
<td>Microcomputer A+ Preparation</td>
<td>4</td>
</tr>
<tr>
<td>ELEC 185</td>
<td>LAN Cabling and Installation</td>
<td>3</td>
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</tbody>
</table>

**Second Semester**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>IT 205</td>
<td>Implementing Windows Client</td>
<td></td>
</tr>
<tr>
<td>ELEC 250</td>
<td>Microcomputer Maintenance*</td>
<td>3</td>
</tr>
<tr>
<td>BUS 225</td>
<td>Human Relations</td>
<td>3</td>
</tr>
<tr>
<td>SPD 125</td>
<td>Personal Communication</td>
<td>3</td>
</tr>
</tbody>
</table>

**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)

**Certificate of Completion**

**Suggested/Sample Course Sequence**

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

**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)
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:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 144 Human Anatomy and Physiology</td>
<td>5</td>
</tr>
<tr>
<td>or</td>
<td></td>
</tr>
<tr>
<td>BIOL 140 Human Anatomy</td>
<td>4</td>
</tr>
<tr>
<td>and</td>
<td></td>
</tr>
<tr>
<td>BIOL 225 Human Physiology*</td>
<td>4</td>
</tr>
<tr>
<td>Prerequisites or corequisites: Either CHEM 122 or (CHEM 124 and CHEM 125) and either BIOL 140 or BIOL 144</td>
<td></td>
</tr>
<tr>
<td>ENGL 121 Composition I*</td>
<td>3</td>
</tr>
<tr>
<td>Prerequisites: ENGL 106 or appropriate placement test score or EAP 113 and EAP 117</td>
<td></td>
</tr>
<tr>
<td>SOC 125 Social Problems*</td>
<td>3</td>
</tr>
<tr>
<td>or</td>
<td></td>
</tr>
<tr>
<td>Social Science/Economics Elective</td>
<td>3</td>
</tr>
<tr>
<td>or</td>
<td></td>
</tr>
<tr>
<td>Humanities Elective</td>
<td>3</td>
</tr>
<tr>
<td>Health/Physical Education Elective</td>
<td>1</td>
</tr>
<tr>
<td>Electives......................................</td>
<td>0-2</td>
</tr>
<tr>
<td>(depending on which science class(es) are taken)</td>
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<tr>
<td>Total General Education Credit Hours.........</td>
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</table>

First Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>EMS 220 MICT I*</td>
<td>10</td>
</tr>
<tr>
<td>Prerequisite: EMS 230 with a grade of &quot;C&quot; or higher</td>
<td></td>
</tr>
<tr>
<td>Total Semester Credit Hours</td>
<td>20</td>
</tr>
</tbody>
</table>

Second Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EMS 225 MICT II*</td>
<td>10</td>
</tr>
<tr>
<td>Prerequisite: EMS 220 with a grade of &quot;C&quot; or higher</td>
<td></td>
</tr>
<tr>
<td>Total Semester Credit Hours</td>
<td>20</td>
</tr>
</tbody>
</table>

Third Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EMS 271 MICT IV Field Internship*</td>
<td>15</td>
</tr>
<tr>
<td>Prerequisite: EMS 230 with a grade of &quot;C&quot; or higher</td>
<td></td>
</tr>
<tr>
<td>Total Professional Credit Hours</td>
<td>47</td>
</tr>
</tbody>
</table>
*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

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EMS 220 MICT I*</td>
<td>10</td>
</tr>
<tr>
<td>Prerequisite: Admission to the MICT program</td>
<td></td>
</tr>
<tr>
<td>EMS 225 MICT II*</td>
<td>10</td>
</tr>
<tr>
<td>Prerequisite: EMS 220 with a grade of &quot;C&quot; or higher</td>
<td></td>
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<tr>
<td>Total Semester Credit Hours</td>
<td>20</td>
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</table>

Second Session

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>EMS 230 MICT III Clinicals*</td>
<td>12</td>
</tr>
<tr>
<td>Prerequisite: EMS 225 with a grade of &quot;C&quot; or higher</td>
<td></td>
</tr>
<tr>
<td>Total Semester Credit Hours</td>
<td>20</td>
</tr>
<tr>
<td>*Prerequisite/Corequisite required</td>
<td></td>
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</tbody>
</table>

Third Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EMS 271 MICT IV Field Internship*</td>
<td>15</td>
</tr>
<tr>
<td>Prerequisite: EMS 230 with a grade of &quot;C&quot; or higher</td>
<td></td>
</tr>
<tr>
<td>Total Semester Credit Hours</td>
<td>47</td>
</tr>
<tr>
<td>TOTAL PROGRAM CREDIT HOURS</td>
<td>64-65</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EMS 130 Emergency Medical Technician*</td>
<td>9</td>
</tr>
<tr>
<td>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</td>
<td></td>
</tr>
<tr>
<td>TOTAL PROGRAM CREDIT HOURS</td>
<td>9</td>
</tr>
</tbody>
</table>
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)

Industrial Technology Programs, Assistant Dean

Associate of Applied Science Degree

First Semester

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>EPRM 121</td>
<td>Introduction to Residential Energy</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 121</td>
<td>Composition I*</td>
<td>3</td>
</tr>
<tr>
<td>MATH 133</td>
<td>Technical Mathematics I*</td>
<td>4</td>
</tr>
<tr>
<td>CPA 105</td>
<td>Introduction to Personal Computers: Windows</td>
<td>1</td>
</tr>
<tr>
<td>CPA 110</td>
<td>Spreadsheets I: MS Excel*</td>
<td>3</td>
</tr>
<tr>
<td>HVAC 125</td>
<td>Energy Alternatives*</td>
<td>2</td>
</tr>
<tr>
<td>INDT 155</td>
<td>Workplace Skills*</td>
<td>1</td>
</tr>
<tr>
<td>Total Semester Credit Hours</td>
<td>16</td>
<td></td>
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Second Semester

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EPRM 123</td>
<td>Residential HVAC Systems</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 123</td>
<td>Technical Writing I*</td>
<td>3</td>
</tr>
<tr>
<td>CPA 114</td>
<td>Databases I: MS Access*</td>
<td>1</td>
</tr>
<tr>
<td>BIOL 130</td>
<td>Environmental Science*</td>
<td>3</td>
</tr>
<tr>
<td>CET 150</td>
<td>Construction Safety*</td>
<td>3</td>
</tr>
<tr>
<td>DRAF 129</td>
<td>Interpreting Architectural Drawings*</td>
<td>2</td>
</tr>
<tr>
<td>Total Semester Credit Hours</td>
<td>16</td>
<td></td>
</tr>
</tbody>
</table>

Third Semester

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EPRM 124</td>
<td>Equipment Selection and Duct Design*</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 131</td>
<td>Environmental Science Lab*</td>
<td>1</td>
</tr>
<tr>
<td>CET 155</td>
<td>Workplace Skills*</td>
<td>1</td>
</tr>
<tr>
<td>DRAF 129</td>
<td>Interpreting Architectural Drawings*</td>
<td>2</td>
</tr>
<tr>
<td>Total Semester Credit Hours</td>
<td>16</td>
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Fourth Semester

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EPRM 125</td>
<td>Residential Energy Auditing Applications*</td>
<td>3</td>
</tr>
<tr>
<td>PHL 138</td>
<td>Business Ethics*</td>
<td>1</td>
</tr>
<tr>
<td>BUS 140</td>
<td>Principles of Supervision*</td>
<td>3</td>
</tr>
<tr>
<td>HPER 200</td>
<td>First Aid and CPR.</td>
<td>2</td>
</tr>
<tr>
<td>BIOL 131</td>
<td>Environmental Science Lab*</td>
<td>3</td>
</tr>
<tr>
<td>CET 155</td>
<td>Workplace Skills*</td>
<td>1</td>
</tr>
<tr>
<td>Total Semester Credit Hours</td>
<td>16</td>
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</table>

Technical Electives

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ELEC 123</td>
<td>Smart House Technology</td>
<td>3</td>
</tr>
<tr>
<td>ELEC 131</td>
<td>Introduction to Sensors and Actuators</td>
<td>3</td>
</tr>
<tr>
<td>ELTE 122</td>
<td>National Electrical Code I</td>
<td>4</td>
</tr>
<tr>
<td>HVAC 121</td>
<td>Basic Principles of HVAC*</td>
<td>4</td>
</tr>
<tr>
<td>Total PROGRAM CREDIT HOURS</td>
<td>64</td>
<td></td>
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</table>

Technical Electives Required

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>HVAC 123</td>
<td>Electromechanical Systems*</td>
<td>4</td>
</tr>
<tr>
<td>HVAC 271</td>
<td>HVAC Internship*</td>
<td>3</td>
</tr>
<tr>
<td>CET 105</td>
<td>Construction Methods*</td>
<td>3</td>
</tr>
<tr>
<td>MFA 121</td>
<td>Intro to Shielded Metal Arc Welding I*</td>
<td>4</td>
</tr>
<tr>
<td>MFA 127</td>
<td>Welding Processes*</td>
<td>2</td>
</tr>
</tbody>
</table>

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)

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

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EPRM 121</td>
<td>Introduction to Residential Energy</td>
<td>4</td>
</tr>
<tr>
<td>MATH 133</td>
<td>Technical Mathematics I*</td>
<td>4</td>
</tr>
<tr>
<td>EPRM 123</td>
<td>Residential HVAC Systems</td>
<td>4</td>
</tr>
<tr>
<td>Total Semester Credit Hours</td>
<td>12</td>
<td></td>
</tr>
</tbody>
</table>

Second Semester

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>DRAF 129</td>
<td>Interpreting Architectural Drawings*</td>
<td>2</td>
</tr>
<tr>
<td>CET 150</td>
<td>Construction Safety*</td>
<td>3</td>
</tr>
<tr>
<td>EPRM 124</td>
<td>Equipment Selection and Duct Design*</td>
<td>4</td>
</tr>
<tr>
<td>INDT 155</td>
<td>Workplace Skills*</td>
<td>1</td>
</tr>
<tr>
<td>EPRM 125</td>
<td>Residential Energy Auditing Applications*</td>
<td>3</td>
</tr>
<tr>
<td>Total Semester Credit Hours</td>
<td>13</td>
<td></td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENTR 120</td>
<td>Introduction to Entrepreneurship</td>
<td>2</td>
</tr>
<tr>
<td>BUS 230</td>
<td>Marketing</td>
<td>3</td>
</tr>
<tr>
<td>BUS 225</td>
<td>Human Relations</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 121</td>
<td>Composition I*</td>
<td>3</td>
</tr>
<tr>
<td>Prerequisite: ENGL 106 or appropriate placement test score or EAP 113 and EAP 117</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MATH 120</td>
<td>Business Math or higher*</td>
<td>3</td>
</tr>
<tr>
<td>Prerequisite: BUS 111 with a grade of “C” or higher or appropriate score on the math assessment test</td>
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</tr>
<tr>
<td>Health and/or Physical Education Elective</td>
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<td></td>
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<tr>
<td>Total Semester Credit Hours</td>
<td>15</td>
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</table>

Prerequisite/Corequisites required

Second Semester

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENTR 180</td>
<td>Opportunity Analysis</td>
<td>2</td>
</tr>
<tr>
<td>ENTR 195</td>
<td>Franchising*</td>
<td>3</td>
</tr>
<tr>
<td>Prerequisite: BUS 230</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BUS 150</td>
<td>Business Communications*</td>
<td>3</td>
</tr>
<tr>
<td>Prerequisite: ENGL 121</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MRT 134</td>
<td>Professional Selling</td>
<td>3</td>
</tr>
<tr>
<td>Prerequisite: ENTR 142 or ACCT 111</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ACCT 111</td>
<td>Small Business Accounting</td>
<td>3</td>
</tr>
<tr>
<td>or</td>
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<td></td>
</tr>
<tr>
<td>ACCT 121</td>
<td>Accounting I.</td>
<td>3</td>
</tr>
<tr>
<td>ECON 132</td>
<td>Survey of Economics</td>
<td>3</td>
</tr>
<tr>
<td>or</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ECON 230</td>
<td>Economics I.</td>
<td>3</td>
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<tr>
<td>or</td>
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<td></td>
</tr>
<tr>
<td>ECON 231</td>
<td>Economics II.</td>
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<td>Total Semester Credit Hours</td>
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</tr>
</tbody>
</table>

Prerequisite/Corequisites required

Third Semester

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

Prerequisite/Corequisites required

Fourth Semester

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENTR 220</td>
<td>Entrepreneurial Marketing*</td>
<td>2</td>
</tr>
<tr>
<td>ENTR 142</td>
<td>Fast Trac Business Plan</td>
<td>3</td>
</tr>
<tr>
<td>ENTR 215</td>
<td>Entrepreneurship Internship II*</td>
<td>1</td>
</tr>
<tr>
<td>Prerequisites: ENTR 210 and department approval</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ENTR 190</td>
<td>Small Business Analysis*</td>
<td>2</td>
</tr>
<tr>
<td>Prerequisites: BUS 131 or ENTR 131 or BUS 160 or ENTR 160 and BUS 230 or department approval</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHIL 138</td>
<td>Business Ethics</td>
<td>1</td>
</tr>
<tr>
<td>Humanities Elective</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>ENTR 240</td>
<td>Funding Acquisition Entrepreneurs*</td>
<td>2</td>
</tr>
<tr>
<td>Prerequisite: ENTR 142</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Semester Credit Hours</td>
<td>14</td>
<td></td>
</tr>
<tr>
<td>TOTAL PROGRAM CREDIT HOURS</td>
<td>64</td>
<td></td>
</tr>
</tbody>
</table>

*Prerequisite/Corequisites required

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<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUS 120</td>
<td>Management Attitudes and Motivation</td>
<td>3</td>
</tr>
<tr>
<td>BUS 123</td>
<td>Personal Finance</td>
<td>3</td>
</tr>
<tr>
<td>BUS 235</td>
<td>Introduction to International Business</td>
<td>3</td>
</tr>
<tr>
<td>BUS 141</td>
<td>Principles of Management</td>
<td>3</td>
</tr>
</tbody>
</table>

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<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUS 243</td>
<td>Human Resource Management</td>
<td>3</td>
</tr>
<tr>
<td>BUS 261</td>
<td>Business Law I</td>
<td>3</td>
</tr>
<tr>
<td>BUS 263</td>
<td>Business Law II</td>
<td>3</td>
</tr>
<tr>
<td>CPCA 105</td>
<td>Introduction to Personal Computers: Windows</td>
<td>1</td>
</tr>
<tr>
<td>CPCA 106</td>
<td>Word Processing: MS Word*</td>
<td>1</td>
</tr>
<tr>
<td>Prerequisites: CPCA 105 or CPCA 106 or CISC 124 or CPCA 128 or an appropriate score on a waiver test</td>
<td></td>
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</tr>
<tr>
<td>CPCA 111</td>
<td>Spreadsheets I: MS Excel*</td>
<td>1</td>
</tr>
<tr>
<td>Prerequisite: CPCA 110 or CPCA 125</td>
<td></td>
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</tr>
<tr>
<td>CPCA 112</td>
<td>Databases I: MS Access*</td>
<td>2</td>
</tr>
<tr>
<td>Prerequisite: CPCA 105 or CPCA 120 or CISC 124 or CPCA 128 or an appropriate score on a waiver test</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CPCA 141</td>
<td>Internet I*</td>
<td>1</td>
</tr>
<tr>
<td>Prerequisite: CPCA 105 or CIPA 120 or CISC 124 or CICA 128 or an appropriate score on an assessment test</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FASR 231</td>
<td>Merchandising Planning and Control*</td>
<td>3</td>
</tr>
<tr>
<td>Prerequisite: MATH 120</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HNMT 121</td>
<td>Perspectives of Hospitality Management</td>
<td>3</td>
</tr>
<tr>
<td>MRT 207</td>
<td>Consumer Behavior</td>
<td>3</td>
</tr>
<tr>
<td>MRT 234</td>
<td>Services Marketing*</td>
<td>3</td>
</tr>
<tr>
<td>Corequisite: BUS 230</td>
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<td></td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUS 230</td>
<td>Marketing</td>
<td>3</td>
</tr>
<tr>
<td>ACCT 121</td>
<td>Accounting I.</td>
<td>3</td>
</tr>
<tr>
<td>or</td>
<td></td>
<td></td>
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<tr>
<td>ACCT 111</td>
<td>Small Business Accounting</td>
<td>3</td>
</tr>
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</table>

Required Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENTR 120</td>
<td>Introduction to Entrepreneurship</td>
<td>2</td>
</tr>
<tr>
<td>ENTR 180</td>
<td>Opportunity Analysis</td>
<td>2</td>
</tr>
<tr>
<td>ENTR 195</td>
<td>Legal Issues for Small Business</td>
<td>2</td>
</tr>
<tr>
<td>ENTR 210</td>
<td>Entrepreneurship Internship I*</td>
<td>1</td>
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<tr>
<td>Prerequisite: Career program facilitator or department approval</td>
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<td>BUS 140</td>
<td>Principles of Supervision</td>
<td>3</td>
</tr>
<tr>
<td>BUS 160</td>
<td>Financial Management for Small Businesses*</td>
<td>2</td>
</tr>
<tr>
<td>or</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CIS 124</td>
<td>Introduction to Computer Concepts and Applications*</td>
<td>3</td>
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<td>or</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CPCA/CDTP electives</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>ENTR 131</td>
<td>Financial Management for Small Businesses*</td>
<td>2</td>
</tr>
<tr>
<td>Prerequisite: ACCT 111 or ACCT 121</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ENTR 195</td>
<td>Franchising*</td>
<td>3</td>
</tr>
<tr>
<td>Prerequisite: BUS 230</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ENTR 220</td>
<td>Entrepreneurial Marketing*</td>
<td>2</td>
</tr>
<tr>
<td>Prerequisite: BUS 230</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ENTR 142</td>
<td>Fast Trac Business Plan</td>
<td>3</td>
</tr>
<tr>
<td>ENTR 190</td>
<td>Small Business Analysis*</td>
<td>2</td>
</tr>
<tr>
<td>Prerequisite: BUS 131 or ENTR 131 or BUS 160 or ENTR 160 and BUS 230 or department approval</td>
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<tr>
<td>PHIL 138</td>
<td>Business Ethics</td>
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<td>3</td>
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<td>Funding Acquisition Entrepreneurs*</td>
<td>2</td>
</tr>
<tr>
<td>Prerequisite: ENTR 142</td>
<td></td>
<td></td>
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<tr>
<td>Total Semester Credit Hours</td>
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<td>TOTAL PROGRAM CREDIT HOURS</td>
<td>64</td>
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*Prerequisite/Corequisites required

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<td>Principles of Management</td>
<td>3</td>
</tr>
<tr>
<td>BUS 243</td>
<td>Human Resource Management</td>
<td>3</td>
</tr>
</tbody>
</table>
Fall-2009

**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 human relations.

marketing.

An associate of applied science degree is awarded after successful completion of the 65-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.

(Major Code 2520; CIP Code 52.1902)

**Fashion Merchandising and Design**

**Associate of Applied Science Degree**

**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

**Second Semester**

FASH 284 Fashion Internship II* ............................... 1
Health and/or Physical Education Elective ................. 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

**Third Semester**

FASH 150 Textiles ............................................. 3
FASH 125 Visual Merchandising ............................... 3
BUS 150 Business Communications* .......................... 3
Prerequisite: ENGL 121 or
ENGL 122 Composition II* ................................ 3
Total Semester Credit Hours ................................. 17

**Fourth Semester**

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 281 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
ENGL 123 Humanities Elective ............................. 3
Electives .................................................. 2
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
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 ALTERATION ENTREPRENEURSHIP CERTIFICATE 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.

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
Prerequisite: 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

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 ENTREPRENEURSHIP CERTIFICATE 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.

(Fashion Design Certificate)

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 130 Fashion Illustration I........................3
Prerequisite: ART 130
Total Semester Credit Hours.............................10

Second Semester

FASH 150 Textiles........................................3
FASH 220 CAD Apparel 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 283 Fashion Internship I..........................1
Total Semester Credit Hours.............................12

Third Semester

ENTR 120 Introduction to Entrepreneurship..............2
FASH 127 Computer Aided Pattern Development*.........4
Prerequisite: FASH 131
FASH 140 Garment Design I*............................3
Prerequisite: FASH 123 or
FASH 143 Tailoring.........................................4
Prerequisite: FASH 124
ENTR 142 Fast Trac Business Plan......................3
FASH 283 Fashion Internship I..........................1
Total Semester Credit Hours............................10
TOTAL PROGRAM CREDIT HOURS........................31-32
*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
Fashion Design, A.A.S.

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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.

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.

THERE ARE SEVERAL COURSE CHANGES THAT WILL TAKE EFFECT FOR FALL 2009:

FASH 122 (AESTHETICS) - NEW REQUIRED COURSE
FASH 130 (ILLUSTRATION) - HAS A NEW PREREQUISITE OF ART 130 (DRAWING I)
FASH 131 (FLAT PATTERN DEVELOPMENT) - NEW REQUIRED COURSE
FASH 133 (COMPUTER AIDED APPAREL DESIGN) - NEW COURSE TO REPLACE FASH 220 (CAD APPAREL DESIGN) AND HAS NEW PREREQUISITES OF FASH 122 (AESTHETICS).
FASH 265 (FASHION PRODUCT DEVELOPMENT) - NEW COURSE TO REPLACE FASH 140 (GARMENT DESIGN) AND HAS NEW PREREQUISITES OF FASH 123 (APPAREL CONST. I), FASH 130 (FASHION ILLUSTRATION), FASH 133 (COMPUTER AIDED APPAREL DESIGN).
FASH 127 (COMPUTER AIDED PATTERN DEVELOPMENT) - HAS A NEW PREREQUISITE OF FASH 131 (FLAT PATTERN DEVELOPMENT). FASH 279 (FASHION PORTFOLIO DEVELOPMENT) - HAS NEW PREREQUISITES OF FASH 121 (FASHION FUNDAMENTALS), FASH 124 (APPAREL CONSTRUCTION II) AND FASH 265 (FASHION PRODUCT DEVELOPMENT).

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.

(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 135 Image Management.................................................1
FASH 220 CAD Apparel Design..............................................4
FASH 277 Fashion Seminar: Career Options............................2
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 150 Textiles.........................................................3
FASH 224 History of Costume..............................................3
BUS 150 Business Communications*.................................3
Prerequisite: ENGL 121
Health and/or Physical Education Elective.........................1
Total Semester Credit Hours.............................................17

Third Semester

FASH 127 Computer Aided Pattern Development*....................4
Prerequisite: FASH 131
FASH 242 Consumer Product Evaluation...............................3
FASH 283 Fashion Internship I.............................................3
MATH 120 Business Math or higher*....................................3
Prerequisite: 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 or appropriate score on the math assessment test
FASH 284 Fashion Internship II............................................1
FASH 140 Garment Design I*.............................................3
Prerequisite: FASH 130
Humanities Electives.....................................................3
Prerequisite: FASH 130
Social Science and/or Economics Elective.........................3
Total Semester Credit Hours.............................................15
TOTAL PROGRAM CREDIT HOURS........................................64

Fourth Semester

FASH 279 Fashion Portfolio Development*..............................2
Prerequisite: FASH 121 and FASH 124 and FASH 265
FASH 280 Capstone: Industry Topics*....................................3
Prerequisite: 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 140 Garment Design II*.............................................3
Prerequisite: FASH 130
Humanities Electives.....................................................3
Prerequisite: FASH 130
Social Science and/or Economics Elective.........................3
Total Semester Credit Hours.............................................15
TOTAL PROGRAM CREDIT HOURS........................................64

Fashion Electives

FASH 128 CAD Pattern Design II*.................................4
FASH 141 Garment Alterations I*.......................................3
Prerequisite: FASH 123 and Prerequisite or Corequisite: FASH 124
FASH 142 Garment Alterations II*.................................3
Prerequisite: FASH 141 and Prerequisite or Corequisite: FASH 143
FASH 143 Tailoring*......................................................4
Prerequisite: FASH 124
FASH 230 Fashion Illustration II*.................................3
Prerequisite: FASH 130
FASH 268 Field Study: The Market Center*........................3
Prerequisite: FASH 121
BUS 225 Human Relations..............................................3
MKT 134 Professional Selling.........................................3
*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.
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.

(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

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 120</td>
<td>Business Mathematics*</td>
<td>3</td>
</tr>
<tr>
<td>FASH 121</td>
<td>Fashion Fundamentals</td>
<td>3</td>
</tr>
<tr>
<td>MKT 134</td>
<td>Professional Selling</td>
<td>3</td>
</tr>
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<td>Total Semester Credit Hours</td>
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Second Semester

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credit Hours</th>
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</thead>
<tbody>
<tr>
<td>ENTR 120</td>
<td>Introduction to Entrepreneurship</td>
<td>2</td>
</tr>
<tr>
<td>FASH 150</td>
<td>Textiles</td>
<td>3</td>
</tr>
<tr>
<td>FASH 231</td>
<td>Merchandising Planning and Control*</td>
<td>3</td>
</tr>
<tr>
<td>Prerequisite: MATH 120</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Semester Credit Hours</td>
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Third Semester

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<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credit Hours</th>
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</thead>
<tbody>
<tr>
<td>FASH 242</td>
<td>Consumer Product Evaluation</td>
<td>3</td>
</tr>
<tr>
<td>MKT 121</td>
<td>Retail Management</td>
<td>3</td>
</tr>
<tr>
<td>ENTR 142</td>
<td>Fast Trac Business Plan</td>
<td>1</td>
</tr>
<tr>
<td>FASH 283</td>
<td>Fashion Internship I</td>
<td>1</td>
</tr>
<tr>
<td>Total Semester Credit Hours</td>
<td></td>
<td>10</td>
</tr>
<tr>
<td>TOTAL PROGRAM CREDIT HOURS</td>
<td></td>
<td>32</td>
</tr>
</tbody>
</table>

*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.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENTR 220</td>
<td>Entrepreneurial Marketing*</td>
<td>2</td>
</tr>
<tr>
<td>ENTR 195</td>
<td>Franchising*</td>
<td>3</td>
</tr>
<tr>
<td>ENTR 131</td>
<td>Financial Management for Small Business*</td>
<td>2</td>
</tr>
<tr>
<td>Prerequisite: BUS 230</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ENTR 160</td>
<td>Legal Issues for Small Business</td>
<td>2</td>
</tr>
</tbody>
</table>

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.

(Major Code 4040; 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

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>FASH 121</td>
<td>Fashion Fundamentals</td>
<td>3</td>
</tr>
<tr>
<td>FASH 125</td>
<td>Visual Merchandising</td>
<td>3</td>
</tr>
<tr>
<td>MRT 121</td>
<td>Retail Management</td>
<td>3</td>
</tr>
<tr>
<td>ITMD 127</td>
<td>Elements of Floral Design</td>
<td>1</td>
</tr>
<tr>
<td>Total Semester Credit Hours</td>
<td></td>
<td>10</td>
</tr>
</tbody>
</table>

Second Semester

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ITMD 147</td>
<td>Lighting Basics*</td>
<td>1</td>
</tr>
<tr>
<td>Prerequisite: ITMD 121 with a grade of &quot;C&quot; or higher or FASH 125</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FASH 225</td>
<td>Store Planning*</td>
<td>3</td>
</tr>
<tr>
<td>Prerequisite: FASH 125</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FASH 283</td>
<td>Fashion Internship I</td>
<td>1</td>
</tr>
<tr>
<td>Total Semester Credit Hours</td>
<td></td>
<td>18</td>
</tr>
<tr>
<td>TOTAL PROGRAM CREDIT HOURS</td>
<td></td>
<td>32</td>
</tr>
</tbody>
</table>

*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 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

Students graduating with an Associate of Arts degree or an Associate of Science degree must complete an approved cultural diversity course. Some of these courses are able to meet both a diversity requirement and a general education requirement.

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

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 114 with a grade of "C" or higher or MATH 134 with a grade of "C" or higher on the math assessment test
FIRE 162 Fire Tactics and Strategy*......................................3
Prerequisite: FIRE 120
Social Science Elective......................................................3
Health and/or Physical Education Elective...............................1
Total Semester Credit Hours..............................................16

Second Semester

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

Third Semester

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
Technical Elective*... .........................................................3
Oral Communication............................................................3
Science and/or Math Elective.................................................3
Total Semester Credit Hours..............................................16

Fourth Semester

FIRE 220 Fire Administration*............................................3
Prerequisite: FIRE 120
FIRE 250 Fire Service Science Instructional Methodology*.............3
Prerequisite: FIRE 120
Technical Elective...............................................................4
Humanities Elective.............................................................3
Social Science Elective.........................................................3
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, 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
EMS 220 MICT I*.............................................................10
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
Prerequisite: MATH 114 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 205 or CS 220
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 CPC 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 245 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)

Fall-2009

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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 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++ other equivalent experience
GAME 101 Computer Game Creation.................................4
GAME 200 Game Design...........................................3
Total Semester Credit Hours........................................14

Second Semester

CIS 242 Introduction to System Design and Analysis*.........3
Prerequisite: CIS 134 or ENGR 171 or equivalent experience
GAME 140 Game Programming I - 2D*............................4
Prerequisite: CS 200
MATH 191 Math & Physics for Games I*.............................4
Prerequisite: 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 a 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
*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)

Computing Sciences and Information Technology Department

Associate of Applied Science

Prerequisites for Required Courses

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

First Semester

CS 200 Concepts of Programming Algorithms Using C++ other equivalent experience
GAME 101 Computer Game Creation.................................4
GAME 102 The Business of Games..................................3
ENGL 121 Composition*...........................................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 134 with a grade of "C" or higher or appropriate score on the math assessment test or
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++ other equivalent experience
CS 250 Basic Data Structures using C++..............................4
Prerequisite: CS 200 using C++
or
CS 254 Algorithms Using C++.....................................4
Prerequisite: CS 200
or
ENGL 123 Concept Art for Animation..............................3
GAME 200 Game Design...........................................3
MATH 191 Math & Physics for Games I*.............................4
Prerequisite: 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

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

GAME 250 Game Programming I1-Capstone*.................................4
Prerequisites: ENGL 120 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: ENGL 140 and GAME 200
HUM 155 Classical Mythology.................................................3
Prerequisite: ENGL 145
ENGL 140 Writing for Interactive Media*.............................3
Prerequisite or corequisite: ENGL 150

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

Game Electives

CIM 130 Interactive Media Concepts.................................2
CIM 140 Interactive Media Assets...............................4
Prerequisites: COPP 135 and COPP 145 and CRM 105
and CRM 130
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
*Prerequisite/Corequisite required

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 Track Business Plan........................................3
ENTR 220 Entrepreneurial Marketing*..................................2
GAME 140 Game Programming I - 2D*.................................4
Prerequisite: BUS 230
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

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
Prerequisite: CIS 120
CS 200 Concepts of Programming Algorithms Using C++*........4
Prerequisite: CIS 134 or ENGR 171
MATH 171 College Algebra*.............................................3
Prerequisite: MATH 116 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 Pre Calculus*......................................................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.

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 4136; 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
or appropriate score on ENGL 121 assessment test
CIS 134 Programming Fundamentals.................................4
Prerequisite: MATH 116 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 Pre Calculus*......................................................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
- **MATH 191** Math & Physics for Games I*..............................4  
  Prerequisite: 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

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**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  
  Prerequisite: MATH 116 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

---

**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  
  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.............................................11  
  TOTAL PROGRAM CREDIT HOURS...........................................30
  *Prerequisite/Corequisite required

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**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.meck.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.

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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 Sys*............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  
CIS 162 Database Programming*..................................4  
Prerequisite: CIS 134 or the equivalent  
CIS 260 Database Management*..................................4  
Prerequisite: CS 250 or CS 255 or CIS 235 or CIS 238 or CIS 248  
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

Select two courses from the following list:
ADMJ 121 Introduction to Administration of Justice.................3  
BIOL 122 Principles of Biology....................................3  
and  
BIOL 123 Principles of Biology Lab*..............................1  
Prerequisite or corequisite: BIOL 122 or department approval  
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  
DRAP 120 Introduction to Drafting................................2  
and  
DRAP 130 Introduction to CAD Concepts – AutoCAD: 2008*........3  
Prerequisite: DRAP 120 or department approval  
Note: DRAP 120 and DRAP 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  
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..................................34-40  
*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..........................4  
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
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  
Humanities Electives.................................................3  
Total Semester Credit Hours.......................................15  

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

Fall 2009
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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 816-759-4231 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 104 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
POLS 126 State and Local Government......................................3

Specific Program Requirements-must be taken at JCCC

CIS 124 Introduction to Computer Concepts and Applications...3
CPA 110 Spreadsheets I: MS Excel*............................................3
Prerequisite: CPA 105 or CPA 106 or CIS 124
or
CIS 125 and CPA 128 or appropriate score on a waiver test
CPA 114 Databases I: MS Access*..............................................3
Prerequisite: CPA 105 or CPA 106 or CPA 128 or CPA 124 or an appropriate score on a waiver test
CPA 141 Internet *.................................................................3
Prerequisite: CPA 105 or CPA 106 or CPA 128 or CPA 124 or appropriate score on an assessment test

Specific Program Requirements-taken at MCC-Penn Valley

KSS 153 The Missouri Constitution.............................................1
KMKT 101 Introduction to the Health Information Technology ..2
KMKT 102 Health Records Systems, Analysis and Control.........3
KMKT 103 Medical Terminology for Health Records...............3
KMKT 106 Health Care Statistics*.............................................3
Prerequisite: KMKT 102
KMKT 108 Legal Aspects of the Health Information Technology*2
Prerequisite: KMKT 102
KMKT 109 Directed Practice I*................................................2.5
Prerequisites: BIOL 144 and KMKT 103
KMKT 110 Pharmacology*.........................................................3
KMKT 114 Direct Financial Management*....................................3
Prerequisite: KMKT 108
KMKT 200 Introduction to Classification Systems......................3
KMKT 201 Management*...........................................................3
KMKT 202 Class. Systems/Nomenclature/Indexes & Registers I*..4
Prerequisite: KMKT 200
KMKT 203 Directed Practice II*..................................................2
Prerequisites: BIOL 144 and KMKT 202 and KMKT 210 or BIOL 144 and concurrent enrollment in KMKT 202 and KMKT 210
KMKT 206 Health Records Systems*............................................3
KMKT 207 Class. System/Nomenclature/Indexes & Registers II*....3
Prerequisites: BIOL 144 and KMKT 202
KMKT 208 Directed Practice III*................................................2
Prerequisite: KMKT 203
KMKT 210 Class. Systems/Nomenclature/ComputerCare*...........3
Prerequisites: KMKT 200 and BIOL 108/PCMC or concurrent enrollment in BIOL 108/PCMC
KMKT 211 Organization & Administration of Health Information*3
Prerequisites: KMKT 201, KMKT 202, and KMKT 203
KMKT 212 Intro to Medical Insurance & Office Procedures*........1.5
Prerequisites: KMKT 103, KMK 202, KMKT 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_Info-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
Prerequisite: 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

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 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_Info-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

Certificate of Completion

Required Course

AVHO 108 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 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_Refresh_Info-Requirement

(Major Code 3540; CIP Code 51.1614)

**Health Occupations**

**Certificate of Completion**

**Required Course**

AVHO 103 Certified Nurse Aide Refresher Course (CNA)* 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 816-759-4231 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 includes deadlines, program prerequisites and admission requirements.

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**

<table>
<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
<td>ENGL 121</td>
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<td>MATH 116</td>
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<td>PSYC 130</td>
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**American Institutions**

<table>
<thead>
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<td>POLS 122</td>
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**Specific Program Requirements**

**The following courses can be taken at any campus**

<table>
<thead>
<tr>
<th>Course</th>
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<tr>
<td>BIOL 144</td>
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**Prerequisites:** BIOL 144 and department approval or

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**Specific Program Requirements taken at MCC-Penn Valley**

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<tr>
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<tr>
<td>KSS 153</td>
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**Note:** For dental assistants who are already working and wish to obtain additional certification.

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<td>SOC 122</td>
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**Dental Assisting Seminar**

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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 816-759-4231 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

<table>
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<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tr>
<td>ENGL 121</td>
<td>Composition I*</td>
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<tr>
<td>PSYC 110</td>
<td>Introduction to Psychology</td>
<td>3</td>
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<tr>
<td>SP 121</td>
<td>Public Speaking</td>
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Specific Program Requirements taken at MCC-Penn Valley

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<tbody>
<tr>
<td>KDA 100</td>
<td>Introduction to Dental Assisting</td>
<td>1</td>
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</table>

Note: For dental assistants who are already working and wish to obtain additional certification.

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 home health care assistance.

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

洪 106 Home Health Aide*.............................................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, 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.

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

洪 115 IV Therapy For LPNs*.................................3
Prerequisites: Proof of Kansas LPN licensure, 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.
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 816-759-4231 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

洪 121 Composition I*..............................................................3
Prerequisite: ENGL 106 or appropriate placement test score or AEP 113 and AEP 117

洪 121 Public Speaking...............................................................3

洪 130 Introduction to Psychology..............................................3

American Institutions

洪 140 U.S. History to 1877...................................................3

洪 141 U.S. History Since 1877.................................................3

洪 122 Political Science.........................................................3

洪 124 American National Government..................................3

洪 126 State and Local Government......................................3

Prerequisite Courses-must be taken at JCCC

洪 122 Principles of Chemistry............................................5

洪 130 Medical Terminology..................................................5

Specific Program Requirements-must be taken at JCCC

Option 1

洪 144 Human Anatomy and Physiology.................................5

洪 145 Human Anatomy and Physiology Dissection*.........................1
Prerequisites: BIOL 144 and department approval
Note: BIOL 144 must be taken before BIOL 145

Option 2

洪 144 Human Anatomy and Physiology.................................5

洪 145 Human Anatomy and Physiology Dissection*.........................1

洪 151 Medical Terminology..................................................5

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

Certificate of Completion

Required Course

洪 115 IV Therapy For LPNs*.................................3
Prerequisites: Proof of Kansas LPN licensure, 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.
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 816-759-4231 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

洪 121 Composition I*..............................................................3
Prerequisite: ENGL 106 or appropriate placement test score or AEP 113 and AEP 117

洪 121 Public Speaking...............................................................3

洪 130 Introduction to Psychology..............................................3

American Institutions

洪 140 U.S. History to 1877...................................................3

洪 141 U.S. History Since 1877.................................................3

洪 122 Political Science.........................................................3

洪 124 American National Government..................................3

洪 126 State and Local Government......................................3

Prerequisite Courses-must be taken at JCCC

洪 122 Principles of Chemistry............................................5

洪 130 Medical Terminology..................................................5

Specific Program Requirements-must be taken at JCCC

Option 1

洪 144 Human Anatomy and Physiology.................................5

洪 145 Human Anatomy and Physiology Dissection*.........................1
Prerequisites: BIOL 144 and department approval
Note: BIOL 144 must be taken before BIOL 145

Option 2

洪 144 Human Anatomy and Physiology.................................5

洪 145 Human Anatomy and Physiology Dissection*.........................1

洪 151 Medical Terminology..................................................5

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

Certificate of Completion

Required Course

洪 115 IV Therapy For LPNs*.................................3
Prerequisites: Proof of Kansas LPN licensure, 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.
TOTAL PROGRAM CREDIT HOURS..........................3
*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 Community College at 816-759-4231 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 95 or appropriate placement test score or EAP 113 and EAP 117

SPD 121 Public Speaking...........................................3

PSYC 130 Introduction to Psychology...........................3

American Institutions

HIST 140 U.S. History to 1877........................................3
or
HIST 141 U.S. History Since 1877................................3

POLS 122 Political Science............................................3
or
POLS 124 American National Government........................3

POLS 126 State and Local Government..........................3

Prerequisite Courses-must be taken at JCCC

CHEM 122 Principles of Chemistry..................................5

AAC 130 Medical Terminology......................................5

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 or corequisites: Either CHEM 122 or (CHEM 124 and CHEM 125) and either BIOL 140 or BIOL 144
Note: BIOL 144 must be taken first

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 103 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 OTA or PTA program.

KPT 155 Rehabilitation*..............................................4
Prerequisite: KPT 162

KPT 158 Therapeutic Exercise*......................................4

KPT 159 Orthopedic Pathology*.....................................4
Prerequisites: BIOL 144, BIOL 145, KPT 152 and KPT 160

*Prerequisite/Corequisite required

Changes at the degree-granting institution. Contact MCC-Penn Valley Community College at 816-759-4231 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.
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 816-759-4231 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

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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<tbody>
<tr>
<td>ENGL 121</td>
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<tr>
<td>SPD 121</td>
<td>3</td>
</tr>
<tr>
<td>PSC 130</td>
<td>3</td>
</tr>
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American Institutions

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIST 140</td>
<td>3</td>
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<tr>
<td>POLS 124</td>
<td>3</td>
</tr>
<tr>
<td>POLS 126</td>
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Specific Program Requirements-must be taken at JCCC

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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<tbody>
<tr>
<td>BIOL 140</td>
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<td>AAC 130</td>
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</table>

Specific Program Requirements-taken at MCC-Penn Valley

<table>
<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
<td>KSS 153</td>
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<td>KRAH 160</td>
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<td>KRAH 178</td>
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<td>KRAH 180</td>
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</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>AVHO 112</td>
<td>2</td>
</tr>
</tbody>
</table>

*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 816-759-4231 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

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 144</td>
<td>5</td>
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<tr>
<td>AAC 130</td>
<td>3</td>
</tr>
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</table>

Specific Program Requirements-taken at MCC-Penn Valley

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>KST 100</td>
<td>Introduction to Surgical Technology</td>
<td>2</td>
</tr>
<tr>
<td>KST 102</td>
<td>Introduction to Fundamentals I*</td>
<td>5</td>
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<td>KST 103</td>
<td>Introduction to Fundamentals II*</td>
<td>6</td>
</tr>
<tr>
<td>KST 105</td>
<td>Pharmacology for the Surgical Technologist*</td>
<td>2</td>
</tr>
<tr>
<td>KST 106</td>
<td>Microbiology for the Surgical Technologist*</td>
<td>3</td>
</tr>
<tr>
<td>KST 109</td>
<td>Surgical Procedures I*</td>
<td>8</td>
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<tr>
<td>KST 110</td>
<td>Surgical Procedures II*</td>
<td>8</td>
</tr>
<tr>
<td>KST 114</td>
<td>Surgical Procedures III*</td>
<td>8</td>
</tr>
<tr>
<td>KST 111</td>
<td>Career Development for the Surgical Technologist*</td>
<td>2</td>
</tr>
</tbody>
</table>

*Prerequisite/Corequisite required

Total Program Credit Hours: 52

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

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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<tbody>
<tr>
<td>HVAC 121</td>
<td>4</td>
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<tr>
<td>HVAC 123</td>
<td>4</td>
</tr>
<tr>
<td>HVAC 150</td>
<td>1</td>
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<tr>
<td>HVAC 155</td>
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</table>

Total Semester Credit Hours: 10

Second Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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<tbody>
<tr>
<td>HVAC 167</td>
<td>3</td>
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<tr>
<td>MATH 133</td>
<td>4</td>
</tr>
</tbody>
</table>

Total Semester Credit Hours: 10

Total Program Credit Hours: 20

*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.

Required Courses

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>HVAC 121</td>
<td>Basic Principles of HVAC*</td>
<td>4</td>
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<tr>
<td>HVAC 123</td>
<td>Electromechanical Systems</td>
<td>4</td>
</tr>
<tr>
<td>HVAC 150</td>
<td>Refrigerant Management and Certification</td>
<td>1</td>
</tr>
<tr>
<td>HVAC 155</td>
<td>Workplace Skills</td>
<td>1</td>
</tr>
</tbody>
</table>

*Prerequisite/Corequisite required
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
Prerequisite: HVAC 121 and either HVAC 123 or ELTE 123
HVAC 155 Workplace Skills............................................1
INDT 125 Industrial Safety...........................................3
TOTAL Semester Credit Hours........................................12*
*Prerequisite/Corequisite required

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
Prerequisite: HVAC 121 and either HVAC 123 or ELTE 123
TOTAL Semester Credit Hours........................................10
TOTAL PROGRAM CREDIT HOURS....................................23

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)

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)

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
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
Prerequisite: HVAC 121 and either HVAC 123 or ELTE 123
HVAC 231 HVAC Rooftop Units*........................................3
Prerequisite: HVAC 121 and either HVAC 123 or ELTE 123
TOTAL Semester Credit Hours........................................14

Third Semester
NATH 133 Technical Mathematics I*...............................4
Prerequisite: MATH 111 with a grade of "C" or higher
or appropriate score on the math assessment test
Sociology and/or Economic Elective.................................3
HVAC 223 Commercial Systems: Heating*.............4
Prerequisite: HVAC 121 or ELTE 123
ELTE 122 National Electrical Code I.........................4
CPCA 105 Introduction to Personal Computers: Windows....1
TOTAL Semester Credit Hours........................................16

Fourth Semester
HVAC 229 Advanced Control Systems*.............................4
Prerequisite: HVAC 121 and either HVAC 123 or ELTE 123
ELTE 205 Industrial Electrical Wiring*.............................4
Prerequisite: ELTE 122 or ELTE 125 or ELTE 205
Technical Elective......................................................2
Humanities Elective.....................................................3
General Education Elective...........................1
TOTAL Semester Credit Hours........................................16
TOTAL PROGRAM CREDIT HOURS.................................64

Technical Electives
HVAC 225 Energy Alternatives....................................2
HVAC 271 HVAC Internship...........................................3
Prerequisite: Department approval required
HVAC 291 Independent Study.....................................1-7
Prerequisite: HVAC 123 or ELTE 123
TOTAL Semester Credit Hours....................................17

General Education Electives
ENGL 123 Technical Writing I*.................................3
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 101 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 HVAC Rooftop Units*............................4
Prerequisites: HVAC 121 and either HVAC 123 or ELTE 123
HVAC 124 HVAC Rooftop Units*............................4
Prerequisite or corequisite: HVAC 123 or ELTE 123
HVAC 146 HVAC Rooftop Units*............................4
Prerequisites: HVAC 121 and either HVAC 123 or ELTE 123
HVAC 155 HVAC Rooftop Units*............................4
Prerequisite or corequisite: HVAC 123 or ELTE 123
HVAC 167 HVAC Rooftop Units*............................4
Prerequisite or corequisite: HVAC 123 or ELTE 123
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.................................13

Spring Semester
HVAC 150 Refrigerant Management and Certification........1
HVAC 231 HVAC Rooftop Units*............................4
Prerequisites: HVAC 121 and either HVAC 123 or ELTE 123
HVAC 234 HVAC Rooftop Units*............................4
Prerequisites: HVAC 121 and either HVAC 123 or ELTE 123
HVAC 236 HVAC Rooftop Units*............................4
Prerequisites: HVAC 121 and either HVAC 123 or ELTE 123
HVAC 256 HVAC Rooftop Units*............................4
Prerequisites: HVAC 121 and either HVAC 123 or ELTE 123
HVAC 143 HVAC Rooftop Units*............................4
Prerequisites: HVAC 121 and either HVAC 123 or ELTE 123
HVAC 148 HVAC Rooftop Units*............................4
Prerequisites: HVAC 121 and either HVAC 123 or ELTE 123
HVAC 156 HVAC Rooftop Units*............................4
Prerequisites: HVAC 121 and either HVAC 123 or ELTE 123
HVAC 158 HVAC Rooftop Units*............................4
Prerequisites: HVAC 121 and either HVAC 123 or ELTE 123
HVAC 149 HVAC Rooftop Units*............................4
Prerequisites: HVAC 121 and either HVAC 123 or ELTE 123
Total Semester Credit Hours.................................16

Fall Semester
HVAC 229 Advanced Control Systems*.......................4
Prerequisites: HVAC 121 and either HVAC 123 or ELTE 123
HVAC 222 HVAC Rooftop Units*............................4
Prerequisites: HVAC 121 and either HVAC 123 or ELTE 123
INDT 125 Industrial Safety*.................................2
HVAC 167 HVAC Rooftop Units*............................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 HVAC Rooftop Units*............................4
HVAC 167 HVAC Rooftop Units*............................3
HVAC 155 HVAC Rooftop Units*............................1
INDT 125 Industrial Safety*.................................3
Total Semester Credit Hours.................................15

Second Semester
HVAC 148 HVAC Rooftop Units*............................3
Prerequisites: HVAC 121 and either HVAC 123 or ELTE 123
HVAC 146 HVAC Rooftop Units*............................3
HVAC 143 HVAC Rooftop Units*............................2
HVAC 124 HVAC Rooftop Units*............................4
Prerequisites: HVAC 121 and either HVAC 123 or ELTE 123
HVAC 150 HVAC Rooftop Units*............................4
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 HVAC Rooftop Units*............................4
HVAC 143 HVAC Rooftop Units*............................2
HVAC 143 HVAC Rooftop Units*............................2

HVAC 155 Workplace Skills..............................................1
INDT 125 Industrial Safety..............................................3
ENGL 121 Composition I*..............................................3
Prerequisite: ENGL 106 or appropriate placement
Prerequisite/Corequisite required
Fall-2009
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)

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
MATH 133 Technical Mathematics I*....................................4
Prerequisite: MATH 111 with a grade of "C" or higher
Social Science and/or Economics Elective.............................3
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
Technical Elective.........................................................3
Total Semester Credit Hours............................................17

Fourth Semester
HVAC 235 Residential Heat Pump Systems*............................4
Prerequisites: HVAC 121 and either HVAC 123 or ELTE 123
HVAC 123 Commercial Systems: Heating*............................4
Prerequisites: HVAC 121 and either HVAC 123 or ELTE 123
HVAC 223 Commercial Systems: Heating*............................4
Prerequisites: 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
*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 technician 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.

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.

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
Prerequisite/Corequisite required
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
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
Technical Elective.........................................................3-4
Total Semester Credit Hours............................................38-39

Technical Electives
AUTO 230 Automotive Heating and Air Conditioning*...............3
Prerequisite or corequisite: AUTO 125 or
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: Heating*.............................4
Prerequisites: HVAC 121 and either HVAC 123 or ELTE 123
HVAC 223 Commercial Systems: Heating*.............................4
Prerequisites: HVAC 123 or ELTE 123
HVAC 271 HVAC Internship*.............................................3
HVAC 291 Independent Study...........................................1-7

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Fall-2009
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/Tech Prep.....................3
Total Semester Credit Hours.............................16

Second Semester

HORT 220 Herbaceous Plants............................3
ITMD 127 Elements of Floral Design....................1
ITMD 252 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
HORT 160 Legal Issues for Small Business.............2
ENTR 195 Franchising*..................................3
Prerequisite: BUS 230
ENTR 223 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.

Science Department

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

FLR 130 Principles of Traditional Design................3
FLR 150 Contemporary Design Styles.....................3
ACCT 111 Small Business Accounting....................3
Electives...................................................3
Total Semester Credit Hours..............................12
Horticulture Electives

HORT 225 Plant Problems*..............................3
Prerequisites: HORT 214 and HORT 220 or department approval

HORT 270 Horticulture Internship*.....................3
Prerequisite: Approval of assistant dean

HORT 265 Landscape Construction........................3

HORT 263 Landscape Construction........................3

HORT 165 Arboriculture................................3

HORT 165 Arboriculture................................3

HORT 255 Landscape Pest Control.......................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..........................3

BIOL 122 Principles of Biology........................3

BIOL 123 Principles of Biology Lab*...................3
Prerequisite or corequisite: BIOL 122 or department approval

CHEM 122 Principles of Chemistry.....................5

*Prerequisite/Corequisite required

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 Department

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....3

HORT 235 Landscape Maintenance and Techniques....3

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 135 Landscape Design............................3

Electives (choose from list below)....................6

Total Semester Credit Hours.........................15

TOTAL PROGRAM CREDIT HOURS........................31

*Prerequisite/Corequisite required

Electives

BUS 121 Introduction to Business.....................3

BUS 145 Small Business Management..................3

HORT 160 Garden Center Operations..................3

HORT 255 Landscape Pest Control.....................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 designed to provide the student with basic skills in horticulture and small business development and management.

(Major Code 4270; CIP Code 01.0601)

Science Department

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....3

HORT 235 Landscape Maintenance and Techniques....3

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.......3

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*..........................2
Prerequisite: HORT 201 or department approval

HORT 210 Concepts of Floral Design*................3

HORT 255 Landscape Pest Control.....................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
### 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 Department

#### 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**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HORT 201 Introduction to Horticultural Science</td>
<td>4</td>
</tr>
<tr>
<td>HORT 140 Turfgrass I.</td>
<td>3</td>
</tr>
<tr>
<td>HORT 220 Herbaceous Plants.</td>
<td>3</td>
</tr>
<tr>
<td>HORT 235 Landscape Maintenance and Techniques</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total Semester Credit Hours</strong></td>
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</table>

**Second Semester**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
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<tbody>
<tr>
<td>HORT 214 Woody Plants I, Deciduous</td>
<td>3</td>
</tr>
<tr>
<td>HORT 225 Plant Problems*</td>
<td>3</td>
</tr>
<tr>
<td>Prerequisites: HORT 214 and HORT 220 or department approval</td>
<td></td>
</tr>
<tr>
<td>HORT 135 Landscape Design.</td>
<td>3</td>
</tr>
<tr>
<td>HORT 265 Landscape Construction.</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total Semester Credit Hours</strong></td>
<td><strong>15</strong></td>
</tr>
<tr>
<td><strong>TOTAL PROGRAM CREDIT HOURS</strong></td>
<td><strong>31</strong></td>
</tr>
</tbody>
</table>

*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.

<table>
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<tr>
<td>HORT 115 Home Horticulture.</td>
<td>2</td>
</tr>
<tr>
<td>HORT 160 Garden Center Operations</td>
<td>3</td>
</tr>
<tr>
<td>HORT 205 Plant Propagation*</td>
<td>3</td>
</tr>
<tr>
<td>Prerequisite: HORT 201 or department approval</td>
<td></td>
</tr>
<tr>
<td>HORT 210 Concepts of Floral Design</td>
<td>3</td>
</tr>
<tr>
<td>HORT 205 Landscape Pest Control</td>
<td>3</td>
</tr>
<tr>
<td>HORT 260 Horticulture Soils</td>
<td>3</td>
</tr>
<tr>
<td>HORT 160 Legal Issues for Small Business</td>
<td>2</td>
</tr>
<tr>
<td>ENTR 220 Entrepreneurial Marketing*</td>
<td>2</td>
</tr>
<tr>
<td>Prerequisite: BUS 230</td>
<td></td>
</tr>
<tr>
<td>ENTR 131 Financial Management for Small Business</td>
<td>2</td>
</tr>
<tr>
<td>Prerequisite: ACCT 111 or ACCT 121</td>
<td></td>
</tr>
<tr>
<td>ENTR 195 Franchising*</td>
<td>3</td>
</tr>
<tr>
<td>Prerequisite: BUS 230</td>
<td></td>
</tr>
<tr>
<td>ENTR 225 Family Business</td>
<td>3</td>
</tr>
<tr>
<td>ENTR 240 Funding Acquisition for Entrepreneurs*</td>
<td>3</td>
</tr>
<tr>
<td>Prerequisite: ENTR 142</td>
<td></td>
</tr>
<tr>
<td>FL 130 Elementary Spanish I</td>
<td>5</td>
</tr>
<tr>
<td><strong>Total Semester Credit Hours</strong></td>
<td><strong>17</strong></td>
</tr>
<tr>
<td><strong>TOTAL PROGRAM CREDIT HOURS</strong></td>
<td><strong>32</strong></td>
</tr>
</tbody>
</table>

#### 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.

Science Department

#### 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**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>ENTR 245 Commercial Crop Production</td>
<td>3</td>
</tr>
<tr>
<td>HORT 272 Sustainable Agriculture Fall Practicum.</td>
<td>2</td>
</tr>
<tr>
<td>ENTR 120 Introduction to Entrepreneurship</td>
<td>2</td>
</tr>
<tr>
<td>ENTR 180 Opportunity Analysis</td>
<td>2</td>
</tr>
<tr>
<td><strong>Total Semester Credit Hours</strong></td>
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</table>

**Spring Semester**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HORT 260 Horticulture Soils</td>
<td>3</td>
</tr>
<tr>
<td>HORT 274 Sustainable Agriculture Spring Practicum.</td>
<td>2</td>
</tr>
<tr>
<td>ENTR 142 Fast Trac Business Plan.</td>
<td>3</td>
</tr>
<tr>
<td>Hortic 165 Food Industry Compliance &amp; Safety.</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total Semester Credit Hours</strong></td>
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</tbody>
</table>

First Semester

<table>
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<tr>
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<tbody>
<tr>
<td>HORT 214 Woody Plants I, Deciduous</td>
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<td>HORT 201 Introduction to Horticultural Science</td>
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<td>ENTR 180 Opportunity Analysis</td>
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<td><strong>Total Semester Credit Hours</strong></td>
<td><strong>17</strong></td>
</tr>
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</table>

Second Semester

<table>
<thead>
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</tr>
</thead>
<tbody>
<tr>
<td>HORT 260 Horticulture Soils</td>
<td>3</td>
</tr>
<tr>
<td>HORT 225 Plant Problems*</td>
<td>3</td>
</tr>
<tr>
<td>Prerequisites: HORT 214 and HORT 220 or department approval</td>
<td></td>
</tr>
<tr>
<td>HORT 235 Landscape Maintenance and Techniques</td>
<td>3</td>
</tr>
<tr>
<td>HORT 245 Landscape Construction</td>
<td>3</td>
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<tr>
<td>ENTR 142 Fast Trac Business Plan</td>
<td>3</td>
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<tr>
<td><strong>Total Semester Credit Hours</strong></td>
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<tr>
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*Prerequisite/Corequisite required

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<td>ENTR 220 Entrepreneurial Marketing*</td>
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<tr>
<td>Prerequisite: BUS 230</td>
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</tr>
<tr>
<td>ENTR 131 Financial Management for Small Business</td>
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<tr>
<td>Prerequisite: ACCT 111 or ACCT 121</td>
<td></td>
</tr>
<tr>
<td>ENTR 195 Franchising*</td>
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<tr>
<td>ENTR 225 Family Business</td>
<td>3</td>
</tr>
<tr>
<td>ENTR 240 Funding Acquisition for Entrepreneurs*</td>
<td>3</td>
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</table>

*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.

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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<tbody>
<tr>
<td>HORT 115 Home Horticulture.</td>
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<tr>
<td>HORT 160 Garden Center Operations</td>
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<tr>
<td>HORT 205 Plant Propagation*</td>
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<tr>
<td>Prerequisite: HORT 201 or department approval</td>
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<tr>
<td>HORT 210 Concepts of Floral Design</td>
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<td>HORT 205 Landscape Pest Control</td>
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<td>HORT 260 Horticulture Soils</td>
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<td>HORT 160 Legal Issues for Small Business</td>
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<td>ENTR 220 Entrepreneurial Marketing*</td>
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<td>Prerequisite: BUS 230</td>
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<td>ENTR 131 Financial Management for Small Business</td>
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<td>ENTR 225 Family Business</td>
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<tr>
<td>ENTR 240 Funding Acquisition for Entrepreneurs*</td>
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<td>HORT 210 Concepts of Floral Design</td>
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<td>HORT 205 Landscape Pest Control</td>
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<td>3</td>
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<tr>
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<td>2</td>
</tr>
<tr>
<td>Prerequisite: BUS 230</td>
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<tr>
<td>ENTR 131 Financial Management for Small Business</td>
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<tr>
<td>Prerequisite: ACCT 111 or ACCT 121</td>
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<tr>
<td>ENTR 195 Franchising*</td>
<td>3</td>
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<tr>
<td>Prerequisite: BUS 230</td>
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<tr>
<td>ENTR 225 Family Business</td>
<td>3</td>
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<tr>
<td>ENTR 240 Funding Acquisition for Entrepreneurs*</td>
<td>3</td>
</tr>
<tr>
<td>Prerequisite: ENTR 142</td>
<td></td>
</tr>
<tr>
<td>FL 130 Elementary Spanish I</td>
<td>5</td>
</tr>
<tr>
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</tr>
<tr>
<td><strong>TOTAL PROGRAM CREDIT HOURS</strong></td>
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</table>
Summer Semester
HORT 255 Landscape Pest Control .................................... 3
HORT 276 Sustainable Agriculture Summer Practicum .............. 2
HMGT 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 retail 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
HMGT 120 Food Service Sanitation .................................. 1
HMGT 121 Perspectives of Hospitality Management ............... 3
HMGT 123 Professional Cooking I* .................................. 3
Prerequisite or corequisite: HMGT 120
Suggested/Sample Course Sequence
The sequence taken by the student may vary depending on prerequisites, course availability, and personal/professional responsibilities.

First Semester
HMGT 132 Seminar in Housekeeping Operations ................... 3
HMGT 203 Total Sales and Marketing* ................................ 3
Prerequisite: 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
Prerequisite: HMGT 230 or higher and HMGT 121
HMGT 221 Design and Facilities Management* .................... 3
Prerequisite: 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 140 Legal Issues for Small Business ......................... 2
ENTR 220 Entrepreneurial Marketing* ............................. 3
Prerequisite: BUS 230
ENTR 240 Funding Acquisition for Entrepreneurs* ............... 2
Prerequisite: ENTR 142

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
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 or appropriate score on the math assessment test
Total Semester Credit Hours .......................................... 12

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
Prerequisite: 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
HMGT 273 Hospitality Cost Accounting* ........................... 3
Prerequisites: MATH 120 or higher and HMGT 273
HMGT 230 Fast Trac Business Plan* ................................. 3
Prerequisite or corequisite: HMGT 123 and HMGT 271
Total Semester 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 ............... 3
ENTR 195 Franchising* ............................................... 3
Prerequisite: BUS 230
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 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

HMGT 273 Hospitality Cost Accounting* .....................3
Prerequisite: HMGT 123 or HMGT 230
HMGT 230 Professional Cooking II* .........................3
Prerequisite: HMGT 120 and HMGT 123
HMGT 151 Nutrition and Meal Planning .....................3
CPCA Computer Elective ................................1
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
SPSO 120 Interpersonal Communication ...................3
or
SPSO 121 Public Speaking ..................................3
or
SPSO 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 Manager* ................................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
Prerequisite: HMGT 230 and department approval
HMGT 279 Beverage Control ................................3
PSYC 121 Applied Psychology ................................3
or
PSYC 130 Introduction to Psychology ....................3
HMGT 287 Culinary Arts Practicum V* ....................2
Prerequisite: HMGT 286
Total Semester Credit Hours: 12

Sixth Semester

HMGT 128 Supervisory Management ..........................3
HMGT 228 Advanced Hospitality Management* ..........3
Prerequisite: department approval
HMGT 288 Culinary Arts Practicum VI* ....................2
Prerequisite: HMGT 287 and department approval
and hospitality management department approval
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
Prerequisite: 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
Prerequisite: HMGT 123 and HMGT 271
HMGT 240 Advanced Baking* ................................4
Prerequisite: 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
Prerequisite: MATH 120 and HMGT 121 and HMGT 273
*Prerequisite/Corequisite required

Hospitality Program Electives

HMGT 126 Food Management* .................................4
Prerequisites: HMGT 123 and HMGT 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
Prerequisite: 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
Prerequisite: HMGT 123 and HMGT 271
HMGT 240 Advanced Baking* ................................4
Prerequisite: 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
Prerequisite: MATH 120 and HMGT 121 and HMGT 273

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 the 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.
**Hospitality Management**

**Associate of Applied Science Degree**

**First Semester**

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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>HMGT 121</td>
<td>Perspectives of Hospitality Management</td>
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<tr>
<td>SPD 121</td>
<td>Interpersonal Communication</td>
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<tr>
<td>or</td>
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<tr>
<td>SPD 121</td>
<td>Public Speaking</td>
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<td>or</td>
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<tr>
<td>SPD 125</td>
<td>Personal Communication</td>
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<td>MAT 120</td>
<td>Business Math or higher*</td>
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<td>Prerequisites: MATH 111 with a grade of &quot;C&quot; or higher or appropriate score on the math assessment test</td>
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<td>ENGL 121</td>
<td>Composition I*</td>
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<td>HMGT 120</td>
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**Second Semester**

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<tr>
<td>HMGT 128</td>
<td>Supervisory Management</td>
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<td>HMGT 123</td>
<td>Professional Cooking I*</td>
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<td>Prerequisite or corequisite: HMGT 120</td>
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<tr>
<td>HMGT 277</td>
<td>Seminar in Hospitality Management: Menu Planning*</td>
<td>3</td>
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<tr>
<td>Prerequisite: HMGT 123</td>
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<td>HMGT 271</td>
<td>Seminar in Hospitality Management: Purchasing</td>
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<td>HMEC 151</td>
<td>Nutrition and Meal Planning</td>
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**Summer**

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<td>PSYC 130</td>
<td>Introduction to Psychology</td>
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**Third Semester**

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<td>HMGT 207</td>
<td>Hospitality Human Resource Management*</td>
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<tr>
<td>Prerequisite: HMGT 128</td>
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<td>HMGT 279</td>
<td>Beverage Control</td>
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<td>HMGT 221</td>
<td>Design and Facilities Management*</td>
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<tr>
<td>Prerequisites: HMGT 123 and HMGT 271</td>
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<tr>
<td>HMGT 273</td>
<td>Hospitality Cost Accounting*</td>
<td>3</td>
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<tr>
<td>Prerequisite: MATH 120 or higher and HMGT 121</td>
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<td>Total Semester Credit Hours: 15</td>
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**Fourth Semester**

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<tr>
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<tr>
<td>Prerequisites: HMGT 123 and HMGT 230 and HMGT 277 and admission to the hospitality management program</td>
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<td>HMGT 228</td>
<td>Advanced Hospitality Management*</td>
<td>3</td>
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<tr>
<td>Prerequisite: department approval</td>
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<td>HMGT 268</td>
<td>Hospitality Management*</td>
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<td>Prerequisites: MATH 120 and HMGT 121 and HMGT 273</td>
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<td>HMGT 150</td>
<td>Seminar: Food Service Sales and Marketing</td>
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**Hospitality Program Electives**

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<th>Credit Hours</th>
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<td>HMGT 130</td>
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<tr>
<td>HMGT 203</td>
<td>Hotel Sales and Marketing</td>
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<tr>
<td>Prerequisites: HMGT 121 and admission to the hospitality management program</td>
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<td>HMGT 223</td>
<td>Fundamentals of Baking</td>
<td>3</td>
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<td>HMGT 250</td>
<td>Introduction to Catering</td>
<td>3</td>
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<tr>
<td>HMGT 256</td>
<td>Casino Management</td>
<td>3</td>
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<tr>
<td>HMGT 275</td>
<td>Seminar in Hospitality Management: Internship*</td>
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<tr>
<td>Prerequisite: Admission to the hospitality management program</td>
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</tbody>
</table>

*Prerequisite/Corequisite required

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**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.

**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.

**Career Certificate**

**Prerequisites for Required Courses**

<table>
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>HMGT 123</td>
<td>Professional Cooking I*</td>
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<tr>
<td>Prerequisite or corequisite: HMGT 120</td>
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<td></td>
</tr>
<tr>
<td>BUS 230</td>
<td>Marketing</td>
<td>3</td>
</tr>
</tbody>
</table>

*Suggested/Sample Course Sequence*

The sequence taken by the student may vary depending on prerequisites, course availability, and personal/professional responsibilities.
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 trainer 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
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
Prerequisites: 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
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
Total Semester Credit Hours..............................................10

Fourth Semester

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
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

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

HMGT 275 Seminar in Hospitality Management; Internship*........3
Prerequisite: Admission to the hospitality management program
CPCA Computer Elective..................................................1
Total Semester Credit Hours..............................................4

Fourth Semester

HMGT 228 Advanced Hospitality Management*.........................3
Prerequisite: HMGT 120
HMGT Hospitality Program Elective.................................3
HMGT 268 Hospitality Managerial Accounting*........................3
Prerequisites: HMGT 123 and HMGT 271
HMGT 207 Hospitality Human Resource Management*..............3
Prerequisite: HMGT 128
Total Semester Credit Hours..............................................15
TOTAL PROGRAM CREDIT HOURS..........................64

Hospitality Program Electives

HMGT 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 223 Fundamentals of Baking.....................................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. This is an open enrollment program beginning only during 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

HMGB 155 Pastry Shop Production I*...........................................4
Prerequisites: HMGT 120 and HMGT 123
Corequisites: HMGT 160 and HMGB 233 and HMGB 252
HMGB 160 Pastry Shop Principles I*...........................................4
Prerequisites: HMGT 120 and HMGT 123
Corequisites: HMGT 160 and HMGB 252
HMGB 233 Patisserie*...............................................................4
Prerequisites: HMGT 120 and HMGT 123
Corequisites: HMGT 160 and HMGB 252
HMGB 252 Pastry Shop Business Basics I*.................................3
Prerequisites: HMGT 120 and HMGT 123
Corequisites: HMGT 155 and HMGB 252 and HMGB 233
Total Semester Credit Hours....................................................15

Spring Semester Only

HMGB 255 Pastry Shop Production II*.........................................4
Prerequisites: HMGT 155 and HMGT 160 and HMGB 233 and HMGB 252
Corequisites: HMGT 260 and HMGB 257 and HMGB 252
HMGB 260 Pastry Shop Principles II*.........................................4
Prerequisites: HMGT 155 and HMGT 160 and HMGB 233 and HMGB 252
Corequisites: HMGT 255 and HMGB 257 and HMGB 262
HMGB 257 Sugar Basics*...........................................................4
Corequisites: HMGT 255 and HMGB 257 and HMGB 262
HMGB 262 Pastry Shop Business Basics II*.................................3
Prerequisites: HMGT 155 and HMGT 160 and HMGB 233 and HMGB 252
Corequisites: HMGT 255 and HMGB 260 and HMGB 257
ENTR 142 Fast Track Business Plan...........................................3
Total Semester Credit Hours.....................................................30

*Prerequisite/Corequisite required

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. This is an open enrollment program beginning only during the fall semester. Students must complete HMGT 120, Food Service Sanitation, and HMGT 123, Professional Cooking I, with a passing grade before enrolling in pastry/baking courses (HMGB). 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

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 2720; CIP Code 47.0303)

Electrical Technology Program

Associate of Applied Science Degree

Note: NFAB 120-NFAB Tools and Equipment or NFAB 127-Welding Processes are prerequisites/corequisites to NFAB 121. Students who may have the skills needed for NFAB 120 or NFAB 127 may contact the career program facilitator for a waiver or may contact the Testing Center for prior learning credit.
Fall-2009

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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.
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

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>IT 205</td>
<td>Implementing Windows Client</td>
<td>3</td>
</tr>
<tr>
<td>ELEC 126</td>
<td>Microcomputer Av Preparation</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 121</td>
<td>Composition I*</td>
<td>3</td>
</tr>
</tbody>
</table>

Prerequisite: ENGL 106 or appropriate placement test score or EAP 113 and EAP 117

Technical Electives: 3

Total Semester Credit Hours: 17

Second Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>IT 221</td>
<td>Windows Server*</td>
<td>3</td>
</tr>
<tr>
<td>IT 230</td>
<td>UNIX Fundamentals</td>
<td>3</td>
</tr>
<tr>
<td>IT 246</td>
<td>Introduction to Routers*</td>
<td>3</td>
</tr>
<tr>
<td>MATH 171</td>
<td>College Algebra or higher*</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 122</td>
<td>Composition II*</td>
<td>3</td>
</tr>
</tbody>
</table>

Prerequisites: IT 200 and ELEC 126 and IT 205

Technical Electives: 3

Total Semester Credit Hours: 15

Third Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>IT 225</td>
<td>Windows Active Directory Services*</td>
<td>3</td>
</tr>
<tr>
<td>IT 231</td>
<td>UNIX Administration*</td>
<td>3</td>
</tr>
<tr>
<td>IT 247</td>
<td>Introduction to Wide-Area Networks*</td>
<td>3</td>
</tr>
<tr>
<td>IT 251</td>
<td>Networking Seminar*</td>
<td>3</td>
</tr>
</tbody>
</table>

Prerequisites: IT 221 and IT 230

Technical Electives: 3

Total Semester Credit Hours: 15

Fourth Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>IT 245</td>
<td>Network Infrastructure*</td>
<td>3</td>
</tr>
<tr>
<td>IT 252</td>
<td>UNIX Security Fundamentals*</td>
<td>4</td>
</tr>
<tr>
<td>SPD 121</td>
<td>Public Speaking</td>
<td>3</td>
</tr>
<tr>
<td>SPD 125</td>
<td>Personal Communication</td>
<td>3</td>
</tr>
</tbody>
</table>

Technical Electives: 7

Total PROGRAM CREDIT HOURS: 64

Technical Electives

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPC 121</td>
<td>Introduction to Project Management*</td>
<td>1</td>
</tr>
<tr>
<td>CIS 134</td>
<td>Programming Fundamentals</td>
<td>4</td>
</tr>
<tr>
<td>ELEC 150</td>
<td>Introduction to Telecommunications</td>
<td>3</td>
</tr>
<tr>
<td>ELEC 185</td>
<td>LAN Cabling and Installation</td>
<td>3</td>
</tr>
<tr>
<td>ELEC 250</td>
<td>Microcomputer Maintenance*</td>
<td>3</td>
</tr>
<tr>
<td>ELEC 252</td>
<td>ELEC 126</td>
<td>3</td>
</tr>
<tr>
<td>IT 200</td>
<td>Network Technologies</td>
<td>3</td>
</tr>
<tr>
<td>IT 203</td>
<td>Voice over IP Fundamentals*</td>
<td>4</td>
</tr>
<tr>
<td>IT 227</td>
<td>SQL Server Administration*</td>
<td>3</td>
</tr>
</tbody>
</table>

Total PROGRAM CREDIT HOURS: 85

Networking Administration: UNIX Certificate

This certificate is a 19-credit-hour program that students can complete in 2-3 semesters. The certificate will provide students with competencies necessary to install, troubleshoot and administer Unix systems in a networked environment.

(Major Code 7000; CIP Code 11.0901)

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

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>IT 200</td>
<td>Networking Technologies</td>
<td>3</td>
</tr>
<tr>
<td>IT 230</td>
<td>UNIX Fundamentals</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Semester Credit Hours: 6

Second Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>IT 231</td>
<td>UNIX Administration*</td>
<td>3</td>
</tr>
</tbody>
</table>

Prerequisites: IT 230

Total Semester Credit Hours: 3

Third Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>IT 232</td>
<td>UNIX Networking and Security*</td>
<td>4</td>
</tr>
</tbody>
</table>

Prerequisites: IT 231 and IT 247

Total PROGRAM CREDIT HOURS: 19

Technical Electives

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
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</thead>
<tbody>
<tr>
<td>IT 205</td>
<td>Implementing Windows Client</td>
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<td>IT 221</td>
<td>Windows Server*</td>
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</tr>
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<td>IT 225</td>
<td>Windows Active Directory Services*</td>
<td>3</td>
</tr>
<tr>
<td>IT 227</td>
<td>UNIX Server Administration*</td>
<td>3</td>
</tr>
<tr>
<td>IT 245</td>
<td>Network Infrastructure*</td>
<td>3</td>
</tr>
<tr>
<td>IT 247</td>
<td>Introduction to Wide-Area Networks*</td>
<td>3</td>
</tr>
<tr>
<td>IT 251</td>
<td>UNIX Security Fundamentals*</td>
<td>4</td>
</tr>
<tr>
<td>IT 254</td>
<td>Advanced Switching*</td>
<td>3</td>
</tr>
</tbody>
</table>

Prerequisites: IT 225 and IT 247

Total PROGRAM CREDIT HOURS: 64

Technical Electives

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>IT 203</td>
<td>Voice over IP Fundamentals*</td>
<td>4</td>
</tr>
<tr>
<td>IT 227</td>
<td>SQL Server Administration*</td>
<td>3</td>
</tr>
</tbody>
</table>

Prerequisite: IT 200

Total PROGRAM CREDIT HOURS: 85

Demand for trained professionals continues to increase as information technology professionals are needed to design, implement, and administer networks.
Networking Administration: Windows Certificate

The networking administration: windows vocational certificate is a 28-credit-hour program that students can complete in four semesters. The program is designed to give students the hands-on skills needed to install, troubleshoot and administer a local area network with Windows operating system. Course work parallels the requirements for the Microsoft Certified Systems Associate (MCSA) certification exams.

(Major Code 5230; CIP Code 11.0901)

Information 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
IT 200 Networking Technologies..................3
ELEC 126 Microcomputer A+ Preparation...........4
Total Semester Credit Hours.......................7

Second Semester
IT 205 Implementing Windows Client..............3
Technical Elective................................3
Total Semester Credit Hours.......................6

Third Semester
IT 221 Windows Server*............................3
Prerequisite: IT 221
Technical Elective.................................3
Total Semester Credit Hours.......................6

Fourth Semester
IT 225 Windows Active Directory Services*......3
Prerequisite: IT 225
IT 245 Network Infrastructure*..................3
Prerequisite: IT 221
Technical Elective.................................3
Total Semester Credit Hours.......................9
TOTAL PROGRAM CREDIT HOURS....................28

Technical Electives
IT 227 SQL Server Administration*...............3
Prerequisite: IT 221
IT 228 Exchange Server*..........................3
Prerequisite: IT 225
IT 230 UNIX Fundamentals........................3
IT 231 UNIX Administration*....................3
Prerequisite: IT 230
IT 232 UNIX Networking and Security*...........4
Prerequisite: IT 221
IT 246 Introduction to Routers*..................3
Prerequisite: IT 200
IT 247 Introduction to Wide-Area Networks*......3
Prerequisite: IT 246
IT 249 Advanced Routing*........................3
Prerequisite: IT 247
IT 250 Networking Seminar*......................3
Prerequisite: IT 225 and IT 247
IT 251 Network Security Fundamentals*..........4
Prerequisite: IT 247
IT 252 Firewall Security*........................4

Network Connectivity Certificate

The network connectivity vocational certificate is a 13-credit-hour program that students can complete in three semesters. The certificate addresses the crucial area of Internet connection devices and provides necessary skills for students to be successful in the field. This certificate is supported and promoted by Cisco through its Networking Academy initiative.

(Major Code 7010; CIP Code 11.0901)

Information 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
IT 200 Networking Technologies..................3
ELEC 126 Microcomputer A+ Preparation...........4
Total Semester Credit Hours.......................7

Second Semester
IT 246 Introduction to Routers*..................3
Prerequisite: IT 200
Total Semester Credit Hours.......................3

Third Semester
IT 247 Introduction to Wide-Area Networks*......3
Prerequisite: IT 246
Total Semester Credit Hours.......................3
TOTAL PROGRAM CREDIT HOURS....................13

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

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

CIM 130 Interactive Media Concepts
Prerequisite: CIM 135
CIM 140 Interactive Media Assets
Prerequisites: COTP 135 and COTP 145 and CWB 105 and CWB 113
Prerequisite or corequisite: CIM 130
CIM 133 Screen Design
Electives
Total Semester Credit Hours

Second Semester
ENGL 140 Writing for Interactive Media
Prerequisite: ENGL 121
CIM 154 Interactive Authoring I: Director
Prerequisite: CIM 130 and
Prerequisite or corequisite: CIM 140 or
CIM 156 Interactive Authoring I: Web
Prerequisite: CIM 130
CIM 200 Interactive Communication Form
Prerequisite or corequisite: CIM 130
Humanities Elective
Interactive Media Elective
Total Semester Credit Hours

Third Semester
CIM 230 Interactive Media Development
Prerequisite: CIM 154 or CIM 156 and Corequisite: CIM 250
CIM 250 Interface Design
Prerequisite: CIM 154 or CIM 156
Corequisite: CIM 230
Social Science and/or Economic Elective
Interactive Media Elective
Electives
Total Semester Credit Hours

Fourth Semester
CIM 270 Interactive Media Project
Prerequisites or corequisites: CIM 200 and CIM 230 and CIM 250
CIM 273 Career Preparation
Prerequisites: CIM 230 and CIM 250 and
Prerequisite or corequisite: CIM 270
Science and/or Mathematics
Health and/or Physical Education
Electives
Total Semester Credit Hours

Interactive Media Elective List
ANJI 123 Concept Art for Animation
Prerequisite or corequisite: ANJI 123
ANJI 145 Introduction to 3D Animation
Prerequisite or corequisite: ANJI 123
BOSC 141 Principles of Management
Prerequisite or corequisite: COTP 135
Recommended: PHOT 121
CIM 154 Interactive Authoring I: Director
Prerequisite: CIM 130 and
Prerequisite or corequisite: CIM 140 or
CIM 156 Interactive Authoring I: Web

Multimedia Design Certificate

The multimedia design certificate provides instruction in the design and development process needed to deliver information and media, primarily via CD-ROM and DVD. This includes acquiring and managing assets (text, graphics, sound and video), the history and theory of communication forms, screen design, multimedia authoring, interface design and project management.

Students who complete the multimedia design certificate should be prepared for employment in a variety of positions within the interactive media field. Potential positions in multimedia design include writer/editor/researcher, graphics professional, photography/imaging/video professional, music/audio professional, programmer, information designer, interface designer and/or project manager. For more information and to see samples of student work, go to web.jccc.net/academic/cim

(Major Code 4480; CIP Code 11.0801)

Interactive Media

Career Certificate

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

COTP 135 Desktop Photo Manipulation I: Photoshop
COTP 145 Desktop Illustration I: Illustrator
CWEB 105 Introduction to Web Pages: Dreamweaver
Prerequisite: CWB 101

Required Courses
CIM 130 Interactive Media Concepts
Prerequisite: CIM 135
CIM 140 Interactive Media Assets
Prerequisites: COTP 135 and COTP 145 and CWB 105 and CWB 113
CIM 133 Screen Design
Electives
Interactive Media Elective
Total Semester Credit Hours

Prerequisite/Corequisite required
Multimedia Design Entrepreneurship Certificate

This certificate is designed to prepare students to open their own business providing multimedia design services. This certificate is designed to provide the student with instruction in the design and development process needed to deliver information and media primarily via CD-ROM and DVD. 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. Additionally, the certificate provides the student instruction in small business development and management.

(Major Code 4070; CIP Code 11.0801)

Interactive Media

Prerequisites for Required Courses

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

Required Courses

CIM 133 Screen Design*.............................................4
Prerequisite: CIM 135
CIM 154 Interactive Authoring I: Director*.......................4
Prerequisite: CIM 130 and
Prerequisite or corequisite: CIM 140
ENTR 120 Introduction to Entrepreneurship........................2
ENTR 180 Opportunity Analysis...................................................2
CIM 200 Interactive Communication Form*..............................2
Prerequisite or corequisite: CIM 130
CIM 230 Interactive Media Development*.............................4
Prerequisite or corequisite: CIM 130
CIM 250 Interface Design*.........................................................2
Prerequisite or corequisites: CIM 154 or CIM 156
CIM 260 Interactive Media Concepts.................................2
Prerequisite or corequisites: CIM 200 and CIM 156 and
CIM 250
ENTR 142 Fast Trac Business Plan.............................................3
*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
CIM 135 Digital Imaging and Video*...........................................3
Prerequisite: CTP 135
Recommended: PHOT 121
CIM 156 Interactive Authoring I: Web*.................................4
Prerequisite: CIM 130
Prerequisite or corequisite: CIM 140
CIM 235 Advanced Digital Video*.............................................3
Prerequisite: CIM 135
CIM 254 Interactive Authoring II: Director*.........................4
Prerequisite: CPM 154
CIS 162 Database Programming*.............................................4

Web Design Certificate

The Web design certificate provides instruction in the design and development process needed to deliver information and media primarily via the World Wide Web. This instruction includes acquiring and managing assets (text, graphics, sound and video), the history and theory of communication forms, screen design, multimedia authoring, interface design and project management.

Students who complete the Web design certificate should be prepared for employment in a variety of positions within the interactive media field. Potential positions in Web design include writer/editor/researcher, graphics professional, photography/image/video professional, music/audio professional, programmer, information designer, interface designer and/or project manager. For more information and to see samples of student work, go to web.jccc.net/academic/cim

(Major Code 4490; CIP Code 11.0801)

Interactive Media

Prerequisites for Required Courses

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

Required Courses

CIM 133 Screen Design*.............................................4
Prerequisite: CTP 135 and CTP 145 and CWBR 105
Prerequisite or corequisite: CIM 130
CIM 140 Interactive Media Assets*.................................4
Prerequisites: CTP 135 and CTP 145 and CWBR 105
CIM 156 Interactive Authoring I: Web*.................................4
Prerequisite: CTP 135
Prerequisite or corequisite: CIM 130
CIM 156 Interactive Authoring I: Web*.................................4
Prerequisite: CTP 135
Prerequisite or corequisite: CIM 130
CIM 156 Interactive Authoring I: Web*.................................4
Prerequisite: CTP 135 or CTP 145
Prerequisite or corequisite: CIM 130
CIM 156 Interactive Authoring I: Web*.................................4
Prerequisite: CTP 135 or CTP 145
Prerequisite or corequisite: CIM 130
CIM 270 Interactive Media Project*...........................................4
Prerequisites or corequisites: CIM 200 and CIM 230
*Prerequisite/Corequisite required

*Prerequisite/Corequisite required

Web Design Entrepreneurship Certificate

This certificate is designed to prepare students to open their own business providing Web design services. It provides 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. Additionally, the certificate provides the student instruction in small business development and management.

(Major Code 4200; CIP Code 11.0801)

Interactive Media

Career Certificate

Prerequisites for Required Courses

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

COTP 135 Desktop Photo Manipulation I: Photoshop.................1
COTP 145 Desktop Illustration I: Illustrator.........................1
CWEB 105 Introduction to Web Pages: Dreamweaver*..............1
Prerequisite: CWEB 101
CWEB 120 Introduction to Flash*.................................1
Prerequisite: CPCE 161 or CWEB 105 or CWEB 106
CIM 130 Interactive Media Concepts.................................2
CIM 140 Interactive Media Assets...................................2
Prerequisites: COTP 135 and COTP 145 and CWEB 105 and CWEB 130
Prerequisite or corequisite: CIM 130

Required Courses

CIM 133 Screen Design*...........................................4
Prerequisites: COTP 135
CIM 156 Interactive Authoring I: Web*............................4
Prerequisite: CIM 130
Prerequisite or corequisite: CIM 140
ENTR 120 Introduction to Entrepreneurship........................2
ENTR 180 Opportunity Analysis*.................................2
CIM 200 Interactive Communication Form*........................3
Prerequisite or corequisite: CIM 130
CIM 230 Interactive Media Development*..........................4
Prerequisite: CIM 184 or CIM 156 and Corequisite: CIM 250
CIM 250 Interface Design*........................................4
Prerequisite: CIM 154 or CIM 156 and Corequisite: CIM 230
CIM 270 Interactive Media Project*...............................4
Prerequisites or corequisites: CIM 200 and CIM 230 and CIM 250
ENTR 142 Fast Track Business Plan................................3
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 220 Entrepreneurial Marketing*.............................2
Prerequisite: BUS 250
ENTR 131 Financial Management for Small Business*............2
Prerequisite: ACCT 111 or ACCT 121
ENTR 195 Franchising*...........................................3
Prerequisite: BUS 250
CIM 135 Digital Imaging and Video*..............................3
Prerequisites: COTP 135
Recommended: PHOT 121
CIM 154 Interactive Authoring I: Director*.......................4
Prerequisite: CIM 130 and Prerequisite or corequisite: CIM 140
CIM 235 Advanced Digital Video*................................3
Prerequisite: CIM 135
CIM 254 Interactive Authoring II: Director*......................4
Prerequisite: CIM 154
CIS 162 Database Programming*................................4
Prerequisites: CIT 151 or the equivalent
MUS 156 MIDI Music Composition................................3

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.

(Major Code 2750; CIP Code 50.0408)

Interior Design

Associate of Applied Science Degree

First Semester

ITMD 121 Interior Design/Tech Prep....................................3
MATH 120 with a grade of “C” or higher
ITMD 122 Interior Design...........................................3
Prerequisite: ITMD 121 with a grade of C or higher
MATH 120
ITMD 123 Architectural Drafting/Residential Interior Design...3
Prerequisite: ITMD 121 with a grade of “C” or higher and ITRM 132
ITMD 129 Design Presentation*..................................3
Prerequisites: ITMD 121 with a grade of “C” or higher and ITRM 132
ITMD 126 Business Math or higher*..............................3
Prerequisite: MATH 111 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................................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 or DRAF 261 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 or DRAF 261 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 Economic I.................................3
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

ITMD 221 Residential Design*..................................3
Prerequisites: DRAF 264 with a grade of “C” or higher and ITMD 123 with a grade of “C” or higher and ITMD 129 with a grade of “C” or higher or ITMD 122

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Program Information.

Students may be interested in taking additional courses, as noted below, to supplement their AAS degree study. These courses are not part of the degree requirements.

First Semester

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 Interior Design..........................................................1
ITMD 250 20th Century Designers................................................1
ITMD 295 Field Study: Design and Merchandising*........................3
Prerequisite: ITMD 121 and department approval
ITMD 296 Interior Design: the Orient............................................3
*Prerequisite/Corequisite required

Total Semester Credit Hours..................................................16
TOTAL PROGRAM CREDIT HOURS..............................................68

*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

ITMD 225 Interior Textiles II.......................................................3
Prerequisite: ITMD 123 with a grade of “C” or higher
DRAF 230 Intermediate CAD: AutoCAD*.....................................3
Prerequisite: ITMD 130 or department approval

Second Semester

Art Elective.................................................................3
ITMD 219 Issues in Interior Design*...........................................3
Prerequisite: ITMD 221 with a grade of “C” or higher
Interior Design Elective......................................................3
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
ITMD 273 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: ART 124
ART 127 Design 3D*..........................................................3
Prerequisite: ART 124

Interior Design electives

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*..............................................3
Prerequisite: ITMD 127
ITMD 250 20th Century Designers................................................1
ITMD 295 Field Study: Design and Merchandising*........................3
Prerequisites: ITMD 121 and ITMD 123 with a grade of “C” or higher
ITMD 296 Interior Design: the Orient............................................3

*Prerequisite/Corequisite required

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.

(Major Code 6510; CIP Code 50.0408)

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/tech Prep............................................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

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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
DRAP 164 Architectural Drafting.Residential Interior Design...3

Required Courses

ITMD 282 Interiors Internship I*.................................1
Prerequisite: ITMD 121 with a grade of "C" or higher
Total Semester Credit Hours.........................17

Second Semester

MKT 121 Retail Management.................................1
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 281 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 Elective...............................................3
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
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
or FASH 125
ITMD 213 Lighting Design and Planning*............................3
Prerequisite: ITMD 121 with a grade of "C" or higher
or FASH 125
ITMD 225 Interior Textiles II*...............................3
Prerequisite: ITMD 121 with a grade of "C" or higher
ITMD 231 Furniture and Ornamentation Renaissance to 20th Cent..3
ITMD 273 Interiors Seminar: Practices and Procedures*...........2
Prerequisite: ITMD 123 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

Choose 3 of the 5 one-credit hour courses

ITMD 127 Elements of Floral Design.................................1
ITMD 176 Advanced Floral Design..........................1
Prerequisite: ITMD 127
ITMD 140 Window Treatments*.................................1
Prerequisite: 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.

EMTR 185 Franchising*............................................3
Prerequisite: BUS 230
EMTR 226 Entrepreneurial Marketing*..........................2
Prerequisite: BUS 230
EMTR 131 Financial Management for Small Business*.............2
Prerequisite: ACCT 111 or ACCT 121

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Interior Design & Merchandising Enterprise 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.

(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
DRAP 164 Architectural Drafting.Residential Interior Design...3

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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 courses 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.

(Major Code 2770; CIP Code 50.0408)
Associate of Applied Science Degree

First Semester

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<th>Course Title</th>
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<tr>
<td>ITMD 121</td>
<td>Interior Design/Tech Prep</td>
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<tr>
<td>ITMD 133</td>
<td>Furniture &amp; Ornamentation/Antiquity to Renaissance</td>
<td>3</td>
</tr>
<tr>
<td>DRAF 164</td>
<td>Architectural Drafting/Residential Interior Design</td>
<td>3</td>
</tr>
<tr>
<td>MATH 120</td>
<td>Business Math or higher*</td>
<td>3</td>
</tr>
<tr>
<td>ITMD 125</td>
<td>Interior Textiles</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 121</td>
<td>Composition I*</td>
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<td>BUS 150</td>
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Second Semester

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<tbody>
<tr>
<td>ITMD 123</td>
<td>Space Planning*</td>
<td>3</td>
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<td>DRAF 164</td>
<td>Architectural Drafting/Residential Interior Design</td>
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<tr>
<td>BUS 150</td>
<td>Business Elective</td>
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<tr>
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Third Semester

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<tr>
<td>ITMD 271</td>
<td>Budgeting and Estimating*</td>
<td>3</td>
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<tr>
<td>ITMD 282</td>
<td>Interns Internship I*</td>
<td>1</td>
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<tr>
<td>ARTH 180</td>
<td>Art History: Ancient to Renaissance</td>
<td>3</td>
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<tr>
<td>ECON 132</td>
<td>Survey of Economics</td>
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<td>ECON 230</td>
<td>Economics I*</td>
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<tr>
<td>BUS 150</td>
<td>Business Elective</td>
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Fourth Semester

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<th>Course Title</th>
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<tbody>
<tr>
<td>ITMD 273</td>
<td>Interiors Seminar: Practices and Procedures*</td>
<td>2</td>
</tr>
<tr>
<td>ITMD 284</td>
<td>Interiors Internship I*</td>
<td>1</td>
</tr>
<tr>
<td>ITMD 237</td>
<td>Capstone: Merchandising and Entrepreneurship*</td>
<td>2</td>
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<tr>
<td>BUS 150</td>
<td>Business Elective</td>
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Interiors Electives

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<th>Course Title</th>
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<tr>
<td>ITMD 127</td>
<td>Elements of Floral Design*</td>
<td>1</td>
</tr>
<tr>
<td>ITMD 140</td>
<td>Window Treatments*</td>
<td>1</td>
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<tr>
<td>ITMD 143</td>
<td>Accessory Fundamentals*</td>
<td>1</td>
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<tr>
<td>ITMD 145</td>
<td>Upholstered Furniture*</td>
<td>1</td>
</tr>
<tr>
<td>ITMD 147</td>
<td>Lighting Basics*</td>
<td>1</td>
</tr>
<tr>
<td>ITMD 148</td>
<td>History of Asian Furniture and Design*</td>
<td>2</td>
</tr>
<tr>
<td>ITMD 149</td>
<td>Casegoods*</td>
<td>1</td>
</tr>
<tr>
<td>ITMD 150</td>
<td>Asian Rugs and Carpets*</td>
<td>1</td>
</tr>
<tr>
<td>ITMD 175</td>
<td>Advanced Floral Design*</td>
<td>1</td>
</tr>
<tr>
<td>ITMD 213</td>
<td>Lighting Design and Planning*</td>
<td>3</td>
</tr>
<tr>
<td>ITMD 225</td>
<td>Interior Textiles II*</td>
<td>3</td>
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<tr>
<td>Total Semester Credit Hours</td>
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Business/Marketing/Entrepreneurship Electives

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<th>Course Title</th>
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<tbody>
<tr>
<td>ACCT 111</td>
<td>Small Business Accounting*</td>
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<tr>
<td>BUS 230</td>
<td>Marketing*</td>
<td>3</td>
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<tr>
<td>MATH 120</td>
<td>Business Math or higher*</td>
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<tr>
<td>ENTR 120</td>
<td>Introduction to Entrepreneurship</td>
<td>2</td>
</tr>
<tr>
<td>ENTR 131</td>
<td>Financial Management for Small Business*</td>
<td>2</td>
</tr>
<tr>
<td>ENTR 160</td>
<td>Legal Issues for Small Business*</td>
<td>3</td>
</tr>
<tr>
<td>ENTR 180</td>
<td>Opportunity Analysis*</td>
<td>2</td>
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Fourth Semester

<table>
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<tr>
<th>Course Code</th>
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<td>ENTR 180</td>
<td>Opportunity Analysis*</td>
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</tbody>
</table>

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.

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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.

(Major Code 2760; CIP Code 50.0408)

Interior Design
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)
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 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 Prerequisite Credit Hours......................9

General Education Requirements

- ANTH 125 Cultural Anthropology*.................................3
  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
  Note: SPD 120 is required to meet the Communication Elective and must be taken before the second semester of the ITP.

- ENGL 122 Composition II*.........................................3
- Prerequisite: ENGL 121

- Science and/or Math Elective*.................................3
- Humanities Elective................................................3

Total General Education Credit Hours..............19

Note: It is highly recommended that all general education requirements be taken before enrollment in the program or during the summer. However, AACC 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 Introduction to the Deaf Community*..................3
  Prerequisite: ENGL 121
  Corequisites: INTR 121 or ASL 121 with a grade of "C" or higher and acceptance in the interpreter training program

Total First 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 130 Interpreting Practicum I*...............................6
- Prerequisite: 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

Total Second Semester Credit Hours......................12

Third Semester

- INTR 250 Interpreting Practicum II*..............................6
  Prerequisite: INTR 250 with a grade of "C" or higher and Corequisites: INTR 282 and INTR 248 and AACC 150 all with a grade of "C" or higher

Total Third Semester Credit Hours......................12

Fourth Semester

- INTR 251 Interpreting Practicum III*............................6
  Prerequisite: INTR 251 with a grade of "C" or higher and Corequisites: INTR 248 and AACC 150 all with a grade of "C" or higher

Total Fourth Semester Credit Hours......................12

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

ASL 120 Elementary American Sign Language I.................................3
Prerequisites or Corequisite: ENTR 120 or ASL 120 or FL 180 with a grade of "C" or higher
Health/Physical Education Elective.....................1
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

ASL 121 Elementary American Sign Language II...............................3
Prerequisite: INTR 120 or ASL 120 or FL 180 with a grade of "C" or higher
Social Science or Economics Elective.........................3
ENGL 122 Composition II...........................................3
Prerequisite: ENGL 121
Total Semester Credit Hours..........................9

Third Semester

ASL 122 Intermediate American Sign Language I..............................3
Prerequisites: INTR 121 or ASL 121 or FL 181
English Elective*................................................3
ASL 147 Fingerspelling I..............................................2
Prerequisites: INTR 121 or ASL 121 or FL 181
with a grade of "C" or higher
ASL Elective*..................................................1
Total Semester Credit Hours............................8

Fourth Semester

ASL 123 Intermediate American Sign Language II.............................3
Prerequisites: INTR 122 or ASL 122 or FL 270
with a grade of "C" or higher
ASL 135 Intro to American Sign Language Linguistics.....................3
Prerequisites: INTR 122 or ASL 122 or FL 270
with 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
MATH 116 Intermediate Algebra*.................................3
Prerequisite: MATH 115 with a grade of "C" or higher
MATH 117 Plane Geometry*...........................................3
Prerequisite: MATH 115 with a grade of "C" or higher
MATH 120 Business Mathematics*.................................3
Prerequisite: MATH 111 with a grade of "C" or higher
MATH 122 Mathematics in Our Culture*.............................3
Prerequisite: MATH 111 with a grade of "C" or higher
MATH 133 Technical Mathematics I*.............................4
Prerequisite: MATH 111 with a grade of "C" or higher
MATH 134 Technical Mathematics II*.............................5
Prerequisite: MATH 133 or an equivalent course with a grade of "C" or higher
MATH 150 Finite Mathematics*.......................................3
Prerequisite: MATH 116 with a grade of "C" or higher
MATH 172 Trigonometry*............................................3
Prerequisite: MATH 171 with a grade of "C" or higher
MATH 173 Precalculus*...............................................5
Prerequisite: MATH 116 with a grade of "C" or higher
MATH 175 Discrete Mathematics and its Applications*..............3
Prerequisite: MATH 171 or MATH 173
with a grade of "C" or higher
MATH 181 Introduction to Probability and Statistics..........................3
Prerequisite: MATH 172 or MATH 173
MATH 225 Calculus and Baseball....................................3
Prerequisite: MATH 171 or MATH 173
MATH 231 Business and Applied Calculus I*..........................3
Prerequisite: MATH 171 or MATH 173
MATH 232 Business and Applied Calculus II*.........................3
Prerequisites: MATH 231 and either MATH 172 or MATH 173
MATH 241 Calculus I*..................................................5
Prerequisite: MATH 172 or MATH 173
MATH 242 Calculus II*..................................................5
Prerequisite: MATH 237 or MATH 241
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 244 Differential Equations*....................................3
Prerequisite: MATH 243
or an equivalent course with a grade of "C" or higher

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 HC 180, the medical interpreting practicum.

The HCI program is organized as part of the JCCC interpreter training program, although it has its own unique core 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.

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 4390; CIP Code 16.1603)

Interpreter Training
Career Certificate

Health Care Interpreting 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; 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.

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.

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
Prerequisites or corequisites: HCI 110 with a grade of "C" or higher

Total Semester Credit Hours..............................6

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
Prerequisites: 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 with a grade of "C" or higher

AAC 130 Medical Terminology..................................3

Total Semester Credit Hours.........................14

TOTAL PROGRAM CREDIT HOURS.........................20*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

TOTAL PROGRAM CREDIT HOURS.........................27

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 133 and EAP 117

ENGL 122 Composition II*.....................................3
Prerequisite: ENGL 121

ENGL 123 Technical Writing*...................................3
Prerequisite: ENGL 121

SPD 121 Public Speaking........................................3

MATH 171 College Algebra*..................................3

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Prerequisites: MATH 116 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
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

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
Total JCCC Credit Hours........................................33-35

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 MCC Credit Hours.......................................30
Total PROGRAM CREDIT HOURS........................................63-65
*Prerequisite/Corequisite required

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.

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.

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

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Associate of Arts Degree

Students graduating with an Associate of Arts degree or an Associate of Science degree must complete an approved cultural diversity course. Some of these courses are able to meet both a diversity requirement and a general education requirement.

The following courses must be completed with a minimum GPA of 2.0 prior to application for admission to the paralegal program. Upon successful completion of the requirements for the associate of arts degree, you will be eligible to receive an A.A. degree and a paralegal 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

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 121</td>
<td>Composition I*</td>
<td>3</td>
</tr>
<tr>
<td>LAW 121</td>
<td>Introduction to Law</td>
<td>3</td>
</tr>
<tr>
<td>LAW 123</td>
<td>Paralegal Professional Studies</td>
<td>3</td>
</tr>
<tr>
<td>LISR 125</td>
<td>Introduction to Library Research</td>
<td>1</td>
</tr>
<tr>
<td>SPO 120</td>
<td>Intercultural Communication</td>
<td>3</td>
</tr>
<tr>
<td>BOT 105</td>
<td>Keyboarding and Formatting I</td>
<td>3</td>
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</table>

Second Semester

Following admission to the paralegal program:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 122</td>
<td>Composition II*</td>
<td>3</td>
</tr>
<tr>
<td>BOT 106</td>
<td>Intro to Business Computer Applications*</td>
<td>3</td>
</tr>
<tr>
<td>LAW 132</td>
<td>Civil Litigation*</td>
<td>3</td>
</tr>
<tr>
<td>LAW 266</td>
<td>Legal Research and Writing I*</td>
<td>3</td>
</tr>
<tr>
<td>LAW 267</td>
<td>Legal Research and Writing II*</td>
<td>3</td>
</tr>
</tbody>
</table>

Third Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paralegal Electives</td>
<td></td>
<td>6</td>
</tr>
<tr>
<td>Health and/or Physical Education Elective</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Humanities Elective</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Science and Mathematics Elective</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>LAW 131</td>
<td>Legal Research and Writing I*</td>
<td>3</td>
</tr>
</tbody>
</table>

Fourth Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>LAW 271</td>
<td>Legal Ethics, Interviewing and Investigation*</td>
<td>3</td>
</tr>
<tr>
<td>LAW 205</td>
<td>Legal Research and Writing II*</td>
<td>3</td>
</tr>
<tr>
<td>LAW 223</td>
<td>Law Office Computing*</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paralegal Electives</td>
<td></td>
<td>18</td>
</tr>
</tbody>
</table>

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 completed 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.

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

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>LAW 225</td>
<td>Legal Nurse Consultant Profession*</td>
<td>1</td>
</tr>
<tr>
<td>Prerequisite: Admission to the legal nurse consultant program or assistant dean's approval</td>
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<td></td>
</tr>
<tr>
<td>LAW 129</td>
<td>Introduction to Law*</td>
<td>3</td>
</tr>
<tr>
<td>LIRB 125</td>
<td>Introduction to Library Research*</td>
<td>1</td>
</tr>
</tbody>
</table>

**LAW Electives**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>LAW 140</td>
<td>Alternative Dispute Resolution*</td>
<td>3</td>
</tr>
<tr>
<td>Prerequisite: Legal nurse consultant students and paralegal program students – LAW 132 and selective admission approval</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LAW 142</td>
<td>Zorts*</td>
<td>3</td>
</tr>
<tr>
<td>Prerequisite: Legal nurse consultant students and paralegal program students – LAW 132 and selective admission approval</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LAW 148</td>
<td>Criminal Litigation*</td>
<td>3</td>
</tr>
</tbody>
</table>

**Second Semester**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>LAW 270</td>
<td>Administrative Law*</td>
<td>3</td>
</tr>
<tr>
<td>Prerequisite: Admission to the legal nurse consultant program and LAW 225 and LAW 121 or admission to the paralegal program</td>
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</tr>
<tr>
<td>LAW 271</td>
<td>Legal Ethics, Interviewing and Investigating*</td>
<td>3</td>
</tr>
</tbody>
</table>
| Prerequisite: Paralegal program students – LAW 132 or LAW 260 Corequisite: Paralegal program students – LAW 205, Legal nurse consultant students: LAW 205 or LAW 250 LAW Electives

**TOTAL PROGRAM CREDIT HOURS..........................23**

*Prerequisite/Corequisite required

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### 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 and 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.

**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

#### First Semester

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>LAW 121</td>
<td>Introduction to Law*</td>
<td>3</td>
</tr>
<tr>
<td>LIRB 125</td>
<td>Introduction to Library Research*</td>
<td>3</td>
</tr>
<tr>
<td>LAW 225</td>
<td>Legal Nurse Consultant Profession*</td>
<td>3</td>
</tr>
<tr>
<td>Prerequisite: Admission to the legal nurse consultant program and LIBR 125</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LAW 226</td>
<td>Employment Law*</td>
<td>3</td>
</tr>
<tr>
<td>Prerequisite: Paralegal program students – admission to the paralegal program or department approval. Legal nurse consultant students – LAW 121 and LAW 225 TOTAL PROGRAM CREDIT HOURS..........................23</td>
<td></td>
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**LAW Electives**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>LAW 250</td>
<td>Medicolegal Research and Writing*</td>
<td>3</td>
</tr>
<tr>
<td>Prerequisite: Admission to the legal nurse consultant program and LIBR 125</td>
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<td></td>
</tr>
<tr>
<td>LAW 132</td>
<td>Civil Litigation*</td>
<td>3</td>
</tr>
<tr>
<td>Prerequisite: Admission to the paralegal program or department approval. Legal nurse consultant students – LAW 225 and LAW 121</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LAW 152</td>
<td>Real Estate Law*</td>
<td>3</td>
</tr>
<tr>
<td>Prerequisite: Paralegal program students – Admission to the paralegal program or department approval. Legal nurse consultant students – LAW 225 and LAW 121</td>
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<td></td>
</tr>
<tr>
<td>LAW 162</td>
<td>Family Law*</td>
<td>3</td>
</tr>
<tr>
<td>Prerequisite: Paralegal program students – admissioin to the paralegal program or department approval. Legal nurse consultant students – LAW 225 and LAW 121</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LAW 171</td>
<td>Law Office Management*</td>
<td>3</td>
</tr>
<tr>
<td>Prerequisite: Paralegal program students – admission to the paralegal program or department approval. Legal nurse consultant students – LAW 225 and LAW 121</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LAW 212</td>
<td>Business Organizations*</td>
<td>3</td>
</tr>
<tr>
<td>Prerequisite: Paralegal program students – admission to the paralegal program or department approval. Legal nurse consultant students – LAW 225 and LAW 121</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LAW 223</td>
<td>Law Office Computing*</td>
<td>3</td>
</tr>
<tr>
<td>Prerequisite: Paralegal program students – admission to the paralegal program or department approval. Legal nurse consultant students – LAW 225 and LAW 121</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LAW 226</td>
<td>Immigration Law*</td>
<td>3</td>
</tr>
<tr>
<td>Prerequisite: Paralegal program students: admission to the paralegal program or department approval. Legal nurse consultant students: LAW 225 and LAW 121</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LAW 241</td>
<td>Mills, Trusts and Probate Administration*</td>
<td>3</td>
</tr>
<tr>
<td>Prerequisite: Paralegal program students: admission to the paralegal program or department approval. Legal nurse consultant students: LAW 225 and LAW 121</td>
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</tr>
<tr>
<td>LAW 245</td>
<td>Elder Law*</td>
<td>3</td>
</tr>
<tr>
<td>Prerequisite: Paralegal program students: admission to the paralegal program or department approval. Legal nurse consultant students: LAW 225 and LAW 121</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LAW 247</td>
<td>Intellectual Property Law*</td>
<td>3</td>
</tr>
<tr>
<td>Prerequisite: Paralegal program students: admission to the paralegal program or department approval. Legal nurse consultant students: LAW 225 and LAW 121</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**TOTAL PROGRAM CREDIT HOURS..........................30**

*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.

Fall-2009

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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.

LEGAL NURSE CONSULTANTS 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

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>LAW 121</td>
<td>Introduction to Law</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>LAW 123</td>
<td>Paralegal Professional Studies</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>LISR 125</td>
<td>Introduction to Library Research</td>
<td>1</td>
<td></td>
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<tr>
<td>BOT 105</td>
<td>Keyboarding and Formatting</td>
<td>1</td>
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Second Semester

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<th>Credit Hours</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>BOT 106</td>
<td>Intro to Business Computer Applications*</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>LAW 132</td>
<td>Civil Litigation*</td>
<td>3</td>
<td></td>
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<tr>
<td></td>
<td>Prerequisites: Admission to the paralegal program and department approval. Legal nurse consultant students - LAW 225 and LAW 121</td>
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<td>LAW 121</td>
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Third Semester

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<th>Course Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>LAW 131</td>
<td>Legal Research and Writing I*</td>
<td>3</td>
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<tr>
<td>LAW 223</td>
<td>Law Office Computing*</td>
<td>3</td>
<td></td>
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<tr>
<td></td>
<td>Prerequisites: Admission to the paralegal program and department approval. Legal nurse consultant students - LAW 205 or LAW 250</td>
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<tr>
<td>LAW 241</td>
<td>Paralegal Electives</td>
<td>4</td>
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<td>Total Semester Credit Hours</td>
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Fourth Semester

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
<th>Notes</th>
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<tbody>
<tr>
<td>LAW 205</td>
<td>Legal Research and Writing II*</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>LAW 271</td>
<td>Legal Ethics, Interviewing and Investigation*</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Prerequisites: Paralegal program students - LAW 132 or department approval</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LAW 223</td>
<td>Law Office Computing*</td>
<td>3</td>
<td></td>
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<tr>
<td></td>
<td>Prerequisites: Paralegal program students - admission to the paralegal program or department approval. Legal nurse consultant students - LAW 205 or LAW 250</td>
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<tr>
<td>LAW 226</td>
<td>Paralegal Electives</td>
<td>4</td>
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<tr>
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<td>Total Semester Credit Hours</td>
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Paralegal Electives

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>LAW 140</td>
<td>Alternative Dispute Resolution*</td>
<td>3</td>
<td></td>
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<tr>
<td>Prerequisites: Legal nurse consultant students and paralegal program students - LAW 132 and selective admission approval</td>
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<tr>
<td>LAW 142</td>
<td>Tort*</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Prerequisites: Legal nurse consultant students and paralegal program students - LAW 132 and selective admission approval</td>
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<td></td>
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</tr>
<tr>
<td>LAW 148</td>
<td>Civil Litigation*</td>
<td>3</td>
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<tr>
<td>Prerequisites: Legal nurse consultant students and paralegal program students - LAW 132 and selective admission approval</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>LAW 152</td>
<td>Real Estate Law*</td>
<td>3</td>
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<tr>
<td>Prerequisites: Paralegal program students - Admission to the paralegal program or department approval. Legal nurse consultant students - LAW 225 and LAW 121</td>
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<tr>
<td>LAW 162</td>
<td>Family Law*</td>
<td>3</td>
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<tr>
<td>Prerequisites: Paralegal program students - admission to paralegal program or department approval. Legal nurse consultant students - LAW 225 and LAW 121</td>
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<tr>
<td>LAW 171</td>
<td>Law Office Management*</td>
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</tr>
<tr>
<td>LAW 212</td>
<td>Business Organizations*</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Prerequisites: Paralegal program students - admission to the paralegal program or department approval. Legal nurse consultant students - LAW 225 and LAW 121</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>LAW 223</td>
<td>Law Office Computing*</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Prerequisites: Paralegal program students - admission to the paralegal program and completion of BOT 106</td>
<td></td>
<td></td>
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<tr>
<td>LAW 226</td>
<td>Immigration Law*</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Prerequisites: Paralegal program students - admission to the paralegal program or department approval. Legal nurse consultant students - LAW 225 and LAW 121</td>
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<td></td>
<td></td>
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<tr>
<td>LAW 241</td>
<td>Will, Trusts and Probate Administration*</td>
<td>3</td>
<td></td>
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<tr>
<td>Prerequisites: Paralegal program students - admission to the paralegal program or department approval. Legal nurse consultant students - LAW 225 and LAW 121</td>
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<tr>
<td>LAW 223</td>
<td>Paralegal Electives</td>
<td>4</td>
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Liberal Arts Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>ENTR 160</td>
<td>Legal Issues for Small Business</td>
<td>2</td>
<td></td>
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<tr>
<td>ENTR 195</td>
<td>Franchising</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>ENTR 220</td>
<td>Entrepreneurial Marketing</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>BUS 230</td>
<td>Marketing</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>LIBR 125</td>
<td>Introduction to Library Research</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>BOT 106</td>
<td>Intro to Business Computer Applications*</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Corequisite: Paralegal program students - LAW 131 or department approval</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LAW 205</td>
<td>Legal Research and Writing I*</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Prerequisites: Paralegal program students - LAW 132 or department approval</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LAW 271</td>
<td>Legal Ethics, Interviewing and Investigation*</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Prerequisites: Paralegal program students - LAW 132 or department approval</td>
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<td></td>
</tr>
<tr>
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<td>Law Office Computing*</td>
<td>3</td>
<td></td>
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<tr>
<td></td>
<td>Prerequisites: Paralegal program students - admission to the paralegal program or department approval. Legal nurse consultant students - LAW 205 or LAW 250</td>
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</tr>
<tr>
<td>LAW 226</td>
<td>Immigration Law*</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Prerequisites: Paralegal program students - admission to the paralegal program or department approval. Legal nurse consultant students - LAW 225 and LAW 121</td>
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<tr>
<td>LAW 241</td>
<td>Will, Trusts and Probate Administration*</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Prerequisites: Paralegal program students - admission to the paralegal program or department approval. Legal nurse consultant students - LAW 225 and LAW 121</td>
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<td></td>
</tr>
<tr>
<td>LAW 245</td>
<td>Elder Law*</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Prerequisites: Paralegal program students - admission to the paralegal program or department approval. Legal nurse consultant students - LAW 225 and LAW 121</td>
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</table>
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. With 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

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MKT 134 Professional Selling</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 121 Composition I</td>
<td>3</td>
</tr>
<tr>
<td>MATH 120 Business Math or higher*</td>
<td>3</td>
</tr>
<tr>
<td>BUS 121 Introduction to Business</td>
<td>3</td>
</tr>
<tr>
<td>BUS 230 Marketing</td>
<td>3</td>
</tr>
<tr>
<td>MKT 284 Marketing and Management Internship I*</td>
<td>1</td>
</tr>
<tr>
<td>Total Semester Credit Hours</td>
<td>16</td>
</tr>
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</table>

Second Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACCT 111 Small Business Accounting</td>
<td>3</td>
</tr>
<tr>
<td>ACCT 121 Accounting I</td>
<td>3</td>
</tr>
<tr>
<td>MKT 121 Retail Management</td>
<td>3</td>
</tr>
<tr>
<td>MKT 202 Consumer Behavior</td>
<td>3</td>
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<tr>
<td>Total Semester Credit Hours</td>
<td>16</td>
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Third Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>MKT 234 Services Marketing</td>
<td>3</td>
</tr>
<tr>
<td>MKT 240 Advertising and Promotion</td>
<td>3</td>
</tr>
<tr>
<td>BUS 261 Business Law</td>
<td>3</td>
</tr>
<tr>
<td>HIST 141 U.S. History Since 1877</td>
<td>3</td>
</tr>
<tr>
<td>PHIL 138 Business Ethics</td>
<td>1</td>
</tr>
<tr>
<td>MKT 289 Marketing and Management Internship IV*</td>
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<td>Total Semester Credit Hours</td>
<td>15</td>
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Fourth Semester

<table>
<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
<td>MRT 134 Professional Selling</td>
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</tr>
<tr>
<td>ACCT 111 Small Business Accounting</td>
<td>3</td>
</tr>
<tr>
<td>MKT 121 Retail Management</td>
<td>3</td>
</tr>
<tr>
<td>BUS 230 Marketing</td>
<td>3</td>
</tr>
<tr>
<td>HIST 141 U.S. History Since 1877</td>
<td>3</td>
</tr>
<tr>
<td>PHIL 138 Business Ethics</td>
<td>1</td>
</tr>
<tr>
<td>MKT 284 Marketing and Management Internship I*</td>
<td>1</td>
</tr>
<tr>
<td>Total Semester Credit Hours</td>
<td>16</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit Hours</th>
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</thead>
<tbody>
<tr>
<td>BUS 230 Marketing</td>
<td>3</td>
</tr>
<tr>
<td>MKT 134 Professional Selling</td>
<td>3</td>
</tr>
<tr>
<td>ACCT 111 Small Business Accounting</td>
<td>3</td>
</tr>
<tr>
<td>or</td>
<td></td>
</tr>
<tr>
<td>ACCT 121 Accounting I</td>
<td>3</td>
</tr>
<tr>
<td>EMT 120 Introduction to Entrepreneurship</td>
<td>2</td>
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<tr>
<td>EMT 180 Opportunity Analysis</td>
<td>2</td>
</tr>
<tr>
<td>Total Semester Credit Hours</td>
<td>16</td>
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</table>

Second Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MRT 202 Consumer Behavior</td>
<td>3</td>
</tr>
<tr>
<td>MKT 240 Advertising and Promotion</td>
<td>3</td>
</tr>
<tr>
<td>EMT 131 Financial Management for Small Business*</td>
<td>2</td>
</tr>
<tr>
<td>Prerequisite: ACCT 111 or ACCT 121</td>
<td></td>
</tr>
</tbody>
</table>
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 52.1804)

Marketing and Management

Career Certificate

Required Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUS 230</td>
<td>Marketing</td>
<td>3</td>
</tr>
<tr>
<td>FASH 135</td>
<td>Image Management</td>
<td>1</td>
</tr>
<tr>
<td>MRT 121</td>
<td>Retail Management</td>
<td>3</td>
</tr>
<tr>
<td>MRT 134</td>
<td>Professional Selling</td>
<td>3</td>
</tr>
<tr>
<td>MRT 202</td>
<td>Customer Behavior</td>
<td>3</td>
</tr>
<tr>
<td>MRT 234</td>
<td>Services Marketing*</td>
<td>3</td>
</tr>
<tr>
<td>MRT 284</td>
<td>Marketing and Management Internship</td>
<td>1</td>
</tr>
</tbody>
</table>

*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.

Teleservice Representative Certificate

The teleservice representative certificate program at JCCC was developed in conjunction with the Kansas City Area Call Center Managers Users Group with the objective of providing students with business and practical skills that will help make them successful in the teleservice industry. Twenty-four of the 33 credit hours required for the teleservice representative certificate apply toward JCCC’s 64-credit-hour marketing and management associate of applied science degree.

(Major Code 5260; CIP Code 52.0411)

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.
Fall-2009

BO 130 Office Systems Concepts........................3
MT 202 Consumer Behavior................................3
MT 284 Marketing and Management Internship I........1
Total Semester Credit Hours............................16

Third Semester
MT 140 Teleservice Communication Skills.............3
MT 234 Services Marketing*.............................3
Corequisite: BUS 230
MT 284 Marketing and Management Internship II*.....1
Prerequisite: MT 284
Total Semester Credit Hours............................7
TOTAL PROGRAM CREDIT HOURS.........................36
*Prerequisite/Corequisite required
NOTE: *Recommended for students who intend to transfer to a baccalaureate degree program

---

**Teletrac Certificate**

This certificate program meets the core competencies outlined by the Call Center User’s Group, a group of area business leaders in the teleservice industry. This program includes one internship during which students will learn through hands-on industry experience. All 14 credit hours in this certificate can be applied toward the 33-credit-hour teleservice representative certificate program.

(Major Code 5270; CIP Code 52.0411)

**Marketing and Management Certificate of Completion**

**Required Courses**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUS 121</td>
<td>Introduction to Business</td>
<td>3</td>
</tr>
<tr>
<td>MT 140</td>
<td>Telecommunication Skills</td>
<td>3</td>
</tr>
<tr>
<td>MT 202</td>
<td>Consumer Behavior</td>
<td>3</td>
</tr>
<tr>
<td>MATH 120</td>
<td>Business Mathematics*</td>
<td>3</td>
</tr>
<tr>
<td>Prerequisite: MATH 111 with a grade of &quot;C&quot; or higher or an appropriate score on the math assessment test.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BUS 101</td>
<td>Computerized Keyboarding*</td>
<td>1</td>
</tr>
<tr>
<td>MT 284</td>
<td>Marketing and Management Internship I</td>
<td>1</td>
</tr>
<tr>
<td>TOTAL PROGRAM CREDIT HOURS.........................14</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Prerequisite/Corequisite required

**Assessment test may be used to satisfy course requirement

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**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**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>INDT 125</td>
<td>Industrial Safety</td>
<td>3</td>
</tr>
<tr>
<td>MAFB 121</td>
<td>Intro to Shielded Metal Arc Welding I (SMAW I)*</td>
<td>4</td>
</tr>
<tr>
<td>Prerequisite or corequisite: MAFB 120 or MAFB 127</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ENGL 121</td>
<td>Composition I*</td>
<td>3</td>
</tr>
<tr>
<td>Prerequisite: ENGL 106 or appropriate placement test score or EAP 113 and EAP 117</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MATH 133</td>
<td>Technical Mathematics*</td>
<td>3</td>
</tr>
<tr>
<td>Prerequisite: MATH 111 with a grade of &quot;C&quot; or higher or an appropriate score on the math assessment test.</td>
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<tr>
<td>IND 155</td>
<td>Workplace Skills</td>
<td>1</td>
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<tr>
<td>TOTAL Semester Credit Hours..........................17</td>
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<td></td>
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**Second Semester**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAFB 125</td>
<td>Advanced Gas and Arc Welding*</td>
<td>4</td>
</tr>
<tr>
<td>Prerequisite: MAFB 121</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MAFB 240</td>
<td>Metallurgy</td>
<td>2</td>
</tr>
<tr>
<td>MAFB 120</td>
<td>Introduction to Gas Metal Arc Welding I (GMAW I)*</td>
<td>4</td>
</tr>
<tr>
<td>Prerequisite or corequisite: MAFB 120 or MAFB 127</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ENGL 123</td>
<td>Technical Writing*</td>
<td>3</td>
</tr>
<tr>
<td>Prerequisite: ENGL 121</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IND 155</td>
<td>Workplace Skills</td>
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<td>SOCIAL Science Elective.............................3</td>
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<tr>
<td>TOTAL Semester Credit Hours..........................17</td>
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**Third Semester**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAFB 160</td>
<td>Gas Tungsten Arc Welding*</td>
<td>4</td>
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<tr>
<td>Prerequisite: MAFB 120 or MAFB 130</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MAFB 260</td>
<td>Fabrication Practices I*</td>
<td>4</td>
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<tr>
<td>Prerequisite: Metal Fabrication Combination Welder Certificates I and II or have earned the Metal Fabrication Vocational Certificate or equivalent advanced welder training coursework to be approved by the department</td>
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</tr>
<tr>
<td>ENGL 121</td>
<td>Composition I*</td>
<td>3</td>
</tr>
<tr>
<td>Prerequisite or corequisite: MAFB 120 or MAFB 127</td>
<td></td>
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<tr>
<td>MAPI 152</td>
<td>Manufacturing Materials and Processes.............3</td>
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<tr>
<td>HPER 200</td>
<td>First Aid and CPR</td>
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<td>Humanities Elective.................................3</td>
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<td>TOTAL Semester Credit Hours..........................16</td>
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**Fourth Semester**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAFB 170</td>
<td>Basic Machine Tool Processes</td>
<td>4</td>
</tr>
<tr>
<td>MAFB 230</td>
<td>Gas Metal Arc Welding II*</td>
<td>4</td>
</tr>
<tr>
<td>Prerequisite: MAFB 130</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MAFB 261</td>
<td>Fabrication Practices II*</td>
<td>4</td>
</tr>
<tr>
<td>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</td>
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<tr>
<td>RELATED Electives.....................................2</td>
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<tr>
<td>TOTAL PROGRAM CREDIT HOURS.........................65</td>
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</table>

**Related Electives**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>AUTO 121</td>
<td>Small Engine Service</td>
<td>3</td>
</tr>
<tr>
<td>BUS 120</td>
<td>Management Attitudes and Motivation...............</td>
<td>3</td>
</tr>
<tr>
<td>BUS 140</td>
<td>Principles of Supervision</td>
<td>3</td>
</tr>
<tr>
<td>BUS 145</td>
<td>Small Business Management</td>
<td>3</td>
</tr>
<tr>
<td>ENTR 142</td>
<td>Past Tra propulsion Plan.</td>
<td>3</td>
</tr>
<tr>
<td>ENTR 105</td>
<td>Construction Methods</td>
<td>2</td>
</tr>
<tr>
<td>CIS 124</td>
<td>Introduction to Computer Concepts and Applications</td>
<td>3</td>
</tr>
<tr>
<td>ELEC 131</td>
<td>Introduction to Sensors and Actuators.............3</td>
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</tr>
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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

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>MFAB 120</td>
<td>Metal Fabrication Tools and Equipment</td>
<td>2</td>
</tr>
<tr>
<td>MFAB 127</td>
<td>Metal Fabrication Processes</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>or approval of career program facilitator</td>
<td></td>
</tr>
<tr>
<td></td>
<td>or prior learning credit (contact the Testing Center)</td>
<td></td>
</tr>
</tbody>
</table>

Suggested/Sample Course Sequence

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

First Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>INDT 125</td>
<td>Industrial Safety</td>
<td>3</td>
</tr>
<tr>
<td>MFAB 180</td>
<td>Blueprint and Symbols Reading for Welders</td>
<td>2</td>
</tr>
<tr>
<td>MFAB 121</td>
<td>Intro to Shielded Metal Arc Welding I (SMAW I)*</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Prerequisite or corequisite: MFAB 120 or MFAB 127</td>
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<td></td>
<td>Total Semester Credit Hours</td>
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Second Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MFAB 125</td>
<td>Advanced Gas and Arc Welding*</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Prerequisite: MFAB 121 or MFAB 130</td>
<td></td>
</tr>
<tr>
<td>MFAB 140</td>
<td>Maintenance Repair Welding*</td>
<td>3</td>
</tr>
<tr>
<td>MFAB 130</td>
<td>Introduction to Gas Metal Arc Welding I (GMAW I)*</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Prerequisite or corequisite: MFAB 120 or MFAB 127</td>
<td></td>
</tr>
<tr>
<td>MFAB 160</td>
<td>Gas Tungsten Arc Welding*</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Prerequisite: MFAB 120 or MFAB 130</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total Semester Credit Hours</td>
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Third Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
<th>Credits</th>
</tr>
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<tbody>
<tr>
<td>MFAB 230</td>
<td>Gas Metal Arc Welding II*</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Prerequisite: MFAB 130</td>
<td></td>
</tr>
<tr>
<td>INDT 155</td>
<td>Workplace Skills</td>
<td>1</td>
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<td>Total Semester Credit Hours</td>
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<td></td>
<td>TOTAL PROGRAM CREDIT HOURS</td>
<td>25-26</td>
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</table>

*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

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MFAB 120</td>
<td>MFAB Tools and Equipment</td>
<td>2</td>
</tr>
<tr>
<td>or MFAB 127</td>
<td>Welding Processes</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>or approval of career program facilitator</td>
<td></td>
</tr>
<tr>
<td></td>
<td>or prior learning credit (contact the Testing Center)</td>
<td></td>
</tr>
</tbody>
</table>

Suggested/Sample Course Sequence

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

Required Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MFAB 121</td>
<td>Intro to Shielded Metal Arc Welding I (SMAW I)*</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Prerequisite or corequisite: MFAB 120 or MFAB 127</td>
<td></td>
</tr>
<tr>
<td>MFAB 130</td>
<td>Introduction to Gas Metal Arc Welding I (GMAW I)*</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Prerequisite or corequisite: MFAB 120 or MFAB 127</td>
<td></td>
</tr>
<tr>
<td>MFAB 240</td>
<td>Metalurgy</td>
<td>2</td>
</tr>
<tr>
<td>INDT 155</td>
<td>Workplace Skills</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>TOTAL PROGRAM CREDIT HOURS</td>
<td>11</td>
</tr>
</tbody>
</table>

*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

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MFAB 125</td>
<td>Advanced Gas and Arc Welding*</td>
<td>4</td>
</tr>
<tr>
<td>MFAB 120</td>
<td>Gas Tungsten Arc Welding*</td>
<td>4</td>
</tr>
<tr>
<td>MFAB 180</td>
<td>Blueprint and Symbols Reading for Welders*</td>
<td>2</td>
</tr>
<tr>
<td>MFAB 240</td>
<td>Metallurgy</td>
<td>2</td>
</tr>
<tr>
<td>MFAB 230</td>
<td>Gas Metal Arc Welding I*</td>
<td>4</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MFAB 120</td>
<td>MFAB Tools and Equipment</td>
<td>2</td>
</tr>
<tr>
<td>MFAB 127</td>
<td>Welding Processes</td>
<td>2</td>
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<td>or</td>
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<td>or</td>
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</tr>
</tbody>
</table>

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 designated 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

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MFAB 127</td>
<td>Welding Processes</td>
<td>2</td>
</tr>
<tr>
<td>MFAB 121</td>
<td>Intro to Shielded Metal Arc Welding I (SMAW I)*</td>
<td>4</td>
</tr>
<tr>
<td>MFAB 130</td>
<td>Introduction to Gas Metal Arc Welding I (GMAW I)*</td>
<td>4</td>
</tr>
<tr>
<td>MFAB 180</td>
<td>Blueprint and Symbols Reading for Welders*</td>
<td>2</td>
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<tr>
<td>MFAB 240</td>
<td>Metallurgy</td>
<td>2</td>
</tr>
<tr>
<td>MFAB 230</td>
<td>Gas Metal Arc Welding I*</td>
<td>4</td>
</tr>
</tbody>
</table>

TOTAL PROGRAM CREDIT HOURS: 12

*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

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

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MFAB 120</td>
<td>MFAB Tools and Equipment</td>
<td>2</td>
</tr>
<tr>
<td>MFAB 152</td>
<td>Manufacturing Materials and Processes</td>
<td>3</td>
</tr>
<tr>
<td>IND 125</td>
<td>Industrial Safety</td>
<td>4</td>
</tr>
<tr>
<td>CPC 105</td>
<td>Introduction to Personal Computers: Windows</td>
<td>1</td>
</tr>
<tr>
<td>IND 155</td>
<td>Workplace Skills</td>
<td>1</td>
</tr>
<tr>
<td>MFAB 271</td>
<td>Metal Fabrication Internship*</td>
<td>3</td>
</tr>
</tbody>
</table>

TOTAL PROGRAM CREDIT HOURS: 11

*Prerequisite/Corequisite required
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
- CBT 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 welder training coursework to be approved by the department.
  Total Semester Credit Hours.................................7

  *(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.

(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
- 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

- COMM 106 Introduction to Speech Communication................3
- PSYC 218 Human Development*.....................................3
- 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 230 and either SOC 122 or SOC 125
- SOC 122 Introduction to Sociology..................................3
  or

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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
NURS 232 Complex Patient Care Management* .................9
Prerequisites: NURS 228 and NURS 230
Humanities Elective .................................................3
Health and/or Physical Education Elective .......................1
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 an 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
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
PSYC 218 Human Development* ................................3
Prerequisite: PSYC 130
COMM 116 Communications Elective ...........................3
Prerequisite: MATH 115 with a grade of "C" or higher
or appropriate score on the math assessment test
Total Prerequisite Credit Hours .................................25

Summer
NURS 136 LPN-RN Transition Course* .........................6
Prerequisites: Completion of LPN program, Current
Cardiopulmonary Resuscitation Certificate (CPR) for
Healthcare Providers and CHEM 122 and MATH 116 or
higher and either BIOL 144 or BIOL 140
and NURS 228 and either SOC 122 or SOC 125
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
NURS 232 Complex Patient Care Management* .................9
Prerequisites: NURS 228 and NURS 230
Humanities Elective .................................................3
Health and/or Physical Education Elective .......................1
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 $35,152-$37,400.

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 15, 2010 for the August 2009 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 18 months, provides approximately 880 clock hours of instruction. This includes classroom and clinical laboratory experiences in many areas of nursing. Depending on the 18 month rotation, application deadline will be March 15 OR October 1. The program begins in August OR January. Admission to this program requires successful completion of several prerequisites.

EVENING/WEEKEND 18-MONTH PROGRAM - GENERAL SCHEDULE*
Tuesday and Thursday 5:00 p.m. - 9:00 p.m.
Every other weekend (Sat. & Sun.) 6:30 a.m. - 2:00 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.
**Career Certificate**

**Prerequisites BEFORE Beginning Professional Courses** (effective Spring 2010)

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
- PSYC 130 Introduction to Psychology
- PSYC 218 Human Development*

**Total Semester Credit Hours**..........................3

---

**First Semester**

PN 120 Introduction to Practical Nursing*.........................2

**C or higher in all corequisites to remain in the program.**

PN 125 KSPN Foundations of Nursing*.........................4

**C or higher in all corequisites to remain in the program.**

PN 126 KSPN Foundations of Nursing Clinical*..................2

**C or higher in all corequisites to remain in the program.**

PN 130 KSPN Medical Surgical Nursing I*.........................4

**C or higher in all corequisites to remain in the program.**

PN 131 KSPN Medical Surgical Nursing I Clinical*..............3

**C or higher in all corequisites to remain in the program.**

PN 135 KSPN Pharmacology*......................................4

**C or higher in all corequisites to remain in the program.**

---

**Second Semester**

PN 140 KSPN Maternal Child Nursing*............................2

**C or higher in all corequisites to remain in the program.**

PN 141 KSPN Medical Surgical Nursing II Clinical*............3

**C or higher in all corequisites to remain in the program.**

PN 146 Mental Health Nursing Clinical*........................1

**C or higher in all corequisites to remain in the program.**

PN 150 KSPN Medical Surgical Nursing II*.......................4

**C or higher in all corequisites to remain in the program.**

PN 151 KSPN Gerontology*...........................................2

**C or higher in all corequisites to remain in the program.**

PN 160 Applied Pharmacology*.................................4

**C or higher in all corequisites to remain in the program.**
### 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-occulography), 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 support 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 sleep 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 Technicians (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.

(Major Code 236A; CIP Code 51.0999)

### Associate of Applied Science Degree

**Prior to beginning professional courses**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 116</td>
<td>Intermediate Algebra or higher</td>
<td>Prerequisite: MATH 115 with a grade of &quot;C&quot; or higher or appropriate score on the math assessment test</td>
</tr>
<tr>
<td>CHEM 122</td>
<td>Principles of Chemistry</td>
<td>Prerequisite: CHEM 112 with a grade of &quot;C&quot; or higher or appropriate score on the math assessment test</td>
</tr>
<tr>
<td>BIOL 144</td>
<td>Human Anatomy and Physiology</td>
<td>Prerequisite: BIOL 140 with a grade of &quot;C&quot; or higher or appropriate score on the math assessment test</td>
</tr>
</tbody>
</table>

### 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)

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**Fall-2009**

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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 demanding 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

(Major Code 2820; CIP Code 49.0299)

### Associate of Arts

Students graduating with an Associate of Arts degree or an Associate of Science degree must complete an approved cultural diversity course. Some of these courses are able to meet both a diversity requirement and a general education requirement.

### First Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 111</td>
<td>Composition I*</td>
<td>3</td>
</tr>
<tr>
<td>Prerequisite: ENGL 106 or appropriate placement test score or EAP 113 and EAP 117</td>
<td></td>
<td></td>
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</tbody>
</table>

### Second Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 130</td>
<td>Introduction to Psychology</td>
<td>3</td>
</tr>
<tr>
<td>Note: For possible future elementary/secondary educators</td>
<td></td>
<td></td>
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</tbody>
</table>

### Third Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 112</td>
<td>Composition II*</td>
<td>3</td>
</tr>
<tr>
<td>Prerequisite: ENGL 121</td>
<td></td>
<td></td>
</tr>
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### Fourth Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 113</td>
<td>Composition III</td>
<td>3</td>
</tr>
<tr>
<td>Prerequisite: ENGL 122</td>
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### Education Electives

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<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDUC 210</td>
<td>Creative Experiences for Young Children*</td>
<td>3</td>
</tr>
<tr>
<td>Prerequisite: EDUC 130 and one of the following: PSYC 215 or PSYC 218 or EDUC 270</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### 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.

### First Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>RREL 180</td>
<td>Introduction to Railroad Electronics*</td>
<td>1</td>
</tr>
<tr>
<td>Prerequisite: Approval of the railroad training administrator and the JCCC department approval</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RREL 181</td>
<td>Circuit Analysis DC/AC*</td>
<td>6</td>
</tr>
<tr>
<td>Prerequisite: RREL 180 and the approval of the railroad training administrator and department approval</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ENGL 111</td>
<td>Composition I*</td>
<td>3</td>
</tr>
<tr>
<td>Prerequisite: ENGL 106 or appropriate placement test score or EAP 113 and EAP 117</td>
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### Second Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>RREL 182</td>
<td>Semiconductor Devices and Circuits*</td>
<td>6</td>
</tr>
<tr>
<td>Prerequisite: RREL 181 and the approval of the railroad training administrator and department approval</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RREL 183</td>
<td>Digital Techniques*</td>
<td>6</td>
</tr>
<tr>
<td>Prerequisite: RREL 182 and approval of the railroad training administrator and department approval</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Humanities Elective</td>
<td>3</td>
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<tr>
<td>Total Semester Credit Hours</td>
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### Third Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>RREL 284</td>
<td>Electronic Communications*</td>
<td>6</td>
</tr>
<tr>
<td>Prerequisite: RREL 183 and approval of the railroad training director and department approval</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social Science/Economics Elective</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Technical Elective</td>
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<tr>
<td>Total Semester Credit Hours</td>
<td>15</td>
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### Fourth Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>RREL 285</td>
<td>Microprocessor Techniques*</td>
<td>6</td>
</tr>
<tr>
<td>Prerequisite: RREL 183 and approval of the railroad training director and department approval</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RREL 286</td>
<td>Applied Microprocessors*</td>
<td>2</td>
</tr>
<tr>
<td>Prerequisite: RREL 285 and approval of the railroad training director and department approval</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Health and/or Physical Education Elective</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Communications Elective</td>
<td>3</td>
<td></td>
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<tr>
<td>Technical Elective</td>
<td>3</td>
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</tr>
<tr>
<td>Total Semester Credit Hours</td>
<td>18</td>
<td></td>
</tr>
<tr>
<td>TOTAL PROGRAM CREDIT HOURS</td>
<td>64</td>
<td></td>
</tr>
</tbody>
</table>
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

(Major Code 4540; CIP Code 49.0299)

Career Certificate

Required Courses

RRIT 180 Introduction to Railroad Electronics*..........................1
Prerequisites: Approval of the railroad training administrator and the JCCC department approval

RRIT 181 Circuit Analysis DC/AC*..........................6
Prerequisites: RRIT 180 and the approval of the railroad training administrator and department approval

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 carpenters 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 cored arc welding. Students should also be able to complete qualification tests according to industry standards.

(Major Code 4560; 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 GMAW*............................3
Prerequisites: RRIT 127 or approval of the BNSF training director and department approval

RRIT 141 Structural Quality SMAW*............................3
Prerequisites: RRIT 127 or approval of the BNSF training director and 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 apply training in welding and cutting applications and perform skill competencies involving oxyacetylene cutting, shielded metal arc welding, gas metal arc welding and flux cored arc welding. Students should also be able to complete qualification tests according to industry standards.

(Major Code 4510; CIP Code 49.0299)

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able to demonstrate safe operating procedures for welding and cutting applications and perform skill competencies involving complete qualification tests according to industry standards.

Radio 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.

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

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.

Associate of Applied Science Degree

First Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPCA 105</td>
<td>Introduction to Personal Computers: Windows</td>
<td>1</td>
</tr>
<tr>
<td>CPCA 106</td>
<td>Word Processing I: MS Word*</td>
<td>1</td>
</tr>
<tr>
<td>CPCA 110</td>
<td>Spreadsheets I: MS Excel*</td>
<td>1</td>
</tr>
<tr>
<td>ENGL 121</td>
<td>Composition I*</td>
<td>1</td>
</tr>
<tr>
<td>MATH 133</td>
<td>Technical Mathematics *</td>
<td>4</td>
</tr>
</tbody>
</table>
**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 troubleshooting 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**

**Certificate of Completion**

**First Semester**

- RRTC 135 Basic EMD Mechanical*.................................3
  Prerequisite: Approval of the railroad training administrator and JCCC program assistant dean
- RRTC 136 Basic GE Mechanical*.................................3
  Prerequisite: Approval of the railroad training administrator and the JCCC program assistant dean
- RRTC 137 Locomotive Air Brake*.................................3
  Prerequisite: Approval of the railroad training administrator and the JCCC program assistant dean
- RRTC 138 Locomotive FRA*.................................3
  Prerequisite: Approval of the railroad training administrator and the JCCC program assistant dean

**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 or Railroads), and company (BNSF Railway) procedures, in a safe and professional manner.

For information visit the National Academy of Railroad Sciences

**Major Code 4360**

**Certificate of Completion**

**First Semester**

- RRTC 130 Freight Car Yard Inspection*.............................3
  Prerequisites: Approval of the railroad training administrator and JCCC program assistant dean
- RRTC 131 Railroad Car Repair Track Inspector*........................3
  Prerequisites: RRTC 130 and approval of the railroad training administrator and JCCC program assistant dean
- RRTC 121 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
(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
Prerequisite: Admission to the JCCC railroad operations program, conductor option, and successful completion of RRTC 123 with a grade of "C" or higher
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
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
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
RRTC 270 Conductor Mechanical Operation*........................2
Prerequisite: Admission to the JCCC railroad operations program, conductor option, and successful completion of RRTC 267 with a grade of "C" or higher

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. Railroads 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
(Major Code 2800, CIP Code 49.0299)

Associate of Applied Science Degree

First Semester

CPCA 105 Technical Writing*........................................3
Prerequisite: ENGL 120
MATH 134 Technical Mathematics II*...............................5
Prerequisite: MATH 133 or an equivalent course with a grade of "C" or higher
PHYS 133 Applied Physics*........................................5
Prerequisite: MATH 133 or higher
RRT 121 Railroad Technical Careers.................................3
Health and/or Physical Education Elective........................1
Total Semester Credit Hours........................................17

Second Semester

ENGL 123 Technical Writing*........................................3
Prerequisite: ENGL 120
MATH 134 Technical Mathematics II*...............................5
Prerequisite: MATH 133 or an equivalent course with a grade of "C" or higher
PHYS 133 Applied Physics*........................................5
Prerequisite: MATH 133 or higher
RRT 121 Railroad Technical Careers.................................3
Health and/or Physical Education Elective........................1
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

INDT 140 Quality Improvement Using SPC............................2
Business/Related Electives..........................................1
Technical/Related Electives...........................................9
Total Semester Credit Hours........................................66

Business/Related Electives

ACCT 121 Accounting I..................................................3
BUS 123 Personal Finance.............................................3
BUS 160 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*........................................3
Prerequisite: ENGL 123
BOT 101 Computerized Keyboarding..................................1

Technical/Related Electives

AUTO 125 Introduction to Automotive Shop Practices................3
AUT 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*............................5
Prerequisite: CPCA 105 or CPCA 106 or CPCA 128 or CTS 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 166 Microcomputer Assembly*.................................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
INDH 125 Industrial Safety.........................................3
MFA 121 Intro to Shielded Metal Arc Welding I (SMAW I)*......3
Prerequisite or corequisite: MFAB 120 or MFAB 127
MFA 130 Intro to Gas Metal Arc Welding I (GMAW I)*.............4
Prerequisite or corequisite: MFAB 120 or MFAB 127
MFA 152 Manufacturing Materials and Processes....................3
MFAB 240 Metallurgy.................................................3

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 on various criteria. Interested students should meet with a JCCC counselor as early as possible.

For information visit the National Academy of Railroad Sciences

(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**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>CPCA 105</td>
<td>Introduction to Personal Computers: Windows</td>
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<tr>
<td>CPCA 108</td>
<td>Word Processing I: MS Word*</td>
<td>1</td>
</tr>
<tr>
<td>CPCA 110</td>
<td>Spreadsheets I: MS Excel*</td>
<td>1</td>
</tr>
<tr>
<td>ENGL 121</td>
<td>Composition I*</td>
<td>3</td>
</tr>
<tr>
<td>MATH 133</td>
<td>Technical Mathematics I*</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 133</td>
<td>Applied Physics*</td>
<td>5</td>
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<tr>
<td>RRT 120</td>
<td>History of Railroading</td>
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**Second Semester**

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<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>ENGL 123</td>
<td>Technical Writing I*</td>
<td>3</td>
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<tr>
<td>MATH 134</td>
<td>Technical Mathematics II*</td>
<td>5</td>
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<tr>
<td>PHYS 134</td>
<td>Applied Physics*</td>
<td>5</td>
</tr>
<tr>
<td>RRT 121</td>
<td>Railroad Technical Careers</td>
<td>3</td>
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<tr>
<td></td>
<td>Health and/or Physical Education Elective</td>
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**Third Semester**

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<td>Introduction to Business</td>
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<td>ECON 132</td>
<td>Survey of Economics</td>
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<tr>
<td>PHIL 138</td>
<td>Business Ethics</td>
<td>1</td>
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<tr>
<td>RRT 150</td>
<td>Railroad Operations</td>
<td>3</td>
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<tr>
<td>RRT 165</td>
<td>Rail and Switch Point Repair Welding*</td>
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<tr>
<td>SPD 125</td>
<td>Personal Communication</td>
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**Fourth Semester**

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<tr>
<td>RRT 122</td>
<td>Elements of Welding*</td>
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<tr>
<td>MFAB 121</td>
<td>Intro to Shielded Metal Arc Welding I (SHAW I)*</td>
<td>4</td>
</tr>
<tr>
<td>RRT 123</td>
<td>Basic Welding*</td>
<td>3</td>
</tr>
<tr>
<td>RRT 124</td>
<td>Orientation to the Railroad Mechanical Craft*</td>
<td>2</td>
</tr>
<tr>
<td>RRT 170</td>
<td>Railroad Mechanical Safety and Health*</td>
<td>2</td>
</tr>
<tr>
<td>RRT 251</td>
<td>Locomotive Diesel Engine Fundamentals*</td>
<td>2</td>
</tr>
<tr>
<td>RRT 253</td>
<td>Freight Car Fundamentals*</td>
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<tr>
<td>RRT 254</td>
<td>Basic Locomotive Electricity and Electronics*</td>
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</table>

**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

(Major Code 2850; CIP Code 49.0299)

### Associate of Applied Science Degree

**First Semester**

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<tr>
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<td>CPCA 105</td>
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<td>ENGL 121</td>
<td>Composition I*</td>
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<tr>
<td>MATH 133</td>
<td>Technical Mathematics I*</td>
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<tr>
<td>PHYS 133</td>
<td>Applied Physics*</td>
<td>5</td>
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<tr>
<td>RRT 120</td>
<td>History of Railroading</td>
<td>3</td>
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<tr>
<td>RRT 125</td>
<td>Railroad Technical Careers</td>
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**Second Semester**

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<tr>
<td>ENGL 123</td>
<td>Technical Writing I*</td>
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<tr>
<td>INDT 125</td>
<td>Industrial Safety</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 133</td>
<td>Applied Physics*</td>
<td>5</td>
</tr>
<tr>
<td>RRT 121</td>
<td>Railroad Technical Careers</td>
<td>3</td>
</tr>
<tr>
<td>RRT 125</td>
<td>Railroad Technical Careers</td>
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<tr>
<td></td>
<td>Health and/or Physical Education Elective</td>
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**Third Semester**

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<tr>
<td>ECON 132</td>
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<td>ECON 230</td>
<td>Economics I.</td>
<td>3</td>
</tr>
<tr>
<td>RRT 150</td>
<td>Railroad Operations</td>
<td>3</td>
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<tr>
<td>RRT 165</td>
<td>Railroad Safety, Quality and Environment</td>
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<td>SPD 125</td>
<td>Personal Communication</td>
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**Fourth Semester**

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<tbody>
<tr>
<td>RRT 122</td>
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<tr>
<td>RRT 254</td>
<td>Basic Locomotive Electricity and Electronics*</td>
<td>2</td>
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<td></td>
<td>Total Semester Credit Hours</td>
<td>16</td>
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</table>

*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 of Allied Health Education Programs (CAAHEP) and by the National Board for Respiratory Care (CoARC) in collaboration with the Committee on Accreditation for Respiratory Care (CoARC http://coarc.com). Graduates are eligible to take the National Board for Respiratory Care examinations for both the certified (CRT) and registered (RRT) respiratory therapist.

Certified 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.

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.

(Major Code 237A; CIP Code 51.0908)

### Associate of Applied Science Degree

#### Summer

<table>
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<tr>
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<tr>
<td>BRIT 132</td>
<td>Introduction to Health Care Delivery**</td>
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<tr>
<td>AUTO 125</td>
<td>Introduction to Automotive Shop Practices</td>
<td>3</td>
</tr>
<tr>
<td>AUTO 165</td>
<td>Automotive Engine Repair*</td>
<td>4</td>
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<tr>
<td>CHEM 122</td>
<td>Principles of Chemistry*</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 140</td>
<td>Human Anatomy*</td>
<td>4</td>
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<tr>
<td>MATH 115</td>
<td>Intermediate Algebra standardized</td>
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#### First Semester

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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>BIOL 140</td>
<td>Human Anatomy*</td>
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<tr>
<td>MATH 115</td>
<td>Intermediate Algebra standardized</td>
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#### Technical/Related Electives

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<tr>
<td>AUTO 125</td>
<td>Introduction to Automotive Shop Practices</td>
<td>3</td>
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<tr>
<td>AUTO 165</td>
<td>Automotive Engine Repair*</td>
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<td>CHEM 122</td>
<td>Principles of Chemistry*</td>
<td>3</td>
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<td>BIOL 140</td>
<td>Human Anatomy*</td>
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#### Second Semester

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<tr>
<td>BIOL 225</td>
<td>Human Physiology**</td>
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<tr>
<td>BIOL 230</td>
<td>Microbiology**</td>
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#### Third Semester

<table>
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<tbody>
<tr>
<td>RC 125</td>
<td>Beginning Principles of Respiratory Care**</td>
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<tr>
<td>RC 130</td>
<td>Respiratory Care Equipment*</td>
<td>4</td>
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<tr>
<td>RC 135</td>
<td>Cardiopulmonary Medicine I*</td>
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#### Fourth Semester

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<th>Course Code</th>
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<td>RC 231</td>
<td>Clinical Topics and Procedures II**</td>
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<tr>
<td>RC 233</td>
<td>Respiratory Care of Children*</td>
<td>2</td>
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<tr>
<td>RC 236</td>
<td>Cardiopulmonary Medicine III*</td>
<td>2</td>
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<tr>
<td>RC 272</td>
<td>Clinical Practice II**</td>
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</table>

**Note:** RC 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.
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.mcc-ks.edu/tech 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

<table>
<thead>
<tr>
<th>ENGL 121</th>
<th>Composition I*</th>
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<tbody>
<tr>
<td>Prequisite: ENGL 106 or appropriate placement test score or EAP 113 and EAP 117</td>
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<td>SPD 121</td>
<td>Public Speaking</td>
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<td>General Education Electives</td>
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<td>Note: ENGL 122-Composition II is highly recommended.</td>
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American Institutions

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

Specific Program Requirements-must be taken at JCCC

| BIOL 230 | Introduction to Veterinary Technology | 3 |
| Prequisite: BIOL 121 or BIOL 122 and BIOL 230 and one year of high school chemistry |
| BIOL 231 | Veterinary Laboratory Techniques | 2 |
| BIOL 234 | Veterinary Microbiology Lab | 2 |
| CHEM 122 | Principles of Chemistry | 5 |
| CPA 128 | PC Applications: MS Office | 3 |

Specific Program Requirements-taken at MCC-Maplewoods

| KSAH 100 | Introduction to Veterinary Technology | 2 |
| KSAH 101 | Principles of Animal Science I | 3 |
| KSAH 111 | Sanitation and Animal Care | 2 |
| KSAH 200 | Veterinary Hospital Technology I* | 3 |
| or |
| KSAH 201 | Clinical Pathology Techniques I | 4 |
| Prequisite: BIOL 121 and CHEM 101 |
| KSAH 202 | Veterinary Anatomy | 5 |
| Prequisite: BIOL 101 (Maple Woods) or BIOL 127 and CHEM 101 and 110 |
| KSAH 203 | Laboratory Animal Technology* | 2 |
| Prequisite: KSAH 101, KSAH 110 and KSAH 201 |
| KSAH 209 | Equine Medicine and Management* | 3 |
| Prequisite: KSAH 212 |
| KSAH 210 | Veterinary Hospital Technology II* | 3 |
| Prequisite: KSAH 208 |
| KSAH 211 | Clinical Pathology Techniques II* | 5 |
| Prequisite: KSAH 201 |
| KSAH 212 | Large Animal Technology* | 4 |
| Prequisite: KSAH 151 and KSAH 110 |
| KSAH 213 | Radiology and Electronic Procedures* | 2 |
| Prequisite: Two semesters of first-year veterinary technology courses |
| TOTAL PROGRAM CREDIT HOURS | 79-81 |

*Prequisite/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 |
| CGL 180 | 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 |
| Prequisite: ENGL 121 |
| ENGL 230 | Introduction to Fiction* | 3 |
| Prequisite: ENGL 122 |
| FL 130 | Elementary Spanish I | 5 |
| FL 131 | Elementary Spanish II | 5 |
| Prequisite: FL 130 with a grade of C or higher |
| or |
| Prequisite: FL 140 or one year of high school French |
| or |
| Prequisite: FL 140 and one year of high school French |
| or |
| Prequisite: FL 180 and one year of high school French |
| or |
| Prequisite: FL 180 and one year of high school French |
| or |
| Prequisite: FL 180 or ENGL 122 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 Politics | 3 |
| POLS 135 | International Relations | 3 |
| PSYC 121 | Applied Psychology | 3 |
| PSYC 130 | Introduction to Psychology | 3 |
| 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.
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)

Biology (BIOL)
Biotechnology (BIOT)
Business (BUS)
Business Logistics Management (KSCL)
Business Office Technology (BOT)

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)

Dental Assisting (KDA)
Dental Hygiene (DHYG)
Drafting/CAD/AutoCAD (DRAF)

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)

Fashion Merchandising/Design (FASH)
Fire Services Administration (FIRE)
Floriculture (FLR)

Foreign Language (FL)

Game Development (GAME)
Geographic Information Systems (KEOG)
Geoscience (GEOS)
Graphic Design (GDES)

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 (HMGT)
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)
Power Plant Technology (PPT)
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)
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 A.A.C., 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 A.A.C. 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 A.A.C. 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 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 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 A.A.C. 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 A.A.C. 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 $30 to $35.

**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 A.A.C., 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 A.A.C., 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 121**

**Individualized Study** (2 CR)

This self-instructional course is designed for students who want to improve in one or two 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 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 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 $30.

**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.


**Accounting (ACCT)**

**ACCT 109**  
**Basics of Income Taxes** (1 CR)  
This course teaches the student federal income tax rules and the procedures for preparing federal income tax. Upon completion of this course, the student should be able to prepare individual federal income tax returns for a single person or married couple. The student will also be able to calculate income tax using Form 1040. 3 hrs./wk.

**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 is a three-hour survey course 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.

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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 exercise 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.

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**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 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. 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 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.

**ASL 123**

**Intermediate American Sign Language II (3 CR)**

*Prerequisites: INTR 122 or ASL 122 or FL 270 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.

**ASL 135**

**Intro to American Sign Language Linguistics (3 CR)**

*Prerequisites: INTR 122 or ASL 122 or FL 270 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.

**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 $20.

**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
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 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 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 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.
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. ANI 273 is the same course as CIM 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 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)

Prerequisite: 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)

Prerequisite: 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 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.

ARCH 243
Architectural History: Postmodern and Contemporary (3 CR)

This course will investigate the architecture of the Postmodern and Contemporary periods. 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.

ARCH 246
Architectural History: 20th Century (3 CR)

This course will investigate the architecture of the 20th Century. 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 an 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 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.
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 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. 3 hrs./wk. BIOL 122 students see Memory Strategies classes on pg.? - Optional Enrollment. This course may be offered as a Learning Communities (LCOM) section, see current credit schedule for LCOM details.

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 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, non-science-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/end of life, the human genome project, environmental impact of humans, cloning, medical and non-medical genetic interventions, and biological ethics. 3hrs. lecture/wk.

BIOL 205
General Genetics (4 CR)
Prerequisite: BIOL 122 or BIOL 135 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.

**BIOI 250**

Ecology (4 CR)

**Prerequisites:** BIOI 122 and BIOI 123 or BIOI 130 and BIOI 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.

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**Biotechnology (BIOT)**

**BIOT 160**

Introduction to Biotechnology (2 CR)

**Prerequisites:** CHEM 122 and prerequisite or corequisite BIOI 135 or CHEM 124 and CHEM 125 and prerequisite or corequisite: BIOI 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 BIOI 135 or CHEM 124 and CHEM 125 and prerequisite or corequisite BIOI 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:** BIOI 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 BIOI 160 and either BIOT 165 or BIOI 165 and Prerequisite or corequisite: BIOT 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 BIOI 160 and either BIOT 165 or BIOI 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.

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**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.

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Fall-2009

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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 logistics 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)**

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 This course is offered in the spring semester only.

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. 2 hrs. lecture/wk.

**BOT 255**

**Word Processing Applications II (2 CR)**
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) This course is offered in the spring semester only.

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. 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)
Prerequisite or 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 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 of organic 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 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. 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)
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 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. This course is typically taught on campus in the fall and online in the spring. 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 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)
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 layers 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, autotracing 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 223

Law Office Computing (3 CR)

Prerequisites: Paralegal program students - admission to the paralegal program and either CIS 124 or CPCA 128 or three hours of CPCA 108 and CPCA 110 and CPCA 114

Upon successful completion of this course, the student should be able to evaluate and use legal software to perform customary law office procedures including computer litigation support, drafting and editing of specific legal documents, document and file management, time-keeping and billing, docket control, and forms generation. This course is only open to LAW students. 3 hrs. lecture/wk. CIS 223 and LAW 223 are the same course.

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 253 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 relational, hierarchical and network models; data modeling using entity-relationship model: normalization to avoid modification anomalies; and operational considerations of a relational database. Students will create and use a relational DBMS (currently Oracle) and a Standard Structured Query Language (SQL). SQL*Plus and embedded SQL will be used in programs. 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)

Prerequisite: 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 computer skills and concepts through a hands-on approach while becoming familiar with a microcomputer and its primary uses. Topics include computer software, hardware and terminology; an introduction to microcomputer operating systems; and the graphical user interface. 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

Students will learn concepts and uses of word processing software on the personal computer. Concepts covered will include 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. 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)

Prerequisites: 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 rational 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 importing graphics, creating reports, newsletters, footnotes and endnotes, styles, columns, templates, macros, creating a Web page, on-screen forms, and linking and embedding an object. 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  
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.
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

This course will cover the 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 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.

CPCA 139
UNIX (1 CR)

Prerequisite: CPCA 105 or CPCA 106 or CPCA 128 or CIS 124 or an appropriate score on an 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 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 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.
$20.

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. 1.5 hrs. lecture, 1.5 hrs. lab/wk. Four-credit-hour CS courses have two hours of open lab per week.

Computer Web (CWEB)

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 the Web using Internet Explorer (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 111
Intermediate 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.
Fall-2009

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: CPC 105 or CPC 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 of 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 CPC 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: CPC 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 CPC 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 CPC 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.
Fall-2009

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 205

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 240

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 230

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 180

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.

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 $884 and the out-of-state tuition totals $3,485. 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 $1,142, and the out-of-state tuition and fees total $4,355. 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 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 $1,074 total. Out-of-state tuition and fees $2,910 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)

Prerequisite: 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 $1,074 total. Out-of-state tuition and fees $2,910 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)

Prerequisite: 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 $724. Out-of-state tuition and fees $2,560. 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)

Prerequisite: 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 $774. Out-of-state tuition and fees $2,610. 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)

Prerequisite: 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 $540 total. Out-of-state tuition $2,400 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 $75.

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### Cosmetology - Esthetics (CO)

**CO 120**
Esthetics (14 CR)

Prerequisite: Admission to the esthetics program and Corequisites: CO 123 and CO 125

This course provides class instruction in skin care. Topics include sanitation, skin sciences, waxing, skin and body treatments, makeup, business practices and state law. This course prepares the student for the Kansas State Board of Cosmetology esthetician examination. The in-state tuition totals $728, and the out-of-state tuition totals $2,870. This class meets 193 of the 1,000 contact hours required by the Kansas State Board of Cosmetology. 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 $30 to $60.

**CO 123**
Esthetics Lab (12 CR)

Prerequisite: Selective admission approval and Corequisites: CO 120 and CO 125

This course provides skill instruction of skin care in a lab setting. Topics include sanitation, skin sciences, waxing, skin and body treatments, makeup, business practices and state law. This course prepares the student for the Kansas State Board of Cosmetology esthetician examination. The instant tuition is $624, and the out-of-state tuition is $2,460. This class meets 271 of the 1,000 contact hours required by Kansas State Board of Cosmetology. 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 $40 to $69.

**CO 125**
Esthetics Clinical (4 CR)
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 $1,162. 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 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

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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
Assistance

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
Assistance

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 Assisting
Association

Periodontal procedures with emphasis on air-brasive coronal polishing and
placement of periodontal dressings. Credit hours .5. 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 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
Assistance Association

Prosthodontic procedures with emphasis on prosthodontic impression
techniques, cementation of dental appliances, extra-aloral 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 PSTC 130 and BIOL 230 Corequisites: DHYG 125 and DHYG 138

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 PSTC 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 PSTC 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 or 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 or 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 views. 1 hr. lecture, 3 hrs. lab/wk. This course introduces the use of AutoCAD LT and provides 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: 2008** (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** (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 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 AA degree 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*

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 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.
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 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 exceptionalities, 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
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 hr. 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 248
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 249
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.
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 difference occupancies. 3 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
Electronics (ELEC)

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: assistant dean's 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.

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, 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

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. 7 hrs. lecture, 5 hrs. lab/wk. (average)

EMS 133

Emergency Medical Technician Practicum (3 CR)
Prerequisites: EMS 130 or equivalent and a copy of current EMT-B card

EMS 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 EMT 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 EMT 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. 2 hrs. lecture, 10 hrs. lab/wk.

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 infant 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 assistant dean 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 Instructor 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
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 (KBEMS) certification as a Training Officer (TOI). The course is intended to prepare the student to plan, implement, coordinate, teach and evaluate continuing education programs. As a TOI 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 9-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 9-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. 4 hrs. lecture avg./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 reviews 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. 4 hrs. lecture 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

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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.

ENGR 124  
Equipment Selection and Duct Design (4 CR)  
Prerequisites: ENGR 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 testers, duct blower kits, 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 (4 CR)  
Corequisite: MATH 133 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; multiview, 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
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 English 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
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, computer program packages 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. This course is taught in the fall semester only. 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 era, 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 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.

English for Academic Purposes (EAP)

EAP 101

Writing and Grammar I (3 CR)

Prerequisite: Appropriate ESL assessment test score and Corequisite: EAP 120

This course provides 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: Appropriate ESL assessment test score or EAP 101 and EAP 120 and EAP 105 and Corequisite: EAP 121

This course provides ELL students an integrated communicative experience. Students will focus on using American English in 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 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: Appropriate ESL assessment test score or EAP 101 and EAP 120 and EAP 105

This course provides 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: Appropriate ESL assessment test score or EAP 103 and EAP 121 and EAP 107 and Corequisite: EAP 122
This course provides 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: Appropriate ESL assessment test score or EAP 111 and EAP 122 and EAP 115
This course provides 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: Appropriate ESL assessment test score or EAP 103 and EAP 121 and EAP 107
This course provides 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. This course does not fulfill degree requirements. 3 hrs. lecture/wk.

EAP 117
Speaking and Pronunciation IV (3 CR)
Prerequisites: EAP 111 and EAP 122 and EAP 115 or appropriate ESL assessment test score
This course offers 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 Corequisite: EAP 101
This course provides 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: Appropriate ESL assessment test score or EAP 101 and EAP 120 and EAP 105 and Corequisite: EAP 103
This course provides 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: Appropriate ESL assessment test score or EAP 103 and EAP 121 and EAP 107 and Corequisite: EAP 111
This course provides 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; formulate business strategies. The student 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 entrepreneurship. 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: BUSE 131 or ENTR 131 and BUSE 160 or 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: Career program facilitator or 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. 3 hrs. lecture/wk.

**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.

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**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 $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.
Upon successful completion of this course, the student should be able to identify the political, economic, technological and sociological factors that 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 125 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.

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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. 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 administered 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 $200.

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. This course is typically taught in the spring semester only.

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. This course is typically taught in the spring semester only.

FIRE 162
Fire Tactics and Strategy (3 CR)
Fall-2009

Contemporary Design Styles
FLR 150

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be $100.

Methods of conditioning, harvesting, and forcing flowers and use of preservatives are illustrated. 2 hrs. receiving, unpacking and processing the flowers. Methods of conditioning, harvesting care of floral materials. Recommendations are made that pertain to develop an eye for color combinations, flow of lines, perspectives and the post-rhythm, texture, form, space, and color. The course will help the students.

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. This course is typically taught in the spring semester only.

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. This course is typically taught in the spring semester only.

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 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 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 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.

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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.

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 165
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, 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, speaking, reading and writing skills. Cultural material also will be integrated into the course. This course is taught in the spring semester. 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 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 INTR 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 INTR 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
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./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 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 232
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 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. 4 hrs. lecture/wk.

**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.

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**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 2D graphics, 3D modeling, music and sound effects. Typical tasks will include setting up a game development studio, manipulating graphic images, obtaining or creating sounds and music, installing and using various game development tools and working with pictures and animation. 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 to present skills and provide hands-on experience 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.

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 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,
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, 816-672-2549, 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 CDTP 135 and CDTP 140 and CDTP 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 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.
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 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
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 $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

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.

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 with a grade of "C" or higher

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: HCI 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 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. 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. Survey of 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 treatment of 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 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**  
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 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 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. Sys/Names/Ixd & Regs 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.
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/PYCC

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.

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### 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 $300 total. Out-of-state tuition and fees $1065 total. 96 contact hrs. For additional information go to the jccce.edu web page: click on classes; click on credit class search; edit the search 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.jccce.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 $50.

#### AVHO 103

**Certified Nurse Aide Refresher Course (CNA) (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 $52, and out-of-state tuition $205. For additional information go to the jccce.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.jccce.net/home/depts/5104/site/newstudent/types/adm_avs/CMA_Udate_Info-Requirements

#### 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 a 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 $248 total. Out-of-state tuition and fees $860 total. 80 contact hrs. For additional information go to the jccce.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.jccce.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.
Fall-2009

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.

AVHO 106

Home Health Aide (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, 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 $102 total. Out-of-state tuition and fees $255 total. 21 contact hrs. For additional information go to the 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. 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.

AVHO 108

Certified Medication Aide Update (CMA) (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 $52, and out-of-state tuition $205. For additional information go to the 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 (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 $104, and out-of-state tuition $410. 32 contact hrs. For additional information go to the 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.

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 $216 total. Out-of-state tuition and fees $675 total. 48 contact hrs. For additional information go to the 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.

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.

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 EP RM 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, photovoltaic 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 student 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.

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 psychrometrics, 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 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 other 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)**

Pre requisite: assistant dean 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.

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.

**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.

**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.

**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 (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**
Landscape Pest Control (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: Approval of assistant dean
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.
within FLSA guidelines will be covered. 3 hrs./wk.

HMGT 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.

HMGT 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.

HMGT 145
Food Production Specialties (3 CR)
Prerequisite: HMGT 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 intermesso 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.

HMGT 150
Seminar: Food Service Sales and Marketing (3 CR)
Prerequisite: HMGT 123
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.

HMGT 165
Food Industry Compliance & Safety (3 CR)
Prerequisite: HMGT 123
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.

HMGT 167
Local Food Production (3 CR)
Prerequisite: HMGT 123
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.

HMGT 203
Hotel Sales and Marketing (3 CR)
Prerequisites: HMGT 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.

HMGT 207
Hospitality Human Resource Management (3 CR)
Prerequisite: HMGT 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.

HMGT 220
American Regional Cuisine (3 CR)
Prerequisite: HMGT 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.

HMGT 221
Design and Facilities Management (3 CR)
Prerequisites: HMGT 123 and HMGT 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.

HMGT 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.
HMGT 273
Hospitality Cost Accounting (3 CR)
Prerequisite: MATH 120 or higher and HMGT 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.

HMGT 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.

HMGT 277
Seminar in Hospitality Management: Menu Planning (3 CR)
Prerequisite: HMGT 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.

HMGT 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.

HMGT 281
Culinary Arts Practicum I (2 CR)
Prerequisite: Acceptance into the American Culinary Federation 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. This course is a continuation of Culinary Arts Practicum I.

HMGT 285
Culinary Arts Practicum III (2 CR)
Prerequisite: HMGT 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.

HMGT 286
Culinary Arts Practicum IV (2 CR)
Prerequisite: HMGT 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.

HMGT 287
Culinary Arts Practicum V (2 CR)
Prerequisite: HMGT 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.

HMGT 288
Culinary Arts Practicum VI (2 CR)
Prerequisites: HMGT 287 and department approval 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: HMPB 120 and HMPB 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: HMPB 120 and HMPB 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: HMG 120 and HMG 123  
Corequisites: HMPB 155 and HMPB 160 and HMPB 252

This course will provide hands-on instruction of techniques to make finished pastry items, execute excellent 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 252**  
*Pastry Shop Business Basics I (3 CR)*  
Prerequisites: HMPB 155 and HMPB 160 and HMPB 233  
Corequisites: HMPB 257 and HMPB 252

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 252

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.

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**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, 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.

**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 Russian culture. 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 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.

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 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 200

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. 3 hrs. lecture, 2 hrs. 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 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 200 and ELEC 126 and 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 and Security (4 CR)**
**Prerequisite: IT 231**
This course is designed to provide network administrators with information that enhances their ability to manage a Unix network in the enterprise. Included are topics that are related to Unix management of DNS, DHCP, NFS, and Samba. 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**
**Introduction to Wide-Area Networks (3 CR)**
**Prerequisite: IT 246**
This course is designed to provide students a fundamental understanding of internetworking. Topics include local area network segmentation using switches and routers. Wide area network physical technologies will be studied. Configuring WAN protocols using PPP, ISDN and Frame Relay will be presented. Securing the network with standard and extended access lists will be performed. IP and IPX routing will be covered. 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.
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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 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)
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 CDTP 145 and CWEB 105 and CWEB 130
Prerequisite or corequisite: CIM 130
This course explores the creation, acquisition and management of assets for use in the development of interactive media. Assets to be covered include digital graphics, digital sound, digital video and computer-based animation. 3 hrs. lecture, 2 hrs. lab/wk.

CIM 154
Interactive Authoring I: Director (4 CR)
Prerequisite: CIM 130 and Prerequisite or corequisite: CIM 140
This course will provide a hands-on approach to authoring/programming. Upon completion of this course, the student should be able to produce a Director interactive media or Internet presentation that includes text, graphics, sound, movies and animation. The student should have the skills needed to create both a linear presentation and an interactive presentation. Navigational strategies for CD-ROM and Internet will be discussed. 3 hrs. lecture, 2 hrs. lab/
CIM 156
Interactive Authoring I: Web (4 CR)

Prerequisite: CIM 130 Prerequisite or corequisite: CIM 140

This course will focus on the front-end aspects of Web design, HTML, authoring, graphics production and media development. The course will introduce concepts about the way the World Wide Web works, which will orient students to the peculiarities of the Web and introduce them to new technologies that are destined to have an important effect on the Web's future but are currently in various stages of development. Students will examine specifications for each project, carefully analyze individual sites and, as a class, establish a set of criteria that define what works, what doesn't and why. 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 154 or CIM 156 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 154 or CIM 156 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
Interactive Authoring II: Director (4 CR)

Prerequisite: CIM 154

At completion of this course, the student should be able to create Director applications using Director's scripting language and the Internet capabilities of Macromedia Director. The primary emphasis of the course is hands-on experience with the Lingo, Behaviors, Shockwave and scripts of Director. During the course, students will be involved in learning advanced Lingo. 3 hrs. lecture, 2 hrs. lab/wk.

CIM 270
Interactive Media Project (4 CR)

Prerequisites or corequisites: CIM 200 and CIM 230 and CIM 250

This project-oriented course will require students to actively participate in a group interactive media project, which will require each student to analyze the problem; write a project proposal; design, produce and gather assets for the project; prototype and create a project; and test and evaluate the final project. 3 hrs. lecture, 2 hrs. lab/wk. This course is taught in the spring semester.

CIM 272
Interactive Media Internship (1 CR)

Prerequisite: facilitator 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/Tech Prep (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 space planning. Upon successful completion of this course, the student should be able to demonstrate an advanced level of furniture arrangement on a floor plan. 4 hrs. integrated lecture and lab/wk. Note: the prerequisites ITMD 121 and either DRAF 164 or DRAF 261 all 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 $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.
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. NOTE: The prerequisite of ITMD 121 requires a grade of "C" or higher or FASH 125.

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. NOTE: The prerequisite of ITMD 221 requires a grade of "C" or higher.

ITMD 221

Residential Design (3 CR)

Prerequisites: DRAF 264 with a grade of "C" or higher and ITMD 123 with a grade of "C" or higher and ITMD 129 with a grade of "C" or higher or ITMD 122 with a grade of "C" or higher

This is an advanced course focusing on residential design. Upon successful completion of this course, the student should be able to demonstrate an advanced level of space planning and furniture arrangement 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, colors, texture, patterns 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. 2 hrs. lecture, 3 hrs. lab/wk. NOTE: The prerequisites of DRAF 264 and ITMD 123 and either ITMD 129 or ITMD 122 all 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 $50.

ITMD 223

Commercial Design (3 CR)

Prerequisite: DRAF 264 with a grade of "C" or higher

This is an advanced course focusing on contract design. Upon successful completion of this course, the student will be able to define and use vocabulary related to contract design, identify and use proper architectural symbols common to contract floor plans and elevations, and explain the differences between residential and contract design. Additionally, the student should be able to demonstrate the skills necessary to convert, redesign and create contract design space; explain the concept of open office planning; and compare and analyze the costs and benefits of open planning versus closed planning. 2 hr. lecture, 3 hrs. lab/wk. NOTE: The prerequisite of DRAF 264 requires a grade of "C" or higher.
**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. NOTE: The prerequisite of ITMD 125 requires a grade of "C" or higher.

**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)**

_P 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, 1 hr. lab/wk. NOTE: The prerequisite of DRAF 264 and either ITMD 122 or ITMD 123 all require a grade of "C" or higher.

**ITMD 237**

**Capstone: Merchandising and Entrepreneurship (2 CR)**

_P rerequisite: Approval of program facilitator_

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.

**ITMD 239**

**Capstone: Interior Design (2 CR)**

_P rerequisite: 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.

**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)**

_P 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. NOTE: The prerequisites of ITMD 121 and ITMD 125 and MATH 120 or higher all require a grade of "C" or higher.

**ITMD 273**

**Interiors Seminar: Practices and Procedures (2 CR)**

_P rerequisite: 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. NOTE: The prerequisite of ITMD 122 or ITMD 123 both require a grade of "C" or higher.

**ITMD 282**

**Interiors Internship I (1 CR)**

_P rerequisite: 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. NOTE: The prerequisite of ITMD 121 requires a grade of "C" or higher.

**ITMD 284**

**Interiors Internship II (1 CR)**

_P 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...
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 into the interpreter training program Coerequisites: (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 Coerequisites: 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 Colonos 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)

**Prerequisites:** INTR 122 or ASL 122 or FL 270 with a grade of "C" or higher Coerequisites: 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)

**Prerequisites:** Acceptance to interpreter training program and Prerequisite or corequisite: ANTH 125 and SPD 120 for Interpreter Training Program Coerequisites 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

**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)**

**Prerequisite:** INTR 130 with a grade of "C" or higher

**Corequisites:** (INTR 123 or ASL 123) and INTR 131 and INTR 135 and INTR 248 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 in 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 (3 CR)
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
Introduction to Broadcasting (3 CR)
This course serves as a general introduction to students interested in pursuing knowledge of a career in radio and television broadcasting. The course includes a study of the industry's development, its form and function, job responsibilities, basic production techniques, audience measurement, FCC regulations and ethics. Class time will include discussion of current trends and issues in the field, with students developing an understanding of broadcast media. Productions in the college's audio booth and TV facilities offer an opportunity to experience the field of broadcasting. These experiences will allow students to evaluate broadcasting as a possible career choice. 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 work 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, both verbally and in writing. 3 hrs./wk.

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 criticized. 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 the elements of layout and copywriting for promotional purposes, with emphasis on advertising, direct mail and public relations writing. 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 $20 to $30.

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 minimum grade of "C" 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 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 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 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 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 U.S 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 & 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-A 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-A 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-A 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 - You MUST enroll in both 16087-MATH 115 013 and 19067-LS 174 002 (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-You MUST enroll in both 16074-MATH 111 004 and 19066-LS 174 001 (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 - You MUST enroll in both 19032-ENGL 122 042 and 19260-BIOL 130 009 (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.

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, sex 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 131
Legal Research and Writing I (3 CR)
Prerequisites: Admission to the paralegal program and BOT 106 or department approval
This course will introduce the student to the types of specialized informational resources used to perform legal research, including both print and electronic media. The student will become familiar with the major characteristics of these resources and how to use them. The student will learn how to design a research strategy, and will learn a systematic method for researching legal issues and managing the legal research process. Numerous opportunities will be provided for skill development in the use of the these resources. 3 hrs. lecture/wk.

LAW 132
Civil Litigation (3 CR)
Prerequisites: 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 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 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)
In this course, students will examine the functions of legal nurse consultants
in a professional legal document. Numerous opportunities will be
provided for skill development. 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 223**

**Law Office Computing (3 CR)**

Prerequisites: Paralegal program students - admission to the paralegal
program and completion of BOT 106

Upon successful completion of this course, the student should be able to
evaluate and use legal software to perform customary law office procedures
including computer litigation support, drafting and editing of specific legal
documents, document and file management, time-keeping and billing, docket
control, and forms generation. 3 hrs. lecture/wk. LAW 223 and CIS 223 are the
same course.

**LAW 225**

**Legal Nurse Consultant Profession (1 CR)**

Prerequisite: Admission to the legal nurse consultant program or assistant
dean's 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 consultants - 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 department 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 and LIBR 125

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-related correspondence; summaries of
medical/science 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 268**

**Bankruptcy (2 CR)**

*Prerequisite: Paralegal program students - admission to the paralegal program or department 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 Bankruptcy Court procedures and the preparation of bankruptcy forms and documents. Emphasis will be on the role of the legal assistant in a bankruptcy practice. 2 hrs. lecture/wk.

**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 - LAW 132. legal nurse consultant students - LAW 132 or LAW 260 Corequisite: Paralegal program students - LAW 205. Legal nurse consultant students - LAW 205 or LAW 250*

Upon successful completion of this course, the student should 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 133**

**Salesmanship (3 CR)**

Upon successful completion of this course, the student should be able to define and contrast the three main areas of selling -- direct, wholesale and retail -- and explain the selling process. In addition, the student should be able to define the steps of selling and identify their appropriate application. The student should also be able to demonstrate selling skills through role play and presentations. Students who have received credit for MKT 134 may not receive credit for MKT 133. 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

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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 or MKT 133*

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.

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**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, radical 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. 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 $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 133**

**Technical Mathematics I (4 CR)**

Prerequisite: MATH 111 with a grade of "C" or higher or 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 trigonometry and their applications. Topics will include operations with polynomials, linear equations, systems of equations, right triangle trigonometry and basic statistical concepts. 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 $0 to $100.

**MATH 134**

**Technical Mathematics II (5 CR)**

Prerequisite: MATH 133 or an equivalent course with a grade of "C" or higher

This course is the second of a two-semester sequence on technical applications of algebra and trigonometry. Topics will include factoring, algebraic fractions, quadratic equations, exponents, radicals, an introduction to coordinate geometry, logarithmic and exponential functions, trigonometric graphs and identities. 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 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. MATH 165 is only offered during the spring term.

**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 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 nonfunctions; 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. Not available for credit for students with credit in MATH 173. 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. Not available for credit for students with credit in MATH 173.

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. Not available for credit for students with credit in MATH 171 and/or MATH 172.

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 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, psychology and the physical sciences. 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 an 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 focuses 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 Z87.1 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 welder 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)

Prerequisite: MFAB 121 or MFAB 130

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 gas of 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

Metalurgy (2 CR)

Metalurgy 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 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 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 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 $150.

Music (MUS)

MUS 121

Introduction to Music Fundamentals (3 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 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 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 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 131
Sight-Singing and Ear Training I (2 CR)
Prerequisite: MUS 130
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. Students will learn to harmonize melodies at the keyboard and play simple chord progressions on the piano. 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 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
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 165
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 166
Music Composition III (1 CR)
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 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 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 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 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 major scales, chord construction and compound rhythms. 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 chamber 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 282
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 beginning-level course that provides a basic knowledge of keyboard instruments. This course uses private lessons to continue instruction in 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 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 compound 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 duple and triple 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 intermediate music reading skills. Students will progress toward playing literature requiring intermediate skill levels.

**MUS 243**
Applied Guitar III (Private) (1 CR)

**Prerequisite:** MUS 242 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 244**
Applied Guitar IV (Private) (1 CR)

**Prerequisite:** MUS 243 or department approval

This is a 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 progress toward playing and performing more advanced pieces and guitar studies.

**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 continue with studies and short pieces, then progress toward longer pieces with the intent of performing these in a recital situation.

**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)
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.

Prerequisite: MUS 253 or placement by instructor

MUS 254
Applied Brass IV (Private) (1 CR)

This is an advanced-level course for the student with at least three 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 embouchure development, minor scales and dupe and triple meters.

Prerequisite: MUS 262 or placement by instructor

MUS 263
Applied Woodwind III (Private) (1 CR)

This is an intermediate-level course for the student with at least two semesters of prior woodwind study. The student will learn the advanced concepts of woodwind performance through written exercises and performance. Topics to be covered include chromatic scale, quadruple rhythmic patterns and chord construction.

Prerequisite: MUS 263 or placement by instructor

MUS 264
Applied Woodwind IV (Private) (1 CR)

This is a beginning-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 dupe and triple rhythm, snare drum rudiments and basic snare drum performance patterns.

Prerequisite: MUS 256 or placement by instructor

MUS 257
Applied Percussion I (Private) (1 CR)

This is an entry-level course for the student with little or no experience in playing percussion. The student will learn the beginning concepts of percussion performance. Topics to be covered include pentatonic scale, whole tone scale and melodic contours.

Prerequisite: MUS 256 or placement by instructor

MUS 258
Applied Percussion II (Private) (1 CR)

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 compound rhythm, snare drum rudiments and basic timpani skills.

Prerequisite: MUS 258 or placement by instructor

MUS 259
Applied Percussion III (Private) (1 CR)

This is an intermediate-level course for the student with at least two semesters of prior brass instrument study. The student will learn the advanced concepts of percussion performance. Topics to be covered include snare drum rudiments, basic mallet percussion skills and suspended cymbal skills.

Prerequisite: MUS 268 or placement by instructor

MUS 268
Applied Percussion IV (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.

Prerequisite: MUS 261 or placement by instructor

MUS 261
Applied Woodwind I (Private) (1 CR)

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 dupe and triple meters.

Prerequisite: MUS 263 or placement by instructor

MUS 263
Applied Woodwind III (Private) (1 CR)

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.

Prerequisite: MUS 263 or placement by instructor

MUS 264
Applied Woodwind IV (Private) (1 CR)

This is a beginning-level course for the student with little or no experience in playing percussion. The student will learn the beginning concepts of percussion performance. Topics to be covered include basic dupe and triple rhythm, snare drum rudiments and basic snare drum performance patterns.

Prerequisite: MUS 256 or placement by instructor

MUS 257
Applied Percussion I (Private) (1 CR)

This is an entry-level course for the student with little or no experience in playing percussion. The student will learn the beginning concepts of percussion performance. Topics to be covered include pentatonic scale, whole tone scale and melodic contours.

Prerequisite: MUS 257 or placement by instructor

MUS 258
Applied Percussion II (Private) (1 CR)

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.

Prerequisite: MUS 257 or placement by instructor

MUS 259
Applied Percussion III (Private) (1 CR)

This is an intermediate-level course for the student with at least two semesters of prior brass instrument study. The student will learn the advanced concepts of percussion performance. Topics to be covered include basic duple and triple rhythm, snare drum rudiments and basic snare drum performance patterns.

Prerequisite: MUS 257 or placement by instructor

MUS 258
Applied Percussion II (Private) (1 CR)

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 compound rhythm, snare drum rudiments and basic timpani skills.

Prerequisite: MUS 259 or placement by instructor

MUS 259
Applied Percussion IV (Private) (1 CR)

This is a beginning-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.

Prerequisite: MUS 261 or placement by instructor

MUS 261
Applied Woodwind I (Private) (1 CR)
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. 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 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 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.
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 the occupational therapy assistant program 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 II (3 CR)

Prerequisites: KOT 118 and KOT 120 and KOT 121 and KOT 130 and KOT 154

Directed clinical 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 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 161

Elementary Symbolic Logic (3 CR)

This course is a beginning course in symbolic logic and should be of particular benefit to those students who will pursue more advanced studies in linguistics, philosophy of language, mathematics or computer science. Students will be introduced to modern analytical techniques of formal deductive logic. Students should gain the ability to use a formal language to translate English language arguments and the ability to demonstrate the validity or invalidity of symbolic arguments using the techniques of truth-table analysis and formal proof. Some attention will also be given to the historical development of symbolic logic. 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.

PHIL 212

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.

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 the 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 125

Photography for Publication (3 CR)

Prerequisite: PHOT 121

This course provides an introduction to the concepts and application of photographic imaging for media publication. Students will use cameras, computers, software, scanners and image-output devices to master the issues, concepts and constraints involved in creating images for a broad range of publication needs. They will prepare and format digitized image files for
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This course is designed to meet the photographic imaging needs of journalism students. 6 hrs. lecture, lab/wk.

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," manipulate, correct, transmit, store and output images. They will use digital technology to produce images for commercial and/or artistic applications. Ethics and cultural implications of the technology will be discussed. 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.

Physical Ed, Health & Rec (HPER)

HPER 100
Basketball (Beginning) (1 CR)
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.

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.

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.

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.

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. 3 hrs. activity/wk.

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. HPER mini-courses meet an additional 16 hours on a modular schedule.

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
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. HPER mini-courses meet an additional 16 hours on a modular schedule.

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.

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.

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.

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.
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.

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.

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.

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.

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.

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.

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. HPER mini-courses meet an additional 16 hours on a modular schedule.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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: taiso (exercise), kata (forms), kumite (sport/free fighting) and self-defense application. 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 $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.

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.

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.

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.

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.

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. 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 $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. 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 $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.  
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. HPER mini-courses meet an additional 16 hours on a modular schedule.  
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.  

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.  

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.  

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. lecture/wk.  

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  

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.  

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.  

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.  

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.  

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.

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.

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.

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.

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.

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.

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.

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.

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.

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. Spring

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.

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
Fall-2009

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. The course includes an integrated laboratory 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 electricity and magnetism, light, 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. 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, 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. 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 133 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 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

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.

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**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 ICCC 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 program

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 and upper airway collapse. 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.

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Power Plant Technology (PPT)

PPT 130
Basic Hydraulics, Mechanics and Pneumatics (3 CR)
This introductory course is designed to give a general overview of hydraulic, mechanic and pneumatic principles. Upon successful completion of this course, the student will be able to describe the concepts involved in industrial maintenance of hydraulic, mechanical and pneumatic equipment and identify the major components and their functions. Topics will include hydraulics, pneumatics, rigging, ladders, scaffolds, lubrication, drive belts, vibrations, mechanical drives, alignments, bearings and electricity. This course is appropriate for power plant technology majors or other interested students. 3 hrs. lecture/wk.

PPT 140
Generating Plant Fundamentals (3 CR)
This is an introductory course designed to give a general overview of power plant operations and functions. Upon successful completion of this course, the student will be able to describe the concepts involved in converting energy to electricity through a steam generation power plant and identify the major components and their functions. Topics will include fossil fuels, boilers, turbines, feedwater heaters, ash removal, condensate, power plant controls, and temperature and pressure relationships. This course is appropriate for power plant technology majors or other interested students. 3 hrs. lecture/wk.

PPT 150
Station Power Fundamentals (3 CR)
This course will give students the ability to describe the concepts involved in providing electricity to a power plant. Topics will include electrical concepts, the power grid, switchyards, transformers, critical services, essential services and black-out conditions. This course is appropriate for power plant technology majors or other interested students. 3 hrs. lecture/wk.

PPT 210
Reading Piping & Instrument Diagrams (3 CR)
This course will enable the student to be able to read a set of piping and instrument diagrams (P&IDs) and trace the flow paths of the major systems in a power plant. Topics will include symbols and terminology, the condensate system, the feedwater system, high pressure steam, extraction steam, fuel flow, auxiliary cooling, and lubrication systems. This course is appropriate for power plant technology (PPT) majors or other interested students. 3 hrs. lecture/wk.

PPT 230
Introduction to Water Chemistry & Water Treatment (3 CR)
Prerequisite or corequisite: MATH 171
This introductory course is designed to give a general overview of water chemistry and water treatment in power plants. Upon successful completion of this course, the student should be able to describe the concepts and solve the problems associated with water treatment in boiler operations. Topics will include hydrology, specific gravity of liquids, acids, bases, measurements, cooling towers, clarification, ion exchange and filtration. This course is appropriate for power plant technology majors and other interested students. 3 hrs. lecture/wk.

PPT 250
Intro to Power Plant Combustion and Exhaust (3 CR)
Prerequisite: PPT 140
Upon successful completion of this course, the student should be able to
describe the concepts involved in the combustion of fuel for energy generation. Topics will include fuel handling, combustion requirements, combustion control and by-products of combustion. This course is appropriate for power plant technology majors and other interested students, with the permission of the instructor. 3 hrs. lecture/wk.

**PPT 251**

*Introduction to Power Plant Steam and Water Cycle (3 CR)*

*Prerequisite: PPT 140*

Upon successful completion of this course, the student will be able to describe the steam water cycle in a steam generation plant. Topics will include boilers, turbines, feedwater heaters, condensers, cooling towers and auxiliary equipment. Enrollment in the course is limited to power plant technology majors or by permission of the instructor. 3 hrs. lecture/wk.

**PPT 271**

*Power Plant Technology Internship (3 CR)*

*Prerequisite: Department approval required*

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 employees, college staff and each student to provide a variety of actual job experience directly related to the student’s career goals. This course is only available to students who have declared a power plant technology major. 20 hrs. on-the-job training/wk., or a minimum of 40 hrs./wk. on the job for summer semester.

**PPT 280**

*Power Plant Operations and Process Controls (3 CR)*

*Prerequisites or corequisites: PPT 250 and PPT 251*

Upon successful completion of this course, the student should be able to describe the concepts involved in operating a steam generation power plant and identify the major components and their functions. Topics will include cold start-up, warm start-up, shutdown, normal operations, load changes, safety checks, and power plant controls. This course is designed to integrate and build on previous power plant technology course work. This course is appropriate for power plant technology majors and other interested students with the permission of the instructor. 3 hrs. lecture/wk.

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**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 For incoming PN students in the fall of 2009, PSYC 218 may be taken as a corequisite during the first semester 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 mathematical skills, and basic nursing care. Course instruction will occur in the classroom and laboratory setting. The in-state tuition is $104, and the out-of-state tuition is $410. 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)*

*Prerequisites: Admissions 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 For incoming PN students in the fall of 2009, PSYC 218 may be taken as a corequisite during the first semester 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 $208, and the out-of-state tuition is $820. 60 hrs lecture/semester.

**PN 126**

*KSPN Foundations of Nursing Clinical (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. For incoming PN students in the Fall of 2009, this class may be taken as a corequisite during the first semester. 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 $104, and the out-of-state tuition is $410. 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)*

*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. For incoming PN students in the fall of 2009, PSYC 130 may be taken as a corequisite during the first semester. 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*

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 $208, and the out-of-state tuition is $820. 60 hrs lecture/semester.

**PN 131**

*KSPN Medical Surgical Nursing I 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; BIOL 144 and PSYC 130 and PSYC 218. For incoming PN students in the fall of 2009, PSYC 218 may be taken as a corequisite during the first semester 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 $156, and the out-of-state tuition is $615. 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)**

**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 PSTC 218. For incoming PN students in the fall of 2009, PSTC 218 may be taken as a corequisite during the first semester. Corequisites: PN 200 and PN 215 and PN 266 and PN 300 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 $156, and the out-of-state tuition is $615. 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 PSTC 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 $104, and the out-of-state tuition is $410. 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 PSTC 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 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 $52, and the out-of-state tuition is $205. 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 $104, and the out-of-state tuition is $410. 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 PSTC 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 $52, and the out-of-state tuition is $205. 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 PSTC 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 $208, and the out-of-state tuition is $615. 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. 60 hrs. 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; 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 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 $156, and the out-of-state tuition is $615. 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

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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 PSTC 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 $104, and the out-of-state tuition is $410. 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 PSTC 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 prerequisites. The course will be presented using case studies and simulation. Focus will be placed on the affects of polypharmacy and the presence of multiply 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 $104, and the out-of-state tuition is $410. 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 PSTC 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 $134, and the out-of-state tuition and fee is $440. 40 hrs. lecture/semester.

PSYC 130

Introduction to Psychology (3 CR)

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

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 PSYC 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)
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 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, medicolegal 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 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 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 classes and beginning and ending dates of classes. Call 816-759-4000.

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**Railroad Conductor (RRTC)**

**RRTC 123**

Introduction to Conductor Service (4 CR)

Prerequisite: Admission to the JCCC railroad operations program, conductor option

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

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.

**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

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

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.

**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

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.

**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.
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hs. 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 program assistant dean

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 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 112
Track Circuits and Systems (4 CR)
Prerequisites: Successful completion of RREL 110 and approval of the railroad training administrator and the 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 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 program assistant dean

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 studio/total

RREL 144
Introduction to Programmable Logic Controllers (2 CR)
Prerequisites: Approval of the railroad training director and the JCCC program assistant dean

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 program assistant dean

This course is an introduction to programmable logic controllers using Allen Bradley PLC-5 processors is used for hands-on-training. 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 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 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 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

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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 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 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 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 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 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 welsds, 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 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 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 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 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 135 and approval of the BNSF manager of engineering and maintenance training and 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 program assistant dean
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 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 program assistant dean
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 program assistant dean

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 program assistant dean

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 arc 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 program assistant dean

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 program assistant dean

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 Railroading (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)
Prerequisite: 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
Railroad Car Repair Track Inspector (3 CR)
Prerequisite: 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 140
Locomotive Electricity (3 CR)
Prerequisite: Approval of the railroad training administrator and the JCCC program assistant dean
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 142
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 program assistant dean
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 program assistant dean
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 program assistant
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 program assistant dean
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 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 regulations 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 program assistant dean

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 program assistant dean

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 program assistant dean

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 program assistant dean

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 program assistant dean

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 program assistant dean
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 program assistant dean
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 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 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.

RDG 126
Reading Skills Improvement (3 CR)
Prerequisites: Appropriate test score, or either RDG 125 or EAP 093 and EAP 115 with a grade of "C" or higher
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.

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 fall 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 spring 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 $200 to $600.

**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, pulmonary function and cardiopulmonary stress testing. 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 $200 to $600.

## Sociology (SOC)

**SOC 122**

**Introduction to Sociology (3 CR)**

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 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

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.

Associated Costs: In addition to the course tuition, fees, and textbooks, this course has additional expense considerations that are estimated to be $1 to $5.

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 $1 to $5.

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 $1 to $5.

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 $1 to $5.

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 the equivalent
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 the equivalent
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 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 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.
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 (1 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 are essential for actors, broadcast journalists, educators and other public speakers. 3 hrs. lecture/wk. This course is typically taught in the fall semester.
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 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 fall 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)
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 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 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 the 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. 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 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, restraints, 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.
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