Iowa Valley Community College District

2016 – 2017 Catalog

Iowa Valley Community College District
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IVCCD Website

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Phone (641) 648-4611 or (800) 322-9235 • Fax (641) 648-3128
ECC Website

Marshalltown Community College
3700 South Center Street, Marshalltown, IA 50158
Phone (641) 752-7106 or (866) 622-4748 • Fax (641) 752-8149
MCC Website

Iowa Valley Grinnell
123 6th Avenue West, Grinnell, IA 50112
Phone (641) 236-0513 or (800) 756-0513 • Fax (641) 236-0036
IVG Website

Iowa Valley Community College District (which operates Ellsworth Community College, Marshalltown Community College, Iowa Valley Grinnell, and Iowa Valley Continuing Education) is accredited by The Higher Learning Commission (ph. (312) 263-0456), the Iowa Department of Education, and the National Alliance of Concurrent Enrollment Partnerships; some individual degree programs are also accredited by agencies specific to those areas of study. IVCCD is a member of the North Central Association of Colleges and Schools. IVCCD has articulation agreements with Iowa's Regent universities and many other colleges in Iowa and the Midwest. IVCCD offers classes on a semester basis.

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Our Mission - Iowa Valley Community College District is committed to providing quality learning experiences, ensuring student success, responding to diverse community needs, and building community partnerships.

Our Vision - We will serve our communities as the essential catalyst for educational and economic vitality.

Our Core Values

1. Educational Excellence
2. Leadership & Communication
3. Partnerships
4. Recognition & Success
5. Growth
6. Quality

College Calendar

2016-2017 Academic Year

Fall Semester 2016

August 15 – 19 .... Student Registration Days
August 15 – 19 .... Various Unit Workshop Days
August 24 .... First Day for ECC Classes
August 29 .... First Day for MCC/Grinnell/Online Classes
September 5 .... Labor Day; no classes
September 30 ....Last Day to Drop 1st Half Classes with a "W"
October 20 – 21 ....Last Day of 1st Half Classes
October 21 .... ECC Faculty Work Day (no ECC Classes)
October 24 ....First Day for 2nd Half Classes
November 18 ....Last Day to Drop 2nd Half and All Classes with a "W"
November 21 – 25 .... Thanksgiving Break ECC Students
November 23 – 25 .... Thanksgiving Break MCC Students/Staff; no classes
December 12 – 16 .... Final Exams (Monday night classes meet)

Winter Interim* 2016

December 19 .... Classes begin
January 3 .... Classes end

Spring Semester 2017

January 2 – 6 .... Student Registration Days
January 9 .... First Day for All Classes
January 16 .... No Classes; Staff Workshop Day
February 17 ....Last Day to Drop 1st Half Classes with a "W"
March 3 ....Last Day of 1st Half Classes
March 6 ....First Day for 2nd Half Classes
March 13 – 17 .... Spring Break
April 14 ....Last Day to Drop 2nd Half and All Classes with a "W"
May 1 – 5 .... Final Exams (Monday night classes meet)
May 5 ....MCC Graduation
May 5 .... ECC Graduation
May 9 ....Staff Workshop Day

Summer Session* 2017

May 15 .... First Day for 1st Half and All Classes
May 29 ....Memorial Day; College closed
June 2 ....Last Day to Drop 1st Half Classes with a "W"
June 16 ....Last Day of 1st Half Classes
June 19 ....First Day for 2nd Half Classes
June 16 .... Last Day to Drop Full Session Classes
July 4 ....4th of July; College closed
July 7 ....Last Day to Drop 2nd Half Classes with a "W"
July 21 ....Last Day of 2nd Half and All Classes

Completion dates depend on length of individual classes or programs.

Disclaimer: The community college is a dynamic institution, constantly changing, constantly adjusting. The goal is to change with the needs and demands of our constituents (the students, the academic community, the wider community). The result is that in a catalog much of the information, while accurate at the time of printing, will change. IVCCD reserves the unrestricted right in its sole discretion to make changes in this catalog and in any policies, procedures, course offerings, educational programs, class schedules, tuition, fees, or personnel at any time, without notice.
This catalog is published for general information purposes only and does not constitute or establish a contract of any kind between the College and a student or prospective student. The College reserves the privilege to change, without notice, any information in this catalog.

Iowa Valley Community College District

"The College" refers to Iowa Valley Community College District which operates Ellsworth Community College/ECC, Marshalltown Community College/MCC, Iowa Valley Community College Grinnell/IVG, and Iowa Valley Continuing Education/IVCE.

Ellsworth Community College

Ellsworth Community College in Iowa Falls was founded in 1890 as a business academy to help build the growing needs of the area workforce. In the 126 years since its founding by Eugene S. Ellsworth, the College has established a strong tradition of educational excellence. It has evolved through many transitions in its mission to serve the changing needs of its public. Founded as a business academy, Ellsworth became a four-year college, a music conservatory, and a public junior college before emerging as a comprehensive community college under the jurisdiction of Iowa Valley Community College District. ECC now serves the needs of Hardin and surrounding counties as well as students from around the state, nation, and world.

ECC's curriculum includes arts & sciences transfer programs as well as many career-technical education programs. The complete listing of the available education programs is on page 11.

Student sports and activities include band, choir, football, wrestling, basketball, softball, volleyball, baseball and cheer. Several campus clubs and organizations offer leadership opportunities and social activities. These clubs include Ag Science Club, Art Club, Business Professionals of America, College Democrats, College Republicans, Conservation Club, Criminal Justice Club, Diversity Club, Education Club, Intercollegiate Horse Show Association, International Club, Multicultural Club, Phi Theta Kappa, Social and Behavioral Science Club, Spirit Squad, Student Senate, and Youth for Understanding,

Through the Ellsworth College Foundation and the Ellsworth College Board of Trustees, ECC maintains a strong scholarship program. The College participates in all federal and state financial aid programs making ECC one of the most affordable higher education options in the state of Iowa. ECC's picturesque campus includes the Gentle Student Center, an indoor pool/sauna, residence halls and apartment style student housing, and historic Bullock Jones Hall. In addition, Calkins Nature Center, approximately four miles from campus, provides students and area residents a 76-acre woodland classroom along the Iowa River as well as an interpretive center which houses the Ellsworth College Museum. The Dale Howard Family Activity Center opened in 2009. On the Robert and Arlene Hamilton campus just south of Iowa Falls, the Agriculture and Renewable Energy Center and the Ellsworth Equestrian Center opened in 2010.

Marshalltown Community College

The Marshalltown Community College campus is located just to the south of Marshalltown along Highway 30. A second campus, Iowa Valley Grinnell, is located in Grinnell and offers MCC college credit courses and continuing education to students in that geographic area.

Student activities include Phi Theta Kappa, Multicultural Club, College Republicans, FROG (Forever Representing Our God), Youth for Understanding, GLBTQ Alliance, and events sponsored by the Student Activities Council and Student Senate. MCC also has cheerleading and intercollegiate basketball, baseball, softball, soccer, and volleyball. MCC's campus includes a library, student center, apartment-style student housing, science laboratories, and an outdoor biology study area. The College participates in federal and state financial aid programs.

Marshalltown Community College was founded in 1927 as Marshalltown Junior College, a part of the Marshalltown Community School District. In 1966, in compliance with laws enacted by the 1965 Iowa Legislature to provide for post-secondary education in the state of Iowa, the College moved under the jurisdiction of the Iowa Valley Community College District (Merged Area VI).

The College continues to develop its campus on a 209-acre tract on the south side of Marshalltown. The north wing houses many of the vocational-technical programs. The center section is the site of most classrooms and laboratories for instruction in the liberal arts and sciences. A physical education center (Babe Harder Complex) with facilities for large group meetings and the original College center (student union) and library are also a part of the central section of campus. The south wing includes facilities for the College's health career programs.

In addition, a new telecommunications center (with two Iowa Communications Network classrooms) and a major conference center/dining hall/lecture hall on campus are administered by Iowa Valley Continuing Education. The campus also includes the John W. Norris, Sr. Technology Center.

In 2000, the College constructed apartment-style student housing on the east side of campus and installed an outdoor Challenge Course designed for leadership and team-building training programs; funding for the Challenge Course was provided by the Iowa Valley Leadership Class of 2000. The College also remodeled the science labs on campus.

In 2001, the College opened its new front entrance and expanded Student Services offices. The new area includes a lobby/reception space, Admissions Office, Financial Aid Office, Registrar's Office, and Business Office.

The construction of a Building Trades facility on the northwest corner of the campus was competed in 2005.

As the result of a 2006 bond issue, a new Student Activity Center and the Orpheum Theater Center, located in downtown Marshalltown, were constructed. A new welding lab, also part of the bond Issue, opened in 2008. A third student housing unit, not part of the bond issue, opened in 2009. The Entrepreneurial & Diversified Agriculture building opened in 2009.

Iowa Valley Grinnell

Iowa Valley Community College Grinnell was established as a center for Iowa Valley Community College District in 1993. The center served the Poweshiek County area from rental property in downtown Grinnell until 2002, when it moved into a remodeled facility.

Iowa Valley Community College Grinnell serves as an outreach center for Marshalltown Community College and Iowa Valley Continuing Education. IVCC Grinnell's credit curriculum includes an arts & sciences transfer program, career option programs in Business Administration and Criminal Justice, and vocational training in Automotive Technology, Culinary Apprenticeship, Gunsmith Technology and Paralegal.

The IVCC Grinnell campus includes a Learning Center, and Iowa Communications Network classroom, a Technology Center, the Brownells Computer Lab, and the Wellborn Student Lounge. Six new learning studios were added in 2006.

Statement of General Education

General education is intended to provide breadth of learning. General education imparts common knowledge, promotes intellectual inquiry, and stimulates the examination of different perspectives, providing students with knowledge, information, and skills essential for successful life in a complex, changing world.

General education relates both to students' technical or professional preparation and to their personal, social, and lifelong learning needs. Most important, inherent in the idea of general education is the love of learning and the idea of civility and respect for all persons.

Common Learning Objectives

1. Students will demonstrate acquiring knowledge.
2. Students will demonstrate thinking critically and solving problems.

3. Students will demonstrate reading, writing, speaking and listening communications.
4. Students will recognize and understand good citizenship.
5. Student will demonstrate technological and information literacy.

Educational Equity Policy Statement

It is the policy of Iowa Valley Community College District to provide equal opportunities in its educational programs, activities, practices, and policies without discrimination on the basis of color, creed, gender identity, mental or physical disability, national origin, race, religion, sex, or sexual orientation.

Also, it is IVCCD's policy to provide equal opportunities in its employment practices and policies for all employees and applicants for employment without discrimination on the basis of age, color, creed, disability, gender identity, genetic information, national origin, race, religion, sex, sexual orientation, and veteran status.

Retaliation against any individual for reporting discrimination or assisting in providing information relevant to a report of discrimination is strictly prohibited by IVCCD and constitutes a violation of this policy.

The institution shall provide program activities, a curriculum, and instructional resources which reflect the diversity present in the United States and the variety of roles and opportunities available to all persons in our society. The curriculum, programs, and services shall foster respect and appreciation for the diversity found in our country and an awareness of the rights, duties, and responsibilities of each individual as a member of a pluralistic society.

A fair and supportive environment will be provided for all students. Harassment of a sexual nature, or related to any legally protected characteristics, made from an employee to a student or vice versa, or from one employee or student to another, is a violation of this policy.

Students who feel they have been subjected to discrimination in violation of this policy may file a formal complaint through the District Complaint Procedure. Grievance forms may be obtained from the offices of the Provost at Ellsworth Community College, the Provost at Marshalltown Community College, the Vice Chancellor of Iowa Valley Continuing Education, or the Dean at Iowa Valley Grinnell.

Inquiries or grievances related to this policy may be directed to the following individuals:
- Dr. Patrick Kennedy, Dean of Academic Affairs at Marshalltown Community College. Ph: (641) 844-5716; E: Patrick.Kennedy@iavalley.edu
- Dr. Lisa Stock, Dean of Academic Affairs at Ellsworth Community College. Ph: (641) 648-8633; E: Lisa.Stock@iavalley.edu
- Jacque Goodman, Vice Chancellor at Iowa Valley Continuing Education. Ph: (641) 844-5640; E: Jacque.Goodman@iavalley.edu

Complaints may also be filed with the Iowa Civil Rights Commission in Des Moines at (515) 281-4121, or with the Office for Civil Rights, U.S. Department of Education, in Chicago, IL (312) 730-1560.

In the event that a complaint cannot be satisfied through one of these avenues, the Iowa College Student Aid Commission (ICSAC) is authorized to receive and review complaints from students. You may contact ICSAC to register your complaint. If an issue cannot be resolved through ICSAC, you may file a complaint with either the Iowa Department of Education (515) 281-0319) or the Higher Learning Commission (ph. (312) 263-0456).

Smoke-Free Air Act

IVCCD complies with Iowa's Smoke-Free Air Act of 2008. In conjunction with this, the IVCCD Board of Directors prohibits the use of tobacco in any form (including nicotine simulation or vapor products such as e-cigarettes) on its grounds or in any of its facilities or vehicles. This includes personal vehicles owned or operated by students while on school grounds. Civil penalties can be assessed to those found in violation of this regulation. To register a complaint, contact a District official or the Iowa Department of Public Health at 1-888-944-2247.

Admissions & Enrollment

It is the policy of the College to admit all individuals with either a high school diploma or its equivalent (HSED/GED) and students who wish to transfer from other colleges and universities. High school students who meet the Senior Year Plus requirements may enroll in dual credit courses with permission from the student's high school and the College.

Home-schooled students will be considered for admission on the same basis as traditional high school graduates. Students should submit ACT, SAT, or COMPASS results and descriptive information regarding their high school program of study. Course descriptions or portfolios will be accepted in place of an accredited diploma.

For students without a high school diploma or its equivalent (HSED/GED diploma) who apply for admission to degree or certificate programs, the College uses references, personal interviews, available school records, and/or counselor evaluations to admit and to predict potential success or ability to benefit from the training offered.

Admission to the College, however, does not ensure admission to any specific program of instruction. The College attempts to guide the placement of students on the basis of student interests, counseling, examination, pre-enrollment interviews, and past academic achievement or work experience.

Admission to full-time programs is granted on an ongoing basis as applicants complete required admissions procedures.

Students should contact the Admissions Office or their program of interest for important dates and information.

Students who have formerly attended the College and wish to return after an absence of two terms (not including the summer session) should apply for readmission at the Admissions Office of the campus they plan to enter. Students readmitted after an absence will be required to fulfill current graduation requirements.

Application Process – Applications for admission will not be acted upon until all admission materials and procedures, as outlined here, are completed.

For the College, all materials are to be submitted to the Admissions Office.

Marshalltown Community College, 3700 S. Center St., Marshalltown, IA 50158, (641) 752-7106.

Ellsworth Community College, 1100 College Ave, Iowa Falls, IA 50126, (641) 648-4611.

Complete the "Application for Admission" form and submit it to the Admissions Office. Paper copies of the forms are available from the Admissions Office, as well as from guidance offices of most high schools in the state. The forms are also available online.

Please be aware of these application requirements:
- The information on the application form is required. Cooperation in supplying this information speeds admission. Use full legal name (include previous name(s) if applicable).
- Students applying for full-time admission are required to submit official high school or HSED/GED transcripts.
- Students applying for financial aid must have a high school or HSED/GED transcript on file in the Admissions Office.
- Home-schooled students without a high school diploma or its equivalent (HSED/GED) will be evaluated via references, interviews, available school records, and/or counselor evaluations.
- Students currently enrolled in high school should have a 6th or 7th semester transcript sent and arrange to have a final transcript sent following graduation.
- An official transcript from each college previously attended (if any) must be provided. Faxed transcripts or transcripts issued to students will not be accepted.

ACT, SAT, or Placement Tests – Scores from the ACT, SAT, or placement tests are used in course selection and schedule planning. Students may either submit their ACT and SAT scores to the College

or complete the placement test at the College. The placement test is offered to students on a regular basis at the College and can be scheduled by calling the Admissions Office.

New Student Registration – Prior to the beginning of fall and spring semesters, the College provides new student registration sessions. As students are accepted for admission, they are invited to attend the next new student registration sessions. Parents and/or family members are also encouraged to attend the sessions with the students.

Registration activities include evaluation of students' reading, writing and math skills (placement test or ACT); distribution of student handbooks, discussion of orientation materials; appointments with academic advisors; and registration for classes and signing up for Learning Communities. A variety of other pertinent subjects are also covered.

Students with special needs who attend a registration session are encouraged to contact the Student Support Specialist at the College to discuss special needs and resources. Students with mobility problems or vision or hearing needs may ask for registration assistance by contacting the Registrar's Office prior to registration day.

Academic Advising – Upon admission, each full-time/part-time student is assigned an academic advisor who assists in choosing courses to assure graduation, transfer to another college or university, or completion of a career program. Students who are undecided about their major course of study should work closely with the academic advisor to whom they are assigned.

Academic advisors will work closely with students to assist them in accomplishing their educational and career goals and finding appropriate resources to assist with personal, social, and vocational decisions. Advisors will advise students to the best of their abilities; however it is the responsibility of students to make sure that courses and resources selected will meet the requirements for the degree, diploma, or certificate sought.

Students should maintain regular contact with their academic advisor throughout the year and are encouraged to contact their advisor whenever needed.

Registration – Registration consists of program planning, scheduling classes, and paying tuition and fees to the College.

Registration dates are publicized prior to the beginning of each term. Individuals who wish to register after classes have begun must contact the instructor directly.

To register for classes, students must fulfill all requirements of the application process, submit placement test or ACT scores, and consult with an assigned college advisor.

Contact the Registrar's Office or check the College website for more information about online registration.

While every effort is made to ensure the accuracy of information given in this catalog and whereas advisors advise students to the best of their abilities, it is, nevertheless, the responsibility of students to make sure that courses selected will meet the requirements for the degree, diploma, or certificate sought. Students who plan to transfer to another college or university to complete a degree program should contact the transfer college for verification of transferability of their coursework.

Changes in Registration – Students should plan their academic programs carefully so that registration changes are kept to a minimum. When necessary, however, changes may be made according to the following procedures:

Fall/Spring – If a student makes a course change within the first week of a semester, there is no charge for making the change (adding or dropping a class, changing from credit to audit or audit to credit). Students adding a course after the first week of classes require approval by instructor. Students are not permitted to add courses after the 2nd week of classes without specific permission. Drops made *by the student* after the first week of the semester will be listed on the student's transcript with the grade "W" (withdrew). For students not attending, the *student's failure* to "change registration" officially in the Registrar's Office may result in a grade of "F" recorded on the student's transcript for that class or classes. Information on refunds of tuition after dropping classes and the actual refund schedule can be found under Tuition Refund Policy (p. 10) section. If you believe you have an exception to this policy refer to the Student Petition for Waiver to the Drop Policy on page 6.

Withdrawal from individual courses during fall or spring semesters must occur by the end of the 13th week for 16-week courses and by the end of the 5th week for half-term courses. A withdrawal from all courses can occur up until the Friday prior to finals week. Interim or summer session withdrawals will be similarly apportioned. A student who stops going to class without officially withdrawing will earn an "F."

Information on refunds of tuition when dropping classes and the actual refund schedule can be found in the Tuition Refund Policy section.

Late or Early Start Classes – Some Fall and Spring classes do not conform to the College calendar, such as individual study classes, arranged classes, or other courses that begin earlier or later than the normal beginning date of a term and end earlier or later than the normal ending date of the term. Students may drop such a course one week (five school days) prior to the last scheduled day of the meeting of that course; this requires completion of the appropriate change form. Instructors of "late start" or "early start" classes will inform the student and Registrar's Office of the drop date. It is the student's responsibility to obtain these dates from the instructor.

Changes from Audit to Credit – Students may audit a class on a space-available basis by paying the audit fee (tuition for auditing is the same as credit). Students who audit a course and wish to change their registration to credit status may do so by completing the appropriate change form prior to the last drop date and completing all test, examinations, or other assignments in the course. Students may not change their registration from credit to audit.

Withdrawal From All Classes – Students who find it necessary to withdraw from all of their courses should confer immediately with their advisor or Student Success Specialist and complete a Withdrawal form, available from the Registrar's Office. Failure to do so may result in the issuance of failing grades in all classes in which the student is registered. A complete withdrawal from all courses can occur up until the Friday prior to finals week. Interim or Summer session withdrawals will be similarly apportioned. If students withdraw in the first 12% of the term and are not receiving federal financial aid, they are entitled to a refund of tuition based on the Tuition Refund Policy (p. 10) section. Students receiving federal financial aid should refer to the Financial Aid Refund Policy (p. 11) section.

Instructors determine specific class attendance policies. Instructors may consider class participation, examinations, and/or group work when determining grades. It is the responsibility of the student to understand each instructor's policy.

Student Petition for Waiver to the Drop Policy – **Due to Extenuating Circumstances** – Students who miss the deadline for dropping a course or for receiving a refund of tuition and fees may file an appeal requesting that the deadline in question be waived. In order to appeal, students complete a Student Petition for Waiver form and submit it to the Registrar's Office no later than one year from the last day of the course(s) in question. Due to federal regulations, students who receive federal financial aid may not have a full year to petition a change in registration from a previous term. Petitioning students must provide a statement regarding the extenuating circumstances that precluded compliance with the deadlines; documentation must be submitted in support of the petition statement. The student's written statement and supporting documentation, along with any information available within the College (student records, instructor statements, Financial Aid records, etc.) will be reviewed by the Student Petition for Waiver Committee. The student will be notified by mail of the final decision, and the complete petition packet will be placed in the student's permanent file. The student has the right to appeal the

Committee's decision by resubmitting a Student Petition and providing further documentation or explanation as necessary.

Auditing Classes – Auditing means students attend a class but do not receive College credit on their transcripts. Students may audit a class upon payment of tuition. A student file will be maintained for those auditing classes and records will show courses audited.

Non-high school students who audit a class will receive a notation on their transcripts. Responsibility for the completion of assignments and tests in an audited class is at the discretion of the instructor and the student.

Students who audit a course may change their registration to credit status by completing the appropriate Change form prior to the last drop date, paying the change fee at the Registrar's Office, and completing all tests and other assignments in the course. Students may not change their registration from credit to audit.

Class Load – A full-time student is one whose load is 12 or more credit hours, during a full 16 week semester. Maximum load for any student without specific approval of the Registrar's Office is 18 credit hours in one semester or 6 credit hours in one interim session, except in specific career programs. Any student wishing to register for more than the maximum load must first obtain approval from the Registrar's Office. Approval will be based on the student's GPA from previous coursework.

The College offers weekend, night, Internet, late start, and half-term courses. Each of these options requires the same amount of class time and rigor as full semester courses.

Courses with Prerequisites – Some courses have pre-requisites, which students are required to complete first. Students must be able to prove successful completion of the prerequisite(s) coursework before enrolling in courses with prerequisites.

Classification of Students – Students are classified as follows:
- freshman (accumulated 27 credit hours or less)
- sophomore (accumulated 28 credit hours or more)
- full-time (enrolled for 12 credit hours or more per semester)
- three-fourths-time (enrolled for 9 credit hours, 10 credit hours, or 11 credit hours per semester)
- half-time (enrolled for 6 credit hours, 7 credit hours, or 8 credit hours per semester)
- less than half-time (enrolled for 5 credit hours or less per semester)

Residency – Students enrolling at the College are classified as residents or non-residents for purposes of admission and assessment of tuition and fees. Residency is determined by the student's true and fixed home and place of habitation. The primary determination of residency is the reason for the student's presence in Iowa. If a person comes to Iowa primarily for educational purposes, that person will be considered a non-resident throughout their enrollment at the College.

Students who have been classified as non-residents and believe they should be eligible for resident tuition may apply for reclassification. Students must complete a Request for Residency form and provide written verification to the Registrar's Office that they have been residents within the State of Iowa for at least 90 days prior to the term for which the student is enrolling. Verification must come in the form of at least two or more of the following written documents: an Iowa voter registration card, an Iowa driver's license, an Iowa state income tax return (signed and dated), and Iowa vehicle registration form or other indicators of Iowa residency (apartment lease, utility bills, etc.). The burden of establishing proof of residency is with the student and a student's residency status cannot be reclassified once a semester begins.

An adverse decision by the Registrar's Office may be appealed. The Provost acts as the appeals body for residency questions. The decision of the Provost is final.

Cooperative Education – The College is committed to the concept of cooperative education. Through this program, students may obtain transferable college credits while also gaining experience and insight into career fields by working in cooperating businesses or professional or social agencies.

Some fields offering cooperative education opportunities include accounting, agribusiness, art, biotechnology, business, criminal justice, economics, education, apparel merchandising, government, music, office careers, psychology, and retail management.

The student and faculty advisor locate potential employers and the student requests interviews. When the student is accepted by one of these employers, the work experience for credit begins.

To be eligible for cooperative education, students must have completed 12 credit hours and have maintained at least a 2.00 grade point average. Eight credit hours of cooperative education may be applied toward the Associate degree; additional credit hours are listed on the student's transcript as elective credits.

The charge for cooperative education classes is the same as for credit classes.

Advanced Placement (AP) Program – This program allows high school students scoring three or higher on a particular subject exam to have the equivalent courses accepted for credit at the College. In some cases, an academic department may determine that a higher score is required before credit is granted. A list of test/course equivalents is available in the Registrar's Office. Students should contact a high school counselor concerning arrangements for taking the AP exam.

Credit by Examination (CLEP Testing) – Examinations used by the College are those of the College Level Examination Program (CLEP). CLEP offers a wide range of examinations through which students may receive college credit. CLEP does not grant college credit itself, but more than 1,700 educational institutions in all 50 states offer college credit on the basis of CLEP scores.

Applications for the CLEP examinations, as well as further information on the specific tests available, may be obtained by contacting the Admissions Office. The fee must be paid before the examination is taken. Students must achieve a score at the 50th percentile or higher on an exam to be eligible for credit. An exception to this rule is the foreign language CLEP test. A maximum of 30 credits from CLEP may be applied toward graduation.

Department Examinations – The College recognizes that, because of previous education or work experience in a particular field, students may possess skills and knowledge comparable to the levels demanded in particular courses. These students are allowed to challenge such courses through equivalency examinations administered by the College. Therefore, the College has adopted a policy of allowing students either to request a release from certain course requirements or to award college credit in those courses for which they successfully exhibit competence by means of these equivalency examinations.

Conditions for departmental examinations are:
- Students may challenge a course for which an equivalency examination has been adopted and is on file with the Dean of Academic Affairs. The cost for this institutionally-administered proficiency evaluation is $15.
- Only students who have been admitted to the College may apply for such tests and credits.
- Students must register and pay tuition for the course before taking the exam.
- Students may apply for college credit by successfully passing the equivalency examination. The letter "T" will be entered on the student's permanent record, OR
- Students may choose not to obtain credit hours but simply test out of specific courses for which the equivalency examination exists. These students would then be released from the pertinent requirement.
- The maximum credits allowable will not exceed 30 credit hours and will conform to specific degree requirements of the institution.
- Students may not test more than once for each course.

Credit by examination will NOT be granted:
- if it duplicates a course previously passed or failed;
- if the student does not meet the stated course prerequisite(s) listed in the catalog;
- if the course is a prerequisite to one for which credit has previously been earned.

Fresh Start Policy – Persons who previously attended the College, have a break in attendance of at least 2 consecutive years (4 semesters), and have less than a 1.80 cumulative grade point average may be eligible for a Fresh Start. This policy eliminates the student's previous grade point average while retaining the credits.

Students must request in writing to the Registrar's Office that they want to be considered for a Fresh Start.
- Students must earn at least 12 credits after returning before the Fresh Start policy is implemented.
- The Fresh Start policy does not apply to credits attempted or earned at other institutions.
- Original grades affected by Fresh Start will remain on students' transcripts, but will not be included in the grade point average calculation.
- To satisfy graduation requirements, a student must earn 15 credits after being granted a Fresh Start.

Physical Education Exemption – Exemption from physical education requirements can be made to students who present a medical excuse from a licensed physician. The physical education requirement also may be waived for persons with military experience.

Although it is not required for those exempted from physical education requirements, PEH110 Personal Wellness can be taken to provide information on physical fitness, nutrition, and fitness management.

Transfer Applicants – Transcripts of record are given full value if coming from colleges or universities accredited by the Higher Learning Commission or similar regional associations and from accredited community colleges.

Each applicant must submit an official transcript bearing the original seal and signature of the official in charge of records from each college or university which the student attended previously.

Transfer applicants who do not meet the College's academic requirements may be admitted, but will be placed on academic warning.

Transfer applicants under disciplinary suspension at a previously attended college will not be considered for admission until a clearance and a statement of the reason for the suspension are filed from that college. When the applicant has the suspension cleared and a statement of the reason for the suspension on file, the Student Services Committee will consider the student's application for admission.

Transfer of Credit

Acceptance of Career Credits – The College will accept credit earned in its career programs and apply such credit to the Associate in Arts degree on the following basis:
- Credit earned in a career program may be used to fulfill elective credit up to 16 semester hours.
- Career credit may not be used to fulfill core requirements for the AA degree without a waiver from the division involved and the Dean of Academic Affairs.

Acceptance of Military Credit
- Students can receive transfer credit for military experience with an official ACE (American Council on Education) recommendation transcript.
- If a valid DD214 is also provided the student may receive 2 physical education credits and 2 general elective credits.
- A maximum of 30 military related credits (this includes 16 vocational credits) will be applied toward graduation.

Acceptance of Transfer Credit

- Credit from other accredited colleges will be evaluated in terms of the College's degree requirements.
- Transfer credits are accepted only for classes in which the student earned a grade of C- or better.
- Accepted credit GPA does not transfer.
- Pass/fail credits are not accepted for transfer.
- A minimum of 16 of the final 32 credit hours must be completed in residence (completed at an IVCCD College).

As applicable, these criteria also apply to the Associate in Science degree.

Transfer of Credit from the College – Credit earned at the College is transferable at full value to other colleges and universities throughout the country. Students are advised, however, that cumulative grade point averages below 2.00 and individual course grades of "D" may not transfer to many institutions. Credit in certain vocational, technical, and remedial/developmental courses may not transfer to other colleges, except under particular instances. Students should consult their academic advisors for specific information on transfer of credit.

The College offers the first two years of most baccalaureate degree programs. Generally, students can spend two years at the College, earn an Associate in Arts or Associate in Science degree, and then transfer to a four-year institution without loss of credit. It is important for students to closely study the graduation requirements listed in the catalog of the transfer college.

The College can assist students in obtaining transfer credit to be used toward degrees in many fields. The complete listing of transfer degrees can be found on page 11.

Academic Standards & Records

Grading System & Policies – Instructors keep a record of the work of each student and report each student's grade to the Registrar's Office at the close of each mid-semester and semester. Only semester grades become part of the permanent College record.

A   4.00 Grade Points
A- 3.67 Grade Points
B+ 3.33 Grade Points
B   3.00 Grade Points
B- 2.67 Grade Points
C+ 2.33 Grade Points
C   2.00 Grade Points
C- 1.67 Grade Points
D+ 1.33 Grade Points
D   1.00 Grade Points
D- 0.67 Grade Points
F   0.00 Grade Point
I   0.00 Grade Point – Incomplete – Some portion of work remains unfinished. A student with an incomplete at the end of semester has up to one semester to remove the incomplete. After that time the "I" will be changed to "F" except under extenuating circumstances and with approval of the Dean of Academic Affairs.*
W   Student withdrew from the course.

Granting of incompletes is limited to cases where circumstances merit an extension of time during which a student can complete required coursework and receive a grade. It is the student's responsibility to make arrangements with the instructor to complete requirements using the incomplete grade contract agreement. Incompletes must be completed by the date on the contract agreement.

Additional symbols used in grading and on student transcripts include:
CL CLEP
L   Credit for Prior Educational or Occupational Experience
N   Audited Course (full tuition is charged; no credit)
NR Not Reported Grade
P   Passing
T   Credit by Examination
WIP In Progress
*   Course repeated

Grade Reports – Grade reports are available to all students at the end of each term, provided all financial obligations have been met. Grades can be obtained by checking PawPass.

Students will need to appeal grades within 90 days of receiving them.

Repeating a Course – Courses may be repeated to improve a grade. When a course has been repeated, the higher grade will be computed in the grade point average and the lower grade will still remain on the transcript with an asterisk and not be calculated into the GPA.

Standards of Academic Progress – The primary purpose of the Standards of Academic Progress is to establish a practice by which the faculty and administration can provide assistance to students who experience academic difficulty. The majority of students make satisfactory progress. However, it is the desire of the College to make early identification of students who experience academic difficulty so they may be counseled accordingly.

Students who fail to obtain a cumulative GPA of 2.00 at the end of any semester will be placed on Academic Warning for the next term of enrollment. Students will have their registration placed on hold until they meet with an academic advisor and establish an Academic Improvement Plan. A student on Academic Warning will return to a status of "academic good standing" when the student's cumulative GPA is raised to 2.00 or higher.

A student who earns a cumulative GPA below 2.00 after any term on Academic Warning will be placed on Academic Termination. Students who earn a term GPA of 0.50 or below after any term will be placed on Academic Termination unless the cumulative GPA remains 2.0 or higher. Any student who is terminated for academic reasons has the right to appeal. Appeal forms are available from the Registrar's Office. Forms will be accepted no later than the date indicated on the Appeal Form. The Appeals Committee will review all appeals and respond in writing as soon as a decision is made. A student whose appeal is accepted and reinstated will be placed on Academic Warning.

Graduation Requirements – ECC and MCC award the degrees of Associate in Arts, Associate in Science, Associate in Professional Studies, Associate in Applied Science, and Associate in General Studies. Additionally, diplomas and certificates are awarded to students who successfully complete specific vocational-technical programs. Full requirements of the chosen program must be met; adjustments will be made in instances where programs have changed and courses are no longer available.

Application for Graduation – Students who intend to graduate by the end of the summer term must complete an "Application for Graduation" form through the Registrar's Office by March 1st to be included in the commencement program.

Students should meet with their academic advisors by mid-term of the semester preceding the semester in which they plan to graduate. Although faculty advisors will help students plan to meet these requirements, ultimate responsibility rests with the student.

Commencement – Commencement exercises provide formal recognition to students who have satisfied the requirements for a degree or diploma from ECC/MCC. One ceremony is held each year; students completing requirements prior to that commencement, or at the end of the summer term following commencement, may participate in the May ceremony. Students may receive degrees, diplomas or certificates at the end of the fall, spring, or summer terms, upon completion of degree, diploma, or certificate requirements. Degrees, diplomas, or certificates will not be issued for students who have unpaid financial obligations to the College.

Student Honors

Dean's List – Full-time students with semester grade point averages of 3.50 or higher while earning a minimum of 12 credit hours are recognized for their achievements through the Dean's List for that semester. Developmental credit type is not applied in the calculation of the student's grade point average. Unless students request that the Registrar's Office not release their names, the list will be provided for publication by area news media and on the College website(s).

Graduation Honors – The requirement for graduation with honors will be a cumulative grade point average of 3.50 or higher at the time of graduation.

MCC Honors Program – Marshalltown Community College offers an Honors Program which includes courses to stimulate intellectual growth and promote personal and social responsibility. Upon meeting application requirements, participants must earn a minimum cumulative GPA of 3.2 and complete at least 12 semester credits in honors, through a combination of the following: Honors Seminars, Honors credit for regular College courses, and/or Special Honors Projects. Successful completion of the Honors Program will be noted on the student's official transcript.

Phi Theta Kappa – Phi Theta Kappa is an international honor society that recognizes academic achievement at the community or junior college level. Candidates must be enrolled in degree (non-certificate) programs and must satisfy chapter requirements for membership.

Other Student Honors – Awards are presented to students at annual Honors events. Awards are also presented to outstanding students in various academic areas.

Student Records

Official academic records of enrollment for credit earned by students are retained in perpetuity. All student records used to create, update, and support the official academic transcript shall be retained for five years after students' enrollment at the College. These documents may then be destroyed. After 90 days the student can no longer appeal a recorded grade.

All student financial aid records will be retained for three years following the end of the fiscal year for which funds were awarded. All veterans' records will be retained for three years following the ending date of their last enrollment.

Confidentiality of Records – Copies of Board Policy 501 and the related Guidelines regarding the Act may be obtained via the College website. The following summarizes the provisions of the Act and subsequent amendments:

Students have the right to inspect and review their education records. The College will grant students the right to inspect their education records within 45 days of the request. Students do not have the right to inspect confidential letters and statements of recommendation put in their file prior to January 1st 1975, to parents' financial records, or to confidential letters or recommendations (for which they have signed a waiver) with respect to admission, application for employment, or receipt of an honor.

Students have the right to seek amendment of the content of their education records regarding the accuracy of such records and whether the records are misleading or constitute a violation of their privacy rights. This procedure may involve a hearing on the correction or deletion of allegedly inaccurate, misleading, or inappropriate data and the opportunity for students to insert in their records a written explanation of the contents of the records.

Except as provided for within the Act, personal identifiable information about students in education records cannot be released without written consent. The College may release "directory information" without written consent unless the student specifically requests that such information not be released. Directory information includes the student's name; degree, diploma, certificates earned and awards from our institution; dates of attendance—semester and year that the students first attended either ECC or MCC; enrollment status—full time/part time, not enrolled, freshmen/sophomore; major; hometown (this does not include state, zip code or country). Students may indicate a preference that any or all of this information not be released by submitting a written request to the Registrar's Office within the first 30 calendar days of the beginning of each term or within the first five calendar days for each summer term. If a student elects to have

directory information remain confidential, no information will be released without consent.

The College will maintain a record of access to students' education records. This record is accessible only to the student and the staff in the Student Services Office, or as provided for in the Act. The record of access will not apply to access of education records by IVCCD officials (*may include a person employed by IVCCD in an administrative, supervisory, academic, or support staff position; or a member of the Board of Directors; or a contractor, consultant, or volunteer to whom IVCCD has outsourced institutional services or functions, in accordance with the conditions of FERPA*) with a legitimate educational interest (*if review of the record is needed for the official to fulfill his or her professional responsibilities for IVCCD*) and as otherwise provided in the Act.

Transcripts – To request an academic transcript, the College requires written authorization from the student. The College does not take transcript requests over the phone. Requests will be honored as quickly as possible in order of receipt; however, during peak periods such as registration and end of term, students can expect some delay. Transcripts will not be issued for students who have unpaid financial obligations to the College.

The request form is available online or paper copies are available in the Registrar's Office and at the front desk at IVG. If requesting a transcript sent to more than one institution, students must submit a separate request for each.

Financial Information

Tuition & Fees – After registration, students will receive a tuition invoice by mail. Follow instructions and due dates indicated on the invoice. Delayed payment may result in cancellation of the student's registration. Other fees may be approved after the publication of this schedule.

For ECC and MCC's latest tuition and fees please see the College's websites:

ECC Website

MCC Website

Tuition/Fee Policies & Changes – The tuition and fee policies are based on the philosophy that the cost of higher education should be shared by the student, the taxpayers of Iowa Valley Community College District, and the state of Iowa. The Board of Directors of IVCCD reserves the **right to change the tuition and fee schedule**, as well as refund policies, in accordance with state law.

Tuition Refund Policy – Students who find it necessary to add or drop one or more of their classes must complete a Drop/Add form in the Registrar's Office. There will be a partial refund of tuition based on the following schedule:

Percent of Enrollment Period	Refund %
0 – 6%	100%
Over 6 – 12%	50%
Over 12%	0%

If dropping classes in the fall and spring terms, students have the first week of classes to get 100% refund, 50% refund starting the second week and 0% after the end of the second week. The refund periods could be longer depending on the length of the course and are prorated on the above schedule.

Fees are not refundable after the first week of class for a regular semester. Tuition refunds for summer or interim will be prorated accordingly.

The percentage of enrollment period counts calendar days elapsed from start date of a specific class to the date the student completes and returns the Drop/Add form and compares it to the total calendar days for that specific class. That percentage is the "percentage of enrollment period" a student was registered and enrolled in a specific class.

Refunds are based on the date the Drop/Add form is completed, signed, and returned to the Registrar's Office, not the last date of attendance. If you believe you have an exception to this policy refer to the Student Petition for Waiver to the Drop Policy on page 6.

Once classes begin, if a class is added at the same time another is dropped, full tuition and fees will be assessed for the added class, with the appropriate refund of tuition credited for the dropped class.

Billing/Payment Plan – By enrolling and signing the Registration form and/or the student payment agreement, a student promises to pay the College all charges incurred.

If, at the end of the first day of a specific term, a student's bill has any unpaid charges (beyond finalized financial aid), the College will assume the student has accepted the terms of the payment plan and the student will be charged a $25 administrative fee. A $25 late fee will be assessed for any delinquent payments.

Students will be billed in three equal monthly installments. These billings will be mailed to the student and payments are due by the date specified on the billing. Students are responsible for notifying the College of any address changes.

If a student does not make a scheduled payment when due, the College may, at its option, declare any unpaid balance to be in default and may demand immediate payment of the entire unpaid balance, including charges, interest, late charges, and collection costs.

A student in default cannot register for the following term until the account is paid in full. Defaulted accounts are handled by an outside collection agency and the student's credit record may be negatively affected.

Financial Aid

Students who wish to be considered for all types of state and federal financial aid to assist with College expenses will need to file the Free Application for Federal Student Aid (FAFSA). All students are encouraged to apply. This application can be completed online. Filing the FAFSA and promptly submitting all other required documents to the Financial Aid Office ensures that the student will be considered for all forms of financial assistance. The College recommends that students complete the FAFSA as early as possible after January to be considered for the maximum amounts of financial aid for the following academic year.

Many types of assistance are available:

Federal Pell Grant
- Federally funded gift aid
- Student must demonstrate need
- Student must be an undergraduate

Federal Supplemental Educational Opportunity Grant (SEOG)
- Federally funded gift aid
- Student must demonstrate exceptional need
- Student must be an undergraduate
- Awards limited to funds available

College Work Study
- Part-time work opportunities
- Federally funded – administered by college
- Student must demonstrate need
- Awards limited to funds available

Iowa Vocational-Technical Grant
- Student must be enrolled at least half-time (six hours) in a Career Education (AAS) of Career Option (AS) program
- Student must be a resident of the State of Iowa
- Student must be a U.S. citizen
- Student must demonstrate need
- Student must meet the July 1st FAFSA deadline

Iowa Grant
- State-funded for Iowa residents
- Students must demonstrate exceptional need
- Awards limited to funds available
- Student must meet the July 1st FAFSA deadline

Federal Direct Student Loan
- Low interest loan
- Student must demonstrate need (interest subsidized)
- Financial need is not required for unsubsidized loan
- Maximum loan is $3,500 per year at freshman level and $4,500 per year at sophomore level (earned 28+ credits).

There are two types of Direct Loans: subsidized and unsubsidized. Neither loan requires that payments be made to the principal as long as the student is enrolled in six credit hours at an eligible institution. The federal government pays the interest that accrues on the Subsidized Stafford Loan as long as the student is enrolled at least half-time, while the student is responsible for the interest that accrues on the Unsubsidized Stafford Loan while he or she is in school. Repayment on the principal begins for both loans six months after the student drops below six credit hours of enrollment.

Federal Direct Parent Plus Loan
- Loans available to parents of dependent students
- Financial need is not required
- Repayment of principal begins immediately in most cases

Refund Policy – Students who find it necessary to completely withdraw from the College and who are receiving federal financial aid should be aware of how they will be affected. A complete withdrawal is defined as dropping all classes and having no credits earned for the semester. A student receiving federal financial aid who officially withdraws from all classes up to the 60% point in the term may be entitled to a refund. A student's withdrawal date will be determined from the earlier of 1) submitting a completed Withdrawal form to the Registrar's Office and/or 2) mailing or faxing a signed request to withdraw from all classes to the Registrar's Office. The student will earn aid based on the number of calendar days attended, calculated from the beginning of the semester until the official withdrawal occurs (any breaks of 5 days or more will be taken out of the calculation).

Once the percentage of aid earned is calculated, any "unearned" financial aid will be returned to the U.S. Department of Education. If a student's charges exceed the earned portion of financial aid, a refund of the unearned percentage will be applied to institutional charges (except books) to match the "unearned" financial aid. Books must be returned to the College for charges to be lowered in the same manner as the other institutional charges. If books are not returned to the College at the time of withdrawal, students will be assessed the "unearned" portion and required to pay the remainder.

Students who have received a portion of their financial aid for living expenses, travel, etc. may be required to repay unearned funds to the federal government. Any student who owes a grant overpayment must make satisfactory payment arrangements with the Business Office to avoid being turned over to the U.S. Department of Education.

Specific examples of withdrawal calculations are available in the Financial Aid Office. Contact the Financial Aid Office if the student has questions about these regulations.

Refunds for partial reduction in hours will be calculated using the institutional refund policy contained earlier in this section.

Satisfactory Progress Standards for Financial Aid Recipients – Federal and state regulations require that students maintain satisfactory academic progress while pursuing their course of study in order to receive financial aid. Students receiving financial aid will have their academic records reviewed each semester to determine if satisfactory academic progress is being made and that pace toward the completion of a degree, certificate, or diploma is maintained. Satisfactory academic progress standards apply to all work attempted even though a student may not have been receiving financial aid.

Minimum Financial Aid Academic Progress Standards – A minimum 2.0 cumulative grade point average for ALL coursework at the College is required. In addition, a student must complete 67% of ALL credits ever attempted at the College. "Complete" means earning a letter grade higher than an F. In addition to the cumulative standards addressed (grade point average and % of credits completed), a student will be placed on immediate financial aid termination if he/she earns a semester grade point average of .50 or below unless the cumulative GPA remains 2.0 or higher.

Financial Aid Warning – A student who has received financial aid is placed on financial aid warning when he/she fails to maintain a 2.0 cumulative grade point average or fails to complete 67% of all hours attempted. A student on financial aid warning continues to receive financial aid.

Financial Aid Termination – If a student does not meet the minimum levels by the end of the warning semester, the student is considered to be making unsatisfactory progress and is placed on Financial Aid Termination. Financial Aid Termination means a student is no longer eligible for financial aid. A student may regain eligibility for financial assistance after he/she has brought the coursework up to minimum standards (2.0 cumulative GPA and a completion rate of at least 67% of all hours attempted) at his/her own expense.

Appeal Process – A student may appeal the termination of his/her financial aid to the Financial Aid Office if he/she feels that there are extenuating circumstances (serious illness, injury, death of a relative, etc.). Appeal forms are available at the Marshalltown Community College website. **Forms will be accepted no later than the date indicated on the Appeal form**. The Appeals Committee will review all appeals and respond in writing as soon as a decision is made. A student whose appeal is accepted and financial aid eligibility is reinstated will be placed on Financial Aid Probation.

Pace/Maximum Timeframe for Degree Completion – A student will be eligible to receive financial aid while pursuing his/her program of study for 150% of the published length of the program. For example, an Associate in Arts (AA) degree requires successful completion of 64 credit hours. The maximum hours a student could receive financial aid toward the completion of an AA degree would be 96 credit hours (64 x 150% = 96). All coursework (including transfer credits) on a student's academic transcript will count toward the maximum timeframe. A student who exceeds 150% of the published length of a program will no longer be eligible for financial aid.

Repeated classes are allowed for courses where an F or W was received. Students who wish to repeat a previously passed class should meet with the Financial Aid Office to ensure eligibility. Classes that a student chooses to audit will not count toward the hourly requirements. Students taking developmental coursework must be registered for at least one non-developmental course to be receiving financial aid for that term.

Notification – It is the responsibility of each student to track his/her own progress and academic standing. However, the Financial Aid Office will make every effort to notify students of warning/termination status in a timely manner at the end of each semester.

Attendance for Financial Aid Recipients – Students must attend all classes for which they have registered before financial aid will be applied to their charges. Students who intentionally stop attending a course are only able to receive financial aid for the time period in which they attended the course. This regulation allows the U.S. Department of Education to have unearned financial assistance returned to them for the period of non-attendance. The return of this aid will create a balance owed by the student to the institution. If a student stops attending classes prior to the end of the enrollment period, the U.S. Department of Education may require the return of the cash balance that was paid to the student.

Program of Study by Career Interest

Agriculture, Food & Natural Resources			
Program of Study	*Degree Awarded*	*Location*	*Page*

Agriculture - Liberal Arts	AA Emphasis	ECC, MCC	45
Agriculture (Ag Practitioner Track)	Diploma	ECC	16
Agriculture (Ag Science Certificate Track)	Certificate	ECC	16
Agriculture	ASCO	ECC	17
Agriculture (Agribusiness Track)	AAS	ECC	17
Agriculture (Animal Science Track)	AAS	ECC	18
Agriculture (Farm Management Track)	AAS	ECC	18
Agriculture (Precision Ag Track)	AAS	ECC	18
Agriculture (Swine Management Track)	Diploma	ECC	19
Conservation Technology	AAS	ECC	26
Conservation Technology - Liberal Arts	AA Emphasis	ECC	47
Culinary Apprenticeship	AAS	IVG	28
Entrepreneurial & Diversified Agriculture	AAS, Certificate	MCC	32
Entrepreneurial & Diversified Agriculture - Liberal Arts	AA Emphasis	MCC	50
Entrepreneurial & Diversified Horticulture	Certificate	MCC	32
Equine Management	AAS, Diploma	ECC	33
Equine Science	AAS	ECC	34
Geographical Information Systems - Liberal Arts	AA Emphasis	ECC	51
Horticulture - Liberal Arts	AA Emphasis	ECC, MCC	52
Mobile Service Technician	AAS	ECC	40
Wildlife/Fisheries/Forestry - Liberal Arts	AA Emphasis	ECC, MCC	56

Arts and Communication

Program of Study	Degree Awarded	Location	Page
Art - Liberal Arts	AA Emphasis	ECC, MCC	45
Broadcasting/Digital Media	AAS	MCC	22
Communications/Public Relations/Journalism - Liberal Arts	AA Emphasis	ECC, MCC	46
English - Liberal Arts	AA Emphasis	ECC, MCC	50
Entertainment Design Technology	AAS	MCC	31
Entertainment Design Technology - Liberal Arts	AA Emphasis	MCC	50
Graphic Arts - Liberal Arts	AA Emphasis	ECC, MCC	51
Music - Liberal Arts	AA Emphasis	ECC, MCC	54

Business, Management, Administration & Finance

Program of Study	Degree Awarded	Location	Page
Accounting	AAS, Diploma	ECC, MCC	15
Accounting - Liberal Arts	AA Emphasis	ECC, MCC	45
Business Administration	AAS	ECC, MCC	22
Business Administration - Liberal Arts	AA Emphasis	ECC, MCC	46
Business Administration (Entrepreneurship)	Diploma, Certificate	MCC	23
Business Administration (Small Business Practitioner Track)	Diploma	ECC, MCC	23
Business Education - Liberal Arts	AA Emphasis	ECC, MCC	46
Computer Applications in Business	AAS, Diploma	ECC, MCC	25
Computer Applications in Business - Liberal Arts	AA Emphasis	ECC, MCC	47
Finance and Banking - Liberal Arts	AA Emphasis	ECC	51
Medical Office Practitioner	Diploma	ECC, MCC	39
Customer Service	Diploma	ECC	39
Retail Management	Diploma	ECC	40

Construction

Program of Study	Degree Awarded	Location	Page
Construction Management - Liberal Arts	AA Emphasis	ECC, MCC	48
Construction Commercial Practitioner	Diploma	ECC, MCC	27
Construction Technology	AAS	ECC, MCC	27
Heavy Construction Practitioner	Diploma	MCC	28
Heavy Construction	AAS	MCC	28
Construction Residential Practitioner	Diploma	ECC, MCC	27
Construction Technology Retail	AAS	ECC, MCC	27

Education

Program of Study	Degree Awarded	Location	Page
Early Childhood Education	AAS, Diploma	MCC	30
Education (Elementary) - Liberal Arts	AA Emphasis	ECC, MCC	49
Education (Secondary) - Liberal Arts	AA Emphasis	ECC, MCC	49
Education (Special Education) - Liberal Arts	AA Emphasis	ECC, MCC	49

Health Sciences

Program of Study	Degree Awarded	Location	Page
Dental Assisting	Diploma	MCC	29
Medical Assistant	Diploma	ECC, MCC	38
Medical Office Practitioner	Diploma	ECC, MCC	39
Nurse Aide Specialist	Certificate	ECC, MCC	41
Nursing: Associate Degree Nursing	AAS	ECC, MCC	41
Nursing: Practical Nursing	Diploma	ECC, MCC	42
Pharmacy - Liberal Arts	AA Emphasis	ECC, MCC	54

Human Services

Program of Study	Degree Awarded	Location	Page
Athletic Training - Liberal Arts	AA Emphasis	ECC, MCC	46
Family & Consumer Science - Liberal Arts	AA Emphasis	ECC, MCC	51
Health, Physical Ed., Recreation & Sports Management- Liberal Arts	AA Emphasis	ECC, MCC	52
Human Services - Liberal Arts	AA Emphasis	ECC, MCC	52
Paralegal	AAS	IVG	42
Physical Therapy - Liberal Arts	AA Emphasis	ECC, MCC	55
Psychology - Liberal Arts	AA Emphasis	ECC, MCC	55
Social Work - Liberal Arts	AA Emphasis	ECC, MCC	56
Sociology - Liberal Arts	AA Emphasis	ECC, MCC	56

Information Technology

Program of Study	Degree Awarded	Location	Page
Computer Network Management	AAS, Diploma	MCC	26
Computer Network Management - Liberal Arts	AA Emphasis	MCC	47
Computer Science - Liberal Arts	AA Emphasis	ECC	47
Computer Science/MIS - Liberal Arts	AA Emphasis	MCC	47
e-Commerce & Web Page Development - Liberal Arts	AA Emphasis	ECC, MCC	48
Management Information Systems (MIS) - Liberal Arts	AA Emphasis	ECC	53

Law, Public Safety & Corrections

Program of Study	Degree Awarded	Location	Page
Criminal Justice - Corrections Track	AAS	ECC, MCC	28
Criminal Justice - Law Enforcement Track	AAS	ECC, MCC	28
Criminal Justice - Liberal Arts	AA Emphasis	ECC, MCC	48
Law - Liberal Arts	AA Emphasis	ECC, MCC	53
Paralegal	AAS	IVG	42
Psychology - Liberal Arts	AA Emphasis	ECC, MCC	55
Social Work - Liberal Arts	AA Emphasis	ECC, MCC	56
Sociology - Liberal Arts	AA Emphasis	ECC, MCC	56

Manufacturing & Industrial

Program of Study	Degree Awarded	Location	Page
Automotive Repair Technology	AAS, Diploma	IVG	20
Electro-Mechanical Systems Technologist	AAS, Diploma	MCC	30
Gunsmith Technology	AAS	IVG	34
Industrial Maintenance Mechanic	Diploma	MCC	35
Industrial Technology (Teaching) - Liberal Arts	AA Emphasis	ECC, MCC	53
Machine Tool Technology Tool & Die	AAS	MCC	35
Machine Tool Technology Trades Practitioner	Diploma	MCC	36
Manufacturing Welding – Construction	Certificate	MCC	36
Manufacturing Welding Practitioner	Diploma, Certificate	MCC	36
Mechanical Design/CAD Technology Track	AAS, Diploma	MCC	37
Mechanical Design/Virtual Reality Technology Career Track	AAS	MCC	38
Natural Gas Technician	AAS	MCC	40
Powerline Technician	AAS	MCC	43
Utility Technician	Diploma	MCC	43

Marketing & Sales

Program of Study	Degree Awarded	Location	Page
Apparel Merchandising	AAS	ECC	19
Marketing	AAS	ECC, MCC	37
Merchandising & Retail Management	AAS	ECC	39

Public Administration & Government

Program of Study	Degree Awarded	Location	Page
Criminal Justice - Liberal Arts	AA Emphasis	ECC, MCC	48
History - Liberal Arts	AA Emphasis	ECC, MCC	52
Paralegal - Liberal Arts	AA Emphasis	IVG	54
Political Science - Liberal Arts	AA Emphasis	ECC, MCC	55

Science, Technology, Engineering & Mathematics

Program of Study	Degree Awarded	Location	Page
Biotechnology	ASCO, Diploma	ECC	20
Biotechnology - Liberal Arts	AA Emphasis	ECC	46
Biotechnology – Renewable Energy Technology	ASCO, Diploma, Certificate	ECC	21
Electro-Mechanical Systems Technologist	AAS	MCC	30
Engineering	AS	ECC, MCC	50
Engineering - Liberal Arts	AA Emphasis	ECC, MCC	49
Industrial Maintenance Mechanic	Diploma	MCC	35
Industrial Technology (Teaching) - Liberal Arts	AA Emphasis	ECC, MCC	53
Mathematics - Liberal Arts	AA Emphasis	ECC, MCC	53
Medicine - Liberal Arts	AA Emphasis	ECC, MCC	53
Mortuary Science - Liberal Arts	AA Emphasis	ECC, MCC	54
Pharmacy - Liberal Arts	AA Emphasis	ECC, MCC	54
Science & Mathematics - Liberal Arts	AA Emphasis	ECC, MCC	55
Veterinary Medicine - Liberal Arts	AA Emphasis	ECC, MCC	56

Career-Technical Degree Requirements

Associate in Science Career Option

Purposes of this degree include:
1. Provide a degree for students who follow a specialized area of study within a degree program.
2. Provide possible/probable transfer opportunities. Students pursuing the ASCO Degree should consult an advisor regarding transferability.

Requirements for the ASCO Degree include:
1. Minimum cumulative grade point average of 2.00.
2. Minimum of 64 semester credit hours earned, 58 of which must be academic (non-activity) credits. Earned credits are courses with passing grades.
3. A minimum of 16 of the final 32 credit hours must be completed in residence (completed at an IVCCD College).
4. See the page listed after the title for the ASCO Degree requirements.

Communications (courses approved for AA)	9 Credit Hours
Humanities (courses approved for AA)	6 Credit Hours
Social/Behavioral Science (courses approved for AA)	6 Credit Hours
Math (courses approved for AA)	3 Credit Hours
Lab Science (courses approved for AA)	4 Credit Hours
Physical Education (courses approved for AA)	2 Credit Hours
Electives	34 Credit Hours
Total	64 Credit Hours

Associate in Applied Science

The Associate in Applied Science (AAS) degree granted by ECC/MCC is designed to meet requirements for entry into career fields for which the programs have been designed.

Purposes of this degree include:
1. Provide a degree goal for students who choose to follow a course of study which is specifically designed to lead to employment upon completion of two years of study.
2. Provide students with entry-level skills appropriate to the career for which they have been preparing.
3. Provide students with increased potential to function in society through study in the general areas of communications, human relations, and natural science.

Requirements for the AAS degree include:

1. Completion of a prescribed two-year career curriculum as outlined in this catalog.
2. A minimum of 16 of the final 32 credit hours must be completed in residence (completed at an IVCCD College).
3. See the page listed after the title for the AAS degree requirements.
4. Minimum cumulative grade point average of 2.00.

Associate in General Studies

Offered at ECC & MCC (Codes: EAGST & MAGST)

Purposes of this degree include:

1. Provide a degree goal for students who choose to follow an individualized course of study which is not specifically designed for transfer to a 4-year college or university baccalaureate degree program.
2. Provide an attainable associate degree for students who complete career programs of less than 2 years duration.
3. Provide an associate degree for career education students who wish to enroll in selected courses to reach a personal career objective.
4. Provide a degree goal for students whose educational goals shift after initial commitment is made.

Requirements for the AGS degree include:
1. Completion of 62 semester hours of work (minimum 56 non-activities) designed to meet the personal or career goals of the individual student. There are no specific courses required for this degree.
2. A minimum of 16 of the final 32 credit hours must be completed in residence (completed at an IVCCD College).
3. Minimum cumulative grade point average of 2.00.
4. Developmental credit cannot be used towards this degree.

Associate of Professional Studies

Purposes of this degree include:
1. Prepare students for transfer into aligned baccalaureate programs or immediate related employment.

Requirements for the APS Degree include:
1. Minimum cumulative grade point average of 2.00.
2. Consist of between 62 and 68 semester credit hours. Of those, a minimum of 30 semester credit hours must be general education.
3. to include 3 semester credit hours from each of the following areas: speech, mathematics, humanities, social and behavioral science; 6 semester credit hours of writing; and an additional 9 semester credit hours distributed among mathematics, social and behavioral sciences, humanities, and science.
4. The technical component shall consist of a minimum of 16 semester credit hour of coursework accepted by a receiving baccalaureate degree-granting institution as credit toward a specific major or program.
5. A minimum of 16 of the final 32 credit hours must be completed in residence (completed at an IVCCD College).
6. See the page listed after the title for the APS Degree requirements.

Diploma Requirements

Diplomas (not associate degrees) are awarded to students who successfully complete any of the following programs.

Requirements for the diploma include:
1. Completion of 15-48 semester hours of work designed to meet the personal or career goals of the individual student, including three general education credits. See the page listed after the title for the Diploma requirements.
2. Minimum cumulative grade point average of 2.00.

Certificate Requirements

Certificates (not associate degrees) are awarded to students who successfully complete any of the following programs:

Requirements for the certificate include:
1. The certificate is awarded upon completion of a state-approved program of study that is designed for entry-level employment and shall consist of a maximum of 48 semester (72 quarter) credit hours. A certificate may be a component of and apply toward subsequent completion of a diploma or associate of applied science or associate of applied arts degree and may be developed in rapid response to the needs of business and industry. A certificate may consist of only career and technical courses and no general education course requirements.
2. Minimum cumulative grade point average of 2.00.

Continuous Progress

Students with interrupted enrollment over a year (missing more than 2 full semesters) will need to fulfill the requirements of the most current catalog.

Accounting

Associate in Applied Science Degree

Offered at ECC & MCC (Codes: EVACT & MVACT)
The Accounting curriculum prepares the student for employment as an accountant in government, industry and private accounting enterprises. Students who complete this accounting program may expect to enter the job market as payroll accountant, accounts payable and accounts receivable clerk, general bookkeeper or in other private accounting positions. Demand for accountants is stronger than the supply, so students seeking positions with an associate in applied science degree also have good job prospects.

General Education	**Credit Hours**
Communications (courses approved for AA)	9
Humanities (courses approved for AA)	6
Social/Behavioral Science (courses approved for AA)	6
Math (courses approved for AA)	3
Lab Science (courses approved for AA)	4
Physical Education (courses approved for AA)	2
Total	**30**

Program Requirements		
ACC121	Principles of Accounting I	3
ACC122	Principles of Accounting II	3
ACC161	Payroll Accounting	3
ACC311	Computer Accounting	3
BCA152	Comprehensive Spreadsheets	3
	or	
CSC119	Computer Systems and Applications II	(3)
BUS291	Employment Portfolio and Career Dev.	2
CSC118	Computer Systems and Applications	3
Total		**20**

Electives (select 14 credit hours)	
ACC, ADM, BCA, BUS, CSC, ECN, MAT, MGT, MKT, NET Prefixes	14
Total	**14**
Total Required Hours	**64**

Accounting Practitioner

Diploma

Offered at ECC and MCC (Code: EVBKP & MVBKP)
The Accounting Practitioner program is designed to prepare students for entry-level accounting positions. Students learn to analyze and compile business records and prepare financial reports. If a student wishes to continue studying for a second year, he/she may pursue the AA or AAS Degree in addition to this one-year diploma.

General Education		**Credit Hours**
ECN115	Personal Finance	3
CSC118	Computer Systems and Applications	3
Total		**6**

Program Requirements		
ACC111	Intro to Accounting	3
ACC121	Principles of Accounting I	3
ACC122	Principles of Accounting II	3
ACC161	Payroll Accounting	3
ACC311	Computer Accounting	3
ACC907	Coop Field Experience	2
ADM112	Keyboarding	3
	or	
CSC120	Computer Systems & Apps III	(3)
ADM154	Business Communications	3
BCA134	Word Processing	3
	or	
BCA178	Presentation Software	(3)
BCA152	Comprehensive Spreadsheets	3
	or	
CSC119	Computer Systems & Apps II	(3)
BUS291	Employment Portfolio and Career Dev.	2
Total		**31**
Total Required Hours		**37**

Agriculture (Ag Practitioner Track)

Diploma

Offered at ECC (Code: EVAGB)
This program is designed to provide applied academic and field experience education for the person who wishes to work in a business or industry closely related to agriculture.

Upon completion, students are awarded the Agricultural Practitioner Diploma.

General Education (select 3 credit hours)		**Credit Hours**
ENG105	Composition I	3
ENG111	Technical Writing	3
SPC112	Public Speaking	3
SPC122	Interpersonal Communication	3
Total		**3**

Electives (must select 33 credit hours)		
AGA114	Principles of Agronomy	3
AGA154	Fundamentals of Soil Science	3
AGA211	Grain and Forage Crops	3
AGA284	Pesticide Application Certification	3
AGB235	Introduction to Agriculture Markets	3
AGB320	Farm Machinery Management	3
AGB330	Farm Business Management	3
AGB331	Entrepreneurship in Agriculture	3
AGB336	Agricultural Selling	3
AGB437	Commodity Marketing	3
AGC102	Computers in Agriculture	2
AGC216	Career Seminar	2
AGC907	Coop Field Experience	4
AGP335	Global Agriculture	3
AGS113	Survey of the Animal Industry	3
AGS226	Beef Cattle Science	3
AGS242	Animal Health	3
AGS319	Animal Nutrition	3
Total		**33**
Total Required Hours		**36**

Agriculture (Ag Science Certificate Track)

Certificate

Offered at ECC (Code: EVAGA)
This program is designed to provide applied academic and field experience education for the person who wishes to work in a business or industry closely related to agriculture.

Upon completion, students are awarded the Certificate of Agricultural Science.

Program Requirements (must select 18 credit hours)		
AGA114	Principles of Agronomy	3
AGA154	Fundamentals of Soil Science	3
AGA211	Grain and Forage Crops	3
AGA284	Pesticide Application Certification	3
AGB235	Introduction to Agriculture Markets	3
AGB320	Farm Machinery Management	3
AGB330	Farm Business Management	3
AGB331	Entrepreneurship in Agriculture	3
AGB336	Agricultural Selling	3
AGB437	Agricultural Commodities Trading	3
AGB470	Farm Records, Accounts, Analysis	3
AGC102	Computers in Agriculture	2
AGC216	Career Seminar	2
AGS113	Survey of the Animal Industry	3
AGS226	Beef Cattle Science	3
AGS242	Animal Health	3
AGS319	Animal Nutrition	3
Total		**18**
Total Required Hours		**18**

Agriculture *

Associate in Professional Studies Degree

Offered at ECC (Code: EPAGR)

Upon completion, students are awarded the Associate in Professional Studies Degree. Students who want to continue their formal education in the transfer area may enroll in classes following requirements for the Associate in Professional Studies degree and the recommendations of the current catalog of the institution to which they plan to transfer.

General Education	Credit Hours
Communications (courses approved for AA)	9
Humanities (courses approved for AA)	6
Social/Behavioral Science (courses approved for AA)	6
Math (courses approved for AA)	3
Lab Science (courses approved for AA)	4
Electives (courses approved for AA)	18
Total	**46**

Electives (must select 16 credit hours)

AGA114	Principles of Agronomy	3
AGA154	Fundamentals of Soil Science	3
AGA211	Grain and Forage Production	3
AGA284	Pesticide Application Certification	3
AGB235	Introduction to Agriculture Markets	3
AGB330	Farm Business Management	3
AGC907	Coop Field Experience	4
AGP333	Precision Farming Systems	3
AGS113	Survey of the Animal Industry	3
AGS225	Swine Science	3
AGS226	Beef Cattle Science	3
AGS270	Foods of Animal Origin	3
Total		**16**
Total Required Hours		**62**

*Pending Iowa Department of Education approval.

Agriculture (Agribusiness Track)

Associate in Applied Science Degree

Offered at ECC (Code: EVAGM)

Agribusiness combines instruction in the agricultural sciences and business with particular emphasis on business practices and the management of agricultural production. By combining these areas in the curriculum, the program meets agribusiness competencies essential for today's production agriculture, and provides students expertise to allow them to enter management levels in agribusiness firms. In addition, a broad range of elective courses allows the student to structure a program consistent with his/her personal interests and goals. Agribusiness students are also involved in a cooperative education program that provides training, experience, and a first-hand look at various career opportunities. Upon completion, students are awarded the Associate in Applied Science Degree.

General Education		Credit Hours
MAT772	Applied Math	3

Must select 6 credit hours

ENG105	Composition I	3
ENG111	Technical Writing	3
SPC112	Public Speaking	3
SPC122	Interpersonal Communication	3

Must select 3 credit hours

EDU160	Human Growth and Development	3
PSY111	Introduction to Psychology	3
SOC110	Introduction to Sociology	3
SOC115	Social Problems	3
Total		**12**

Program Requirements

ACC121	Principles of Accounting I	3
	or	
ACC111	Introduction to Accounting	(3)
AGA284	Pesticide Application Certification	3
AGB235	Introduction to Agriculture Markets	3
AGB330	Farm Business Management	3
AGB336	Agricultural Selling	3
AGB437	Commodity Marketing	3
AGC102	Computers in Agriculture	2
AGC216	Career Seminar	2
AGC907	Coop Field Experience	12
AGP333	Precision Farming Systems	3
AGS113	Survey of the Animal Industry	3
Total		**40**

Electives (must select 12 credit hours)

AGA154	Fundamentals of Soil Science	3
AGA159	Livestock Nutrient Management	2
AGA211	Grain and Forage Crops	3
AGA290	Spring Field Operations	1
AGM114	Hydraulics I	2
AGM330	Fundamentals of Electricity	3
AGM336	Agriculture Electronic Devices &Sys	3
AGP435	Advanced Precision Farming:Software	3
AGP436	Advanced Precision Farming:Hardware	3
AGS225	Swine Science	3
AGS226	Beef Cattle Science	3
AGS242	Animal Health	3
AGS270	Foods of Animal Origin	3
AGS305	Livestock Evaluation	3
AGS319	Animal Nutrition	3
AGS331	Animal Reproduction	3
AGS552	Beef Feedlot Production	3
AGS555	Beef/Cow Calf Production	3
DSL837	Commercial Driver's License & Tools	1.5
PEH142	First Aid	3
Total		**12**
Total Required Hours		**64**

Agriculture (Animal Science Track)

Associate in Applied Science Degree

Offered at ECC (Code: EVANS)

The animal science major is designed for students who have an interest in animal production, management, sales, research, and health care. Your course work will focus on domestic animals - beef and dairy cattle, cats, dogs, horses, sheep, swine, poultry, and the services related to these animals.

An animal science degree will prepare you for a wide range of careers in agriculture and veterinary medicine, livestock production, agribusiness and finance, livestock sales and promotion, biotechnology, pre-law and pre-medicine, and international agriculture.

General Education		Credit Hours
MAT772	Applied Math	3
Must select 6 credit hours		
ENG105	Composition I	3
ENG111	Technical Writing	3
SPC112	Public Speaking	3
SPC122	Interpersonal Communication	3
Must select 3 credit hours		
EDU160	Human Growth and Development	3
PSY111	Introduction to Psychology	3
SOC110	Introduction to Sociology	3
SOC115	Social Problems	3
Total		**12**
Program Requirements		
AGB330	Farm Business Management	3
	or	
ACC111	Introduction to Accounting	(3)
AGC102	Computers in Agriculture	2
AGC216	Career Seminar	2
AGS113	Survey of the Animal Industry	3
AGS242	Animal Health	3
AGS319	Animal Nutrition	3
AGS331	Animal Reproduction	3
AGS907	Co-op Field Experience	4
BIO112	General Biology I	4
BIO186	Microbiology	4
PEH142	First Aid	3
Total		**34**
Electives (must select 18 credit hours)		
AGA114	Principles of Agronomy	3
AGA159	Livestock Nutrient Management	2
AGB235	Introduction to Agriculture Markets	3
AGB437	Commodity Marketing	3
AGE115	Light Horse Management	2
AGE121	Horse Evaluation	3
AGE145	Fundamentals of Riding	3
AGE165	Horse Husbandry	2
AGE200	Stable Management	2
AGE204	Equine Anatomy & Physiology	3
AGE207	Introduction to Veterinary Tech.	2
AGE208	Breeding Management	3
AGE220	Young Horse Care and Handling	2
AGS225	Swine Science	3
AGS226	Beef Cattle Science	3
AGS270	Foods of Animal Origin	3
AGS305	Livestock Evaluation	3
AGS505	Swine Unit Maintenance	1
AGS510	Swine Confinement Systems	2
AGS515	Swine Management Skills	1
AGS520	Swine Records and Analysis	3
AGS552	Beef Feedlot Production	3
AGS555	Beef/Cow Calf Production	3
AGS946	Swine Management Seminar	1
BIO146	Genetics	3
BIO190	Introductory Biotechnology	3
DSL837	Commercial Driver's License & Tools	1.5
Total		**18**
Total Required Hours		**64**

Agriculture (Farm Management Track)

Associate in Applied Science Degree

Offered at ECC (Code: EVFOP)

Upon completion, students are awarded the Associate in Applied Science Degree.

General Education		Credit Hours
MAT772	Applied Math	3
Must select 6 credit hours		
ENG105	Composition I	3
ENG111	Technical Writing	3
SPC112	Public Speaking	3
SPC122	Interpersonal Communication	3
Must select 3 credit hours		
EDU160	Human Growth and Development	3
PSY111	Introduction to Psychology	3
SOC110	Introduction to Sociology	3
SOC115	Social Problems	3
Total		**12**
Program Requirements		
ACC121	Principles of Accounting I	3
	or	
ACC111	Introduction to Accounting	(3)
AGB330	Farm Business Management	3
AGP333	Precision Farming Systems	3
AGB235	Introduction to Agriculture Markets	3
AGB437	Commodity Marketing	3
AGC102	Computers in Agriculture	2
AGC216	Career Seminar	2
AGC907	Coop Field Experience	12
PEH142	First Aid	3
Total		**34**
Electives (must select 18 credit hours)		
AGA114	Principles of Agronomy	3
AGA154	Fundamentals of Soil Science	3
AGA211	Grain and Forage Production	3
AGA284	Pesticide Application Certification	3
AGA290	Spring Field Operations	1
AGB336	Agricultural Selling	3
AGC929	Individual Project	1-3
AGM114	Hydraulics I	2
AGS113	Survey of the Animal Industry	3
AGS216	Equine Science	3
AGS225	Swine Science	3
AGS226	Beef Cattle Science	3
AGS242	Animal Health	3
AGS270	Foods of Animal Origin	3
AGS305	Livestock Evaluation	3
AGS319	Animal Nutrition	3
AGS331	Animal Reproduction	3
AGS552	Beef Feedlot Production	3
AGS555	Beef/Cow Calf Production	3
DSL837	Commercial Driver's License & Tools	1.5
Total		**18**
Total Required Hours		**64**

Agriculture (Precision Ag Track)

Associate in Applied Science Degree

Offered at ECC (Code: EVPAG)

Precision farming is a high tech concept that relies on advanced technologies to increase efficiency in farming practices. Precision ag allows farmers to collect and use data about unique variations in a field to optimize management with regards to crops, environmental protection and economics.

General Education		Credit Hours
MAT772	Applied Math	3
ENG105	Composition I	3
	or	
ENG111	Technical Writing	(3)
SPC112	Public Speaking	3
	or	
SPC122	Interpersonal Communication	(3)
Must select 3 credit hours		
EDU160	Human Growth and Development	3
PSY111	Introduction to Psychology	3
SOC110	Introduction to Sociology	3
SOC115	Social Problems	3
Total		**12**
Program Requirements		
AGA114	Principles of Agronomy	3
AGA154	Fundamentals of Soil Science	3
AGA211	Grain and Forage Crops	3
AGC102	Computers in Agriculture	2
AGC216	Career Seminar	2
AGC907	Coop Field Experience	8
AGM330	Fundamentals of Electricity	3
AGM336	Agriculture Electronic Devices & Sys	3
AGP333	Precision Farming Systems	3
AGP435	Advanced Precision Farming: Software	3
AGP436	Advanced Precision Farming: Hardware	3
GIS111	Intro to Geographic Information Sys	3
GIS130	Remote Sensing	3
Total		**42**
Electives (must select 12 credit hours)		
AGA284	Pesticide Application Certification	3
AGB114	Hydraulics I	2
AGB235	Introduction to Agriculture Markets	3
AGB330	Farm Business Management	3
AGB336	Agricultural Selling	3
AGB437	Commodity Marketing	3
AGS113	Survey of the Animal Industry	3
AGS225	Swine Science	3
AGS226	Beef Cattle Science	3
AGS305	Livestock Evaluation	3
BCA167	Comprehensive Databases	3
BUS102	Introduction to Business	3
BUS130	Intro to Entrepreneurship	3
CNS160	Apps. of Global Positioning Systems	2
DSL837	Commercial Driver's License & Tools	1.5
GEO121	World Regional Geography	3
GIS211	Mapping for Decision Making	4
GIS213	Intermediate GIS	4
GIS240	GIS Projects	3
MAT156	Statistics	3
MKT110	Principles of Marketing	3
Total		**12**
Total Required Hours		**66**

Agriculture (Swine Management Track)

Diploma

Offered at ECC (Code: EVSWC)

Upon completion, students are awarded the Swine Management diploma. Upon completion of 18 credit hours, students are awarded the Certificate of Agricultural Science. This track may be transferred within the Agricultural Science Department for completion of an AAS degree.

General Education (must select 3 credit hours)		Credit Hours
ENG105	Composition I	3
ENG111	Technical Writing	3
Total		**3**
Program Requirements		
AGA159	Livestock Nutrient Management	2
AGC102	Computers in Agriculture	2
AGC216	Career Seminar	2
AGS225	Swine Science	3
AGS242	Animal Health	3
AGS319	Animal Nutrition	3
AGS331	Animal Reproduction	3
AGS505	Swine Unit Maintenance	1
AGS510	Swine Confinement Systems	2
AGS515	Swine Management Skills	1
AGS520	Swine Records and Analysis	3
AGS907	Co-op Field Experience	4
AGS946	Swine Management Seminar	1
BUS161	Human Relations	3
	or	
PEH142	First Aid	(3)
Total		**33**
Total Required Hours		**36**

Apparel Merchandising

Associate in Applied Science Degree

Offered at ECC (Code: EVFSH)

Apparel Merchandising is designed to prepare graduates for apparel-related positions in the field of retailing; it offers classroom instruction, study tours, and practical work experience to give students a comprehensive education.

Classroom instruction consists of a blend of business courses with apparel courses. Study tours are developed through combined efforts of coordinators and students to provide a firsthand look at many aspects of the fashion industry. Numerous retail stores across Iowa provide opportunities for paid work experience in apparel merchandising.

Career opportunities for fashion merchandising graduates are varied.

Opportunities to progress in management with large retail organizations hinge on a graduate's willingness to relocate; however, career opportunities in this field exist in any community which has apparel stores.

General Education		Credit Hours
ECN120	Principles of Macroeconomics	3
ENG105	Composition I	3
MAT156	Statistics I	3
SPC112	Public Speaking	3
Total		**12**
Program Requirements		
ACC111	Intro to Accounting	3
ADM154	Business Communications	3
APP105	Introduction to Fashion Marketing	3
APP150	Clothing Selection	3
APP160	Sewn Products Analysis	3
APP210	Apparel Textiles	3
APP245	Fashion Computer Design	3
APP800	Professional Development	1
APP907	Co-op Field Experience	3
BUS161	Human Relations	3
CSC118	Computer Systems and Applications	3
CSC119	Computer Systems and Applications II	3
MGT101	Principles of Management	3
MKT110	Principles of Marketing	3
MKT140	Principles of Selling	3
MKT150	Principles of Advertising	3
Electives	(courses approved for AA)	11
Total		**57**
Total Required Hours		**69**

Automotive Repair Technology

Associate in Applied Science Degree

Offered at MCC in Grinnell (Code: MVAUT)
The United States automotive industry employs approximately 7 million workers. It is an ever-changing field due to advancement of technology and increasing awareness of global and energy issues. Automotive technicians can earn between the mid $30's to the low $50's in Iowa.

Iowa Valley Grinnell's automotive repair technology program is a great way to train for a career in the automotive industry. IVG graduates high quality technicians who are trained to maintain, diagnose, and repair today's dynamic vehicles. Salaries and benefit packages reflect this growing need as independent repair shops, dealerships, and franchised shops are employing technicians who specialize in one-day repair.

Course work and credits earned in automotive repair can be articulated into advanced studies in automotive repair at other institutions.

2 year program that prepares the student to become *ASE certified* Automotive Maintenance Technicians working in local dealerships.

General Education		Credit Hours
ECN115	Personal Finance	3
ENG111	Technical Writing	3
MAT743	Technical Math	3
SPC112	Public Speaking	3
	or	
SPC122	Interpersonal Communication	(3)
Total		**12**

Humanities Elective (must select 3 credit hours)		
DRA110	Introduction to Film	3
LIT101	Introduction to Literature	3
LIT120	American Novel	3
LIT133	Minority Voices in US Literature	3
LIT180	Mythology	3
Total		**3**

Program Requirements		
AUT104	Intro to Automotive Technology	3
AUT163	Automotive Engine Repair	3
AUT173	Advanced Auto Engine Repair	3
AUT242	Basic Automotive Powertrain	6
AUT243	Advanced Automotive Powertrain	6
AUT404	Automotive Suspension and Steering	4
AUT503	Automotive Brake Systems	3
AUT535	Adv Automotive Brakes & Alignment	5
AUT603	Basic Automotive Electricity	3
AUT652	Advanced Automotive Electricity	3
AUT704	Auto Heating and Air Conditioning	4
AUT823	Advanced Automotive Tune-up	4
AUT834	Automotive Fuel Systems	4
AUT844	Auto Electronic Engine Controls	6
BUS130	Intro to Entrepreneurship	3
Total		**60**

Optional Elective		
BUS141*	Small Business Startup	3
Total		**3**
Total Required Hours		**75-78**

*BUS141 is recommended for students whose goal is to run their own automotive shop.

Automotive Repair Technology Practitioner

Diploma

Offered at MCC in Grinnell (Code: MVAUP)
The United States automotive industry employs approximately 7 million workers. It is an ever-changing field due to advancement of technology and increasing awareness of global and energy issues. Automotive technicians can earn between the mid $30's to the low $50's in Iowa.

Iowa Valley Grinnell's automotive repair technology program is a great way to train for a career in the automotive industry. IVG graduates high quality technicians who are trained to maintain, diagnose, and repair today's dynamic vehicles. Salaries and benefit packages reflect this growing need as independent repair shops, dealerships, and franchised shops are employing technicians who specialize in one-day repair.

First-year automotive repair students study automotive electrical circuits, brakes, suspensions, alignment, air conditioning and heating systems, and basic power train. Advanced course work leading toward the associate of applied science degree includes instruction in the diagnosis, maintenance, and repair of fuel systems, engine repair, electronic engine controls, and advanced techniques in the service and repair of brake and suspension systems.

1 year program that prepares the student to work in a variety of small repair shops in the community. Positions include Light Mechanical Repair Technician, Parts Technician, and business owner.

General Education		Credit Hours
ECN115	Personal Finance	3
ENG111	Technical Writing	3
MAT743	Technical Math	3
Total		**9**

Program Requirements		
AUT104	Intro to Automotive Technology	3
AUT242	Basic Automotive Powertrain	6
AUT404	Automotive Suspension and Steering	4
AUT503	Automotive Brake Systems	3
AUT603	Basic Automotive Electricity	3
AUT652	Advanced Automotive Electricity	3
AUT704	Auto Heating and Air Conditioning	4
Total		**26**
Total Required Hours		**35**

Biotechnology

Associate in Science (Career Option) Degree

Offered at ECC (Code: ECBIO)
Graduates of the one-year Biotechnology Practitioner diploma program may transfer their credits into this two-year Biotechnology program to earn an Associate in Science (Career Option) degree. The two-year program is as follows:

General Education	Credit Hours
Communications (courses approved for AA)	9
Humanities (courses approved for AA)	6
Social/Behavioral Science (courses approved for AA)	6
Math (courses approved for AA)	3
Lab Science (courses approved for AA)	4
Physical Education (courses approved for AA)	2
Total	**30**

Program Requirements		
BIO112	General Biology I	4
BIO146	Genetics	3
BIO186	Microbiology	4
BIO190	Introductory Biotechnology	3
BIO192	Laboratory Technology I	1
BIO193	Laboratory Technology 2	1
BIO907	Coop Field Experience	5
CHM165	General Chemistry I	4
CHM210	Analytical Instrumentation	4
Total		**29**

Electives (must select 8 credit hours)		
BIO113	General Biology II	4
BIO245	Genetic Engineering	3
BIO907	Coop Field Experience	10
CHM175	General Chemistry II	4
CHM290	Survey of Biochemistry	3
CHM261	Organic Chemistry I	4
CSC118	Computer Systems and Applications	3
Total		**8**
Total Required Hours		**67**

Biotechnology Practitioner

Diploma

Offered at ECC (Code: EVBIO)
High school graduates or individuals with baccalaureate degrees in science who want or need retraining for placement in technical positions are encouraged to enroll in this program. It is designed to provide training for technicians in genetic engineering, monoclonal antibodies, tissue culture, enzymology, fermentation and embryo transplants. Completion of this program provides options in immediate employment or continuation at ECC in the Laboratory Technology or Introductory Biotechnology programs.

General Education		Credit Hours
ENG105	Composition I	3
Total		**3**
Program Requirements		
BIO112	General Biology I	4
BIO146	Genetics	3
	or	
BIO148	Human Genetics	(3)
BIO186	Microbiology	4
BIO190	Introductory Biotechnology	3
BIO192	Laboratory Technology I	1
BIO193	Laboratory Technology 2	1
BIO907	Coop Field Experience	5
CHM175	General Chemistry II	4
CHM210	Analytical Instrumentation	4
Total		**29**
Electives (must select 8 credit hours)		
BIO245	Genetic Engineering	3
BIO290	Tissue Culture	4
BIO907	Coop Field Experience	8
CHM261	Organic Chemistry I	4
CHM271	Organic Chemistry II	4
CHM290	Survey of Biochemistry	3
CSC118	Computer Systems and Applications	3
Total		**8**
Total Required Hours		**40**

Biotechnology – Renewable Energy Technology

Associate in Science (Career Option) Degree

Offered at ECC (Code: ECRET)
Students in this program will be exposed to educational and employment opportunities in the renewable energy industry. Graduates may elect to transfer to a four-year college or university in a science-related curriculum.

Professional scientists in industry and government are searching for resourceful, creative, and dedicated persons with two years of college to perform a variety of laboratory tasks. Positions available include production technician, research technician, quality control technician, pollution control technician, and technical service. Supervisory positions are open to experienced technicians with a good technical background as well as the ability and desire to assume responsibility.

Students may elect to specialize in agriculture technology, environmental technology, chemical technology, biotechnology or veterinary assistant.

General Education		Credit Hours
Communications (courses approved for AA)		9
Humanities (courses approved for AA)		6
Social/Behavioral Science (courses approved for AA)		6
Math (courses approved for AA)		3
Lab Science (courses approved for AA)		4
Physical Education (courses approved for AA)		2
Total		**30**
Program Requirements		
BIO192	Laboratory Technology I	1
BIO193	Laboratory Technology 2	1
BIO907	Coop Field Experience	5
BPT160	Introduction to Renewal Energy Technology	3
BPT161	Processes in Renewable Energy	4
BPT168	Introduction to OSHA	1
CHM165	General Chemistry I	4
CHM210	Analytical Instrumentation	4
CSC118	Computer Systems and Applications	3
PHY106	Survey of Physics	4
Total		**30**
Electives (must select 8 credit hours)		
BIO112	General Biology I	4
BIO186	Microbiology	4
BIO190	Introductory Biotechnology	3
BIO194	Government Regulations	2
BIO245	Genetic Engineering	3
CHM175	General Chemistry II	4
CHM261	Organic Chemistry I	4
CHM271	Organic Chemistry II	4
CHM290	Survey of Biochemistry	3
Total		**8**
Total Required Hours		**68**

Biotechnology – Renewable Energy Technology Practitioner

Diploma

Offered at ECC (Code: EVREP)

General Education		Credit Hours
ENG105	Composition I	3
CSC118	Computer Systems and Applications	3
Total		**6**

Program Requirements		
BIO192	Laboratory Technology I	1
BIO193	Laboratory Technology 2	1
BIO907	Coop Field Experience	5
BPT160	Introduction to Renewal Energy Technology	3
BPT161	Processes in Renewable Energy	4
BPT168	Introduction to OSHA	1
CHM165	General Chemistry I	4
CHM210	Analytical Instrumentation	4
PHY121	Elements of Physics	4
Total		**27**

Electives (must select 8 credit hours)		
AGA114	Principles of Agronomy	3
AGA211	Grain and Forage Crops	3
BIO186	Microbiology	4
BIO190	Introductory Biotechnology	3
CHM261	Organic Chemistry I	4
CHM290	Survey of Biochemistry	3
ENV122	Environmental Biology	4
MAT121	College Algebra	4
Total		**8**
Total Required Hours		**41**

Biotechnology – Renewable Energy Technology

Certificate

Offered at ECC (Code: EVREC)

Program Requirements		Credit Hours
BIO192	Laboratory Technology I	1
BIO193	Laboratory Technology 2	1
BPT160	Introduction to Renewable Energy Tech.	3
BPT161	Processes in Renewable Energy	4
BPT168	Introduction to OSHA	1
CSC118	Computer Systems and Applications	3
PHY121	Elements of Physics	4
Total		**17**
Total Required Hours		**17**

Broadcasting/Digital Media

Associate in Applied Science Degree

Offered at MCC (Code: MVBRD)

For students interested in broadcasting and digital media careers, the Broadcasting curriculum provides skills in radio, television, corporate video and creating digital content for the social media. The program combines classes, internships, and hands-on training with state-of-the-art equipment. These elements provide essential experience and knowledge in the Broadcasting and Digital Media field.

The program facilities include a large television studio, control room, radio studio, and edit suites. In addition the program houses a local cable TV station (McTV) that allows students to create content for television as well as content for the internet. Equipment in the program includes high definition video cameras, post production editing systems, TV switchers, audio consoles, and digital mixers.

There are two major emphases in the curriculum:

Radio/Television
Students interested in radio or television broadcasting will get valuable training and experience in producing news content, and sports programming. Students will produce a local TV newscast and produce "live" multi-camera sports productions which include opportunities for announcing, directing, camera operation, computer graphics, and editing. Students will also write, produce, direct, and edit programs for radio and television using Marshalltown Community Television (McTV) and streaming radio broadcasts over the internet.

Digital Media
The other emphasis in the program deals with Digital Media content. Students will produce audio and video content for the internet and social media sites. Students will also produce content for businesses and organizations as part of a "client approach" to learning. Students work with clients to produce content for the internet. Writing for the digital media is another important area in this discipline as students will learn the art of blogging and writing for a variety of social media industries.

General Education	Credit Hours
Communications (courses approved for AA)	9
Humanities (courses approved for AA)	6
Social/Behavioral Science (courses approved for AA)	6
Math (courses approved for AA)	3
Lab Science (courses approved for AA)	4
Total	**28**

Program Requirements		
CIS207	Fundamentals of Web Programming	3
CSC118	Computer Systems and Applications	3
JOU110	Introduction to Mass Media	3
MKT110	Principles of Marketing	3
MMS105	Audio Production	3
MMS136	Writing for Digital Media	3
MMS147	TV Sports Production	1
MMS207	Post Production Editing	1
MMS225	Advanced Television Production	3
MMS236	TV News Production	3
MMS932	Internship	4
Total		**30**

Program Electives (must select 6 credit hours)		
CSC119	Computer Systems & Apps II	3
DRA110	Introduction to Film	3
DRA130	Acting I	3
DRA190	Lighting Design Technology I	3
ENG221	Creative Writing	3
POL111	American National Government	3
Total		**6**
Total Required Hours		**64**

Business Administration

Associate in Applied Science Degree

Offered at ECC & MCC (Codes: EVBSA & MVBSA)

The Business Administration program is designed to prepare students who wish to fully explore the field of business. The program is also designed to prepare students who plan to seek employment in sales, management training, small business operations, or a related field. It represents a program of business education for the student who may not continue in a four-year college or university.

General Education		Credit Hours
Communications (courses approved for AA)		9
Humanities (courses approved for AA)		6
Social/Behavioral Science (courses approved for AA)		3
ECN120	Principles of Macroeconomics	3
MAT156	Statistics	3
Lab Science (courses approved for AA)		4
PEH110	Personal Wellness	2
SDV108	The College Experience	1
Total		**31**

Program Requirements		
ACC121	Principles of Accounting I	3
ACC122	Principles of Accounting II	3
BUS102	Introduction to Business	3
BUS185	Business Law I	3
BUS230	Quant Methods for Business Decmkng	3
CSC118	Computer Systems and Applications	3
MGT101	Principles of Management	3
	or	
MGT130	Principles of Supervision	(3)
MKT110	Principles of Marketing	3
Electives	(choose from ACC, ADM, BCA, BUS, CIS, CSC, GRA, MKT)	6
Total		**30**

Computer Elective (must select 3 credit hours)		
ADM112	Keyboarding	3
BCA134	Word Processing	3
BCA178	Presentation Software	3
CIS125	Intro to Programming Logic w/Lngge	3
CIS207	Fundamentals of Web Programming	3
CSC119	Computer Systems & Apps II	3
GRA110	Graphic Arts Principles	3
GRA127	Illustrator I	3
GRA140	Digital Imaging	3
GRA141	Digital Imaging II	3
Total		**3**
Total Required Hours		**64**

Business Administration (Entrepreneurship)

Diploma

Offered at MCC (Code: MVENP)

Students will attain a diploma in a specific subject area of business administration (entrepreneurship).

General Education		Credit Hours
ENG105	Composition I	3
Total		**3**

Program Requirements		
ACC121	Principles of Accounting I	3
ACC311	Computer Accounting	3
BUS130	Introduction to Entrepreneurship	3
BUS141	Small Business Startup	3
BUS185	Business Law I	3
CSC118	Computer Systems and Applications	3
MGT101	Principles of Management	3
	or	
MGT130	Principles of Supervision	(3)
MKT110	Principles of Marketing	3
Electives	ACC, BUS, MGT, MKT Prefixes	3
Total		**27**

Program Electives (must select 6 credit hours)		
BUS230	Quant Methods for Business Decmkng	3
ECN115	Personal Finance	3
ECN120	Principles of Macroeconomics	3
MAT156	Statistics	3
PHI105	Introduction to Ethics	3
PSY111	Introduction to Psychology	3
SOC110	Introduction to Sociology	3
SPC112	Public Speaking	3
Total		**6**
Total Required Hours		**36**

Business Administration (Entrepreneurship)

Certificate

Offered at MCC (Code: MVENT)

Gain the knowledge and skills to become successful entrepreneurs. Learn tested marketing skills, proven strategies and employee development skills to gain the knowledge needed to have a competitive advantage in the marketplace.

Program Requirements		Credit Hours
ACC311	Computer Accounting	3
BUS130	Introduction to Entrepreneurship	3
BUS141	Small Business Startup	3
BUS150	E-Commerce	3
BUS220	Intro to International Business	3
MGT101	Principles of Management	3
	or	
MGT130	Principles of Supervision	(3)
MKT110	Principles of Marketing	3
Total		**21**
Total Required Hours		**21**

Business Administration (Small Business Practitioner Track)

Diploma

Offered at ECC & MCC (Codes: EVBSM & MVBSM)

One-year diploma program available to students wanting specialized skills in working in a small business environment. This program could be completed as an evening program in two semesters and two summer sessions.

The diploma program requires 33 hours of coursework concentrating on business classes (courses in accounting, business, computers, management, marketing and general education). Suggested coursework will be developed with the aid of a business faculty advisor.

General Education		Credit Hours
ENG105	Composition I	3
ENG106	Composition II	3
Total		**6**

Program Requirements		
ACC121	Principles of Accounting I	3
ACC122	Principles of Accounting II	3
BUS185	Business Law I	3
BUS230	Quant Methods for Business Decmkng	3
CSC118	Computer Systems and Applications	3
MGT101	Principles of Management	3
	or	
MGT130	Principles of Supervision	(3)
MKT110	Principles of Marketing	3
Total		**21**

Program Elective (must select 6 credit hours)		
ACC161	Payroll Accounting	3
ACC311	Computer Accounting	3
BUS102	Introduction to Business	3
BUS130	Intro to Entrepreneurship	3
BUS141	Small Business Startup	3
BUS150	E-Commerce	3
BUS161	Human Relations	3
BUS220	Intro to International Business	3
CSC119	Computer Systems & Apps II	3
MKT140	Principles of Selling	3
MKT150	Principles of Advertising	3
MKT160	Principles of Retailing	3
MKT162	Retail Merchandising	3
Total		**6**
Total Required Hours		**33**

Business Administrative and Information Services Assistant

Diploma

Offered at ECC and MCC (Code: EVBAI and MVBAI)

Program prepares students to provide administrative, information services, and technical assistance to clients in a business office or remotely as a virtual assistant from a home office. Tasks include bookkeeping; online research; presentations; travel planning, scheduling; database, e-mail, and social-media management; and industry-specific responsibilities. Preparation includes fundamental skills in keyboarding, communications, and finance, along with training in computer hardware, computer applications, and web-design skills in an information technology context. Test-out options and Microsoft certifications are available.

General Education		Credit Hours
ECN115	Personal Finance	3
Total		**3**

Program Requirements		
ACC121	Principles of Accounting I	3
ACC311	Computer Accounting	3
ADM112	Keyboarding	3
	or	
ADM105	Introduction to Keyboarding	(1)
ADM154	Business Communications	3
ADM161	Office Management	3
BCA134	Word Processing	3
CSC118	Computer Systems and Applications	3
CSC119	Computer Systems and Applications II	3
	or	
BCA152	Comprehensive Spreadsheets	(3)
CSC120	Computer Systems and Applications III	3
	or	
BCA167	Comprehensive Databases	(3)
CIS207	Fundamentals of Web Programming	3
NET123	Computer Hardware Basics	4
Total		**34**
Total Required Hours		**35-37**

Business Computer Applications

Diploma

Offered at ECC and MCC (Code: EVBCA and MVBCA)

Gain computer skills through this short diploma or add any of the classes as electives to an AA degree. Due to the innovative nature of the program, courses must be completed within 5 years to earn diploma. Test-out options and Microsoft certifications are available.

General Education		Credit Hours
ENG111	Technical Writing	3
Total		**3**

Program Requirements		
ADM112	Keyboarding	3
BCA134	Word Processing	3
CSC118	Computer Systems and Applications	3
CSC119	Computer Systems and Applications II	3
	or	
BCA152	Comprehensive Spreadsheets	(3)
CSC120	Computer Systems and Applications III	3
	or	
BCA167	Comprehensive Databases	(3)
Total		**15**
Total Required Hours		**18**

Computer Applications in Business

Associate in Applied Science Degree

Offered at ECC & MCC (Codes: EVCBU & MVCBU)

Students learn computer and technical skills required of today's workers. May take the program completely online or opt for classroom training. Learn to solve business problems utilizing computer software, manage data to make data-driven decisions, and prepare statistical reports, spreadsheets, presentations, publications, web pages, and information requests. Flexibility is built into the program so that students have the opportunity to take medical, legal, accounting, or a variety of specialty electives, such as foreign language, to enhance credentials or prepare for further study.

General Education		**Credit Hours**
CSC118	Computer Systems and Applications	3
ENG105	Composition I	3
SPC112	Public Speaking	3
Social/Behavioral Science/Humanities (courses approved for AA)		3
Electives	(courses approved for AA)	9
Must select 3 credit hours		
MAT110	Math for Liberal Arts	3
BUS230	Quant Methods for Business Decmkng	3
MAT156	Statistics	3
Total		**24**
Program Requirements		
ACC111	Introduction to Accounting	3
	or	
ACC121	Principles of Accounting I	(3)
ADM112	Keyboarding	3
	or	
ADM116	Keyboarding II	(3)
ADM154	Business Communications	3
	or	
ENG111	Technical Writing	(3)
ADM161	Office Management	3
	or	
MGT130	Principles of Supervision	(3)
BCA134	Word Processing	3
BCA152	Comprehensive Spreadsheets	3
BCA178	Presentation Software	3
CSC119	Computer Systems and Applications II	3
CSC120	Computer Systems and Applications III	3
Total		**27**
Electives (must select 13 credit hours)		
Electives	ACC, BCA, BUS, CSC, MAP, PRL Prefixes or choose from list below:	13
ACC311	Computer Accounting	(3)
BCA768	Adobe for Business	(3)
BUS291	Employment Portfolio and Career Develop.	(2)
CIS207	Fundamentals of Web Programming	(3)
ECN115	Personal Finance	(3)
GRA140	Digital Imaging	(3)
NET123	Computer Hardware Basics	(4)
Total		**13**
Total Required Hours		**64**

Computer Applications in Business Practitioner

Diploma

Offered at ECC (Code: EVCBP)

Students learn computer and technical skills required of today's workers. May take the program completely online or opt for classroom training. Learn to solve business problems utilizing computer software, manage data to make data-driven decisions, and prepare statistical reports, spreadsheets, presentations, publications, web pages, and information requests.

General Education		**Credit Hours**
CSC118	Computer Systems and Applications	3
ENG105	Composition I	3
	or	
ENG111	Technical Writing	(3)
Total		**6**
Program Requirements		
ADM112	Keyboarding	3
	or	
ADM116	Keyboarding II	(3)
ADM161	Office Management	3
	or	
MGT130	Principles of Supervision	(3)
BCA134	Word Processing	3
BCA152	Comprehensive Spreadsheets	3
BCA178	Presentation Software	3
CSC119	Computer Systems and Applications II	3
CSC120	Computer Systems and Applications III	3
Total		**21**
Electives (must select 9 credit hours)		
ACC111	Introduction to Accounting	3
ACC121	Principles of Accounting I	3
ACC311	Computer Accounting	3
ADM154	Business Communications	3
BCA768	Adobe for Business	3
BUS291	Employment Portfolio and Career Develop.	2
CIS207	Fundamentals of Web Programming	3
GRA140	Digital Imaging	3
NET123	Computer Hardware Basics	4
Total		**9**
Total Required Hours		**36**

Computer Network Management

Associate in Applied Science Degree

Offered at MCC (Code: MVCNM)

Computer Network Management is designed to provide the technical training necessary to install and maintain a computer networking environment, as well as the interpersonal skills necessary to "interface" with the people within a company or organization. A high degree of hands-on experience is stressed with a networking lab dedicated to this program.

Students are encouraged to take the industry standard certification exams.

General Education		Credit Hours
CSC118	Computer Systems and Applications	3
ENG105	Composition I	3
MAT110	Math for Liberal Arts	3
PSY111	Introduction to Psychology	3
SPC112	Public Speaking	3
Total		**15**

Program Requirements		
NET123	Computer Hardware Basics	4
NET235	CCNA Cisco 1	3
NET236	CCNA Cisco 2	3
NET237	CCNA Cisco 3	3
NET238	CCNA Cisco 4	3
NET270	Mobile Application Development	3
NET271	Mobile App Development 2	3
NET303	Window Workstn Operating Syst	3
NET313	Windows Server	3
NET453	UNIX	3
NET612	Fundamentl of Network Security	3
NET616	VMware	3
NET785	Fundamnt. of Desktop Support	3
Total		**40**

Electives (must select 9 credit hours)		
ACC111	Introduction to Accounting	3
BUS150	E-Commerce	3
CIS207	Fundamentals of Web Programming	3
CIS125	Intro to Programming Logic w/Lngge	3
CSC119	Computer Systems and Applications II	3
CSC120	Computer Systems and Applications III	3
MGT130	Principles of Supervision	3
Total		**9**
Total Required Hours		**64**

Computer Network Management Practitioner

Diploma

Offered at MCC (Code: MVCNP)

This program provides students with the expertise in computer network management used in business and industry.

These classes will allow someone who already has a degree or working in the computer technology field, to update their knowledge and complete the classes needed for Microsoft & Cisco certification.

General Education (must select 3 credit hours)		Credit Hours
ENG105	Composition I	3
SPC112	Public Speaking	3
Total		**3**

Program Requirements		
CSC118	Computer Systems and Applications	3
CSC119	Computer Systems and Applications II	3
NET123	Computer Hardware Basics	4
NET235	CCNA Cisco 1	3
NET236	CCNA Cisco 2	3
NET303	Window Workstn Operating Syst	3
NET313	Windows Server	3
NET453	UNIX	3
NET612	Fundamentl of Network Security	3
NET616	VMware	3
NET785	Fundamnt.of Desktop Support	3
Total		**34**
Total Required Hours		**37**

Conservation Technology

Associate in Applied Science Degree

Offered at ECC (Code: EVCST)

The Conservation Technology program is designed to prepare students for immediate employment associated with conservation, agriculture, or environmental science. Graduates are now working as park rangers, conservationists, naturalists, and teachers.

General Education		Credit Hours
ENG105	Composition I	3
ENG106	Composition II	3
SPC112	Public Speaking	3
Humanities (courses approved for AA)		3
Social/Behavioral Science (courses approved for AA)		3
MAT156	Statistics	3
BIO112	General Biology I	4
Total		**22**

Electives (must select 34 credit hours)		
AGA154	Fundamentals of Soil Science	3
BIO113	General Biology II	4
BIO138	Field Biology	3
BIO144	Field Biology: Spring Flowers	1
BIO238	Field Ecology II	3
BIO943	Iowa Habitats: Ecology & Management	3
CNS140	Parks, Planning and Maintenance	3
CNS150	Occupations in Conservation	1
CNS160	Apps. of Global Positioning Systems	2
CNS170	Wildland Firefighting	3
CNS907	Co-op Field Experience	5
GIS111	Intro to Geographic Info Sys	3
Total		**34**

Must select 6 credit hours total from Group 1 and 2

Group 1 must select 1 course		
AGA284	Pesticide Application Certification	3
BIO132	Animal Care and Rehabilitation	2
CSC118	Computer Systems and Applications	3
ENV120	Environmental Biology	3

Group 2 must select 1 course		
CRJ251	Firearms	3
CHM122	Introduction to General Chemistry	4
PEH142	First Aid	3
Total		**6**
Total Required Hours		**62**

Construction Technology

Associate in Applied Science Degree

Offered at ECC & MCC (Codes: EVCRT & MVCRT)
The Construction Technology degree is designed to train students interested in entering the field of residential and commercial construction. The two-year program equips graduates to enter the job market after graduation or work toward a Master Carpenter Certification and/or bachelor or master's degree. This program also offers a one-year Carpentry Practitioner diploma option.

Students will develop knowledge of the tools, equipment, techniques, building styles and materials utilized in residential and commercial construction. This knowledge is then applied to skill development in the actual construction of a residential project, as well as hands-on commercial applications.

General Education		Credit Hours
ENG105	Composition I	3
	or	
ENG111	Technical Writing	(3)
MAT790	Shop Mathematics	(3)
PEH142	First Aid	3
SOC110	Introduction to Sociology	3
Total		**15**
Program Requirements		
ACC111	Intro to Accounting	3
CON108	Construction Safety	1
CON155	Carpentry Level I	3
CON157	Carpentry Level II	6
CON185	Construction Lab I	10
CON186	Construction Lab II	10
CON210	Fundamentals of Carpentry	3
CON264	Commercial Construction	6
CON265	Commercial Construction Lab	4
CON268	Commercial/Heavy Construction	6
CON269	Commercial/Heavy Construction Lab	4
Total		**53**
Electives (must select 3 credit hours)		
CON421	On-the-Job Training	4
ENG106	Composition II	3
Total		**3**
Total Required Hours		**71-72**

Construction Residential Practitioner

Diploma

Offered at ECC & MCC (Codes: EVCRP & MVCRP)
The Carpentry Practitioner diploma is designed to train students interested in entering the field of residential and light commercial construction. This program transfers easily into the two-year Construction Technology Associate in Applied Science Degree.

Students will develop knowledge of the tools, equipment, techniques, building styles and materials utilized in residential and light commercial construction. This knowledge is then applied to skill development in the actual construction of a residential project.

General Education		Credit Hours
MAT790	Shop Mathematics	3
PEH142	First Aid	3
SDV135	Job Seeking Skills	1
Total		**7**
Program Requirements		
CON108	Construction Safety	1
CON155	Carpentry Level I	3
CON157	Carpentry Level II	6
CON185	Construction Lab I	10
CON186	Construction Lab II	10
CON210	Fundamentals of Carpentry	3
Total		**33**
Electives (must select 3 credit hours)		
CON421	On-the-Job Training	4
ENG105	Composition I	3
ENG111	Technical Writing	3
Total		**3**
Total Required Hours		**43-44**

Construction Commercial Practitioner

Diploma

Offered at ECC & MCC (Codes: EVCCP & MVCCP)
This Carpentry Practitioner diploma is designed to train students interested in entering the field of commercial construction. This program transfers easily into the two-year Construction Technology Associate in Applied Science Degree.

Students will develop knowledge of the tools, equipment, techniques, building styles and materials utilized in commercial construction.

General Education		Credit Hours
ACC111	Intro to Accounting	3
MAT790	Shop Mathematics	3
PEH142	First Aid	3
SDV135	Job Seeking Skills	1
Total		**10**
Program Requirements		
CON108	Construction Safety	1
CON210	Fundamentals of Carpentry	3
CON264	Commercial Construction	6
CON265	Commercial Construction Lab	4
CON268	Commercial/Heavy Construction	6
CON269	Commercial/Heavy Construction Lab	4
Total		**24**
Electives (must select 3 credit hours)		
CON421	On-the-Job Training	4
ENG105	Composition I	3
ENG111	Technical Writing	3
Total		**3**
Total Required Hours		**37-38**

Construction Technology Retail

Associate in Applied Science Degree

Offered at ECC & MCC (Codes: EVCRR & MVCRR)
This program is for persons who wish to enter management in the retail related aspect of the construction industry. This program is geared to enhance the opportunities at both the entry level and advancement stages of employment.

Students will be provided internships in area retail construction businesses.

General Education		Credit Hours
ACC111	Intro to Accounting	3
ENG105	Composition I	3
ENG106	Composition II	3
MAT790	Shop Mathematics	3
SOC110	Introduction to Sociology	3
SPC112	Public Speaking	3
Total		**18**
Program Requirements		
CON108	Construction Safety	1
CON155	Carpentry Level I	3
CON157	Carpentry Level II	6
CON185	Construction Lab I	10
CON186	Construction Lab II	10
CON210	Fundamentals of Carpentry	3
CON264	Commercial Construction	6
CON265	Commercial Construction Lab	4
	or	
CON421	On-the-Job Training	(4)
CSC118	Computer Systems and Applications	3
Total		**46**
Business Electives (must select 3 credit hours)		
BUS102	Introduction to Business	3
MKT110	Principles in Marketing	3
MKT140	Principles of Selling	3
MKT160	Principles of Retailing	3
Total		**3**
Total Required Hours		**67**

Heavy Construction

Associate in Applied Science Degree

Offered at MCC (Code: MVHCT)
This Carpentry AAS is designed to train students interested in entering the field of heavy construction.

Students will develop knowledge of the tools, equipment, techniques, structures, and materials utilized in heavy construction.

General Education		Credit Hours
ACC111	Intro to Accounting	3
ENG105	Composition I	3
	or	
ENG111	Technical Writing	(3)
MAT790	Shop Mathematics	3
PEH142	First Aid	3
SOC110	Introduction to Sociology	3
Total		**15**

Program Requirements		
CON108	Construction Safety	1
CON155	Carpentry Level I	3
CON157	Carpentry Level II	6
CON185	Construction Lab I	10
CON186	Construction Lab II	10
CON210	Fundamentals of Carpentry	3
CON268	Commercial/Heavy Construction	6
CON269	Commercial/Heavy Construction Lab	4
HEQ125	Heavy Construction	6
HEQ126	Heavy Construction Lab	4
Total		**53**

Electives (must select 3 credit hours)		
CON421	On-the-Job Training	4
ENG106	Composition II	3
Total		**3**
Total Required Hours		**71-72**

Heavy Construction Practitioner

Diploma

Offered at MCC (Code: MVHCP)
This Carpentry Practitioner diploma is designed to train students interested in entering the field of heavy construction.

Students will develop knowledge of the tools, equipment, techniques, structures and materials utilized in heavy construction.

General Education		Credit Hours
MAT790	Shop Mathematics	3
PEH142	First Aid	3
SDV135	Job Seeking Skills	1
Total		**7**

Program Requirements		
CON108	Construction Safety	1
CON210	Fundamentals of Carpentry	3
CON268	Commercial/Heavy Construction	6
CON269	Commercial/Heavy Construction Lab	4
HEQ125	Heavy Construction	6
HEQ126	Heavy Construction Lab	4
Total		**24**

Electives (must select 3 credit hours)		
CON421	On-the-Job Training	4
ENG105	Composition I	3
ENG111	Technical Writing	3
Total		**3**
Total Required Hours		**34-35**

Criminal Justice - Corrections

Associate in Applied Science Degree

Offered at ECC & MCC (Codes: EVCJC & MVCJC)
This program is designed to prepare students for immediate employment in field including corrections, probation and parole, juvenile justice, and county jails.

General Education	Credit Hours
Communications (courses approved for AA)	9
Humanities (courses approved for AA)	6
Social/Behavioral Science (courses approved for AA)	6
Math (courses approved for AA)	3
Lab Science (courses approved for AA)	4
SDV108 The College Experience	1
Total	**29**

Program Requirements		
CRJ100	Intro to Criminal Justice	3
CRJ101	Ethics in Criminal Justice	3
CRJ120	Introduction to Corrections	3
CRJ133	Constitutional Criminal Procedure	3
CRJ200	Criminology	3
CRJ201	Juvenile Delinquency	3
CSC118	Computer Systems and Applications	3
Total		**21**

Electives (must select 15 credit hours)		
CRJ110	Patrol Procedures	3
CRJ141	Criminal Investigation	3
CRJ145	Police Photography	3
CRJ160	Intro to Forensic Investigation	3
CRJ183	Terrorism and Homeland Security	3
CRJ210	Law Enforcement Management	3
CRJ211	Multicultural Policing	3
CRJ212	Community-Oriented Policing	3
CRJ251	Firearms	3
CRJ907	Coop Field Experience	3
PEH142	First Aid	3
Total		**15**
Total Required Hours		**65**

NOTE: Students should be advised that law enforcement agencies and corrections facilities conduct criminal background checks prior to hiring.

Criminal Justice - Law Enforcement

Associate in Applied Science Degree

Offered at ECC & MCC (Codes: EVCJL & MVCJL)
This program is designed to prepare students for immediate employment in the field including law enforcement, security, loss prevention, and social work.

General Education	Credit Hours
Communications (courses approved for AA)	9
Humanities (courses approved for AA)	6
Social/Behavioral Science (courses approved for AA)	6
Math (courses approved for AA)	3
Lab Science (courses approved for AA)	4
SDV108 The College Experience	1
Total	**29**

Program Requirements		
CRJ100	Intro to Criminal Justice	3
CRJ101	Ethics in Criminal Justice	3
CRJ133	Constitutional Criminal Procedure	3
CRJ211	Multicultural Policing	3
CSC118	Computer Systems and Applications	3
Total		**15**

Electives (must select 21 credit hours)		
CRJ110	Patrol Procedures	3
CRJ130	Criminal Law	3
CRJ141	Criminal Investigation	3
CRJ145	Police Photography	3
CRJ160	Intro to Forensic Investigation	3
CRJ183	Terrorism and Homeland Security	3
CRJ200	Criminology	3
CRJ201	Juvenile Delinquency	3
CRJ210	Law Enforcement Management	3
CRJ212	Community-Oriented Policing	3
CRJ251	Firearms	3
CRJ907	Coop Field Experience	3
Total		**21**
Total Required Hours for Law Enforcement Track		**65**

NOTE: Students should be advised that law enforcement agencies and corrections facilities conduct criminal background checks prior to hiring.

Culinary Apprenticeship

Associate in Applied Science Degree

Offered at MCC in Grinnell (Codes: MVCLA)

This Associate in Applied Science degree is scheduled over a three year period to accommodate a 6000 hour Registered Apprenticeship with the US Department of Labor to prepare students for the professional world of culinary arts. This program reflects part-time training hours matched with full-time paid work in the industry.

General Education		Credit Hours
ART101	Art Appreciation	3
	or	
HIS254	American Indian History	(3)
SPC112	Public Speaking	3
	or	
SPC122	Interpersonal Communication	(3)
MAT743	Technical Math	3
Must select 3 credit hours		
ECN115	Personal Finance	3
GEO121	World Regional Geography	3
PHI105	Introduction to Ethics	3
Total		**12**

Program Requirements		
CSC118	Computer Systems and Applications	3
HCM100	Sanitation and Safety	2
HCM116	Fundamentals of Baking	3
HCM154	Basic Food Prep	2
HCM155	Garde Manger	3
HCM156	Intermediate Food Prep	3
HCM160	Advanced Food Preparation	3
HCM180	Food Fundamentals	2
HCM212	Industry Management	3
HCM233	Menu Planning & Nutrition	3
HCM241	Menu Planning/Sales Promotion	3
HCM255	Purchasing	3
HCM280	Food Cost Accounting	3
HCM301	Beverage Control	3
HCM501	Culinary Practicum	3
HCM502	Culinary Practicum II	3
HCM503	Culinary Practicum III	1.5
HCM504	Culinary Practicum IV	3
HCM505	Culinary Practicum V	3
HCM506	Culinary Practicum VI	1.5
HCM507	Culinary Practicum VII	3
HCM508	Culinary Practicum VIII	3
HCM509	Culinary Practicum IX	1.5
Total		**61.5**
Total Required Hours		**73.5**

Dental Assisting

Diploma

Offered at MCC (Code: MVDNT)

The 11-month Dental Assisting program provides training in the skills and knowledge necessary for successful employment in a modern dental facility. The program is accredited by the American Dental Association Commission on Dental Accreditation. Graduates are eligible to write examinations for Certified Dental Assistants, Infection Control, and Dental Radiation Health and Safety.

Six basic areas in the Dental Assisting curriculum are:

- chair side assisting (seating/preparing patients, implementing infection control, preparing instruments/materials, charting, and passing and receiving instruments)
- infection control (universal precautions, OSHA and HazMat standards, office asepsis)
- radiographic techniques (exposing, developing and mounting dental x-rays)
- office management (keeping schedules, receiving patients on the telephone and in person, keeping clinical and financial records, computerized recordkeeping, filing insurance claims, ordering supplies)
- laboratory techniques (preparing dental amalgam and cements, pouring and trimming models)
- patient education (teaching preventive dentistry)

A grade point average of 2.00 or above with no course failures are required for successful program completion.

General Education		Credit Hours
CSC118	Computer Systems and Applications	3
ENG105	Composition I	3
PSY111	Introduction to Psychology	3
SPC112	Public Speaking	3
Total		**12**

Program Requirements		
DEA103	Orientation to Dental Assisting	2
DEA252	Dental Science	3
DEA263	Dental Science II	2
DEA294	Microbiology & Infection Control	3
DEA312	Dental Radiography I	3
DEA321	Dental Radiography II	2
DEA402	Dental Materials	2.5
DEA428	Laboratory Procedures	2
DEA503	Principles of Dental Assisting	4.5
DEA550	Assisting Clinic I	3
DEA551	Assisting Clinic II	2
DEA552	Assisting Clinic III	3
DEA603	Dental Specialties	2
DEA702	Dental Office Procedures	2
Total		**36**
Total Required Hours		**48**

NOTE: Students should be advised that most health care facilities conduct criminal background checks prior to hiring dental assistants.

Early Childhood Education

Associate in Applied Science Degree

Offered at MCC (Code: MVCHE)
Graduates of the two-year Child Development program will be able to develop a program that will take into consideration all facets of the preschool child's behavior and development including interaction with peers, parents, and community.

In addition, graduates will be able to manage the business aspects of a child care center; maintain high nutritional and health standards; supervise assistants, student observers and helpers/volunteers; work closely with parents and families; and continue their professional growth.

A grade point of 2.00 or above is required for each program requirement for successful completion.

General Education	Credit Hours
Communications (courses approved for AA)	9
Humanities (courses approved for AA)	6
Social/Behavioral Science (courses approved for AA)	6
MAT117 Math for Elementary Teachers	3
or	
Math (courses approved for AA)	(3)
Lab Science (courses approved for AA)	4
Physical Education (courses approved for AA)	2
Total	**30**

Program Requirements		Credit Hours
ECE103	Intro to Early Childhood Education	3
ECE133	Child Health, Safety and Nutrition	3
ECE158	Early Childhood Curriculum I	3
ECE159	Early Childhood Curriculum II	3
ECE170	Child Growth and Development	3
ECE221	Infant/Toddler Care and Education	3
ECE243	Early Childhood Guidance	3
ECE270	Practicum in Child Care I	3
ECE271	Practicum in Child Care II	3
ECE290	Early Childhood Program Administration	3
ECE929	Individual Projects	1
EDU235	Children's Literature	3
Total		**34**
Total Required Hours		**64**

NOTE: Students should be advised that all child care centers conduct criminal background checks prior to hiring new employees.

Early Childhood Education Practitioner

Diploma

Offered at MCC (Code: MVCHD)
Graduates of the one-year Child Development Practitioner program will be qualified to work under the direction of a supervisor in carrying out the goals of a child care center. Specific competencies include supervising children, assisting with developmentally appropriate activities, maintaining a sanitary environment, recognizing health care problems, recognizing and dealing with behavior problems, and assisting in the preparation of snacks and meals.

A grade point of 2.00 or above is required for each program requirement for successful completion.

General Education		Credit Hours
ENG105	Composition I	3
Social/Behavioral Science (courses approved for AA)		3
or		
CSC118	Computer Systems and Applications	(3)
Total		**6**

Program Requirements		Credit Hours
ECE103	Intro to Early Childhood Education	3
ECE133	Child Health, Safety and Nutrition	3
ECE158	Early Childhood Curriculum I	3
ECE159	Early Childhood Curriculum II	3
ECE170	Child Growth and Development	3
ECE221	Infant/Toddler Care and Education	3
ECE243	Early Childhood Guidance	3
ECE270	Practicum in Child Care I	3
ECE271	Practicum in Child Care II	3
EDU235	Children's Literature	3
ECE929	Individual Projects	1
Total		**31**
Total Required Hours		**37**

NOTE: Students should be advised that all child care centers conduct criminal background checks prior to hiring new employees.

Electro-Mechanical Systems Technologist

Associate in Applied Science Degree

Offered at MCC (Code: MVELM)
This program is designed to train students to troubleshoot, repair and maintain electrical and mechanical equipment and instruments through data analysis. Students will obtain a background in OSHA, process control, electrical circuits, print reading, machining, hydraulics/pneumatics, and other areas tended by field service technicians. Students will get hands on training in inspecting, installing, calibrating, and servicing various instruments that measure and record changes in industrial environments.

General Education		Credit Hours
CSC118	Computer Systems and Applications	3
ENG105	Composition I	3
ENG111	Technical Writing	3
MAT156	Statistics	3
MAT790	Shop Mathematics	3
MAT791	Shop Mathematics II	1
Social/Behavioral Science (courses approved for AA) (recommend PSY212)		3
Total		**19**

Program Requirements		Credit Hours
EGT141	Fluid Power	3
ELT111	Introduction to Electronics	3
ELT170	Introduction to PLCs	3
ELT220	AC-DC Motors and Controls	5
ELT241	PLCs II	3
ELT395	Advanced Electrical Circuits	5
IND115	Occupational Safety, Health & Environmental Concerns	1
IND125	Introduction to Process Control	3
MFG121	Machine Trade Print Reading I	2
MFG209	Machine Shop Practices	3
MFG506	Quality Assurance	1
MKT181	Customer Service Strategies	2
WEL116	General Welding	1
Total		**35**

Electives (must select 10 credit hours)		Credit Hours
ELE151	Nat'l Elec. Code & Elec. Wire.	3
HCR101	Basic Heat/Air Conditioning/Refrig	4
IND153	Industrial Mechanics	3
IND169	Basic Plumbing and Pipework	2
IND189	Introduction to Mechatronics	5
IND193	Introduction to Pumps	4
IND250	Fundamentals/Maintenance Management	3
IND911	On-the-job Training	1-2
MAT158	Statistics II	3
MFG262	Mill Operations Theory	3
MFG280	Drill Presses	1.5
PHY121	Elements of Physics	4
WEL186	GMAW	4
Total		**10**
Total Required Hours		**64**

Electrical Maintenance Mechanic

Diploma

Offered at MCC (Code: MVEMM)
This program is designed to train students to maintain, repair and service electrical and electronic equipment found in industry. Students will get a background in electricity, solid state electronics, motors and controls, programmable logic controllers, automated manufacturing systems, process control systems, and general welding. Upon satisfactory completion of the program and a GPA of 2.0, the student will be awarded a diploma. If the student wishes to transfer into one of the two Industrial AAS degree programs that are offered by the college a number of credits earned in the diploma program can be transferred towards completion of these programs.

General Education		Credit Hours
ENG105	Composition I	3
	or	
ENG111	Technical Writing	(3)
MAT790	Shop Mathematics	3
Total		**6**

Program Requirements		
ELE151	Nat'l Elec. Code & Elec. Wire.	3
ELT111	Introduction to Electronics	3
ELT170	Introduction to PLCs	3
ELT220	AC-DC Motors and Controls	5
ELT241	PLCs II	3
ELT395	Advanced Electrical Circuits	5
IND189	Introduction to Mechatronics	5
IND115	Occupational Safety, Health & Environmental Concerns	1
IND125	Introduction to Process Control	3
IND153	Industrial Mechanics	3
WEL116	General Welding	1
Total		**35**
Total Required Hours		**41**

Entertainment Design Technology

Associate in Applied Science Degree

Offered at MCC (Codes: MVEDT)
The MCC Entertainment Design Technology (EDT) program is housed in the Orpheum Theater Center. The three tracks of the EDT Program are designed to take advantage of interdisciplinary strength and create the specificity of job training for specialized fields of study in the theater that are in a high demand job market within the entertainment industry. In a two-year program it allows the student to quickly focus on job related skill sets within a time frame to become proficient through practicum and production work to put those skill sets into action.

General Education		Credit Hours
Communications (courses approved for AA)		9
DRA102	Elements of Theatre	3
DRA110	Introduction to Film	3
Social/Behavioral Science (courses approved for AA)		6
	(recommend SOC110 and PSY111)	
MAT110	Math for Liberal Arts	3
PHY106	Survey of Physics	4
Physical Education (courses approved for AA) (recommend PEH110)		2
Total		**30**

Program Requirements		
DRA150	Play Production	4
DRA160	Production Studio	4
DRA165	Stagecraft	3
DRA188	Advanced Stagecraft	3
DRA932	Summer Repertory Internship	3
IND110	CPR, First Aide and Safety	1
Total		**18**

Lighting Track Requirements		
DRA169	Drafting Light Plots	2
DRA190	Lighting Design Technology I	3
DRA191	Lighting Design Technology II	3
ELE151	Nat'l Elec. Code & Elec. Wire	3
	or	
WEL186	GMAW	(4)
ELT111	Introduction to Electronics	3
MMS147	TV Sports Production	1
MMS245	Intro to Virtual Reality	3
Total		**18-19**
Total Required Hours		**67**

Scenery Track Requirements		
DRA164	Drafting Scenery	3
DRA195	Scenery Design Technology I	3
DRA196	Scenery Design Technology II	3
DRA296	Theater Automation	3
EGT141	Fluid Power	3
WEL186	GMAW	4
Total		**19**
Total Required Hours		**67**

Stage Management Track Requirements		
DRA120	Introduction to Stage Management	3
DRA164	Drafting Scenery	3
DRA121	Advanced Stage Management	3
DRA953	Theater Practicum	6
MGT101	Principles of Management	3
MMS147	TV Sports Production	1
Total		**19**
Total Required Hours		**66-67**

Entrepreneurial & Diversified Agriculture

Associate in Applied Science Degree

Offered at MCC (Code: MVSEA)

This program offers the chance to learn sustainable farming techniques and effective small business strategies. It provides practical knowledge in local food production, environmental stewardship, small business planning and hands-on experience with Central Iowa farmers practicing sustainable agriculture, vegetable production, and/or certified organic farming.

General Education		Credit Hours
BUS230	Quant Methods for Business Decmkng	3
	or	
MAT156	Statistics	(3)
ENG105	Composition I	3
	or	
ENG111	Technical Writing	(3)
SOC110	Introduction to Sociology	3
SPC112	Public Speaking	3
Total		**12**

Program Requirements		
ACC121	Principles of Accounting I	3
AGA154	Fundamentals of Soil Science	3
AGA220	Perennial Crops	3
	or	
AGA455	Organic Crop Production	(3)
AGA211	Grain and Forage Crops	3
	or	
AGA334	Forage Production	3
AGA378	Sustainable Pest Management	3
AGA450	Issues in Sustainable Agriculture	3
AGB225	Farmstead Planning and Technology	3
AGB334	Applied Systems Thinking	3
AGB933	Practicum/Apprenticeship	3
AGH265	Horticultural Crops	3
AGS308	Livestock Management	3
BIO186	Microbiology	4
	or	
AGA470	Safety in the Food Systems	(3)
BUS130	Introduction to Entrepreneurship	3
	or	
BUS150	E-Commerce	(3)
ECN115	Personal Finance	3
ENV120	Environmental Biology	3
MGT101	Principles of Management	3
	or	
MGT130	Principles of Supervision	3
Total		**52**
Total Required Hours		**63-64**

Entrepreneurial & Diversified Agriculture

Certificate

Offered at MCC (Code: MVSAP)

Students will gain some basic business skills and basic agricultural practices through both coursework and participation in a practicum/ apprenticeship in the Central Iowa Area to achieve a certificate in sustainable agricultural practices.

Program Requirements		
AGA450	Issues in Sustainable Agriculture	3
AGB334	Applied Systems Thinking	3
AGB933	Practicum/Apprenticeship	4
Total		**10**

Agriculture Electives (must select 3 credit hours)		
AGA154	Fundamentals of Soil Science	3
AGH265	Horticultural Crops	3
ENV120	Environmental Biology	3
Total		**3**

Business Electives (must select 3 credit hours)		
BUS130	Introduction to Entrepreneurship	3
BUS141	Small Business Startup	3
BUS150	E-Commerce	3
ECN115	Personal Finance	3
Total		**3**
Total Required Hours		**16**

Entrepreneurial & Diversified Horticulture

Certificate

Offered at MCC (Code: MVEDH)

Students will gain knowledge and experience in a range of horticultural practices such as propagation, cultivation, pruning, and other skills through work in a high tunnel, and greenhouse and through landscaping projects in the community. A practicum experience in the Central Iowa area will complete their requirements for a certificate in horticultural practices.

Program Requirements		
AGA154	Fundamentals of Soil Science	3
AGA378	Sustainable Pest Management	3
AGB933	Practicum/Apprenticeship	4
AGH265	Horticultural Crops	3
Total		**13**

Electives (must select 3 credit hours)		
AGA220	Perennial Crops	3
AGA455	Organic Crop Production	3
ENV120	Environmental Biology	3
Total		**3**
Total Required Hours		**16**

Equine Management

Associate in Applied Science Degree

Offered at ECC (Code: EVEQM)

This program prepares students for employment in the equine industry. Graduates manage their own equine businesses or are employed as trainers, stable managers, riding instructors, equine reproduction specialists, veterinarian assistants, retail sales associates, marketing assistants, nutrition specialists, horse transportation operators or obtain employment in other equine industry related fields.

Entrance requirements: Application and acceptance for college admission completed and signed at least 5 business days prior to the Equine Placement Testing Day. Complete Equine Placement Testing and receive a cumulative score of 85% or higher. Equine Placement Testing consists of three phases: Equine Riding, Personal Interview, and Written Exam. Upon acceptance into the Equine Management program, students must maintain a cumulative GPA of 2.0 or higher. All required documents must be completed and returned to the Equine Office no later than the required submission dates. Any questions regarding admission into the Equine Program should be directed to Equine Faculty. There is a prescribed schedule for progression through the Equine Program; students will register with their advisor according to the schedule of courses.

General Education		Credit Hours
Communications (courses approved for AA)		6
Humanities/Social/Behavioral Science (courses approved for AA)		3
Math	(courses approved for AA)	3
SDV108	The College Experience	1
Total		**13**

Program Requirements		
ACC111	Intro to Accounting	3
	or	
AGB470	Farm Records, Accounts, Analysis	(3)
AGC102	Computers in Agriculture	2
AGE115	Light Horse Management	2
AGE121	Horse Evaluation	3
AGE145	Fundamentals of Riding	3
AGE160	Instructing Horsemanship	2
AGE165	Horse Husbandry	2
AGE175	Equitation I	3
AGE200	Stable Management	2
AGE208	Breeding Management	3
AGE214	Horse Operation Management	4
AGE220	Young Horse Care and Handling	2
AGE225	Young Horse Training I	2
AGE226	Young Horse Training II	2
AGE227	Young Horse Training III	2
AGE235	Advanced Horse Training I	2
AGE236	Advanced Horse Training II	2
AGE237	Advanced Horse Training III	2
AGE260	Introduction to Farrier Science	1
AGE907	Co-op Field Experience	4
AGE945	Seminar	1
PEH142	First Aid	3
Total		**52**

Electives (must select 9 credit hours)		
AGA154	Fundamentals of Soil Science	3
AGA334	Forage Production	3
AGB235	Introduction to Agriculture Markets	3
AGB320	Farm Machinery Management	3
AGB330	Farm Business Management	3
AGB331	Entrepreneurship in Agriculture	3
AGE245	Equine Driving Skills and Techniques	2
AGS113	Survey of the Animal Industry	3
AGS242	Animal Health	3
AGS319	Animal Nutrition	3
Total		**9**
Total Required Hours		**74**

Equine Management Practitioner*

Diploma

Offered at ECC (Code: EVEQP)

This program prepares students for employment in the equine industry. Students may continue their education by seeking an Associate in Applied Science (AAS) Degree.

General Education		Credit Hours
Communications (courses approved for AA)		3
Math	(courses approved for AA)	3
SDV108	The College Experience	1
Total		**7**

Program Requirements		
AGE115	Light Horse Management	2
AGE121	Horse Evaluation	3
AGE145	Fundamentals of Riding	3
AGE165	Horse Husbandry	2
AGE175	Equitation I	3
AGE200	Stable Management	2
AGE208	Breeding Management	3
AGE214	Horse Operation Management	2
AGE220	Young Horse Care and Handling	2
AGE225	Young Horse Training I	2
AGE226	Young Horse Training II	2
AGE227	Young Horse Training III	2
AGE260	Introduction to Farrier Science	1
PEH142	First Aid	3
Total		**29**
Total Required Hours		**36**

Pending Iowa Department of Education approval.

Equine Science*

Associate in Applied Science Degree

Offered at ECC (Code: EVEQS)

This program prepares students for employment in the equine industry or prepares students to continue their education by seeking an advanced degree. Graduates manage their own equine businesses, continue their education, or are employed as stable managers, riding instructors, equine reproduction specialists, veterinarian assistants, retail sales associates, marketing assistants, nutrition specialists, horse transportation operators, or other equine industry related fields.

Entrance requirements: Application and acceptance for college admission completed and signed at least 5 business days prior to the Equine Placement Testing Day. Complete Equine Placement Testing and receive a cumulative score of 70% or higher. Equine Placement Testing consists of three phases: Equine Riding, Personal Interview, and Written Exam. Upon acceptance into the Equine Management program, students must maintain a cumulative GPA of 2.0 or higher. All required documents must be completed and returned to the Equine Office no later than the required submission dates. Any questions regarding admission into the Equine Program should be directed to Equine Faculty. There is a prescribed schedule for progression through the Equine Program; students will register with their advisor according to the schedule of courses.

General Education		Credit Hours
Communications (courses approved for AA)		6
Humanities/Social/Behavioral Science (courses approved for AA)		3
Math	(courses approved for AA)	3
Electives	(courses approved for AA)	5
SDV108	The College Experience	1
Total		**18**

Program Requirements		
ACC111	Intro to Accounting	3
AGC102	Computers in Agriculture	2
AGE115	Light Horse Management	2
AGE121	Horse Evaluation	3
AGE145	Fundamentals of Riding	3
AGE160	Instructing Horsemanship	2
AGE165	Horse Husbandry	2
AGE175	Equitation I	3
AGE200	Stable Management	2
AGE204	Equine Anatomy & Physiology	3
AGE207	Introduction to Veterinary Technology	2
AGE208	Breeding Management	3
AGE214	Horse Operation Management	4
AGE220	Young Horse Care and Handling	2
AGE225	Young Horse Training I	2
AGE260	Introduction to Farrier Science	1
AGE907	Co-op Field Experience	4
AGE945	Seminar	1
PEH142	First Aid	3
Total		**47**

Electives (must select 9 credit hours)		
AGA154	Fundamentals of Soil Science	3
AGA334	Forage Production	3
AGB235	Introduction to Agriculture Markets	3
AGB320	Farm Machinery Management	3
AGB330	Farm Business Management	3
AGB331	Entrepreneurship in Agriculture	3
AGE245	Equine Driving Skills and Techniques	2
AGS113	Survey of the Animal Industry	3
AGS242	Animal Health	3
AGS319	Animal Nutrition	3
Total		**9**
Total Required Hours		**74**

Pending Iowa Department of Education approval.

Gunsmith Technology

Associate in Applied Science Degree

Offered at MCC in Grinnell (Code: MVGSM)

Gunsmith Technology is a program that prepares individuals to apply technical knowledge and skills to make, repair, maintain, and modify firearms according to blueprints or customer specifications, using specialized hand tools and machines. Hunters, sportsmen, collectors, and firearms enthusiasts around the nation all need the services of experienced Gunsmiths to repair and customize their favorite firearms. Millions of dollars a year are spent on guns in the U.S. alone—that means there's a big demand for skilled professionals to keep the weapons working well! Salaries of gunsmiths vary by employment setting. HigherSalary.com lists the range of $25,470 to $48,605 a year, with the average salary of $36,267 annually. Successful self-employed gunsmiths earn the highest income, though like many entrepreneurs, they may lack the benefits provided by employment within a larger company. Gunsmiths who are longtime employees in gunsmithing shops also earn income on the higher end of that range.

This is a 2 year program that prepares the student to become a gunsmith working in a variety of gun shops, sporting goods stores, gun manufacturers, and their own business.

General Education		Credit Hours
ART101	Art Appreciation	3
	or	
ECN115	Personal Finance	(3)
	or	
LIT101	Introduction to Literature	(3)
	or	
PHI105	Introduction to Ethics	(3)
ENG111	Technical Writing	3
MAT790	Shop Math	3
PEH110	Personal Wellness	2
	or	
DRA110	Introduction to Film	(3)
SPC112	Public Speaking	3
	or	
SPC122	Interpersonal Communication	(3)
Total		**14-15**

Program Requirements		
BUS130	Introduction to Entrepreneurship	3
BUS141	Small Business Startup	3
GUS105	Gunsmith Machining I	3
GUS110	Firearms Bench Metal I	4
GUS114	Bench Metal II	3
GUS118	Firearms History & Development	2
GUS119	Stockmaking I	3
GUS123	Firearms Repair I	5
GUS135	Firearm Conversions	3
GUS140	Checkering I	4
GUS154	Gun Shop Records	1
GUS205	Firearms Machining II	3
GUS220	Machine Advanced Practice	2
GUS245	Stockmaking II	5
GUS248	Firearms Repair II	5
GUS293	Firearm Repair Workshop	3
GUS932	Practicum	3
	or	
GUS929	Individual Projects	(5)
Total		**55-57**
Total Required Hours		**69-72**

Industrial Maintenance Mechanic

Diploma

Offered at MCC (Code: MVIMM)

This program is designed to train students to maintain, repair and service mechanical systems found in industry. The student will receive a background in industrial mechanical drives, fluid power, basic machining and print reading, general welding, operation and maintenance of pumps, HVAC (Heating, Ventilation, and Air Conditioning), basic industrial electricity, automated manufacturing systems, and process control system. Upon satisfactory completion of the program and a GPA of 2.0, the student will be awarded a diploma. If the student wishes to transfer into one of the two Industrial AAS degree programs that are offered by the college a number of credits earned in the diploma program can be transferred towards completion of these programs.

General Education		Credit Hours
ENG105	Composition I	3
	or	
ENG111	Technical Writing	(3)
MAT790	Shop Mathematics	3
Total		**6**

Program Requirements		
EGT141	Fluid Power	3
ELT111	Introduction to Electronics	3
HCR101	Basic Heat/Air Conditioning/Refrig	4
IND115	Occupational Safety, Health & Environmental Concerns	1
IND125	Introduction to Process Control	3
IND153	Industrial Mechanics	3
IND169	Basic Plumbing and Pipework	2
IND189	Introduction to Mechatronics	5
IND193	Introduction to Pumps	4
MFG121	Machine Trade Print Reading I	2
MFG209	Machine Shop Practices	3
WEL116	General Welding	1
Total		**32**
Total Required Hours		**38**

Machine Tool Technology Tool & Die

Associate in Applied Science Degree

Offered at MCC (Code: MVTLD)

A student who has completed the 10-month Machine Trades Practitioner program (or who has adequate past work experience or educational background) may elect to continue in the Tool & Die Option program for an additional two semesters. This additional training will provide skills for working in the tool and die field.

Upon satisfactory completion of coursework and a minimum GPA of 2.0, graduates of this program may transfer up to 64 credits from MCC toward a BA degree from the University of Northern Iowa; also, 16 hours of vocational credit already transfer to the Iowa Regent schools.

General Education		Credit Hours
CHM103	Metallurgy	2
ENG111	Technical Writing	3
MAT790	Shop Mathematics	3
MAT791	Shop Mathematics II	1
Social/Behavioral Science/Humanities (courses approved for AA)		3
	or	
PSY212	Psych. of Human and Work Relations	(3)
Total		**12**

Program Requirements		
IND110	CPR, First Aid and Safety	1
MFG101	Measuring Tools	1.5
MFG121	Machine Trade Print Reading I	2
MFG131	Machine Trade Print Reading II	2
MFG200	Electric Discharge Machine (EDM)	1
MFG255	Engine Lathe Operations	5
MFG262	Mill Operations Theory	3
MFG270	Grinders Theory	1
MFG275	Hand and Bench Machine Tools	1
MFG280	Drill Presses	1.5
MFG282	CNC Plasma Table	1
MFG314	Machine Operations III	5
MFG322	Introduction to CAD/CAM	3
MFG353	CNC Lathe Fundamentals	2.5
MFG357	CNC Mill	3.5
MFG407	Basic Die Making	7
MFG418	Advanced Die Making	9
MFG425	Jig and Fixtures	6
MFG456	Injection Mold Making	6
WEL116	General Welding	1
Total		**63**
Total Required Hours		**75**

Machine Tool Technology Trades Practitioner

Diploma

Offered at MCC (Code: MVMCH)
Machine Trades Practitioner prepares students for employment as machinists. Individuals who desire may continue their training by taking the second year Tool & Die Option program to become a tool and die maker.

The program consists of 10 months of training with a new class beginning each fall. Applicants must be at least 17 years of age and will be evaluated on the basis of their application form, personal interview, past educational experience, and pre-entrance tests as needed. Like all dynamic curricula, requirements may be changed from date of publication; before registering for Machine Trades or Tool and Die classes, students should visit with the instructor.

General Education		Credit Hours
ENG111	Technical Writing	3
MAT790	Shop Mathematics	3
MAT791	Shop Mathematics II	1
Total		**7**

Program Requirements		
IND110	CPR, First Aid and Safety	1
MFG101	Measuring Tools	1.5
MFG121	Machine Trade Print Reading I	2
MFG131	Machine Trade Print Reading II	2
MFG200	Electric Discharge Machine (EDM)	1
MFG255	Engine Lathe Operations	5
MFG262	Mill Operations Theory	3
MFG275	Hand & Bench Machine Tools	1
MFG270	Grinders Theory	1
MFG280	Drill Presses	1.5
MFG282	CNC Plasma Table	1
MFG314	Advanced Machining Operations	5
MFG322	Introduction to CAD/CAM	3
MFG353	CNC Lathe Fundamentals	2.5
MFG357	CNC Mill	3.5
WEL116	General Welding	1
Total		**35**
Total Required Hours		**42**

Manufacturing Welding Practitioner

Diploma

Offered at MCC (Code: MVWEL)
The welding diploma prepares students in gas metal arc welding and shielded metal arc welding techniques. The program includes several courses with laboratory components where students will practice their skills and lab procedures. In addition, the program is being built with the expectation that after taking these welding courses, students will test for the proper certifications with qualified trainers to establish their competencies for local businesses wanting a track record of qualifications. These competencies have been aligned with The American Welding Society Level 1 SENSE program. SENSE: Schools Excelling through National Skills Education.

General Education		Credit Hours
ENG111	Technical Writing	3
MAT790	Shop Mathematics	3
Total		**6**

Program Requirements (select 33 credit hours)		
SDV135	Job Seeking Skills	1
WEL103	Oxy-Acetylene Welding & Brazing	1
WEL228	Welding Safety/Heath: SENSE1	1
WEL233	Print Read/Sym Interp: SENSE1	3
WEL244	GMAW Short Circuit Transfer: SENSE1	2
WEL245	GMAW-Spray: SENSE1	2
WEL251	GTAW Carbon Steel: SENSE1	2
WEL252	GTAW Aluminum: SENSE1	1
WEL253	GTAW Stainless: SENSE1	1
WEL254	Inspection/Test Princ: SENSE1	1
WEL262	OFC-I Manual & Mech: SENSE1	2
WEL263	PAC/CAC: SENSE1	2
WEL274	SMAW I: SENSE1	3
WEL275	SMAW II: SENSE1	3
WEL280	FCAW Self-Shielded: SENSE1	2
WEL281	FCAW (Gas Shielded): SENSE1	2
Total		**29**
Total Required Hours		**35**

Manufacturing Welding

Certificate

Offered at MCC (Code: MVWEM)
The manufacturing welding certificate prepares students for skills and careers in the central Iowa region. Gas metal arc welding and flux cored arc welding techniques are emphasized. These competencies have been aligned with the American Welding Society Level 1 SENSE program. SENSE: Schools Excelling through National Skills Education.

General Education		Credit Hours
MAT790	Shop Mathematics	3
Total		**3**

Program Requirements		
SDV135	Job Seeking Skills	1
WEL228	Welding Safety/Heath: SENSE1	1
WEL233	Print Read/Sym Interp: SENSE1	3
WEL244	GMAW Short Circuit Transfer: SENSE1	2
WEL245	GMAW-Spray: SENSE1	2
WEL262	OFC-I Manual & Mech: SENSE1	2
WEL263	PAC/CAC: SENSE1	2
WEL281	FCAW (Gas Shielded): SENSE1	2
Total		**15**
Total Required Hours		**18**

Manufacturing Welding – Construction

Certificate

Offered at MCC (Code: MVWEC)
The construction welding certificate prepares students for skills and careers in the central Iowa region. Gas metal arc welding and flux cored arc welding techniques are emphasized. These competencies have been aligned with the American Welding Society Level 1 SENSE program. SENSE: Schools Excelling through National Skills Education.

General Education		Credit Hours
MAT790	Shop Mathematics	3
Total		**3**

Program Requirements		
SDV135	Job Seeking Skills	1
WEL228	Welding Safety/Heath: SENSE1	1
WEL233	Print Read/Sym Interp: SENSE1	3
WEL262	OFC-I Manual & Mech: SENSE1	2
WEL274	SMAW I: SENSE1	3
WEL275	SMAW II: SENSE1	3
WEL280	FCAW Self-Shielded: SENSE1	2
Total		**15**
Total Required Hours		**18**

Marketing

Associate in Applied Science Degree

Offered at ECC & MCC (Codes: EVMKT & MVMKT)

The Marketing curriculum has been planned for students who wish to become store managers, department store buyers, or retail, wholesale or industrial salespersons. The courses listed here may be combined to develop a program meeting each individual student needs.

General Education		Credit Hours
ENG105	Composition I	3
ENG106	Composition II	3
SPC112	Public Speaking	3
Humanities (courses approved for AA)		6
Social/Behavioral Science (courses approved for AA)		6
Lab Science (courses approved for AA)		4
Physical Education (courses approved for AA)		2
SDV108	The College Experience	1
Total		**28**

Program Requirements

ACC121	Principles of Accounting I	3
ACC122	Principles of Accounting II	3
BUS230	Quant Methods for Business Decmkng	3
CSC118	Computer Systems and Applications	3
MGT101	Principles of Management	3
	or	
MGT130	Principles of Supervision	(3)
MKT110	Principles of Marketing	3
MKT140	Principles of Selling	3
Total		**21**

Program Elective (select 12 credit hours)

ACC161	Payroll Accounting	3
ACC211	Intermediate Accounting I	3
ACC212	Intermediate Accounting II	3
ACC221	Cost Accounting	3
ACC261	Income Tax Accounting	3
ACC311	Computer Accounting	3
BUS102	Introduction to Business	3
BUS130	Intro to Entrepreneurship	3
BUS141	Small Business Startup	3
BUS150	E-Commerce	3
BUS182	Intro to Law	3
BUS185	Business Law I	3
BUS186	Business Law II	3
BUS220	Intro to International Business	3
MKT150	Principles of Advertising	3
MKT160	Principles of Retailing	3
MKT181	Customer Service Strategies	2
Total		**12**

Computer Elective (select 3 credits hours)

ADM105	Introduction to Keyboarding	1
ADM112	Keyboarding	3
ADM116	Keyboarding II	3
ADM141	Desktop Publishing	2
ADM154	Business Communications	3
ADM157	Business English	3
ADM161	Office Management	3
BCA134	Word Processing	3
BCA178	Presentation Software	3
CIS125	Intro to Programming Logic w/Lngge	3
CIS207	Fundamentals of Web Programming	3
CSC119	Computer Systems & Apps II	3
GRA110	Graphic Arts Principles	3
GRA127	Illustrator I	3
GRA140	Digital Imaging	3
GRA141	Digital Imaging II	3
Total		**3**
Total Required Hours		**64**

Mechanical Design/CAD Technology Track

Associate in Applied Science Degree

Offered at MCC (Code: MVDFT)

The two-year Mechanical Design/CAD Technology program is designed to train students to translate the ideas and calculations of engineers into complete and accurate working plans to be used by skilled craft persons. The program offers a background in engineering and science so that a design can be accurately represented in drawings. Graduates of this program are prepared to make calculations concerning the strength, reliability, and cost of materials as well as other design considerations.

The curriculum includes a strong emphasis on Computer-Aided Design (CAD). This program is certified by the American Design Drafting Association.

Upon satisfactory completion of coursework and a minimum GPA of 2.0, graduates can transfer up to 64 credit hours toward a baccalaureate degree from the University of Northern Iowa. Also 16 hours of vocational credit already transfers to the Iowa Regent schools.

General Education		Credit Hours
Humanities (courses approved for AA)		3
CSC118	Computer Systems and Applications (transfer)	3
	or	
MFG133	Machine Trade Print Reading III	(3)
ENG105	Composition I (transfer)	3
	or	
ENG111	Technical Writing	(3)
MAT132	Algebra, Geometry and Trigonometry	4
MAT786	Mechanical Design Math	1
MAT790	Shop Mathematics	3
PHY121	Elements of Physics	4
	or	
PHY162	College Physics I (transfer)	(4)
SPC112	Public Speaking	3
Social/Behavioral Science (PSY or SOC courses)		3
Total		**27**

Program Requirements

CAD105	CAD I	2
CAD185	2-D CAD IA	3.5
CAD186	2-D CAD IB	3.5
CAD187	2-D CAD IIA	3.5
CAD188	3-D CAD IIB	3.5
CAD189	3-D CAD IIIA	3.5
CAD190	3-D CAD IIIB	3.5
CAD191	3-D Automation IA	3.5
CAD192	3-D Automation IB	3.5
EGT141	Fluids Power	3
EGT182	Engineering Technology Problems	3
	and	
EGT183	Engineering Technology Lab	1
	or	
PHY172	College Physics II (transfer)	(4)
MFG204	Manufacturing Processes	4
MFG322	Introduction to CAD/CAM	3
MFG505	Lean Concepts	1
Total		**45**
Total Required Hours		**72**

Mechanical Design/CAD Technology Practitioner

Diploma

Offered at MCC (Code: MVCAD)

Students enrolled in the one-year Mechanical Design/CAD Technology Practitioner will learn basic drafting and CAD practices with emphasis on entry-level drafting job skills. Students completing the program will be prepared for entry into industrial and commercial firms, municipal agencies, and other organizations employing drafters. Program graduates receive a Mechanical Design/CAD Technology Practitioner diploma. Those who satisfactorily complete this program may also apply their credits to the two-year Associate in Applied Science degree program in Mechanical Design/CAD Technology.

General Education		Credit Hours
ENG111	Technical Writing	3
Total		**3**
Program Requirements		
MFG133	Machine Trade Print Reading III	3
CAD105	CAD I	2
CAD185	2-D CAD IA	3.5
CAD186	2-D CAD IB	3.5
CAD187	2-D CAD IIA	3.5
CAD188	3-D CAD IIB	3.5
MFG204	Manufacturing Processes	4
MFG505	Lean Concepts	1
MFG322	Introduction to CAD/CAM	3
MAT790	Shop Mathematics	3
MAT786	Mechanical Design Math	1
MAT132	Algebra, Geometry and Trigonometry	4
Total		**35**
Total Required Hours		**38**

Mechanical Design/Virtual Reality Technology Career Track

Associate in Applied Science Degree

Offered at MCC (Code: MVVIR)

The field of Virtual Reality Technology centers around developing computer interfaces that integrate virtual environments, wireless networking, pervasive computing, and third generation user interface devices to amplify the creativity and productivity of people. The Associate in Applied Science Degree program prepares students in the area of 3D CAD and Computer Science for entry into virtual reality occupations with drafting and programming skills.

General Education		Credit Hours
ENG105	Composition I	3
ENG111	Technical Writing	3
SPC112	Public Speaking	3
Total		**9**
Program Requirements		
ART120	2-D Design	3
ART124	Computer Art	3
CAD105	CAD I	2
CAD189	3-D Computer-Aided Design IIIA	3.5
CAD190	3-D CAD IIIB	3.5
CAD191	3-D Automation IA	3.5
CAD192	3-D Automation IB	3.5
CIS161	C++	3
CSC118	Computer Systems & Applications	3
EGT182	Engineering Technology Problems	3
EGT183	Engineering Technology Lab	1
MAT132	Algebra, Geometry and Trigonometry	4
MAT786	Mechanical Design Math	1
MAT790	Shop Mathematics	3
MFG121	Machine Trade Print Reading	2
MFG204	Manufacturing Processes	4
MFG505	Lean Concepts	1
PHY121	Elements of Physics	4
Total		**51**
Electives (must select 3 credit hours)		
CIS152	Data Structures	3
ECN130	Principles of Microeconomics	3
Electives	Social/Behavioral Science (courses approved for AA)	3
Total		**3**
Total Required Hours		**63**

Medical Assistant

Diploma

Offered at ECC & MCC (Code: EVMED & MVMED)

The Medical Assistant Program will prepare individuals to provide medical office administrative services and perform clinical duties. This diploma program includes instruction in basic anatomy and physiology, medical terminology, medical law ethics, patient psychology & communications, medical office procedures, clinical dx examination testing & treatment procedures. Program accredited, graduates of the diploma program are eligible to sit for the National Certified Medical Assistant (CMA) exam upon completion of the summer externship. Students must maintain a 2.0 GPA for all required courses.

Medical Assistant Entrance Requirements:

1. Application for college admission completed and signed.
2. Official high school transcript or GED equivalency required.
3. Official transcripts from other colleges you have attended (if applicable).
4. FAFSA/Financial Aid Paperwork completed.
5. Test Score or Course requirements:
   a. COMPASS test completed with scores of 60 or higher in Reading and 80 or higher in Writing.
   OR
   b. Successful completion of ENG060 College Preparatory Writing I or ENG061 College Preparatory Writing II with a 75% (C grade) or higher.
6. Successful Completion of BCA134 Word Processing or CSC118 Computer Systems and Applications with a 75% (C grade) or higher.
7. A minimum grade of 75% (C grade) or higher is needed for any pre-requisite courses to transfer into the program.
8. General education courses must be completed no more than five (5) years prior to be accepted as transferable credit for the program.
9. All MAP courses must be taken in the acceptance year.

Program Requirements		
ADM154	Business Communications	3
BCA134	Word Processing	3
	or	
CSC118	Computer Systems and Applications	(3)
BIO532	Human Body: Health and Disease	3
HSC129	Anatomy and Physiology	5
	or	
BIO168	Human Anatomy and Physiology I	(4)
BIO173	Human Anatomy and Physiology II	(4)
MAP111	Medical Office Management I	3
MAP118	Medical Office Management II	4
MAP141	Medical Insurance	3
MAP225	Medical Lab Procedures I	4
MAP229	Medical Lab Procedures II	6
MAP512	Medical Assisting Pharmacology	2
MAP602	Clinical Experience Seminar	1
MAP616	Medical Assistant Externship	6
Total Required Hours		**43-46**

Medical Office Practitioner

Diploma

Offered at ECC & MCC (Codes: EVMDP & MVMDP)
The Medical Office program prepares individuals for administrative service careers in the health care field. Instruction includes office, computer applications, and medical training.

General Education		Credit Hours
BIO532	Human Body: Health and Disease	3
CSC118	Computer Systems and Applications	3
HSC129	Anatomy & Physiology for Health Sciences	5
	or	
BIO168	Human Anatomy and Physiology I	(4)
	and	
HSC113	Medical Terminology	(2)
Must select 3 credit hours		
ENG105	Composition I	3
ENG111	Technical Writing	3
ADM154	Business Communications	3
Total		**14-15**

Program Requirements		
ADM112	Keyboarding	3
BCA134	Word Processing	3
CSC119	Computer Systems and Applications II	3
MAP111	Medical Office Management I	3
MAP118	Medical Office Management II	4
MAP141	Medical Insurance	3
CSC120	Computer Systems and Applications III (MCC requirement)	3
	or	
BUS291	Employment Portfolio and Career Dev. (ECC requirement)	2
MAP510	Medical Office Pharmacology	1
Total		**22**
Total Required Hours		**36-37**

Merchandising & Retail Management

Associate in Applied Science Degree

Offered at ECC (Code: EVRTM)
Retailing, one of America's most progressive fields, is the final stage in the distribution of products from the producer to the consumer. Retail Management is a program of occupational training designed to prepare students for careers in marketing, retail merchandising, store management, and related areas.

The opening of major retail stores and the expansion of existing stores has greatly increased the need for trained personnel in this field. Advancement is relatively fast and individual performance is highly measured in this field, so an aggressive graduate should find promotion opportunities readily. Students may choose from the following specialized areas: Customer Service and Retail Management.

General Education		Credit Hours
ENG105	Composition I	3
ENG106	Composition II	3
Math and Science (courses approved for AA)		3
SOC110	Introduction to Sociology	3
SPC112	Public Speaking	3
SDV108	The College Experience	1
Total		**16**

Program Requirements		
ACC111	Intro to Accounting	3
	or	
ACC121	Principles of Accounting I	(3)
ACC112	Intro to Accounting II	(3)
	or	
ACC122	Principles of Accounting II	3
BUS102	Introduction to Business	3
BUS150	E-Commerce	3
	or	
MKT150	Principles of Advertising	(3)
BUS161	Human Relations	3
BUS185	Business Law I	3
BUS230	Quant Methods for Business Decmkng	(3)
CSC118	Computer Systems and Applications	3
ECN120	Principles of Macroeconomics	3
MGT101	Principles of Management	3
	or	
MGT130	Principles of Supervision	3
MKT110	Principles of Marketing	3
MKT140	Principles of Selling	3
MKT160	Principles of Retailing	3
MKT181	Customer Service Strategies	2
MKT907	Co-op Field Experience	3
MKT945	Seminar in Business I	1
Electives	(courses approved for AA)	6
Total		**51**
Total Required Hours		**67**

Customer Service

Diploma

Offered at ECC (Code: EVCSS)
One-year diploma available to students wanting specialized skills in customer service. This diploma could be completed in one full-time semester or two part-time semesters.

The diploma requires 18 hours of coursework concentrating in marketing, management, and general education.

Program Requirements		
MGT101	Principles of Management	3
MKT110	Principles of Marketing	3
MKT140	Principles of Selling	3
MKT181	Customer Service Strategies	2
MKT907	Co-op Field Experience	4
SOC110	Introduction to Sociology	3
Total		**18**
Total Required Hours		**18**

Retail Management

Diploma

Offered at ECC (Code: EVRMG)
One-year diploma available to students wanting specialized skills in management. This diploma could be completed in one full-time semester or two part-time semesters.

The diploma requires 18 hours of coursework concentrating in business, marketing, management, and general education.

Program Requirements

BUS102	Introduction to Business	3
MGT101	Principles of Management	3
	or	
MGT130	Principles of Supervision	(3)
MKT110	Principles of Marketing	3
MKT140	Principles of Selling	3
MKT907	Co-op Field Experience	3
SOC110	Introduction to Sociology	3
Total		**18**
Total Required Hours		**18**

Mobile Service Technician

Associate in Applied Science Degree

Offered at ECC (Code: EVMST)
The Mobile Service Technician AAS is a program that will prepare students to diagnose, repair, and service agricultural equipment in rural locations using a specially equipped service truck. As the size of the equipment increases, it has becomes harder to load and transport the equipment to the dealer's location which has required dealers to provide services at the customer's location. The equipment industry has moved to where they use specialized trucks that are capable of performing most service repairs. However, the agricultural equipment industry is having a difficult time finding qualified candidates that can effectively travel and service various components. The courses in this program will prepare students to be successful as a mobile service technician. This program will train students on how to operate a service truck and repair and/or service various types of agricultural equipment and machinery.

Students will also possess effective skills in communication, customer service, and problem solving. These skills will allow students to communicate effectively with customers, handle customer service issues, and will include knowledge in sales and selling skills. Graduates will also possess hi-tech skills such as the ability to download apps in the field, wireless computer and communication operations, upgrade unit's software in the field, and be in communication with the store and company through various electronic means.

Since this a new field of opportunity in agriculture, it has the ability to become one of the fastest growing sectors of modern agriculture. This program is different from existing ag machinery technician programs in that the curriculum will spend considerable time on various components that are not typically covered or addressed by existing programs. For example, graduates from this program will be traveling around for a dealer and at one stop, may be fixing a sprayer. The next stop they may be calibrating a monitor and advising the customer on a potential upgrade in equipment. The stop after that will be servicing a skid steer loader. The mobile service technician will also have the ability to not only repair a unit, but is also capable of operating and train operation the unit; playing the role of a product specialist.

The Mobile Service Technician AAS degree program is geared to assist today's ag equipment dealers and service providers to meet the demands of providing quality service and meeting the needs of the agricultural producer.

General Education		Credit Hours
ENG105	Composition I	3
	or	
ENG111	Technical Writing	(3)
SPC112	Public Speaking	3
	or	
SPC122	Interpersonal Communication	(3)
MAT772	Applied Math	3
Must select 3 credit hours		
EDU160	Human Growth and Development	3
PSY111	Introduction to Psychology	3
SOC110	Introduction to Sociology	3
SOC115	Social Problems	3
Total		**12**

Program Requirements

AGA290	Spring Field Operations	1
AGB336	Agricultural Selling	3
AGC102	Computers in Agriculture	2
AGC216	Career Seminar	2
AGC907	Co-op Field Experience	3

AGM110	Ag Mach. Safety & Operation	3
AGM114	Hydraulics I	2
AGM121	Machinery Repair & Maintenance	4
AGM250	Harvesting Ops & Service	3
AGM251	Tractor Ops & Servicing	3
AGM252	Planting Operations & Service	1
AGM253	Application Ops & Servicing	1
AGM254	Forage Operations & Service	1
AGM260	Service Truck Operations	1
AGM261	Basic Problem Solving	3
AGM330	Fundamentals of Electricity	3
AGM336	Agriculture Electronic Devices &Sys	3
AGM414	Fundamental Air Conditioning	2
AGP436	Advanced Precision Farming:Hardware	3
DSL837	Commercial Driver's License & Tools	1.5
PEH142	First Aid	3
SDV108	The College Experience	1
Total		**49.5**
Electives (must select 3 credit hours)		
AGA114	Principles of Agronomy	3
AGA154	Fundamentals of Soil Science	3
AGA211	Grain and Forage Crops	3
AGA284	Pesticide Application Certification	3
AGB330	Farm Business Management	3
AGB331	Entrepreneurship in Agriculture	3
AGP333	Precision Farming Systems	3
AGP435	Advanced Precision Farming:Software	3
BUS102	Introduction to Business	3
MKT110	Principles of Marketing	3
Total		**3**
Total Required Hours		**64.5**

Natural Gas Technician

Associate in Applied Science Degree

Offered at MCC (Code: MVNGT)
The Natural Gas Technician program prepares students to work in and around gas line utilities and students will be involved with the generation, distribution or use measurement of energy in the form of gas utilities. Hands on activities in natural gas lab settings are emphasized.

General Education		Credit Hours
ENG105	Composition I	3
	or	
ENG111	Technical Writing	(3)
MAT790	Shop Mathematics	3
PSY111	Introduction to Psychology	3
	or	
SOC110	Introduction to Sociology	(3)
SPC112	Public Speaking	3
Total		**12**

Program Requirements

BUS291	Employment Portfolio and Career Dev	2
CSC118	Computer Systems and Applications	3
DSL837	Commercial Driver's License & Tools	1.5
IND115	Occ.Safe/Health/Envir Concerns	1
IND125	Introduction to Process Control	3
IND135	Print Reading for Process Management	3
IND171	General Utility Technical Skills	4
IND172	Adv. Gas Theory & Principles	3
IND173	Adv. Gas Technical Skills	5
IND361	Gas Utility Field Training 1	8
IND362	Gas Utility Field Training 2	8
IND363	Gas Utility Field Training 3	8
MKT181	Customer Service Strategies	2
Total		**51.5**
Electives (must select 1 credit hour)		
ELT111	Introduction to Electronics	3
IND911	On-the-job Training	1
WEL116	General Welding	1
WEL300	Pipe Welding Basics	1
Total		**1**
Total Required Hours		**64.5-66.5**

Nurse Aide Specialist

Certificate

Offered at ECC & MCC (Codes: EVCNA & MVCNA)

The Nurse Aide specialist certificate prepares students with knowledge and skills to begin a career in a health occupation field. Beginning with successful completion of a background check, Phase I meets federal regulations of OBRA Act of 1987. This course has an emphasis to provide safe, effective care for residents in long term care. Upon completion of the first course, there is state testing available at additional cost that allows employment in long term care and meets entrance requirements of MCC/ECC Practical nursing program. Phase II emphasizes knowledge, attitudes and skills necessary for providing care in the acute care setting. CPR/First aid is needed before enrolling in Phase II.

Program Requirements		Credit Hours
HSC166	Health Occupations Preparations	1
HSC172	Nurse Aide	3
HSC175	Nurse Aide Phase II	3.5
Total		**7.5**
Total Required Hours		**7.5**

Nursing: Associate Degree Nursing

Associate in Applied Science Degree

Offered at ECC & MCC (Codes: EVADN & MVADN)

The Associate Degree Nursing program is for Practical Nurses who wish to prepare for nursing positions involving comprehensive patient care. Graduates are eligible to write the professional nurse licensing examination. Individuals who successfully complete that examination receive Registered Nurse status in the state of Iowa.

Associate Degree Nursing entrance requirements:

1. Application for college admission completed and signed.
2. Application for the Nursing Program completed and signed.
3. Official high school transcript or GED equivalency required.
4. Official transcripts from other colleges you have attended (if applicable).
5. A copy of the applicant's Iowa Practical Nursing license is required. NOTE: Summer graduates must submit a copy of their PN license no later than the start of the fall semester associate degree nursing program classes. Failure to do so will be grounds for administrative withdrawal from the program.
6. The Iowa Core Performance Standards for Health Career Programs form must be reviewed, signed, and returned to the Admissions Office. Applicants unable to meet the core performance standards must discuss the possibility of reasonable accommodations with the program coordinator at (641) 648-8648 (ECC) or (641) 844-5731 (MCC).
7. Applicants must complete these general education courses with a "C-" or higher prior to entry. BIO168 Human Anatomy & Physiology I (4 credit hours); BIO173 Human Anatomy & Physiology II (4 credit hours); BIO 186 Microbiology (4 credit hours); BIO151 Nutrition (3 credit hours) and EDU160 Human Growth and Development (3 credit hours). NOTE: Science courses must have been completed in the last 10 years.
8. Must have a cumulative grade point average (GPA) of 2.7.
9. As an applicant for the nursing program, you are responsible for turning in all of the required documentation to the nursing office associate.

Applications for the Associate Nursing Program are accepted throughout the year with a new class beginning each fall. Your Nursing Admissions folder must be completed by March 15 for full consideration.

NOTE: Applicants should be advised that health care facilities conduct criminal background checks prior to student clinical experiences and before hiring nurses.

Successful completion of the Associate Degree Nursing Program:

1. There is a prescribed schedule for progression through the nursing program. Students will register for their nursing courses according to the schedule of courses on their campus.
2. Students must earn an 80% (B-) grade and satisfactorily complete clinical and lab requirements in each class to progress.
3. Students must satisfactorily complete both the academic, laboratory and clinical hours for each course to receive credit for that particular course.

General Education		Credit Hours
BIO151	Nutrition	3
BIO168	Human Anatomy and Physiology I	4
BIO173	Human Anatomy and Physiology II	4
BIO186	Microbiology	4
EDU160	Human Growth and Development	3
ENG105	Composition I	3
PSY111	Introduction to Psychology	3
SOC110	Introduction to Sociology	3
Total		**27**

Program Requirements

Year 1

PNN110	Fundamentals of Nursing I	3
PNN111	Fundamentals of Nursing II	3.5
PNN231	Pharmacology	3
PNN403	Mental Health Concepts	2
PNN412	Introduction to Pediatrics	2.5
PNN424	Introduction to Obstetrics	2
PNN520	Nursing CareoftheAdultClientI	4
PNN523	Nursing Care of Older Adults	2
PNN525	Nursing Care of the Adult II	4
PNN530	Nursing Care of the Adult III	3.5

Year 2

ADN114	Foundations of Prof. Nursing	2.5
ADN431	Family-Centered Mat/NewbornNrg	3.5
ADN441	Pediatric Nursing Concepts	3.5
ADN471	Psychiatric Mental Health Nrsg	3.5
ADN555	Medical Surgical Nursing I	3
ADN556	Medical Surgical Nursing II	3
ADN557	Medical Surgical Nursing III	3
ADN558	Medical Surgical Nursing IV	3
ADN559	Medical Surgical Nursing V	3
ADN815	Transition to Prof.NrsgPractic	1.5
Total		**59**
Total Required Hours		**86**

Nursing: Practical Nursing

Diploma

Offered at ECC & MCC (Codes: EVLPN & MVLPN)
Upon completion of the Practical Nursing program, the student is qualified to write the national examination in Practical Nursing (NCLEX), receive a License, and enter the profession as a Practical Nurse.

Practical Nurses care for patients of all ages and with all types of illnesses and are employed in doctors' offices, long-term care facilities, public agencies, the Iowa Veteran's Administration home, and residences.

Practical Nursing entrance requirements:
1. Application for college admission completed.
2. Application for the Nursing Program completed.
3. Official high school transcript or GED equivalency required.
4. Official transcripts from other colleges you have attended (if applicable).
5. The Iowa Core Performance Standards for Health Career Programs form must be reviewed, signed, and returned to the health occupations office associate. Applicants unable to meet the core performance standards must discuss the possibility of reasonable accommodations with the program coordinator at (641) 648-8648 (ECC) or (641) 844-5731 (MCC).
6. All student must earn a minimum ACT composite score of 18 OR pass the Test of Essential Academic Skills (TEAS) version V prior to acceptance into the Practical Nursing Program. It is required that students wait until they have completed and passed BIO168 to take the TEAS-V exam. To register for the TEAS-V Exam please contact the health occupations office associate (ECC) (641) 648-8647; (MCC) (641) 844-5726. The minimum required TEAS-V test scores are: Reading 69%; Mathematics 63%; Science 46%; English and Language Usage 60%
7. Applicants must complete these general education courses with a "C-" or higher prior to entry. BIO168 Human Anatomy & Physiology I (4 credit hours); BIO173 Human Anatomy & Physiology II (4 credit hours); BIO186 Microbiology (4 credit hours); BIO151 Nutrition (3 credit hours) and EDU160 Human Growth and Development (3 credit hours). NOTE: Science courses must have been completed in the last 10 years.
8. Must have a cumulative grade point average (GPA) of 2.7.
9. Documentations to verify the completion of the Iowa Nurse Aide written and skills certification exams for placement on the Direct Care Worker Registry. A transcript indicating you passed both tests or an Iowa Nurse Aide Registry Card will serve as verification. The 75-hour Nurse Aide course is not required for entrance into the nursing program; however, it is highly recommended.
10. As an applicant for the nursing program, you are responsible for turning in all of the required documentation to the health occupations office associate.

Applications for the Practical Nursing Program are accepted throughout the year with a new class beginning each fall and spring at MCC and each fall at ECC. MCC's spring start is a part-time program. Your Nursing Admissions folder must be completed by March 15 for fall admission and October 15 for MCC's spring admission. However, qualified applicants with completed admissions folders will be reviewed on a "first-come, first served" basis after these deadlines.

NOTE: Applicants should be advised that health care facilities conduct criminal background checks prior to student clinical experiences and before hiring nurses. There is a prescribed schedule for progression through the nursing program. Students will register for their nursing courses according to the schedule of courses on their campus.

Successful completion of the Practical Degree Nursing Program:
1. There is a prescribed schedule for progression through the nursing program. Students will register for their nursing courses according to the schedule of courses on their campus.
2. Students must earn an 80% (B-) grade and satisfactorily complete clinical and lab requirements in each class to progress.

Students must satisfactorily complete both the academic, laboratory and clinical hours for each course to receive credit for that particular course.

General Education		Credit Hours
BIO151	Nutrition	3
BIO168	Human Anatomy and Physiology I	4
BIO173	Human Anatomy and Physiology II	4
BIO186	Microbiology	4
EDU160	Human Growth and Development	3
Total		**18**
Program Requirements		
PNN110	Fundamentals of Nursing I	3
PNN111	Fundamentals of Nursing II	3.5
PNN231	Pharmacology	3
PNN403	Mental Health Concepts	2
PNN412	Introduction to Pediatrics	2.5
PNN424	Introduction to Obstetrics	2
PNN500	Leadership & Professional Nsg	1
PNN520	Nursing Care of the Adult Client I	4
PNN525	Nursing Care of the Adult II	4
PNN530	Nursing Care of the Adult III	3.5
PNN540	Leadership Clinical Experience	1
Total		**29.5**
Total Required Hours		**47.5**

Paralegal

Associate in Applied Science Degree

Offered at MCC in Grinnell (Code: MVPAR)
The Paralegal Program prepares students to enter employment at law offices and legal departments in industry to research and provide documentation for attorneys' use in a variety of legal areas.

General Education		Credit Hours
CSC118	Computer Systems and Applications	3
ECN115	Personal Finance	3
ECN120	Principles of Macroeconomics	3
	or	
ECN130	Principles of Microeconomics	(3)
ENG105	Composition I	3
ENG106	Composition II	3
ENG111	Technical Writing	3
MAT110	Math for Liberal Arts	3
SPC112	Public Speaking	3
Humanities (courses approved for AA)		6
Social/Behavioral Science (courses approved for AA)		3
Total		**33**
Program Requirements		
CSC119	Computer Systems & Apps II	3
	or	
BCA152	Comprehensive Spreadsheets	(3)
PRL101	Paralegal Studies	3
PRL109	Introduction to Legal Research	1
PRL114	Advanced Legal Research and Writing	3
PRL161	Family Law	3
PRL283	Legal Ethics/Office Management	3
Total		**16**
Program Electives (must select 15 credits)		
ACC261	Income Tax Accounting	3
BUS185	Business Law	3
CRJ130	Criminal Law	3
PRL131	Torts and Litigation I	3
PRL132	Torts and Litigation II	3
PRL151	Real Estate Law	3
PRL165	Estate Planning and Probate Law	3
PRL172	Administrative and Bankruptcy Law	3
PRL183	Employment Law	3
PRL184	Alternative Dispute Resolution	3
PRL934	Legal Practicum	6
Total		**15**
Total Required Hours		**64**

Powerline Technician

Associate in Applied Science Degree

Offered at MCC (Code: MVPLT)

The Powerline Technician program prepares students to work in and around electrical line utilities and students will be involved with the generation, distribution or use measurement of energy in the form of electricity. Hands on activities in powerline lab settings are emphasized.

General Education		Credit Hours
ENG105	Composition I	3
	or	
ENG111	Technical Writing	(3)
MAT790	Shop Mathematics	3
PSY111	Introduction to Psychology	3
	or	
SOC110	Introduction to Sociology	(3)
SPC112	Public Speaking	3
Total		**12**

Program Requirements		
BUS291	Employment Portfolio and Career Dev	2
CSC118	Computer Systems and Applications	3
DSL837	Commercial Driver's License & Tools	1.5
ELE359	Adv. Electrical Theory & Principles	3
ELE360	Adv. Electrical Technical Skills	5
ELE361	Line Utility Field Training 1	8
ELE362	Line Utility Field Training 2	8
ELE363	Line Utility Field Training 3	8
ELT111	Introduction to Electronics	3
IND115	Occ.Safe/Health/Envir Concerns	1
IND135	Print Reading for Process Managemnt	3
IND171	General Utility Technical Skills	4
MKT181	Customer Service Strategies	2
Total		**51.5**

Electives (must select 1 credit hour)		
IND125	Introduction to Process Control	3
IND911	On-the-job Training	1
WEL116	General Welding	1
WEL300	Pipe Welding Basics	1
Total		**1**
Total Required Hours		**64.5-66.5**

Utility Technician

Diploma

Offered at MCC (Code: MVUTI)

The Utility Technician program prepares students to work in and around electrical or gas utilities and students will be involved with the generation, distribution or use of measurement of energy in the form of electricity or gas.

General Education		Credit Hours
ENG105	Composition I	3
	or	
ENG111	Technical Writing	(3)
MAT790	Shop Mathematics	3
Total		**6**

Program Requirements		
BUS291	Employment Portfolio and Career Dev	2
CSC118	Computer Systems and Applications	3
IND115	Occ.Safe/Health/Envir Concerns	1
IND171	General Utility Technical Skills	4
MKT181	Customer Service Strategies	2
Total		**12**

Choose one track

Electric Track Requirements		
ELE359	Adv. Electrical Theory & Principles	3
ELE360	Adv. Electrical Technical Skills	5
ELT111	Introduction to Electronics	3
Total		**11**

Gas Track Requirements		
IND125	Introduction to Process Control	3
IND172	Adv. Gas Theory & Principles	3
IND173	Adv. Gas Technical Skills	5
Total		**11**

Program Electives (must select at least 1 credit)		
DSL837	Commercial Driver's License & Tools	1.5
IND911	On-the-job-training	1
WEL116	General Welding	1
WEL300	Pipe Welding Basics	1
Total		**1**
Total Required Hours		**30-30.5**

Transfer Degrees

IVCCD's two transfer degrees, the Associate in Arts (AA) and Associate in Science (AS), are designed to meet the requirements of colleges and universities to which students may wish to transfer for completion of baccalaureate (BA or BS) degrees. In many instances, transfer colleges accept either of these degrees as equivalent to their own general education requirements.

Because the requirements for Associate in Arts and Associate in Science degrees change periodically, students should check with their advisor or the Admissions Office to confirm that they have the most current information. Students are responsible for knowing the requirements for the degree they hope to obtain and for planning their schedule accordingly.

Students planning to transfer ECC/MCC credits to a four-year college should select courses to conform to requirements of that particular four-year college.

Continuous Progress

Students with interrupted enrollment over a year (missing more than 2 full semesters) will need to fulfill the requirements of the most current catalog.

Associate in Arts Degree Requirements

Purposes of this degree include:
1. Provide a degree for students who choose to follow a course of study specifically designed for transfer to a baccalaureate degree program.
2. Provide freshman and sophomore general education and semester hour requirements leading to upper division status at most four-year colleges and universities.

Requirements for the AA degree include:
1. Minimum cumulative grade point average of 2.00.
2. Minimum of 64 semester credit hours earned, 58 of which must be academic (non-activity) credits. Earned credits are courses with passing grades.
3. A minimum of 16 of the final 32 credit hours must be completed in residence (completed at an IVCCD College).
4. Semester hours must correspond to the distribution requirements listed below. Specific courses fulfilling these requirements are listed on page 44. See the page listed after the title for the AA Degree requirements.
5. See the page listed after the title for the AA Degree requirements.
6. A limit of 16 vocational including the possibility of 4 military credits may be applied toward the degree.
7. Developmental courses do not apply towards degree requirements.

Communications	9 Credit Hours
Humanities	9 Credit Hours
Social/Behavioral Science	9 Credit Hours
Math and Science	10 Credit Hours
Computer Education	3 Credit Hours
Physical Education	2 Credit Hours
Electives	22 Credit Hours
Total	**64 Credit Hours**

Accounting	ECC...MCC	45
Agriculture	ECC...MCC	45
Art	ECC...MCC	45
Athletic Training	ECC...MCC	46
Biotechnology	ECC...........	46
Business Administration	ECC...MCC	46
Business Education	ECC...MCC	46
Communication/Public Relations/Journalism	ECC...MCC	46
Computer Applications in Business	ECC...MCC	47
Computer Network Management	...MCC	47
Computer Science	ECC...........	47
Computer Science/MIS	...MCC	47
Conservation Technology	ECC...........	47
Construction Management	ECC...MCC	48
Criminal Justice	ECC...MCC	48
e-Commerce & Web Page Development	ECC...MCC	48
Education (Elementary)	ECC...MCC	49
Education (Secondary)	ECC...MCC	49
Education (Special Education)	ECC...MCC	49
Engineering	ECC...MCC	49
English	ECC...MCC	50
Entertainment Design Technology	...MCC	50
Entrepreneurial & Diversified Agriculture	...MCC	50
Family & Consumer Science	ECC...MCC	51
Finance and Banking	ECC...........	51
Geographical Information Systems	ECC...........	51
Graphic Arts	ECC...MCC	51
Health, Physical Education, Recreation & Sports Management	ECC...MCC	52
History	ECC...MCC	52

Horticulture	ECC .. MCC	52
Human Services	ECC .. MCC	52
Industrial Technology (Teaching)	ECC .. MCC	53
Law	ECC .. MCC	53
Management Information Systems (MIS)	ECC...........	53
Mathematics	ECC .. MCC	53
Medicine	ECC .. MCC	53
Mortuary Science	ECC .. MCC	54
Music	ECC .. MCC	54
Pharmacy	ECC .. MCC	54
Physical Therapy	ECC .. MCC	55
Political Science	ECC .. MCC	55
Psychology	ECC .. MCC	55
Science & Mathematics	ECC .. MCC	55
Social Work	ECC .. MCC	56
Sociology	ECC .. MCC	56
Veterinary Medicine	ECC .. MCC	56
Wildlife/Fisheries/Forestry	ECC .. MCC	56

Communications – 9 credit hours

Courses		Credit Hours
ENG105	Composition I	3
ENG106	Composition II	3
SPC112	Public Speaking	3

Humanities – 9 credit hours (No more than 6 credits from one prefix. LIT courses not on this list will satisfy this requirement and transfer to all three Iowa Regent Universities as Humanities electives.)

Courses		Credit Hours
ART101	Art Appreciation	3
ART203	Art History I	3
ART204	Art History II	3
ASL131	American Sign Language I	3
ASL161	American Sign Language II	3
CLS150	Latin American History & Culture	3
CLS163	Thai Culture	3
DRA102	Elements of Theater	3
DRA110	Introduction to Film	3
FLS241	Intermediate Spanish I	4
FLS242	Intermediate Spanish II	4
HIS112	Western Civilization: Ancient to Early Modern	4
HIS113	Western Civilization: Early Modern to Present	4
HIS145	Modern East Asian Cultures	3
HIS214	Russian History and Culture	3
LIT101	Introduction to Literature	3
LIT110	American Literature to Mid 1880's	3
LIT111	American Literature since Mid 1800's	3
LIT120	American Novel	3
LIT127	American Folklore	1
LIT129	African American Literature	1
LIT133	Minority Voices in US Literature	3
LIT140	British Literature I	3
LIT141	British Literature II	3
LIT150	World Literature I	3
LIT151	World Literature II	3
LIT162	The Short Novel	1
LIT163	The Short Story	1
LIT164	Modern Short Novel	3
LIT180	Mythology	3
LIT199	Literature of the Fantastic	3
MUS100	Music Appreciation	3
MUS205	Jazz History and Appreciation	3
PHI101	Introduction to Philosophy	3
PHI105	Introduction to Ethics	3
REL101	Survey of World Religions	3

Social/Behavioral Science – 9 credit hours (No more than 6 credits from one prefix.)

Courses		Credit Hours
ANT105	Cultural Anthropology	3
ECN115	Personal Finance	3
ECN120	Principles of Macroeconomics	3
ECN130	Principles of Microeconomics	3
EDU160	Human Growth and Development	3
GEO121	World Regional Geography	3
HIS151	U.S. History to 1877	3
HIS152	U.S. History since 1877	3
HIS254	American Indian History	3
POL111	American National Government	3
PSY111	Introduction to Psychology	3
PSY241	Abnormal Psychology	3
PSY251	Social Psychology	3
SOC110	Introduction to Sociology	3
SOC115	Social Problems	3
SOC120	Marriage and Family	3

Math and Science – 10 credit hours (must include at least one math and one lab science course)

Courses		Credit Hours
BIO105	Introductory Biology	4
BIO112	General Biology I	4
BIO113	General Biology II	4
BIO146	Genetics	3
BIO148	Human Genetics	3
BIO151	Nutrition	3
BIO168	Human Anatomy and Physiology I	4
BIO173	Human Anatomy and Physiology II	4
BIO186	Microbiology	4
BUS230	Quant Methods for Business Decmkng	3
BUS235	Calculus for Business & Social Sciences	3
CHM122	Introduction to General Chemistry	4
CHM165	General Chemistry I	4
CHM175	General Chemistry II	4
CHM261	Organic Chemistry I	4
CHM271	Organic Chemistry II	4
ENV120	Environmental Biology	3
ENV122	Environmental Biology	4
MAT110	Math for Liberal Arts	3
MAT129	Precalculus	5
MAT156	Statistics	3
MAT158	Statistics I	3
MAT210	Calculus I	4
MAT216	Calculus II	4
MAT219	Calculus III	4
MAT267	Differential Equations	4
PHS120	Exploring Physical Science	4
PHS142	Principles of Astronomy	3
PHY106	Survey of Physics	4
PHY121	Elements of Physics	4
PHY162	College Physics I	4
PHY172	College Physics II	4
PHY212	Classical Physics I	5
PHY222	Classical Physics II	5

Computer Education – 3 credit hours

CSC118	Computer Systems and Applications	3

Physical Education – 2 credit hours

Two credit hours PE activity
        or

PEH110	Personal Wellness	(2)

Student Development – 1 credit hour

SDV108	The College Experience	1

Electives – 21 credit hours

All transfer courses may be used here including courses listed above (if additional are taken beyond requirements). Students should plan their elective courses according to their college major if they are planning to transfer on for a four year degree.

A maximum of 16 hours of vocational-technical credits may apply toward elective credit with a maximum of 9 of the 16 being independent projects or experimental courses. No more than 6 activity credits (those having prefixes of PEA, MUA, and some MUS courses) may be applied to elective credits.

Associate in Science Degree Requirements

Purposes of this degree include:

1. The Associate of Science degree will include a minimum of 60 semester hours of courses designed and acceptable for transfer, and may include up to 16 semester hours of career and technical courses.
2. The Associate of Science degree will include 40 semester hours of transfer credit within the following general divisions:
   a. Communications – 8 semester hours
   b. Humanities and Social/Behavioral Science – 8 semester hours
   c. Mathematics and Science – 20 semester hours (at least one course in each)
   d. Distributed requirement – 4 semester hours taken from the above divisions
3. The remaining 20 semester hours will be accepted from arts and sciences electives designed and acceptable for transfer.

Requirements for the AS Degree include:

1. Minimum cumulative grade point average of 2.00.
2. Minimum of 60 semester credit hours earned. Earned credits are courses with passing grades.
3. A minimum of 16 of the final 32 credit hours must be completed in residence (completed at an IVCCD College).

Engineering .... ECC ...MCC 50

Accounting

Associate in Arts Emphasis

Offered at ECC & MCC (Codes: EAPAT & MAPAT)

General Education	Credit Hours
Communications (courses approved for AA)	9
Humanities (courses approved for AA)	9
Social/Behavioral Science (courses approved for AA)	9
Math and Science (courses approved for AA)	10
CSC118 Computer Systems and Applications	3
Physical Education (courses approved for AA)	2
SDV108 The College Experience	1
Total	**43**

Electives (must select 21 credit hours)

ACC121	Principles of Accounting I	3
ACC122	Principles of Accounting II	3
ACC311	Computer Accounting	3
BCA152	Comprehensive Spreadsheets	3
BUS230	Quant Methods for Business Decmkng	3
CSC119	Computer Systems and Applications II	3
ECN120	Principles of Macroeconomics	3
ECN130	Principles of Microeconomics	3
MAT156	Statistics	3
Total		**21**
Total Required Hours		**64**

Agriculture

Associate in Arts Emphasis

Offered at ECC & MCC (Codes: EAPAG & MAPAG)

General Education	Credit Hours
Communications (courses approved for AA)	9
Humanities (courses approved for AA)	9
Social/Behavioral Science (courses approved for AA)	9
Math and Science (courses approved for AA)	10
CSC118 Computer Systems and Applications	3
Physical Education (courses approved for AA)	2
SDV108 The College Experience	1
Total	**43**

Electives (must select 21 credit hours)

BIO112	General Biology I	4
BIO113	General Biology II	4
BIO146	Genetics	3
	or	
BIO148	Human Genetics	(3)
BIO190	Introductory Biotechnology	3
CHM165	General Chemistry I	4
CHM261	Organic Chemistry I	4
MAT121	College Algebra	4
MAT156	Statistics	3
Electives	AGA, AGB, AGC, AGE, AGH, AGM, AGP, AGS	16
Total		**21**
Total Required Hours		**64**

Art

Associate in Arts Emphasis

Offered at ECC & MCC (Codes: EAPFA & MAPFA)

General Education	Credit Hours
Communications (courses approved for AA)	9
Humanities (courses approved for AA)	9
Social/Behavioral Science (courses approved for AA)	9
Math and Science (courses approved for AA)	10
CSC118 Computer Systems and Applications	3
Physical Education (courses approved for AA)	2
SDV108 The College Experience	1
Total	**43**

Electives (must select 21 credit hours)

ART120	2-D Design	3
ART123	3-D Design	3
ART133	Drawing	3
ART134	Drawing II	3
ART203	Art History I	3
ART204	Art History II	3
Electives	Studio Art (select from Painting, Sculpture, Ceramics or Photography)	4
Total		**21**
Total Required Hours		**64**

Athletic Training

Associate in Arts Emphasis

Offered at ECC & MCC (Code: EAPTR & MAPTR)

General Education		Credit Hours
Communications (courses approved for AA)		9
Humanities (courses approved for AA)		9
Social/Behavioral Science (courses approved for AA)		9
Math and Science (courses approved for AA)		10
CSC118	Computer Systems and Applications	3
Physical Education (courses approved for AA)		2
SDV108	The College Experience	1
Total		**43**

Electives (must select 21 credit hours)

BIO111	General Biology	4
BIO151	Nutrition	3
BIO168	Human Anatomy and Physiology I	4
BIO173	Human Anatomy and Physiology II	4
EDU160	Human Growth and Development	3
PEH142	First Aid	3
PEH175	Sports Psychology	3
PET105	Basic Athletic Training	3
PET115	Intro to Taping	2
PET140	Athletic Training Practicum	1
PET150	Athletic Training Practicum II	1
PET170	Athletic Training Practicum III	3
PET180	Athletic Training Practicum IV	3
PET189	Advanced Athletic Training	3
PET191	Advanced Athletic Training II	3
PSY111	Introduction to Psychology	3
Total		**21**
Total Required Hours		**64**

Biotechnology

Associate in Arts Emphasis

Offered at ECC (Code: EAPBI)

General Education		Credit Hours
Communications (courses approved for AA)		9
Humanities (courses approved for AA)		9
Social/Behavioral Science (courses approved for AA)		9
Math and Science (courses approved for AA)		10
CSC118	Computer Systems and Applications	3
Physical Education (courses approved for AA)		2
SDV108	The College Experience	1
Total		**43**

Electives (must select 21 credit hours)

BIO112	General Biology I	4
BIO113	General Biology II	4
BIO146	Genetics	3
BIO186	Microbiology	4
BIO190	Introductory Biotechnology	3
BIO192	Laboratory Technology I	1
BIO193	Laboratory Technology 2	1
BIO245	Genetic Engineering	3
BIO907	Co-op Field Experience	5
CHM165	General Chemistry I	4
CHM175	General Chemistry II	4
PHY162	College Physics I	4
Total		**21**
Total Required Hours		**64**

Business Administration

Associate in Arts Emphasis

Offered at ECC & MCC (Codes: EAPBN & MAPBN)

General Education		Credit Hours
Communications (courses approved for AA)		9
Humanities (courses approved for AA)		9
Social/Behavioral Science (courses approved for AA)		9
Math and Science (courses approved for AA)		10
CSC118	Computer Systems and Applications	3
Physical Education (courses approved for AA)		2
SDV108	The College Experience	1
Total		**43**

Electives (must select 21 credit hours)

ACC121	Principles of Accounting I	3
ACC122	Principles of Accounting II	3
BUS185	Business Law I	3
BUS230	Quant Methods for Business Decmkng	3
ECN120	Principles of Macroeconomics	3
ECN130	Principles of Microeconomics	3
Electives	Business or Computer (courses approved for AA)	4
Total		**21**
Total Required Hours		**64**

Business Education

Associate in Arts Emphasis

Offered at ECC & MCC (Codes: EAPBE & MAPBE)

General Education		Credit Hours
Communications (courses approved for AA)		9
Humanities (courses approved for AA)		9
Social/Behavioral Science (courses approved for AA)		9
Math and Science (courses approved for AA)		10
CSC118	Computer Systems and Applications	3
Physical Education (courses approved for AA)		2
SDV108	The College Experience	1
Total		**43**

Electives (must select 21 credit hours)

ACC121	Principles of Accounting I	3
ACC122	Principles of Accounting II	3
BUS230	Quant Methods for Business Decmkng	3
CSC119	Computer Systems and Applications II	3
EDU240	Educational Psychology	3
EDU245	Exceptional Learner	3
EDU255	Technology in the Classroom	3
EDU282	Field Experience: Exploring Teaching	1
POL111	American National Government	3
Total		**21**
Total Required Hours		**64**

Communications/Public Relations/Journalism

Associate in Arts Emphasis

Offered at ECC & MCC (Codes: EAPJR & MAPJR)

General Education		Credit Hours
Communications (courses approved for AA)		9
Humanities (courses approved for AA)		9
Social/Behavioral Science (courses approved for AA)		9
Math and Science (courses approved for AA)		10
CSC118	Computer Systems and Applications	3
Physical Education (courses approved for AA)		2
SDV108	The College Experience	1
Total		**43**

Electives (must select 21 credit hours)

BCA134	Word Processing	3
BUS102	Intro to Business	3
BUS185	Business Law I	3
DRA102	Elements of Theatre	3
DRA145	Oral Interpretation	3
JOU110	Introduction to Mass Media	3
JOU121	Newswriting and Reporting	3
JOU146	Publications Staff	1
MKT110	Principles of Marketing	3
MKT140	Principles of Selling	3
MKT150	Principles of Advertising	3
MMS236	TV News Production	3
Total		**21**
Total Required Hours		**64**

Computer Applications in Business

Associate in Arts Emphasis

Offered at ECC (Code: EAPCB)

General Education	Credit Hours
Communications (courses approved for AA)	9
Humanities (courses approved for AA)	9
Social/Behavioral Science (courses approved for AA)	9
Math and Science (courses approved for AA)	10
CSC118 Computer Systems and Applications	3
Physical Education (courses approved for AA)	2
SDV108 The College Experience	1
Total	**43**

Electives (must select 21 credit hours)

		Credit Hours
ADM112	Keyboarding	3
	or	
ADM116	Keyboarding II	(3)
ADM161	Office Management	3
	or	
MGT130	Principles of Supervision	(3)
BCA134	Word Processing	3
BCA152	Comprehensive Spreadsheets	3
BCA178	Presentation Software	3
BUS291	Employment Portfolio & Career Dev.	3
CSC119	Computer Systems and Applications II	3
CSC120	Computer Systems and Applications III	3
GRA110	Graphics Arts Principles	3
	or	
CIS207	Fundamentals of Web Programming	(3)
NET123	Computer Hardware Basics	4
	or	
ACC311	Computer Accounting	(3)
Total		**21**
Total Required Hours		**64**

Computer Network Management

Associate in Arts Emphasis

Offered at MCC (Codes: MAPCN)

General Education	Credit Hours
Communications (courses approved for AA)	9
Humanities (courses approved for AA)	9
Social/Behavioral Science (courses approved for AA)	9
Math and Science (courses approved for AA)	10
CSC118 Computer Systems and Applications	3
Physical Education (courses approved for AA)	2
SDV108 The College Experience	1
Electives (must be AA approved or CSC119/CSC120 recommended)	5
Total	**48**

Electives (must select 16 credit hours)

		Credit Hours
NET123	Computer Hardware Basics	4
NET235	CCNA Cisco 1	3
NET236	CCNA Cisco 2	3
NET237	CCNA Cisco 3	3
NET238	CCNA Cisco 4	3
NET270	Mobile Application Development	3
NET303	Window Workstn Operating Syst	3
NET313	Window Server	3
NET453	UNIX	3
NET612	Fundamentl of Network Security	3
NET616	VMware	3
NET785	Fundamnt.of Desktop Support	3
Total		**16**
Total Required Hours		**64**

Computer Science

Associate in Arts Emphasis

Offered at ECC (Codes: EAPCS)

General Education	Credit Hours
Communications (courses approved for AA)	9
Humanities (courses approved for AA)	9
Social/Behavioral Science (courses approved for AA)	9
Math and Science (courses approved for AA)	10
CSC118 Computer Systems and Applications	3
Physical Education (courses approved for AA)	2
SDV108 The College Experience	1
Total	**43**

Electives (must select 21 credit hours)

		Credit Hours
CIS125	Intro to Programming Logic w/Language	3
CIS207	Fundamentals of Web Programming	3
CSC119	Computer Systems and Applications II	3
MAT129	Precalculus	5
MAT210	Calculus I	4
MAT216	Calculus II	4
MAT219	Calculus III	4
NET123	Computer Hardware Basics	4
NET304	Windows Workstation Operating Systems	4
Total		**21**
Total Required Hours		**64**

Computer Science/MIS

Associate in Arts Emphasis

Offered at MCC (Code: MAPCP)

General Education	Credit Hours
Communications (courses approved for AA)	9
Humanities (courses approved for AA)	9
Social/Behavioral Science (courses approved for AA)	9
Math and Science (courses approved for AA)	10
CSC118 Computer Systems and Applications	3
Physical Education (courses approved for AA)	2
SDV108 The College Experience	1
Total	**43**

Electives (must select 21 credit hours)

		Credit Hours
ACC121	Principles of Accounting I	3
BUS230	Quant Methods for Business Decmkng	3
CIS126	Intro to Programming Logic w/Language	4
CIS152	Data Structures	3
CIS161	C++	3
CIS207	Fundamentals of Web Programming	3
CIS402	Cobol	3
CIS503	Intro to System Analysis	2
CIS504	Structured Systems Analysis	3
CIS582	Assembler	3
CIS588	Computer Organization	3
MAT156	Statistics	3
MAT210	Calculus I	4
NET304	Windows Workstation Operating Systems	4
Total		**21**
Total Required Hours		**64**

Conservation Technology

Associate in Arts Emphasis

Offered at ECC (Code: EAPCT)

General Education	Credit Hours
Communications (courses approved for AA)	9
Humanities (courses approved for AA)	9
Social/Behavioral Science (courses approved for AA)	9
Math and Science (courses approved for AA)	10
CSC118 Computer Systems and Applications	3
Physical Education (courses approved for AA)	2
SDV108 The College Experience	1
Total	**43**

Electives (must select 21 credit hours)

AGA154	Fundamentals of Soil Science	3
BIO112	General Biology I	4
BIO113	General Biology II	4
BIO132	Animal Care and Rehabilitation	2
BIO138	Field Ecology	3
BIO140	Field Biology II	2
BIO144	Field Biology: Spring Flowers	1
BIO238	Field Ecology II	3
BIO943	Iowa Habitats: Ecology & Management	3
CHM122	Introduction to General Chemistry	4
CHM165	General Chemistry I	4
CHM175	General Chemistry II	4
CNS140	Parks, Planning and Maintenance	3
CNS150	Occupations in Conservation	1
CNS160	Applications of Global Positioning Systems	2
CNS170	Wildland Firefighting	3
CNS907	Co-op Field Experience	5
CRJ251	Firearms	3
ENV120	Environmental Biology	3
ENV122	Environmental Biology	4
GIS111	Intro to Geographic Information Sys	3
MAT121	College Algebra	3
MAT129	Precalculus	5
MAT156	Statistics I	3
PEH142	First Aid	3
Total		**21**
Total Required Hours		**64**

Construction Management

Associate in Arts Emphasis

Offered at ECC & MCC (Codes: EAPCO & MAPCO)

General Education	Credit Hours
Communications (courses approved for AA)	9
Humanities (courses approved for AA)	9
Social/Behavioral Science (courses approved for AA)	9
Math and Science (courses approved for AA)	10
CSC118 Computer Systems and Applications	3
Physical Education (courses approved for AA)	2
SDV108 The College Experience	1
Total	**43**

Electives (must select 21 credit hours)

ACC121	Principles of Accounting I	3
BUS230	Quant Methods for Business Decmkng	3
MAT156	Statistics	3
MAT210	Calculus I	4
MGT101	Principles of Management	3
PHY162	College Physics I	4

Program Electives (can select up to 16 credit hours)

CON108	Construction Safety	1
CON260	Commercial Carpentry I	6
CON261	Commercial Construction Lab I	4
CON262	Commercial Carpentry II	6
CON263	Commercial Construction Lab II	4
CON293	Cabinet Making I	3
CON421	On-the-Job Training	4
Total		**21**
Total Required Hours		**64**

Criminal Justice

Associate in Arts Emphasis

Offered at ECC & MCC (Codes: EAPCJ & MAPCJ)

General Education	Credit Hours
Communications (courses approved for AA)	9
Humanities (courses approved for AA)	9
Social/Behavioral Science (courses approved for AA)	9
Math and Science (courses approved for AA)	10
CSC118 Computer Systems and Applications	3
Physical Education (courses approved for AA)	2
SDV108 The College Experience	1
Total	**43**

Electives (must select 21 credit hours)

CRJ100	Intro to Criminal Justice	3
CRJ101	Ethics in Criminal Justice	3
CRJ110	Patrol Procedures	3
CRJ120	Intro to Corrections	3
CRJ130	Criminal Law	3
CRJ133	Constitutional Criminal Procedure	3
CRJ141	Criminal Investigation	3
CRJ145	Police Photography	3
CRJ160	Intro to Forensic Investigation	3
CRJ183	Terrorism and Homeland Security	3
CRJ200	Criminology	3
CRJ201	Juvenile Delinquency	3
CRJ210	Law Enforcement Management	3
CRJ211	Multicultural Policing	3
CRJ212	Community-Oriented Policing	3
CRJ251	Firearms	3
CRJ907	Coop Field Experience	varied credit
Total		**21**
Total Required Hours		**64**

e-Commerce & Web Page Development

Associate in Arts Emphasis

Offered at ECC & MCC (Codes: EAPWP & MAPWP)

General Education	Credit Hours
Communications (courses approved for AA)	9
Humanities (courses approved for AA)	9
Social/Behavioral Science (courses approved for AA)	9
Math and Science (courses approved for AA)	10
CSC118 Computer Systems and Applications	3
Physical Education (courses approved for AA)	2
SDV108 The College Experience	1
Total	**43**

Electives (must select 21 credit hours)

ACC121	Principles of Accounting I	3
ART120	2-D Design	3
BUS150	E-Commerce	3
CIS125	Intro to Programming Logic w/Language	3
CIS207	Fundamentals of Web Programming	3
CSC119	Computer Systems and Applications II	3
MGT101	Principles of Management	3
MGT130	Principles of Supervision	3
MKT110	Principles of Marketing	3
Total		**21**
Total Required Hours		**64**

Education (Elementary)

Associate in Arts Emphasis

Offered at ECC & MCC (Codes: EAPEL & MAPEL)

General Education	Credit Hours
Communications (courses approved for AA)	9
Humanities (courses approved for AA)	9
Social/Behavioral Science (courses approved for AA)	9
Math and Science (courses approved for AA)	10*
CSC118 Computer Systems and Applications	3
Physical Education (courses approved for AA)	2
SDV108 The College Experience	1
Total	**43**

Electives (must select 21 credit hours)	
EDU126 Observation and Management of Behavior	3
EDU160 Human Growth and Development	3
EDU235 Children's Literature	3
EDU240 Educational Psychology	3
EDU245 Exceptional Learner	3
EDU255 Technology in the Classroom	3
EDU282 Field Experience: Exploring Teaching	1
MAT117 Math for Elementary Teachers	3
POL111 American National Government	3
or	
HIS151 U.S. History to 1877	(3)
PSY111 Introduction to Psychology	3
Total	**21**
Total Required Hours	**64**

*Elementary Education majors transferring to ISU or BVU should take MAT121 instead of math approved for AA. To do this, a course substitution form must be completed by your Elementary Education advisor prior to taking the course.

Education (Secondary)

Associate in Arts Emphasis

Offered at ECC & MCC (Codes: EAPSC & MAPSC)

General Education	Credit Hours
Communications (courses approved for AA)	9
Humanities (courses approved for AA)	9
Social/Behavioral Science (courses approved for AA)	9
Math and Science (courses approved for AA)	10
CSC118 Computer Systems and Applications	3
Physical Education (courses approved for AA)	2
SDV108 The College Experience	1
Total	**43**

Electives (must select 21 credit hours)	
EDU160 Human Growth and Development	3
EDU240 Educational Psychology	3
EDU245 Exceptional Learner	3
EDU255 Technology in the Classroom	3
EDU282 Field Experience: Exploring Teaching	1
POL111 American National Government	3
PSY111 Introduction to Psychology	3
Electives ENG, MAT, BIO Prefixes	9
Total	**21**
Total Required Hours	**64**

Education (Special Education)

Associate in Arts Emphasis

Offered at ECC & MCC (Codes: EAPSE & MAPSE)

General Education	Credit Hours
Communications (courses approved for AA)	9
Humanities (courses approved for AA)	9
Social/Behavioral Science (courses approved for AA)	9
Math and Science (courses approved for AA)	10
CSC118 Computer Systems and Applications	3
Physical Education (courses approved for AA)	2
SDV108 The College Experience	1
Total	**43**

Electives (must select 21 credit hours)	
EDU126 Observation and Management of Behavior	3
EDU140 Sign Language Shorthand	1
EDU160 Human Growth and Development	3
EDU235 Children's Literature	3
EDU240 Educational Psychology	3
EDU245 Exceptional Learner	3
EDU282 Field Experience	1
POL111 American National Government	3
or	
HIS151 U.S. History to 1877	(3)
PSY111 General Psychology	3
Total	**21**
Total Required Hours	**64**

Engineering

Associate in Arts Emphasis

Offered at ECC & MCC (Codes: EAPEN & MAPEN)

General Education	Credit Hours
Communications (courses approved for AA)	9
Humanities (courses approved for AA)	9
Social/Behavioral Science (courses approved for AA)	9
Math and Science (courses approved for AA)	10
CSC118 Computer Systems and Applications	3
Physical Education (courses approved for AA)	2
SDV108 The College Experience	1
Total	**43**

Electives (must select 21 credit hours)	
CHM165 General Chemistry I	4
EGT128 Statics	3
EGT186 Engineering Problems with Programming	3
EGT192 Engineering Graphics and Design	3
MAT210 Calculus I	4
MAT216 Calculus II	4
MAT219 Calculus III	4
PHY212 Classical Physics I	5
PHY222 Classical Physics II	5
Electives BIO, CSC, BUS Prefixes	4
Total	**21**
Total Required Hours	**64**

Engineering

Associate in Science Degree

Offered at ECC & MCC (Codes: ESENG & MSENG)

General Education	Credit Hours
Communications (courses approved for AA)	9
Humanities/Social/Behavioral Science (courses approved for AA)	9
At least 3 credit hours must be taken under Humanities and Social/Behavioral Science.	
Total	**18**

Program Requirements		Credit Hours
CHM165	General Chemistry I	4
MAT210	Calculus I	4
MAT216	Calculus II	4
MAT219	Calculus III	4
PHY212	Classical Physics I	5
PHY222	Classical Physics II	5
Total		**26**

Electives (must select 21 credit hours)		Credit Hours
CHM175	General Chemistry II	4
EGT128	Statics	3
EGT186	Engineering Problems with Programming	3
EGT192	Engineering Graphics and Design	3
MAT129	Precalculus	5
MAT156	Statistics	3
Electives	(courses approved for AA)	12
Total		**21**
Total Required Hours		**65**

English

Associate in Arts Emphasis

Offered at ECC & MCC (Codes: EAPEM & MAPEM)

General Education		Credit Hours
Communications (courses approved for AA)		9
Humanities (courses approved for AA)		9
Social/Behavioral Science (courses approved for AA)		9
Math and Science (courses approved for AA)		10
CSC118	Computer Systems and Applications	3
Physical Education (courses approved for AA)		2
SDV108	The College Experience	1
Total		**43**

Electives (must select 21 credit hours)		Credit Hours
ART184	Photography	3
BCA134	Word Processing	3
EDU235	Children's Literature	3
ENG111	Technical Writing	3
ENG210	Advanced Critical Thinking in Writing	3
FLS241	Intermediate Spanish I	4
FLS242	Intermediate Spanish II	4
JOU121	Newswriting and Reporting	3
JOU146	Publications Staff	1
LIT101	Introduction to Literature	3
LIT110	American Literature to Mid-1800s	3
LIT111	American Literature since Mid-1800s	3
LIT120	American Novel	3
LIT127	American Folklore	1
LIT129	African American Literature	1
LIT133	Minority Voices in US Literature	3
LIT140	British Literature I	3
LIT141	British Literature II	3
LIT150	World Literature I	3
LIT151	World Literature II	3
LIT162	The Short Novel	1
LIT163	The Short Story	1
LIT164	Modern Short Novel	3
Total		**21**
Total Required Hours		**64**

Education Certification Option for AA in English

EDU160	Human Growth and Development	3
EDU235	Children's Literature	3
EDU240	Educational Psychology	3
EDU282	Field Experience: Exploring Teaching	1

Entertainment Design Technology

Associate in Arts Emphasis

Offered at MCC (Codes: MAPED)

General Education		Credit Hours
Communications (courses approved for AA)		9
Humanities (courses approved for AA)		9
Social/Behavioral Science (courses approved for AA)		9
Math and Science (courses approved for AA)		10
CSC118	Computer Systems and Applications	3
Physical Education (courses approved for AA)		2
SDV108	The College Experience	1
Total		**43**

Electives (must select 21 credit hours)		Credit Hours
DRA150	Play Production	4
DRA160	Production Studio	4
DRA164	Drafting Scenery	3
DRA165	Stagecraft	3
DRA169	Drafting Light Plots	2
DRA190	Lighting Design Technology I	3
DRA193	Sound Design Technology	3
DRA195	Scene Design Technology I	3
DRA932	Summer Repertory Internship	3
Total		**21**
Total Required Hours		**64**

Entrepreneurial & Diversified Agriculture

Associate in Arts Emphasis

Offered at MCC (Code: MAPSA)

General Education		Credit Hours
Communications (courses approved for AA)		9
Humanities (courses approved for AA)		9
Social/Behavioral Science (courses approved for AA)		9
Math and Science (courses approved for AA)		10
CSC118	Computer Systems and Applications	3
Physical Education (courses approved for AA)		2
SDV108	The College Experience	1
Total		**43**

Electives (must select 21 credit hours)		Credit Hours
AGA154	Fundamentals of Soil Science	3
AGA450	Issues in Sustainable Agriculture	3
AGB225	Farmstead Planning and Technology	3
AGH265	Horticultural Crops	3
AGS308	Livestock Management	3
BIO112	General Biology I	4
BIO113	General Biology II	4
BIO142	Ecological Concepts	4
BUS130	Intro to Entrepreneurship	3
CHM165	General Chemistry I	4
CHM175	General Chemistry II	4
CHM261	Organic Chemistry I	4
MAT121	College Algebra	4
MAT156	Statistics	3
MGT130	Principles of Supervision	3
Total		**21**
Total Required Hours		**64**

Family & Consumer Science

Associate in Arts Emphasis

Offered at ECC & MCC (Codes: EAPFS & MAPFS)

General Education	Credit Hours
Communications (courses approved for AA)	9
Humanities (courses approved for AA)	9
Social/Behavioral Science (courses approved for AA)	9
Math and Science (courses approved for AA)	10
CSC118 Computer Systems and Applications	3
Physical Education (courses approved for AA)	2
SDV108 The College Experience	1
Total	**43**

Electives (must select 21 credit hours)	
APP150 Clothing Selection	3
APP210 Apparel Textiles	3
APP245 Fashion Computer Design	3
ART120 2-D Design	3
CHM165 General Chemistry I	4
ECN120 Principles of Macroeconomics	3
EDU160 Human Growth and Development	3
HIS151 U.S. History to 1877	3
MAT156 Statistics	3
Total	**21**
Total Required Hours	**64**

Finance and Banking

Associate in Arts Emphasis

Offered at ECC (Code: EAPFB)

General Education	Credit Hours
Communications (courses approved for AA)	9
Humanities (courses approved for AA)	9
Social/Behavioral Science (courses approved for AA)	9
Math and Science (courses approved for AA)	10
CSC118 Computer Systems and Applications	3
Physical Education (courses approved for AA)	2
SDV108 The College Experience	1
Total	**43**

Electives (must select 21 credit hours)	
ACC121 Principles of Accounting I	3
ACC122 Principles of Accounting II	3
ACC311 Computer Accounting	3
ADM154 Business Communication	3
BCA152 Comprehensive Spreadsheets	3
BUS185 Business Law I	3
BUS230 Quant Methods for Business Decmkng	3
ECN115 Personal Finance	3
ECN120 Principles of Macroeconomics	3
ECN130 Principles of Microeconomics	3
FIN101 Principles of Banking	3
FIN180 Introduction to Investments	3
MAT156 Statistics	3
MAT158 Statistics II	3
MGT101 Principles of Management	3
Total	**21**
Total Required Hours	**64**

Geographical Information Systems

Associate in Arts Emphasis

Offered at ECC (Code: EAPGS)

General Education	Credit Hours
Communications (courses approved for AA)	9
Humanities (courses approved for AA)	9
Social/Behavioral Science (courses approved for AA)	9
Math and Science (courses approved for AA)	10
CSC118 Computer Systems and Applications	3
Physical Education (courses approved for AA)	2
SDV108 The College Experience	1
Total	**43**

Electives (must select 21 credit hours)	
BCA167 Comprehensive Databases	3
BUS102 Introduction to Business	3
BUS130 Intro to Entrepreneurship	3
CNS160 Apps. of Global Positioning Systems	2
GIS111 Intro to Geographic Information Sys	3
GIS130 Remote Sensing	3
GIS211 Mapping for Decision Making	4
GIS213 Intermediate GIS	4
GIS240 GIS Projects	3
GIS907 Cooperative Field Experience	4
MKT110 Principles of Marketing	3
Electives BIO, PHS Prefixes	3-4
Total	**21**
Total Required Hours	**64**

Graphic Arts

Associate in Arts Emphasis

Offered at ECC & MCC (Codes: EAPGA & MAPGA)

General Education	Credit Hours
Communications (courses approved for AA)	9
Humanities (courses approved for AA)	9
Social/Behavioral Science (courses approved for AA)	9
Math and Science (courses approved for AA)	10
CSC118 Computer Systems and Applications	3
Physical Education (courses approved for AA)	2
SDV108 The College Experience	1
Total	**43**

Electives (must select 21 credit hours)	
ART120 2-D Design	3
ART123 3-D Design	3
ART133 Drawing	3
ART134 Drawing II	3
ART184 Photography	3
ART185 Photography II	3
ART203 Art History I	3
or	
ART204 Art History II	(3)
ART929 Individual Projects	1
BUS291 Employment Portfolio and Career Dev.	2
CIS207 Fundamentals of Web Programming	3
GRA110 Graphic Arts Principles	3
GRA127 Digital Illustration	3
GRA140 Digital Imaging	3
GRA141 Digital Imaging II	3
PHI105 Introduction to Ethics	3
or	
BUS185 Business Law I	(3)
Total	**21**
Total Required Hours	**64**

Health, Physical Ed., Recreation & Sports Management

Associate in Arts Emphasis

Offered at ECC & MCC (Codes: EAPPE & MAPPE)

General Education	Credit Hours
Communications (courses approved for AA)	9
Humanities (courses approved for AA)	9
Social/Behavioral Science (courses approved for AA)	9
Math and Science (courses approved for AA)	10
CSC118 Computer Systems and Applications	3
Physical Education (courses approved for AA)	2
SDV108 The College Experience	1
Total	**43**

Electives (must select 21 credit hours)

PEA138	Lifeguarding Training I	1
PEA183	Water Safety Instruction/Lifeguarding Instruction	2
PEC102	Coaching Authorization	5
PEC180	Sports Officiating: Football, Wrestling, Volleyball	2
PEC182	Sports Officiating: Basketball, Softball, Baseball	2
PEH102	Health	3
PEH142	First Aid	3
PEH150	Basic Cardiac Life Support	1
PEH161	Introduction to Physical Education	2
PEH255	Principles of Sports Management	3
PEH256	Current Issues in Sports Management	3
PEH260	Recreational Leadership	3
PEH932	Internship	varied
Electives	PEA, PEV Prefixes	4
Total		**21**
Total Required Hours		**64**

History

Associate in Arts Emphasis

Offered at ECC & MCC (Codes: EAPHI & MAPHI)

General Education	Credit Hours
Communications (courses approved for AA)	9
Humanities (courses approved for AA)	9
Social/Behavioral Science (courses approved for AA)	9
Math and Science (courses approved for AA)	10
CSC118 Computer Systems and Applications	3
Physical Education (courses approved for AA)	2
SDV108 The College Experience	1
Total	**43**

Electives (must select 21 credit hours)

ANT105	Cultural Anthropology	3
GEO121	World Regional Geography	3
HIS112	Western Civilization: Ancient to Early Modern	4
HIS113	Western Civilization: Early Modern to Present	4
HIS151	U.S. History to 1877	3
HIS152	U.S. History since 1877	3
HIS214	Russian History and Culture	3
HIS254	American Indian History	3
HIS261	American Civil War	2
POL111	American National Government	3
SOC110	Introduction to Sociology	3
SOC115	Social Problems	3
Total		**21**
Total Required Hours		**64**

Horticulture

Associate in Arts Emphasis

Offered at ECC & MCC (Codes: EAPHO & MAPHO)

General Education	Credit Hours
Communications (courses approved for AA)	9
Humanities (courses approved for AA)	9
Social/Behavioral Science (courses approved for AA)	9
Math and Science (courses approved for AA)	10
CSC118 Computer Systems and Applications	3
Physical Education (courses approved for AA)	2
SDV108 The College Experience	1
Total	**43**

Electives (must select 21 credit hours)

ACC121	Principles of Accounting I	3
AGA114	Principles of Agronomy	3
AGA154	Fundamentals of Soil Science	3
CHM122	Introduction to General Chemistry	4
	or	
CHM165	General Chemistry I	(4)
HIS112	Western Civilization: Ancient to Early Modern	4
MAT156	Statistics	3
MUS100	Music Appreciation	3
	or	
REL101	Survey of World Religions	(3)
PHY162	College Physics I	4
PSY111	Introduction to Psychology	3
	or	
SOC110	Introduction to Sociology	(3)
SOC115	Social Problems	3

Must select 4 credit hours

BIO111	General Biology	4
BIO112	General Biology I	4
BIO113	General Biology II	4
Total		**21**
Total Required Hours		**64**

Human Services

Associate in Arts Emphasis

Offered at ECC & MCC (Codes: EAPRH & MAPRH)

General Education	Credit Hours
Communications (courses approved for AA)	9
Humanities (courses approved for AA)	9
Social/Behavioral Science (courses approved for AA)	9
Math and Science (courses approved for AA)	10
CSC118 Computer Systems and Applications	3
Physical Education (courses approved for AA)	2
SDV108 The College Experience	1
Total	**43**

Electives (must select 21 credit hours)

EDU126	Observation and Management of Behavior	3
EDU160	Human Growth and Development	3
EDU245	Exceptional Learner	3
PEH142	First Aid	3
PSY111	Introduction to Psychology	3
PSY171	Health Psychology	3
PSY224	Adolescent Psychology	3
PSY241	Abnormal Psychology	3
PSY245	Introduction to Counseling Theories	3
PSY246	Introduction to Counseling Skills	3
PSY251	Social Psychology	3
PSY920	Field Experience	4
SDV194	Team Building	3
SOC110	Introduction to Sociology	3
SOC115	Social Problems	3
SOC120	Marriage and Family	3
SOC160	Introduction to Social Work	3
Total		**21**
Total Required Hours		**64**

Industrial Technology (Teaching)

Associate in Arts Emphasis

Offered at ECC & MCC (Codes: EAPIT & MAPIT)

General Education	Credit Hours
Communications (courses approved for AA)	9
Humanities (courses approved for AA)	9
Social/Behavioral Science (courses approved for AA)	9
Math and Science (courses approved for AA)	10
CSC118 Computer Systems and Applications	3
Physical Education (courses approved for AA)	2
SDV108 The College Experience	1
Total	**43**

Electives (must select 21 credit hours)

CON108	Construction Safety	1
CON155	Carpentry Level I	3
CON210	Fundamentals of Carpentry	3
CON293	Cabinet Making I	3
CON421	On-the-Job Training	4
EDU240	Education Psychology	3
EDU245	Exceptional Learner	3
EDU282	Field Experience: Exploring Teaching	1
POL111	American National Government	3
WEL116	General Welding	1
Total		**21**
Total Required Hours		**64**

Journalism

See Communications/Public Relations/Journalism on page 46.

Law

Associate in Arts Emphasis

Offered at ECC & MCC (Codes: EAPLG & MAPLG)

General Education	Credit Hours
Communications (courses approved for AA)	9
Humanities (courses approved for AA)	9
Social/Behavioral Science (courses approved for AA)	9
Math and Science (courses approved for AA)	10
CSC118 Computer Systems and Applications	3
Physical Education (courses approved for AA)	2
SDV108 The College Experience	1
Total	**43**

Electives (must select 21 credit hours)

CRJ100	Intro to Criminal Justice	3
CRJ130	Criminal Law	3
CRJ133	Constitutional Criminal Procedure	3
CRJ200	Criminology	3
CRJ201	Juvenile Delinquency	3
POL112	American State and Local Government	3
Electives	BUS, CRJ Prefixes	4
Total		**21**
Total Required Hours		**64**

Applicants to colleges of Law must complete a Baccalaureate degree after completing this pre-professional program of study.

Management Information Systems (MIS)

Associate in Arts Emphasis

Offered at ECC (Code: EAPIS)

General Education	Credit Hours
Communications (courses approved for AA)	9
Humanities (courses approved for AA)	9
Social/Behavioral Science (courses approved for AA)	9
Math and Science (courses approved for AA)	10
CSC118 Computer Systems and Applications	3
Physical Education (courses approved for AA)	2
SDV108 The College Experience	1
Total	**43**

Electives (must select 21 credit hours)

ACC121	Principles of Accounting I	3
ACC122	Principles of Accounting II	3
CSC119	Computer Systems and Applications II	3
CIS125	Intro to Programming Logic w/Language	3
CIS207	Fundamentals of Web Programming	3
NET123	Computer Hardware Basics	4
NET304	Windows Workstation Operating Systems	4
Total		**21**
Total Required Hours		**64**

Mathematics

Associate in Arts Emphasis

Offered at ECC & MCC (Codes: EAPMA & MAPMA)

General Education	Credit Hours
Communications (courses approved for AA)	9
Humanities (courses approved for AA)	9
Social/Behavioral Science (courses approved for AA)	9
Science (courses approved for AA)	4
CSC118 Computer Systems and Applications	3
Physical Education (courses approved for AA)	2
SDV108 The College Experience	1
Total	**37**

Electives (must select 27 credit hours)

MAT129	Precalculus	5
MAT140	Finite Math	3
MAT156	Statistics	3
MAT158	Statistics II	3
MAT210	Calculus I	4
MAT216	Calculus II	4
MAT219	Calculus III	4
Electives	ACC, BIO, BUS, CHM, CSC, ENV, NET, PHY, PHS Prefixes	6
Total		**27**
Total Required Hours		**64**

Medicine

Associate in Arts Emphasis

Offered at ECC & MCC (Codes: EAPMD & MAPMD)

General Education	Credit Hours
Communications (courses approved for AA)	9
Humanities (courses approved for AA)	9
Social/Behavioral Science (courses approved for AA)	9
Math and Science (courses approved for AA)	10
CSC118 Computer Systems and Applications	3
Physical Education (courses approved for AA)	2
SDV108 The College Experience	1
Total	**43**

Electives (must select 21 credit hours)

BIO112	General Biology I	4
BIO113	General Biology II	4
BIO146	Genetics	3
BIO186	Microbiology	4
CHM165	General Chemistry I	4
CHM175	General Chemistry II	4
CHM261	Organic Chemistry I	4
CHM271	Organic Chemistry II	4
MAT129	Precalculus	5
PHY162	College Physics I	4
PHY172	College Physics II	4
Total		**21**
Total Required Hours		**64**

Applicants to colleges of Medicine must complete a Baccalaureate degree after completing this pre-professional program of study.

Mortuary Science

Associate in Arts Emphasis

Offered at ECC & MCC (Codes: EAPMR & MAPMR)

General Education	Credit Hours
Communications (courses approved for AA)	9
Humanities (courses approved for AA)	9
Social/Behavioral Science (courses approved for AA)	9
Math and Science (courses approved for AA)	10
CSC118 Computer Systems and Applications	3
Physical Education (courses approved for AA)	2
SDV108 The College Experience	1
Total	**43**

Electives (must select 21 credit hours)

		Credit Hours
ACC121	Principles of Accounting I	3
BIO112	General Biology I	4
BIO113	General Biology II	4
BIO168	Human Anatomy and Physiology I	4
BIO173	Human Anatomy and Physiology II	4
BIO186	Microbiology	4
BUS185	Business Law I	3
CHM165	General Chemistry I	4
PEH110	Personal Wellness	2
Electives	BIO, PHS, CHM, MAT, HSC Prefixes	3
Total		**21**
Total Required Hours		**64**

Music

Associate in Arts Emphasis

Offered at ECC & MCC (Codes: EAPMU & MAPMU)

General Education	Credit Hours
Communications (courses approved for AA)	9
Humanities (courses approved for AA)	9
Social/Behavioral Science (courses approved for AA)	9
Math and Science (courses approved for AA)	10
CSC118 Computer Systems and Applications	3
Physical Education (courses approved for AA)	2
SDV108 The College Experience	1
Total	**43**

Electives (must select 21 credit hours)

		Credit Hours
MUA classes	Applied Music (Lessons)	1/sem.
MUS100	Music Appreciation	3
MUS120	Music Theory I	3
MUS121	Music Theory II	3
MUS140	Concert Choir	1/sem.
	or	
MUS145	Concert Band	(1/sem.)
MUS152	Vocal Ensemble	1
MUS162	Instrumental Ensemble	1
MUS929	Individual Projects	3
Total		**21**
Total Required Hours		**64**

Paralegal

Associate in Arts Emphasis

Offered at MCC in Grinnell (Code: MAPAR)

General Education	Credit Hours
Communications (courses approved for AA)	9
Humanities (courses approved for AA)	9
Social/Behavioral Science (courses approved for AA)	9
Math and Science (courses approved for AA)	10
CSC118 Computer Systems and Applications	3
Physical Education (courses approved for AA)	2
SDV108 The College Experience	1
Total	**43**

Program Requirements

PRL101	Paralegal Studies Orientation	3
PRL109	Introduction to Legal Research	1
PRL114	Advanced Legal Research and Writing	3
PRL161	Family Law	3
Total		**10**

Electives (must select 11 credit hours)

ACC261	Income Tax Accounting	3
BUS185	Business Law I	3
CRJ130	Criminal Law	3
PRL131	Torts and Litigation I	3
PRL132	Torts and Litigation II	3
PRL151	Real Estate Law	3
PRL165	Estate Planning and Probate Law	3
PRL172	Administrative and Bankruptcy Law	3
PRL183	Employment Law	3
PRL184	Alternative Dispute Resolution	3
Total		**11**
Total Required Hours		**64**

Pharmacy

Associate in Arts Emphasis

Offered at ECC & MCC (Codes: EAPPH & MAPPH)

General Education	Credit Hours
Communications (courses approved for AA)	9
Humanities (courses approved for AA)	9
Social/Behavioral Science (courses approved for AA)	9
Math and Science (courses approved for AA)	10
CSC118 Computer Systems and Applications	3
Physical Education (courses approved for AA)	2
SDV108 The College Experience	1
Total	**43**

Electives (must select 21 credit hours)

BIO112	General Biology I	4
BIO113	General Biology II	4
CHM165	General Chemistry I	4
CHM175	General Chemistry II	4
CHM261	Organic Chemistry I	4
CHM271	Organic Chemistry II	4
MAT129	Precalculus	5
MAT210	Calculus I	4
Total		**21**
Total Required Hours		**64**

Applicants to colleges of Pharmacy must complete a Baccalaureate degree after completing this pre-professional program of study.

Physical Education

See Health, Physical Education, Recreation, & Sports Management on page 52.

Physical Therapy

Associate in Arts Emphasis

Offered at ECC & MCC (Codes: EAPPT & MAPPT)

General Education	Credit Hours
Communications (courses approved for AA)	9
Humanities (courses approved for AA)	9
Social/Behavioral Science (courses approved for AA)	9
Math and Science (courses approved for AA)	10
CSC118 Computer Systems and Applications	3
Physical Education (courses approved for AA)	2
SDV108 The College Experience	1
Total	**43**

Electives (must select 21 credit hours)

		Credit Hours
BIO112	General Biology I	4
BIO168	Human Anatomy and Physiology I	4
BIO173	Human Anatomy and Physiology II	4
BIO186	Microbiology	4
CHM165	General Chemistry I	4
CHM175	General Chemistry II	4
MAT156	Statistics	3
PHY162	College Physics I	4
PHY172	College Physics II	4
PSY111	Introduction to Psychology	3
Total		**21**
Total Required Hours		**64**

Political Science

Associate in Arts Emphasis

Offered at ECC & MCC (Codes: EAPPS & MAPPS)

General Education	Credit Hours
Communications (courses approved for AA)	9
Humanities (courses approved for AA)	9
Social/Behavioral Science (courses approved for AA)	9
Math and Science (courses approved for AA)	10
CSC118 Computer Systems and Applications	3
Physical Education (courses approved for AA)	2
SDV108 The College Experience	1
Total	**43**

Electives (must select 21 credit hours)

		Credit Hours
CRJ100	Intro to Criminal Justice	3
CRJ133	Constitutional Criminal Procedure	3
ECN120	Principles of Macroeconomics	3
ECN130	Principles of Microeconomics	3
HIS151	U.S. History to 1877	3
HIS152	U.S. History since 1877	3
POL111	American National Government	3
SOC110	Introduction to Sociology	3
SOC115	Social Problems	3
Total		**21**
Total Required Hours		**64**

Psychology

Associate in Arts Emphasis

Offered at ECC & MCC (Codes: EAPPY & MAPPY)

General Education	Credit Hours
Communications (courses approved for AA)	9
Humanities (courses approved for AA)	9
Social/Behavioral Science (courses approved for AA)	9
Math and Science (courses approved for AA)	10
CSC118 Computer Systems and Applications	3
Physical Education (courses approved for AA)	2
SDV108 The College Experience	1
Total	**43**

Electives (must select 21 credit hours)

		Credit Hours
CRJ201	Juvenile Delinquency	3
EDU126	Observation and Management of Behavior	3
EDU160	Human Growth and Development	3
EDU240	Educational Psychology	3
EDU245	Exceptional Learner	3
MAT156	Statistics	3
PSY111	Introduction to Psychology	3
PSY171	Health Psychology	3
PSY211	Psychology of Adjustment	3
PSY224	Adolescent Psychology	3
PSY241	Abnormal Psychology	3
PSY245	Introduction to Counseling Theories	3
PSY246	Introduction to Counseling Skills	3
PSY251	Social Psychology	3
PSY941	Practicum	4
SOC110	Introduction to Sociology	3
SOC115	Social Problems	3
Total		**21**
Total Required Hours		**64**

Public Relations

See Communications/Public Relations/Journalism on page 46.

Recreation

See Health, Physical Education, Recreation & Sports Management on page 52.

Science & Mathematics

Associate in Arts Emphasis

Offered at ECC & MCC (Codes: EAPSI & MAPSI)

General Education	Credit Hours
Communications (courses approved for AA)	9
Humanities (courses approved for AA)	9
Social/Behavioral Science (courses approved for AA)	9
Math and Science (courses approved for AA)	10
CSC118 Computer Systems and Applications	3
Physical Education (courses approved for AA)	2
SDV108 The College Experience	1
Total	**43**

Electives (must select 21 credit hours)

Select science and advanced science courses from the major science areas — BIO, CHM, MAT, PHS, PHY Prefixes

	Credit Hours
Total	**21**
Total Required Hours	**64**

Social Work

Associate in Arts Emphasis

Offered at ECC & MCC (Codes: EAPSW & MAPSW)

General Education		Credit Hours
Communications (courses approved for AA)		9
Humanities (courses approved for AA)		9
Social/Behavioral Science (courses approved for AA)		9
Math and Science (courses approved for AA)		10
CSC118	Computer Systems and Applications	3
Physical Education (courses approved for AA)		2
SDV108	The College Experience	1
Total		**43**

Electives (must select 21 credit hours)

ANT105	Cultural Anthropology	3
CRJ201	Juvenile Delinquency	3
EDU126	Observation & Management of Behavior	3
EDU160	Human Growth and Development	3
PSY111	Introduction to Psychology	3
PSY224	Adolescent Psychology	3
PSY241	Abnormal Psychology	3
PSY245	Introduction to Counseling Theories	3
PSY246	Introduction to Counseling Skills	3
PSY251	Social Psychology	3
SOC110	Introduction to Sociology	3
SOC115	Social Problems	3
SOC120	Marriage and Family	3
SOC160	Introduction to Social Work	3
Total		**21**
Total Required Hours		**64**

Sociology

Associate in Arts Emphasis

Offered at ECC & MCC (Codes: EAPSS & MAPSS)

General Education		Credit Hours
Communications (courses approved for AA)		9
Humanities (courses approved for AA)		9
Social/Behavioral Science (courses approved for AA)		9
Math and Science (courses approved for AA)		10
CSC118	Computer Systems and Applications	3
Physical Education (courses approved for AA)		2
SDV108	The College Experience	1
Total		**43**

Electives (must select 21 credit hours)

ANT105	Cultural Anthropology	3
CRJ200	Criminology	3
EDU160	Human Growth and Development	3
GEO121	World Regional Geography	3
HIS112	Western Civilization: Ancient to Early Modern	4
HIS113	Western Civilization: Early Modern to Present	4
POL112	American State and Local Government	3
PSY251	Social Psychology	3
SOC110	Introduction to Sociology	3
SOC115	Social Problems	3
SOC120	Marriage and Family	3
Total		**21**
Total Required Hours		**64**

Veterinary Medicine

Associate in Arts Emphasis

Offered at ECC & MCC (Codes: EAPVT & MAPVT)

General Education		Credit Hours
Communications (courses approved for AA)		9
Humanities (courses approved for AA)		9
Social/Behavioral Science (courses approved for AA)		9
Math and Science (courses approved for AA)		10
CSC118	Computer Systems and Applications	3
Physical Education (courses approved for AA)		2
SDV108	The College Experience	1
Total		**43**

Electives (must select 21 credit hours)

BIO112	General Biology I	4
BIO113	General Biology II	4
BIO146	Genetics	3
BIO168	Human Anatomy and Physiology I	4
BIO190	Introductory Biotechnology	3
BIO907	Co-op Field Experience	5
CHM165	General Chemistry I	4
CHM175	General Chemistry II	4
CHM261	Organic Chemistry I	4
CHM271	Organic Chemistry II	4
CHM290	Survey of Biochemistry	3
HSC113	Medical Terminology	2
MAT129	Precalculus	5
MAT156	Statistics	3
PHY162	College Physics I	4
PHY172	College Physics II	4
Total		**21**
Total Required Hours		**64**

Applicants to colleges of Veterinary Medicine must complete a Baccalaureate degree after completing this pre-professional program of study.

Web Page Development

Wildlife/Fisheries/Forestry

Associate in Arts Emphasis

Offered at ECC & MCC (Codes: EAPWI & MAPWI)

General Education		Credit Hours
Communications (courses approved for AA)		9
Humanities (courses approved for AA)		9
Social/Behavioral Science (courses approved for AA)		9
Math and Science (courses approved for AA)		10
CSC118	Computer Systems and Applications	3
Physical Education (courses approved for AA)		2
SDV108	The College Experience	1
Total		**43**

Electives (must select 21 credit hours)

BIO112	General Biology I	4
BIO113	General Biology II	4
BIO132	Animal Care and Rehabilitation	2
BIO146	Genetics	3
BIO186	Microbiology	4
CHM165	General Chemistry I	4
CHM175	General Chemistry II	4
CHM261	Organic Chemistry I	4
CHM271	Organic Chemistry II	4
ENV120	Environmental Biology	3
PHY162	College Physics I	4
Total		**21**
Total Required Hours		**64**

Course Descriptions

To find and select courses, it is important to understand IVCCD's Course Numbering System. All courses are numbered in the same format with a three-letter prefix and a three-digit suffix. The prefix indicates the discipline; the suffix indicates the particular course. The letter disciplines are below.

Career and Technical Credit Type – Career and technical education prepares students for a wide range of careers that require varying levels of education—from one-year diplomas to two-year AAS and AS college degrees. Up to 16 of these credits can be applied to an AA degree as electives.

Developmental Credit Type – Developmental credit classes do not apply towards any degree and are not calculated into the GPA.

Nursing Credit Type - Nursing classes have a requirement of 'C' or higher for successful completion of the course.

Standard Credit Type – These courses are transfer level courses. See advisors for how they will work for the student's program.

ACC – Accounting

ACC111 Introduction to Accounting
STANDARD CREDIT TYPE   *3*
Fundamental accounting principles, cash control, payroll accounting, notes and interest, accruals, financial records, and end-of-the-accounting-period procedures.

ACC112 Intro to Accounting II
Prerequisite: ACC111
STANDARD CREDIT TYPE   *3*
Provides an advanced understanding and application of accounting concepts in business and personal applications.

ACC121 Principles of Accounting I
STANDARD CREDIT TYPE   *3*
Financial accounting using double-entry accounting theory; preparing and analyzing financial statements; adjusting and closing books; annual reports.

ACC122 Principles of Accounting II
Prerequisite: ACC121
STANDARD CREDIT TYPE   *3*
Managerial accounting based on analysis and reports; cost procedures; departmental accounting; financial reporting analysis; planning and control; decision-making.

ACC161 Payroll Accounting
STANDARD CREDIT TYPE   *3*
Numerous federal, state, and local laws affecting the payroll system of business firms. Students will complete the necessary payroll forms and deal with federal income taxes.

ACC211 Intermediate Accounting I
Prerequisite: ACC122
STANDARD CREDIT TYPE   *3*
Analysis of and theories regarding financial and operating statements for proprietorships, partnerships, and corporations; a study of areas of accrual basis accounting, inventories, contingencies, present value analysis, plant asset accounting, current and long-term liabilities, and general required financial statement disclosures.

ACC212 Intermediate Accounting II
Prerequisite: ACC211
STANDARD CREDIT TYPE   *3*
Continuation of accounting theory and applications in the specific areas of equity transaction, investments, revenue recognition, income taxes for corporate reporting, pension accounting, leases, and financial statement values. Detailed review of the preparation of the statement of cash flows.

ACC221 Cost Accounting
Prerequisite: ACC122
STANDARD CREDIT TYPE   *3*
Process cost; job-order cost; activity base costing; materials, labor and manufacturing expenses; and application of costs to the product.

ACC261 Income Tax Accounting
Prerequisite: ACC122
STANDARD CREDIT TYPE   *3*
Primarily individual taxes on the federal level, general review of tax theory for individuals, income tax calculations, and limited form preparation.

ACC311 Computer Accounting
Prerequisite: ACC121 or instructor's approval
STANDARD CREDIT TYPE   *3*
Integrated accounting on microcomputers. Manual versus computerized accounting. Initial start-up and system selection. Computerized: General ledger, accounts payable, accounts receivable, depreciation, payroll, financial statement analysis, and inventory.

ACC907 Co-op Field Experience
STANDARD CREDIT TYPE   *Varied Credit*
Individually designed job experience/related assignment.

ACC917 Experimental Course
STANDARD CREDIT TYPE   *Varied Credit*
New courses as student interests demand.

ACC929 Individual Projects
STANDARD CREDIT TYPE   *Varied Credit*
Special topics as arranged with instructor.

ACC946 Seminar
STANDARD CREDIT TYPE   *Varied Credit*
Involves student-faculty exchange of ideas related to curriculum, course content, and on-the-job training experiences. Educational and placement opportunities are discussed. Accounting majors only.

ADM – Administrative Assistant

ADM105 Introduction to Keyboarding
CAREER AND TECHNICAL CREDIT TYPE   *1*
Beginning short course for students with no previous keyboarding instruction. Emphasis is on mastery of the keyboard, including speed and accuracy development. Helps student reach college-level ability.

ADM112 Keyboarding
CAREER AND TECHNICAL CREDIT TYPE   *3*
Learn computer basics and keyboarding skills including how to work with Windows, how to manage files, how to create Word documents, how to key proficiently, and how to be successful in further computer training.

ADM116 Keyboarding II
CAREER AND TECHNICAL CREDIT TYPE   *3*
This course continues to develop the computer skills acquired in ADM112 Keyboarding. Students will prepare professional documents using word processing software.

ADM141 Desktop Publishing
CAREER AND TECHNICAL CREDIT TYPE   *2*
Desktop publishing features necessary to build professional-looking publications using good design principles. Includes postcards, flyers, brochures, newsletters, publications on the web, and websites.

ADM154 Business Communication
Cross listed with COM712
CAREER AND TECHNICAL CREDIT TYPE   *3*
Basic written communication development through emphasis on writing skills used in business documents; incorporates skills in listening and oral communications.

ADM157 Business English
Prerequisite: COMPASS Writing score >= 60, ACT English score >=18, or SAT English score >=430
CAREER AND TECHNICAL CREDIT TYPE   *3*
Comprehensive study of grammar, sentence construction; punctuation, word usage, number rules, spelling, capitalization, vocabulary, and writing techniques.

ADM161 Office Management
CAREER AND TECHNICAL CREDIT TYPE   *3*
Prepares the office manager to function in an expanding and global marketplace using information management software and emerging technologies in a diversified workforce.

ADM221 Career Development Skills
CAREER AND TECHNICAL CREDIT TYPE   *2*
Develop employment portfolio including resumes, application letters and forms, and follow-up letters. Set career goals, develop prospective employer lists, explore employment tests, learn interviewing strategies, and discuss job etiquette and professional conduct.

ADM254 Business Professionalism
CAREER AND TECHNICAL CREDIT TYPE   *1*
This course is designed to provide opportunities for professional growth in the areas of leadership, service, cooperation, and knowledge through participation in Business Professionals of America, a national organization for students enrolled in business courses.

ADM907 Co-op Field Experience
CAREER AND TECHNICAL CREDIT TYPE   Varied Credit
First-hand experience through placement in an actual situation in the office occupation of choice. The student gains an understanding of the competencies needed and develops the skills necessary for success in an office occupation. Required for students in the Office Automation Specialist diploma program and the Office Careers: Administrative Assistant AAS Program.

ADM917 Experimental Course
CAREER AND TECHNICAL CREDIT TYPE   Varied Credit
New courses as student interests demand.

ADM929 Individual Projects
CAREER AND TECHNICAL CREDIT TYPE   Varied Credit
Special assignment of approximately 30 hours designed by student/instructor.

ADN –Associate Degree Nursing
**Note: Students must be accepted into the program to take ADN courses.

ADN114 Foundations of Prof. Nursing
Prerequisite: BIO151, BIO168, BIO173, BIO186 and EDU160
NURSING CREDIT TYPE   2.5
Examines the role of the professional nurse and contemporary theories of nursing. Reviews the history of nursing and nursing education and compares education routes that prepare for NCLEX. Identifies current issues and trends in nursing. Reviews legal and ethical aspects of nursing and initiates the associate degree study of bioethics and nursing informatics. A developmental approach is used to study nursing care of adults, and students get an opportunity to compare and contrast the nurse's role in health and illness.

ADN431 Family-Centered Mat/NewbornNrg
Prerequisite: BIO151, BIO168, BIO173, BIO186 and EDU160
NURSING CREDIT TYPE   3.5
Contemporary nursing of the childbearing family through normal antepartum, labor, delivery, and postpartum experiences. Overview of common health problems and high-risk complications for mother and newborn. Includes a clinical inpatient component.

ADN441 Pediatric Nursing Concepts
Prerequisite: BIO151, BIO168, BIO173, BIO186 and EDU160
NURSING CREDIT TYPE   3.5
Applies principles of growth and development to provide nursing care for families with infants, children, or adolescents. Students study the role of families, pediatric health promotion, children with special needs, and acute and chronic childhood illnesses. The organizing framework for the clinical component is the nursing process. The clinical component is primarily in a pediatric acute care setting, and also includes a brief examination of the role of school nurses.

ADN471 Psychiatric Mental Health Nrsg
Prerequisite: BIO151, BIO168, BIO173, BIO186 and EDU160
NURSING CREDIT TYPE   3.5
Explores the associate degree study of psychiatric mental health nursing, including mental health concepts, nursing interventions, psychiatric disorders, and nursing of special populations. The associated clinical component includes experiences in acute and outpatient mental health settings. Clinical specialties also include an observational experience in a chemical dependency center.

ADN555 Medical Surgical Nursing I
Prerequisite: BIO151, BIO168, BIO173, BIO186 and EDU160
NURSING CREDIT TYPE   3
The Adult Client I course initiates the associate degree study of medical/surgical nursing, including concepts relating to fluid and electrolytes; acid base balance; intravenous therapy; pre-op, intra-op, and post-op care; pain; and immune disorders . The course includes foundation in infusion therapy and clinical orientation for infusion-related skills. The associated clinical component is in an acute care medical-surgical setting.

ADN556 Medical Surgical Nursing II
Prerequisite: BIO151, BIO168, BIO173, BIO186 and EDU160
NURSING CREDIT TYPE   3
Examines the associate degree study of medical-surgical nursing, including concepts relating to nutrition; endocrine disorders; bowel disorders; and kidney disorders. Course work develops the skills for client assessment, the nursing process, and comprehensive nursing interventions for maintenance and health promotion for complex health deviations. The associated clinical component is in public health/community nursing preceptor sites and an acute medical-surgical care setting.

ADN557 Medical Surgical Nursing III
Prerequisite: BIO151, BIO168, BIO173, BIO186 and EDU160
NURSING CREDIT TYPE   3
Examines the associate degree study of medical-surgical nursing, including concepts relating to cardiac disorders and cardiac rhythm analysis; respiratory disorders; leadership and management. Course work develops the skills for client assessment, the nursing process, and comprehensive nursing interventions for maintenance and health promotion of complex health deviations. The associated clinical component includes acute medical-surgical care settings and focused clinically simulated cardiac and respiratory scenarios.

ADN558 Medical Surgical Nursing IV
Prerequisite: BIO151, BIO168, BIO173, BIO186 and EDU160
NURSING CREDIT TYPE   3
Examines the associate degree study of medical-surgical nursing, including concepts relating to oncology; neurological disorders; visual and auditory disorders; and peripheral vascular disorders.
Course work develops the skills for client assessment, the nursing process, and comprehensive nursing interventions for maintenance and health promotion of complex health deviations. The associated clinical component includes an acute medical-surgical settings and a preceptor experience in leadership/management on acute care medical-surgical units.

ADN559 Medical Surgical Nursing V
Prerequisite: BIO151, BIO168, BIO173, BIO186 and EDU160
NURSING CREDIT TYPE   3
Examines the associate degree study of medical-surgical nursing, including concepts relating to emergency and trauma nursing and shock; skin and burn disorders; reproductive disorders; sexual and musculoskeletal disorders. Course work develops the skills for client assessment, the nursing process, and comprehensive nursing interventions for maintenance and health promotion of complex health deviations. The associated clinical component includes an acute medical-surgical care setting and a preceptor clinical experience in critical care, including intensive and emergency care nursing.

ADN815 Transition to Prof.NrsgPractic
Prerequisite: BIO151, BIO168, BIO173, BIO186 and EDU160
NURSING CREDIT TYPE   1.5
The course information needed to prepare ADN students for entry into nursing practice. Including required preceptorship experience designed to promote independent critical thinking skills and to facilitate transition to professional nursing practice. A clinical preceptor will serve as a role model and a clinical resource person for 45 hours.

ADN917 Experimental Course
NURSING CREDIT TYPE   Varied Credit
New courses as student interests demand.

AGA – Agriculture – Agronomy
AGA114 Principles of Agronomy
CAREER AND TECHNICAL CREDIT TYPE   3
Current status of crop production with emphasis on Corn Belt crops and soils, crop botany, cropping practices, and crop protection are stressed. Crop science is the main focus of each unit of study.

AGA154 Fundamentals of Soil Science
CAREER AND TECHNICAL CREDIT TYPE   *3*
Areas of study include terminology, soil formation, physical properties of soil, chemical factors of soil, fertilizer utilization in soils, soil classification, and land usage. Soil conservation, environmental protection, and erosion control are emphasized.

AGA159 Livestock Nutrient Management
CAREER AND TECHNICAL CREDIT TYPE   *2*
Proper management and utilization of livestock nutrients (by-products). Odor control, collection and storage alternatives, nutrient values, application rates and techniques. Construction and size requirements of storage facilities will be explored through facility planning and design projects.

AGA211 Grain and Forage Crops
Prerequisite: AGA114
CAREER AND TECHNICAL CREDIT TYPE   *3*
Acquaints the student with advanced practiced row crop management with primary focus on corn and soybeans. Areas of study include forage production, plant development, variety selection, seedbed preparation and planting, pest management, harvesting, and storage.

AGA220 Perennial Crops
CAREER AND TECHNICAL CREDIT TYPE   *3*
Provides a basic understanding of the perennial crops that can be produced in the Midwest. Common culture techniques, pruning, disease identification, and variety selection are among the topics covered.

AGA284 Pesticide Application Certification
CAREER AND TECHNICAL CREDIT TYPE   *3*
Approved and legal use of crop pesticides, integrated pest management, pest identification, current pesticides marketed, and proper application of pesticides are areas of study. Environmental safety, worker protection, plus federal, state, and employer requirements and licensing are studied. Students are prepared for state exams.

AGA290 Spring Field Operations
CAREER AND TECHNICAL CREDIT TYPE   *1*
Students will gain practical hands-on experience operating modern farm machinery on the college's learning farm. Students will learn how to properly operate tractors and implements typically used in the spring planting season. Topics will cover tractor operations, planting operations, spraying operations and all areas will emphasize proper management and maintenance.

AGA334 Forage Production
CAREER AND TECHNICAL CREDIT TYPE   *3*
The practical production practices of pastures, other forages, and silage production and storage.

AGA378 Sustainable Pest Management
CAREER AND TECHNICAL CREDIT TYPE   *3*
Examines the health of soil and crops as well as insect cycling in pest management and weed control. Environmentally sound control options will be covered for common pest problems.

AGA450 Issues in Sustainable Agriculture
STANDARD CREDIT TYPE   *3*
Provides an understanding of the major components of sustainable agriculture; environment, community and economic sustainability. It provides a history and current status of sustainable practices and their potential as a viable form of agriculture.

AGA455 Organic Crop Production
CAREER AND TECHNICAL CREDIT TYPE   *3*
Covers techniques and value of organic crop production. Critical components of the certification process are examined.

AGA460 Production Problem Solving
CAREER AND TECHNICAL CREDIT TYPE   *3*
Typical farming problems are examined and problem solving techniques offered. Common production problems are identified, examined and available resources are recognized. Case studies are examined.

AGA470 Safety in the Food Systems
CAREER AND TECHNICAL CREDIT TYPE   *3*
Overview of food safety laws and practices regarding food production, handling, storage, and sales.

AGA917 Experimental Course
CAREER AND TECHNICAL CREDIT TYPE   *Varied Credit*
New courses as student interests demand.

AGB – Agriculture – Farm Mgt

AGB220 Property Ownership and Financing
CAREER AND TECHNICAL CREDIT TYPE   *3*
Covers the financing options, land purchase protocols, tax laws, and overcoming land ownership barriers.

AGB225 Farmstead Planning and Technology
CAREER AND TECHNICAL CREDIT TYPE   *3*
Examines the maintenance and repair of equipment and buildings on the farm. Hands-on use of equipment is required. A plan for initiating and maintaining a farmstead is developed.

AGB235 Introduction to Agriculture Markets
CAREER AND TECHNICAL CREDIT TYPE   *3*
Reviews the principles of basic economics and consumerism, addresses the movement of the physical commodity through marketing to the consumer, and stresses alternatives available to the producer. Course project is required.

AGB320 Farm Machinery Management
CAREER AND TECHNICAL CREDIT TYPE   *3*
Physical and financial management of agricultural machines, owning or leasing, leased and operating costs, and field efficiency are studied. Projects are utilized.

AGB322 Buildings and Equipment
CAREER AND TECHNICAL CREDIT TYPE   *3*
Designed to acquaint students with the types of buildings and equipment used on farmsteads: Livestock facilities, grain handling and storage, machinery storage, and waste management. Costs and differences in construction, evaluation of existing facilities, field trips, and guest speakers.

AGB330 Farm Business Management
CAREER AND TECHNICAL CREDIT TYPE   *3*
Business and economic principles applied to decision making and problem solving in the management of a farm business, cash flow, partial, enterprise, and whole farm budgeting. Information systems for farm accounting, analysis, and control. Obtaining and managing land, capital, and labor resources. Alternatives for farm business organization and risk management.

AGB331 Entrepreneurship in Agriculture
CAREER AND TECHNICAL CREDIT TYPE   *3*
Using projects, the student gains an understanding of the requirements of establishing a small agricultural business. Focus on organization, operation, location, layout, financing, pricing, marketing, entrepreneurship, and planning.

AGB334 Applied Systems Thinking
CAREER AND TECHNICAL CREDIT TYPE   *3*
Farm systems are examined as whole integrated systems. Resources that aid in the whole farm planning process, including record-keeping and business management, are examined.

AGB336 Agricultural Selling
CAREER AND TECHNICAL CREDIT TYPE   *3*
Provides novices with the basics for effective selling presentations: Handling objections, using pitch books, effective utilization of features and benefits, and asking for the order.

AGB437 Commodity Marketing
CAREER AND TECHNICAL CREDIT TYPE   *3*
Marketing alternatives utilized in reducing price risk in the marketing of agricultural production. Primary interests are hedging, options, and utilizing basis in setting the net price for the producer.

AGB470 Farm Records, Accounts, Analysis
CAREER AND TECHNICAL CREDIT TYPE *3*
Fundamentals essential in keeping and using farm records. Instruction includes constructing, completing, and analyzing a model record system.

AGB933 Practicum/Apprenticeship
CAREER AND TECHNICAL CREDIT TYPE *Varied Credit*
Offers practical knowledge in the student's own area of interest. May involve field work or apprenticeship with working farm or local business. A presentation of experience gained is required.

AGC – Agriculture – Comprehensive - M

AGC102 Computers in Agriculture
CAREER AND TECHNICAL CREDIT TYPE *2*
Provides student awareness of word processing, database operations, spreadsheet design and operation, plus mail merge for letters, labels, and envelopes. Emphasis on agricultural applications and cross-discipline project coordination.

AGC216 Career Seminar
CAREER AND TECHNICAL CREDIT TYPE *2*
Course has a three-fold mission: College orientation, career awareness, and career orientation. Covers job-seeking skills and job-keeping skills, making a successful transition from employee to employer, working effectively with people at all levels, and college orientation and leadership development.

AGC907 Co-op Field Experience
CAREER AND TECHNICAL CREDIT TYPE *Varied Credit*
Practical experience through work in modern production of agribusiness. Work arranged with employer is contracted with specific goals and objectives for education.

AGC917 Experimental Course
CAREER AND TECHNICAL CREDIT TYPE *Varied Credit*
New courses as student interests demand.

AGC929 Individual Projects
CAREER AND TECHNICAL CREDIT TYPE *Varied Credit*
Intensive, independent study on a problem or topic in agriculture chosen by the student. The course may be repeated, providing different subject matter is covered, for a maximum of 8 hours of credit.

AGE – Agriculture – Equine

AGE115 Light Horse Management
CAREER AND TECHNICAL CREDIT TYPE *2*
Emphasis on many aspects of the horse industry: Development of the specie and different breeds, digestive system, skeletal system, circulatory system, respiratory system, and muscular system of the horse.

AGE121 Horse Evaluation
CAREER AND TECHNICAL CREDIT TYPE *3*
Evaluation of the common breeds of pleasure horses, breed standards, and recognition of conformation strengths and weaknesses. Methods of delivering oral reasons and written reasons when judging classes of horses. Students' will learn introductory skills in judging Western Pleasure, Hunter Under Saddle, English Equitation, Hunter Hack, Trail, Horsemanship, Reining, Western Riding, Roping, Halter, and other disciplines.

AGE122 Horse Evaluation II
Prerequisite: AGE121
CAREER AND TECHNICAL CREDIT TYPE *3*
In this course, students will be able to recognize advanced conformational strengths and weaknesses in different horses. Students will learn more advanced concepts of how to judge over ten different classes in equine competition. Students will judge classes of horses giving written or oral reasons based on their placing. Students will compete at collegiate horse judging competitions as a team member on the Ellsworth Horse Judging Team.

AGE145 Fundamentals of Riding
CAREER AND TECHNICAL CREDIT TYPE *3*
Introduction to the principles of horsemanship, both English and Western styles and the rider's role in attaining horse control and movement. Students will work to develop proper riding skills and develop a firm foundation in the beginning stages of horsemanship. Main goals for the rider are to achieve a balanced seat and confidence while riding and handling a horse.

AGE151 Equitation II
Prerequisite: AGE175
CAREER AND TECHNICAL CREDIT TYPE *1*
Review and demonstrate performance objectives from Fundamentals of Riding and Equitation I. Improve and refine their riding skills in both Western and English styles, with a strong emphasis on proper equitation and the correct position and use of hands, seat, and legs as it applies to both showing and training situations. Learn how to use various natural and artificial aids to achieve desired results in their riding and training. Learn basic Dressage skills which will help them control specific body parts of the horse and perform basic leg yielding and lateral maneuvers. Learn how to correct and improve upon basic horse misbehaviors and problems while under saddle.

AGE160 Instructing Horsemanship
Prerequisite: Grade of C- or better in AGE145 and AGE175 or instructor approval
CAREER AND TECHNICAL CREDIT TYPE *2*
Training in giving riding instruction to others. The students will assist and observe the instructor and then design a lesson plan in order to instruct an actual class session.

AGE165 Horse Husbandry
CAREER AND TECHNICAL CREDIT TYPE *2*
Emphasis on the practical skills needed to work with horses day to day. Students are assigned horses to care for and are taught basic first aid, diseases, leg wrapping, clipping and mane care.

AGE175 Equitation I
CAREER AND TECHNICAL CREDIT TYPE *2*
Review and demonstrate performance objectives from AGE145. Students will refine their riding skills in both Western and English styles. Emphasis will be placed on basic riding in the following disciplines: Jumping, Dressage, and English Equitation along with Western Horsemanship, Western Pleasure, Reining, Trail, and Western Riding.

AGE200 Stable Management
CAREER AND TECHNICAL CREDIT TYPE *2*
Record systems, management calendars, breeding schedules, feeding regimens, parasite control, vaccinations, stable design, and the legalities of stable management.

AGE204 Equine Anatomy and Physiology
Prerequisite: Grade of C- or better in AGE115
CAREER AND TECHNICAL CREDIT TYPE *3*
Study the nine main anatomical systems of the horse. The anatomy and physiology of the horse will be studied at the cellular, organ, and anatomical system levels, along with the interrelationships between them. This course will focus on the location of the anatomical structures and how they carry out their normal processes.

AGE207 Introduction to Veterinary Tech.
CAREER AND TECHNICAL CREDIT TYPE *2*
Learn and demonstrate basic clinical procedures including restraint and handling of animals, history taking and physical examination, diagnostic sampling and treatment techniques, and wound healing and management. Learn basic clinical sciences including clinical pathology and parasitology, and basic patient management such as preventative health programs and neonatal care. Learn common medical and surgical nursing procedures for large and small animals, as well as basic pharmacology and pharmacy.

AGE208 Breeding Management
CAREER AND TECHNICAL CREDIT TYPE *3*
Different types of breeding techniques analyzed in class and on-site. Both mare and stallion reproductive systems included, along with care and maintenance of horses on a breeding farm.

AGE214 Horse Operation Management

CAREER AND TECHNICAL CREDIT TYPE   1
Students will learn the day to day operations and management of an equine facility. Demonstrations and directions will be given on feeding, cleaning, horse care, records, and maintenance of the facility. Each student will demonstrate their abilities daily, by putting into practice the operations taught.

AGE215 Equine Reproduction Techniques
Prerequisite: AGE208 or instructor's approval
CAREER AND TECHNICAL CREDIT TYPE   3
This practical course is designed to provide students with hands-on experience in the field of equine reproduction. The reproductive management of stallions, broodmares, foaling mares and neonatal foals will be covered. Reproductive physiology of the stallion and mare will be studied. Advanced techniques used in equine reproduction such as artificial insemination with cooled semen, ultrasound, and manipulation of the mare's estrous cycle will also be performed.

AGE220 Young Horse Care and Handling
CAREER AND TECHNICAL CREDIT TYPE   2
Provides the skills necessary to start a weanling in its training, including handling, grooming, training, and showmanship methods. All students participate in a showmanship class at the end of the course.

AGE225 Young Horse Training I
Prerequisite: Grade of C- or better in AGE220, grade of C- or better at midterm for AGE145 and AGE214
CAREER AND TECHNICAL CREDIT TYPE   2
Learn to safely start a yearling utilizing lunging, ground driving, and showmanship techniques prior to actual mounting and riding. The yearling will become accustomed to being handled, groomed, clipped, and led into a trailer.

AGE226 Young Horse Training II
Prerequisite: Grade of C- or better in AGE145, AGE214 and AGE225
CAREER AND TECHNICAL CREDIT TYPE   2
Learn to safely green break a young horse, utilizing all the ground training skills and adding to them the actual mounting and riding at the walk, trot, and lope. Horse will become controlled at the different gaits and respond to directional cues.

AGE227 Young Horse Training III
Prerequisite: Grade of C- or better in AGE226, grade of C- or better at midterm for AGE175 and AGE214
CAREER AND TECHNICAL CREDIT TYPE   2
The student will green break a horse utilizing handling, grooming, and training methods learned in previous courses. The student will teach the horse beginning elements of self-carriage and the horse will be started over basic trail obstacles.

AGE228 Equine Training Theory I
CAREER AND TECHNICAL CREDIT TYPE   1
Explores the theory behind horse training. Will look at the training theories needed in order to train horses when faced with complex tasks.

AGE229 Equine Training Theory II
Prerequisite: AGE228
CAREER AND TECHNICAL CREDIT TYPE   1
Explore the theory behind training horses. Theorize how to apply principles of psychology to horse training. Will look at the training theories needed in order to ride and train horses correctly when faced with complex tasks.

AGE235 Advanced Horse Training I
Prerequisite: Grade of C- or better in AGE175, AGE214, and AGE227
CAREER AND TECHNICAL CREDIT TYPE   2
This course concentrates on training a green horse and advancing the horse's skills. Students will have the horse review previous course objectives. In addition they will learn to teach more advanced maneuvers, as well as adding more difficult trail work and begin pattern work.

AGE236 Advanced Horse Training II
Prerequisite: Grade of C- or better at midterm for AGE214 and grade of C- or better in AGE235.
CAREER AND TECHNICAL CREDIT TYPE   2
Students in this course will advance the maneuvers learned in AGE235. They will learn to safely and effectively apply more technical training techniques to produce a finer tuned horse.

AGE237 Advanced Horse Training III
Prerequisite: Grade of C- or better in AGA214 and AGE236
CAREER AND TECHNICAL CREDIT TYPE   2
This final training class will continue to work on more advanced training techniques. These techniques will prepare the horse to go on in any direction for finishing in a wide variety of disciplines.

AGE245 Equine Driving Skills & Technology
CAREER AND TECHNICAL CREDIT TYPE   2
Students will learn the basics of driving. They will practice driving many different horses, and learn the many styles of driving. In addition, students will learn the equipment used for each style of driving covered.

AGE250 Training and Showing
CAREER AND TECHNICAL CREDIT TYPE   2
Offered as a summer elective. Students acquire broader experience in preparing and showing their animals.

AGE260 Introduction to Farrier Science
CAREER AND TECHNICAL CREDIT TYPE   1
Introduces hoof and leg care with demonstrations of proper trimming and fitting.

AGE272 Intercollegiate Horse Show Assoc.
CAREER AND TECHNICAL CREDIT TYPE   1
The IHSA (Intercollegiate Horse Show Association) course promotes horse show competition for riders of all skill levels, who compete individually and/or as teams at regional, zone, and national levels.

AGE907 Co-op Field Experience
Prerequisite: Instructor's approval
CAREER AND TECHNICAL CREDIT TYPE   Varied Credit
On-the-job training at a working horse operation, under qualified supervision.

AGE917 Experimental Course
Prerequisite: Instructor's approval
CAREER AND TECHNICAL CREDIT TYPE   Varied Credit
New courses as student interests demand.

AGE929 Individual Projects
Prerequisite: Instructor's approval
CAREER AND TECHNICAL CREDIT TYPE   Varied Credit
Special topics as arranged with instructor.

AGE945 Seminar
CAREER AND TECHNICAL CREDIT TYPE   Varied Credit
Prepares students for an individual cooperative field experience, helps them prepare a resume and cover letter to find and secure employment or to pursue higher education in the equine field.

AGH – Agriculture – Horticulture

AGH265 Horticultural Crops
CAREER AND TECHNICAL CREDIT TYPE   3
Provides a basic understanding of the annual crops that can be produced in the Midwest. Common culture techniques, disease identification, and variety selection are among the topics covered.

AGM – Agriculture – Mechanics

AGM110 Ag Mach. Safety & Operation
CAREER AND TECHNICAL CREDIT TYPE   3
This course will cover all facets of working safely in a service industry. Time will be spent learning proper safety protocols, communication, and how to properly operate service tools. Upon successful completion, students will receive a 10 Hour General Industry Certification card through the Occupational Safety & Health Organization (OSHA).

AGM114 Hydraulics I
Prerequisite: AGM110
CAREER AND TECHNICAL CREDIT TYPE   *2*
Introduces the basic laws and theories of fluid power. Includes operation and testing of pumps, valves, cylinders and motors commonly found in vehicles and equipment.

AGM121 Machinery Repair & Maintenance
Prerequisite: AGM110
CAREER AND TECHNICAL CREDIT TYPE   *4*
This course will provide an in-depth knowledge and skill set to learn basic machinery repair processes and proper maintenance procedures. Emphasis will be on major types of agricultural equipment such as tractors, harvesters, and combines. Students will also learn what tools are needed and how to use them safely and properly.

AGM250 Harvesting Ops & Service
Prerequisite: AGM110
CAREER AND TECHNICAL CREDIT TYPE   *3*
This course provides an in-depth knowledge into proper operation and maintenance of agricultural harvesters such as self-propelled combines and forage harvesters.

AGM251 Tractor Ops & Servicing
Prerequisite: AGM110
CAREER AND TECHNICAL CREDIT TYPE   *3*
This course provides an in-depth knowledge into proper operation and maintenance of agricultural tractors of all sizes.

AGM252 Planting Operations & Service
Prerequisite: AGM110
CAREER AND TECHNICAL CREDIT TYPE   *1*
This course provides an in-depth knowledge into proper operation and maintenance of agricultural planters.

AGM253 Application Ops & Servicing
Prerequisite: AGM110
CAREER AND TECHNICAL CREDIT TYPE   *1*
This course provides an in-depth knowledge into proper operation and maintenance of agricultural application equipment such as self-propelled and pull-type sprayers, and fertilizer applicators.

AGM254 Forage Operations & Service
Prerequisite: AGM110
CAREER AND TECHNICAL CREDIT TYPE   *1*
This course provides an in-depth knowledge into proper operation and maintenance of agricultural hay & forage equipment such as self-propelled conditioners, round balers, and square balers.

AGM260 Service Truck Operations
Prerequisite: AGM110
CAREER AND TECHNICAL CREDIT TYPE   *1*
Provides an in-depth and hands-on knowledge on how to properly operate and maintain a service truck. Topics will include: crane operations, organizing tools and equipment, proper location and staging while on site, maintenance, and proper parts inventory.

AGM261 Basic Problem Solving Skills
CAREER AND TECHNICAL CREDIT TYPE   *3*
Introduces the basic components of problem solving, case management, written documentation, and the coordination of services for a customer. Students develop assessment, testing and solving, record keeping skills, and learn how to develop solutions to solve a problem.

AGM330 Fundamentals of Electricity
CAREER AND TECHNICAL CREDIT TYPE   *3*
This course offers instruction in basic concepts associated with agriculture electronic devices. Skills regarding the uses of electronic diagnostic instruments, repair tools and other basic electronic skills necessary to troubleshoot, repair and install agriculture electronic and mechanical control devices associated with applications of Precision Agriculture will be emphasized.

AGM336 Agriculture Electronic Devices & Sys
Prerequisite: AGM330
CAREER AND TECHNICAL CREDIT TYPE   *3*
This course offers instruction on control and instrument systems including sensor and actuator principles, interface electronics, system identification, installation and set-up. Applications within the context of precision agriculture to include GPS, auto-steer, auto-guidance system, spray controller systems, and optical sensors applications will be stressed.

AGM414 Fundamental Air Conditioning
Prerequisite: AGM110
CAREER AND TECHNICAL CREDIT TYPE   *2*
Provides a comprehensive introduction to air conditioning and heating systems that are used in various types of agricultural equipment. Students will have a basic understanding of how heating and cooling systems operate, servicing, and diagnostic practices and repair procedures.

AGP – Agriculture – Precision Ag

AGP333 Precision Farming Systems
CAREER AND TECHNICAL CREDIT TYPE   *3*
Fundamental processes of the Global Positioning System (GPS) and GIS with emphasis on its application to agriculture. Mapping, navigation, variable rate and electronic livestock identification using the college farm.

AGP335 Global Agriculture
CAREER AND TECHNICAL CREDIT TYPE   *3*
Emphasizes the world as a producer and user of agricultural products, the role of the United States in the arena, global issues and the role of education in world societies in a changing environment. Rules and regulations governing trade are discussed.

AGP435 Advanced Precision Farming: Software
Prerequisite: AGP333
CAREER AND TECHNICAL CREDIT TYPE   *3*
This course provides a hands-on application of several precision agriculture software systems. Students will learn how to create field boundaries, import imagery, import soil and yield data and then learn how to run complex analysis from inputs. Students will also learn to create guidelines, prescription maps, and multi-year analysis using software systems from AgLeader, FarmWorks, and ESRI as well as several other systems.

AGP436 Advanced Precision Farming: Hardware
CAREER AND TECHNICAL CREDIT TYPE   *3*
This course will focus on the installation, operation and troubleshooting precision farming hardware components. Students will learn how to install displays, GPS units and various other control components. Students will also learn how to properly operate various precision ag hardware systems such as displays, light bars, variable rate controllers, and GPS receivers. Considerable time will be spent training students to troubleshoot problems and learn how to develop cognitive problem solving skills.

AGP917 Experimental Course
CAREER AND TECHNICAL CREDIT TYPE   *Varied Credit*
New courses as student interests demand.

AGS – Agriculture – Animal Science

AGS113 Survey of the Animal Industry
CAREER AND TECHNICAL CREDIT TYPE   *3*
Processes and principles involved in animal production and management (an introduction to livestock enterprises and related industries).

AGS216 Equine Science
CAREER AND TECHNICAL CREDIT TYPE   *3*
Horsemanship, management and production of horses, and decision-making about horses desired for different purposes as related to breeds.

AGS225 Swine Science   **3**
CAREER AND TECHNICAL CREDIT TYPE
Day-to-day management of swine operations. Emphasis on breeding and gestation management, farrowing management, nursery management, industry structure. Interpretation of future trends based on current trend analysis. Will also cover PQA Level Three certification.

AGS226 Beef Cattle Science
CAREER AND TECHNICAL CREDIT TYPE   *3*
A specialized course including all phases of the beef industry from breeding to market. The course discusses cow-calf as well as feeder cattle enterprises. Offered alternate years.

AGS242 Animal Health   **3**
CAREER AND TECHNICAL CREDIT TYPE
Provides a general knowledge of disease conditions affecting major livestock species: Prevention of disease, herd health planning, responsible drug use, and use of veterinary expertise. Course project is required.

AGS270 Foods of Animal Origin
CAREER AND TECHNICAL CREDIT TYPE   *3*
An introduction to the principles, practices and issues affecting farm practices, production, processing and distribution of beef, dairy, poultry, sheep and swine products. Proper documentation, sanitation, treatment and handling of livestock products will be emphasized.

AGS305 Livestock Evaluation
CAREER AND TECHNICAL CREDIT TYPE   *3*
Breeding animal and market animal evaluation of beef, swine and sheep using contemporary techniques and tools. Communication and decision-making skills are practiced in the context of making selection decisions.

AGS308 Livestock Management
CAREER AND TECHNICAL CREDIT TYPE   *3*
Examines the use of livestock as part of the sustainable farm system. Techniques in rotational grazing, animal nutrition breed selection, and living requirements for livestock are covered.

AGS319 Animal Nutrition
CAREER AND TECHNICAL CREDIT TYPE   *3*
Covers digestive systems, nutrient needs and uses, nutritive needs and feeding of different livestock species, feed additives, nutrient costs, and feed processing/handling. Course project is required.

AGS331 Animal Reproduction
CAREER AND TECHNICAL CREDIT TYPE   *3*
Anatomy and physiology of the reproductive systems of farm animals, the hormones and the cycles involved in animal reproduction, genetics, and breeding. Artificial insemination, ova transplant, and genetic engineering are also discussed.

AGS505 Swine Unit Maintenance
CAREER AND TECHNICAL CREDIT TYPE   *1*
Skills and knowledge necessary for maintenance of swine equipment and buildings: Ventilation equipment, feed systems, emergency backups, heaters, water mediator maintenance and adjustment, power washer safety and operation, and manure handling equipment.

AGS510 Swine Confinement Systems   **2**
CAREER AND TECHNICAL CREDIT TYPE
Different types of swine housing systems. Open-air and mechanically ventilated systems will be explored and evaluated for all stages of pig production. Different systems will be analyzed in class and on site. Environmental considerations such as space allotment, temperature control, ventilation and other aspects of pig comfort are studied.

AGS515 Swine Management Skills
CAREER AND TECHNICAL CREDIT TYPE   *1*
Hands-on instruction of skills necessary in swine handling and management. Includes baby pig processing, health assessment, farrowing management, breeding management, feeding methods, loading, unloading, sorting, grading and handling techniques.

AGS520 Swine Records and Analysis
CAREER AND TECHNICAL CREDIT TYPE   *3*
Keeping specialized swine records, calculating swine efficiency records, analyzing of records, using records for planning purposes, analytical tools for evaluating profitability and feasibility of swine operations.

AGS525 Swine Complex Management
CAREER AND TECHNICAL CREDIT TYPE   *4*
Specialized swine management course: Day-to-day operation, management and scheduling, production and management decisions; employer/employee relations.

AGS552 Beef Feedlot Production
CAREER AND TECHNICAL CREDIT TYPE   *3*
Course will provide an in-depth, intense, and hands-on approach to feeding cattle in a feedlot operation. Topics will include buying, selling, nutrition, and health of feedlot cattle. Other topics will cover facility design, equipment, and management of a feedlot operation. Students will also perform various management skills related to feedlot operations such as vaccinations, processing, and implanting. Students will have the opportunity to also obtain BQA certification.

AGS555 Beef/Cow Calf Production
CAREER AND TECHNICAL CREDIT TYPE   *3*
Presents an in-depth, hands-on approach to managing a purebred and/or commercial cow/calf herd. This course will cover calving management, nutrition, health, records, breeding, and pasture management.

AGS907 Co-op Field Experience
CAREER AND TECHNICAL CREDIT TYPE   *Varied Credit*
Gain practical knowledge through training in a unit of swine related industry; required skills training list to be completed. Work under direction of supervisor.

AGS917 Experimental Course
Prerequisite: Instructor's approval
CAREER AND TECHNICAL CREDIT TYPE   *Varied Credit*
New courses as student interests demand.

AGS929 Individual Projects
Prerequisite: Instructor's approval
CAREER AND TECHNICAL CREDIT TYPE   *Varied Credit*
Special topics as arranged with instructor. May be repeated.

AGS946 Swine Management Seminar
CAREER AND TECHNICAL CREDIT TYPE   *1*
Bring together the knowledge and skills students have obtained for application in future positions in the swine industry. Discuss cooperative field experiences and view slide presentations on swine complex operations.

ANT – Anthropology

ANT105 Cultural Anthropology *AA Approved*
STANDARD CREDIT TYPE   *3*
Survey of physical and cultural development of human beings. Elements of genetics, human variation, natural selection, and cultural development are included.

APP – Apparel Merchandising

APP105 Introduction to Fashion Marketing
CAREER AND TECHNICAL CREDIT TYPE   *3*
The course examines the fundamentals of fashion and the basic principles that govern all fashion movement and change; the history and development, organization and operation, merchandising and marketing activities, and trends in industries engaged in producing fashion; and foreign and domestic markets, as well as the distribution and promotion of fashion.

APP150 Clothing Selection
CAREER AND TECHNICAL CREDIT TYPE   *3*
Examine the psychological and sociological influences of dress, as well as the principles of design and the relationship of these factors to personal and consumer buying decisions; wardrobe strategies.

APP160 Sewn Products Analysis
CAREER AND TECHNICAL CREDIT TYPE   *3*
Examine the quality of manufactured garments and the relationship of garment quality, product performance, and pricing. Examine issues regarding cost, pricing, and profit including garment analysis, materials management, and production.

APP210 Apparel Textiles
CAREER AND TECHNICAL CREDIT TYPE   *3*
Develop a basic understanding of textiles; examine fibers, fabrics, and finishes and their relationship to product performance and consumer satisfaction.

APP245 Fashion Computer Design
CAREER AND TECHNICAL CREDIT TYPE   *3*
The student will develop drawing skills to communicate with employers and the fashion industry. The course will include basic fashion illustration principles and guide the student through a series of exercises using Adobe Photoshop and Illustrator to create fashion designs. The student will be able to create fashion flats, illustrations, textile designs, and merchandise presentations.

APP800 Professional Development
CAREER AND TECHNICAL CREDIT TYPE   *1*
Designed to assist students in developing an understanding of business and marketing trends. Problems encountered in training stations are reviewed. Includes job interviewing techniques, resumes, letters of application, application forms, and interview follow-up.

APP907 Co-op Field Experience
CAREER AND TECHNICAL CREDIT TYPE   *Varied Credit*
Designed to give the student actual work experience at an approved training center under the supervision of a program coordinator. The experience must be in an approved career occupation.

APP917 Experimental Course
CAREER AND TECHNICAL CREDIT TYPE   *Varied Credit*
New courses as student interests demand.

APP918 Experimental Course: Fashion
CAREER AND TECHNICAL CREDIT TYPE   *Varied Credit*
New courses as student interests demand.

APP929 Individual Projects: Home Economics
CAREER AND TECHNICAL CREDIT TYPE   *Varied Credit*
Special topics as arranged with instructor.

APP930 Individual Projects: Fashion
CAREER AND TECHNICAL CREDIT TYPE   *Varied Credit*
Special topics as arranged with instructor.

ART – Art

ART101 Art Appreciation *AA Approved*
STANDARD CREDIT TYPE   *3*
Introduces the arts of many cultures from prehistoric times to the present and the elements of art and principles of design. Emphasizes the continuity and variety of artistic expression by mankind.

ART102 Art for Elementary Education
STANDARD CREDIT TYPE   *3*
Teaching art to elementary students. Includes history, aesthetics, appreciation, and studio work as part of an elementary art curriculum. Introduces appropriate studio methods and materials for the range of student levels. Recommended for elementary education majors.

ART120 2-D Design
STANDARD CREDIT TYPE   *3*
Introduces the elements of art and the principles of design with a focus on creatively solving problems in two-dimensional design. Emphasizes use of appropriate craftsmanship with a variety of tools and materials.

ART123 3-D Design
Prerequisite: ART120 or instructor's approval
STANDARD CREDIT TYPE   *3*
An exploration of 3-D concepts and materials.

ART124 Computer Art
STANDARD CREDIT TYPE   *3*
Introduces the use of computers for the creation of graphic images as a form of artistic expression. Includes the use of image creation and manipulation software and page layout software.

ART133 Drawing
STANDARD CREDIT TYPE   *3*
Drawing with charcoal, pencil, and ink. Emphasizes development of observational skills. Introduces composition, value, perspective, and content using still life, landscape and figure drawing.

ART134 Drawing II
Prerequisite: ART133
STANDARD CREDIT TYPE   *3*
Continues skills from ART133 with greater emphasis on responsive drawing and personal expression. Introduces experimental media.

ART135 Drawing III
Prerequisite: ART134
STANDARD CREDIT TYPE   *3*
Continues skills from ART134. Introduces student-directed research and drawing with color.

ART143 Painting
STANDARD CREDIT TYPE   *3*
Painting in oil and/or water media. Emphasizes pragmatic understanding of the characteristics of paints, pigments, and painting surfaces and explores visual expression with color.

ART144 Painting II
Prerequisite: ART143
STANDARD CREDIT TYPE   *3*
Students will continue to develop painting skills and will plan and resolve studio research problems.

ART163 Sculpture
STANDARD CREDIT TYPE   *3*
Sculpting various materials using several techniques: Modeling, carving, casting and assemblage. Emphasizes developing skills and aesthetics for personal expression in sculpture.

ART164 Sculpture II
Prerequisite: ART163
STANDARD CREDIT TYPE   *3*
Continues skills from ART163. Emphasizes further exploration of materials and technique, developing personal artistic vision, and student-directed work.

ART173 Ceramics
STANDARD CREDIT TYPE   *3*
Working with clay: Hand building and wheel work, glazing and other surface finishing techniques, and kiln operation. Emphasizes aesthetics of both functional and non-functional ceramics.

ART174 Ceramics II
Prerequisite: ART173
STANDARD CREDIT TYPE   *3*
Continues skills from ART173. Emphasizes further development of technique, personal expression, and student-directed work.

ART184 Photography
STANDARD CREDIT TYPE   *3*
Black/White picture taking, developing/printing. Evaluation of photography: Lighting, composition, subject matter.

ART185 Photography II
Prerequisite: ART184 or instructor's approval
STANDARD CREDIT TYPE   *3*
Extension of ART184 Photography. Advanced topics in composition and print quality, culminating in submissions for gallery showing. Special topics to be determined by class needs and interests.

ART187 Creative Photography
STANDARD CREDIT TYPE   *3*
Investigates basic photography and darkroom techniques. Introduces the importance of design, composition, and value in photography. Emphasizes photography as an art form. Students provide their own cameras.

ART203 Art History I *AA Approved*
STANDARD CREDIT TYPE *3*
Introduction to the history of art and its creators, from pre-history through the medieval period.

ART204 Art History II *AA Approved*
STANDARD CREDIT TYPE *3*
Introduction to the history of art and artists from the Renaissance through modern times.

ART907 Co-op Field Experience
STANDARD CREDIT TYPE *Varied Credit*
Designed to give the student actual work experience at an approved training center under the supervision of a program coordinator. The experience must be in an approved career occupation.

ART917 Experimental Course
STANDARD CREDIT TYPE *Varied Credit*
New courses as student interests demand.

ART929 Individual Projects
STANDARD CREDIT TYPE *Varied Credit*
Special topics as arranged with instructor.

ASL – American Sign Language

ASL131 American Sign Language I *AA Approved*
STANDARD CREDIT TYPE *3*
This course is a level one course in American Sign Language that examines gestured and visual bodies of a diversified cultural, where linguistical language is used to communicate with deaf and hard of hearing individuals.

ASL161 American Sign Language II *AA Approved*
STANDARD CREDIT TYPE *3*
This course is a level two course in American Sign Language that uses gestured and visual bodies of a diversified cultural, where linguistical language is used to communicate with deaf and hard of hearing individuals.

ASL917 Experimental Course
STANDARD CREDIT TYPE *Varied Credit*
New courses as student interests demand.

AUT – Automotive Technology

AUT104 Intro to Automotive Technology
CAREER AND TECHNICAL CREDIT TYPE *3*
This course provides a student look into the field of automotive repairs and its aspects. The student will be introduced to the number of different system incorporated into today's automobiles. The student will gain insight as to the instructors teaching styles and their expectations and procedures. The student will gain knowledge in proper handling of hand, power, and precise measuring tools. The students will be given the proper guidelines as to the constant safety procedures that must be followed in a working automotive shop lab.

AUT163 Automotive Engine Repair
CAREER AND TECHNICAL CREDIT TYPE *3*
This course will provide instruction in the theory and operation of the four stroke automotive engine. Students will gain hands-on experience in a lab setting learning how to service and repair cylinder heads.

AUT173 Advanced Auto Engine Repair
Prerequisite: AUT163
CAREER AND TECHNICAL CREDIT TYPE *3*
This course is designed to provide the student with instruction in the proper diagnosis and repair of engine malfunctions. Students will learn diagnostic procedures using modern, high tech equipment and will flow through the actual adjustments and repairs of defective components and assemblies in a supervised lab setting.

AUT242 Basic Automotive Powertrain
CAREER AND TECHNICAL CREDIT TYPE *6*
This course is designed to introduce the student to hydraulics and mechanical systems used in automotive transmissions. Theory and operating principles of powertrain components such as engines, clutches, transmission, differentials, transfer cases, transaxles and drive axles will be presented. General diagnosis procedures and basic repair operations will be a part of the lab experience.

AUT243 Advanced Automotive Powertrain
CAREER AND TECHNICAL CREDIT TYPE *6*
This course will cover the principles, components and operation of modern transmissions and transaxles (both manual and automatic), clutch assembly, driveshaft, transfer cases, C-V joints, and drive axle systems. Lab experience will include in-car and bench diagnosis, maintenance, adjustments, and reconditioning using specialty tools and equipment.

AUT404 Automotive Suspension and Steering
CAREER AND TECHNICAL CREDIT TYPE *4*
This course will provide introduction and instruction in the theory of operation, diagnosis principles, and service procedures of automotive suspension and steering systems. It will also introduce the student to wheel alignment terminology diagnosis principles, and basic service procedures.

AUT503 Automotive Brake Systems
CAREER AND TECHNICAL CREDIT TYPE *3*
This course will provide introduction and instruction in the theory of operation, diagnosis principles, and service procedures of automotive braking systems.

AUT535 Adv Automotive Brakes & Alignment
CAREER AND TECHNICAL CREDIT TYPE *5*
This course is designed to require the student to build on and apply the knowledge and skills gained in AUT503 and AUT404. Through supervised lab experiences, students will study advanced techniques in the diagnosis, service, and repair of brake and suspension systems.

AUT603 Basic Automotive Electricity
CAREER AND TECHNICAL CREDIT TYPE *3*
This course will provide introduction and instruction in electrical theory and basic electrical circuits. The student will be introduced into the safe handling and operating techniques using electrical diagnostic equipment. Safety, meters, and service information will be emphasized.

AUT652 Advanced Automotive Electricity
Prerequisite: AUT603
CAREER AND TECHNICAL CREDIT TYPE *3*
This course is designed to provide further instruction in diagnosis, repair, and service of electrical and electronic components found in all automotive systems.

AUT704 Auto Heating and Air Conditioning
CAREER AND TECHNICAL CREDIT TYPE *4*
This course will provide introduction and instruction in the theory of design and operation of automotive heating, ventilation, and air conditioning systems. Students will learn how to diagnose, service, and repair automotive heating, ventilation and air conditioning systems. Students will have the opportunity to receive air conditioning service certification with a satisfactory completion of this course.

AUT823 Advanced Automotive Tune-up
CAREER AND TECHNICAL CREDIT TYPE *4*
This course is designed to train the student in preventative maintenance, tune-ups, and engine performance testing procedures. Theory, diagnosis and repair of automotive ignition, electrical, and automotive fuel systems will be covered. Students will be instructed on the proper use of computerized engine analyzers and other related technology used in the modern day automotive shop.

AUT834 Automotive Fuel Systems
CAREER AND TECHNICAL CREDIT TYPE *4*
This course will provide the instruction to introduce the student to basic fuel system principles. Students will study theory and will gain hands-on experience by cleaning, repairing, and adjusting automotive fuel systems.

AUT844 Auto Electronic Engine Controls
Prerequisite: AUT603, AUT652, AUT834
CAREER AND TECHNICAL CREDIT TYPE   *6*
This course is designed to require students to apply knowledge and skills gained in AUT603, AUT652, and AUT834. Through supervised labs, students will experience hands-on diagnosis and repair of the computers, sensors, and control devices of late model cars.

AUT870 Automotive Service Management
CAREER AND TECHNICAL CREDIT TYPE   *2*
This course is designed to acquaint the student with the day-to-day operations of the automotive service industry. Instruction will be provided for customer relations, shop management, service write-ups, warranty procedures, and flat rate time guides. Students will practice procedures in live lab setting.

AUT917 Experimental Course
CAREER AND TECHNICAL CREDIT TYPE   *Varied Credit*
New courses as student interests demand.

BCA – Business Computer Application

BCA050 Fundamentals of Computer Operations
DEVELOPMENTAL CREDIT TYPE   *1*
This course is designed to introduce the beginning computer user to the basic operation of a computer system.

BCA100 Computer Literacy
CAREER AND TECHNICAL CREDIT TYPE   *1*
Introduction to the basic functions and operations performed by and with digital computers. The following are developed: A basic understanding of the operation, function, and capacities of modern computer systems; elementary skill in the use of operating system commands and utilities; a familiarity with the structure, entry, storage, and retrieval of computer data; and an exposure to application programs which are available for and widely used on modern computer systems. Offered on demand.

BCA122 Basic Word Processing
CAREER AND TECHNICAL CREDIT TYPE   *1*
Originating, formatting and designing documents using Microsoft Word.

BCA134 Word Processing
CAREER AND TECHNICAL CREDIT TYPE   *3*
Use word processing software to create and format text in various communication forms. Topics covered include formatting, writing tools, tables, columns, templates, graphics, charts, workgroup sharing, desktop publishing, forms, mail merge, macros, long document tools, and web pages.

BCA146 Basic Spreadsheets
CAREER AND TECHNICAL CREDIT TYPE   *1*
Create spreadsheets, calculate totals, format, copy, graph, and utilize various print options.

BCA152 Comprehensive Spreadsheets
CAREER AND TECHNICAL CREDIT TYPE   *3*
Use spreadsheet software to create electronic workbooks; work with formulas and functions; create charts and add design elements; work with range names; templates, and macros; use analysis, linking, auditing, pivot tables, databases and workgroup features.

BCA164 Basic Databases
CAREER AND TECHNICAL CREDIT TYPE   *1*
Creation and use of databases, queries, forms, and reports; customizing fields and tables; and managing data and files.

BCA167 Comprehensive Databases
CAREER AND TECHNICAL CREDIT TYPE   *3*
Features of database software to include adding and editing data; finding and sorting records; creating databases, tables, forms, and reports; managing data integrity; designing queries and advanced queries; using joins and relationships; working with sub reports; and integrating with other programs.

BCA170 Personal Information Management
CAREER AND TECHNICAL CREDIT TYPE   *1*
Personal management software to include calendar, tasks, contacts, managing e-mail, working with others, and using notes.

BCA174 Basic Presentation Software
CAREER AND TECHNICAL CREDIT TYPE   *1*
Learn presentation software in order to prepare effective presentations.

BCA178 Presentation Software
CAREER AND TECHNICAL CREDIT TYPE   *3*
Creating presentations from scratch; working with text, fills, colors, outlines, hyperlinks, and objects; customizing templates and toolbars; advanced text and graphics features; animation and slide show effects; and creating charts, tables, flowcharts, organization charts, and diagrams.

BCA183 Basic Webpage Design Software
Prerequisite: CSC118 or instructor's approval
CAREER AND TECHNICAL CREDIT TYPE   *2*
Use the Internet to search for and retrieve information, communicate electronically, and design web pages.

BCA768 Adobe for Business
CAREER AND TECHNICAL CREDIT TYPE   *3*
Students will learn basic application and integration of Adobe Acrobat Pro, Photoshop, InDesign, and Dreamweaver software, including how to manipulate PDFs, create interactive PDF forms, create and work with graphics, write (X)HTML code, and layout and design print and web-based business materials.

BCA917 Experimental Course
CAREER AND TECHNICAL CREDIT TYPE   *Varied Credit*
New courses as student interests demand.

BIO – Biology

BIO105 Introductory Biology *AA Approved*
STANDARD CREDIT TYPE   *4*
Basic principles of biology, a survey of how living things are organized and how they function. Special emphasis is given to the human perspective on biology. Topics include human physiology, genetics, genetic engineering, digestion and nutrition, disease and immunology, and basic principles of plant biology as it applies to agriculture.

BIO111 General Biology *AA Approved*
STANDARD CREDIT TYPE   *4*
Structure and function of living organisms from the cell level through the population level. Emphasis is on cell structure, genetics, evolution, ecology and animal and plant systems.

BIO112 General Biology I *AA Approved*
STANDARD CREDIT TYPE   *4*
An introduction to the nature of living organisms; diversity of microbes, animals, and plants; genetics and inheritance; reproduction; evolution; population, community, and ecosystem ecology. Intended for science majors.

BIO113 General Biology II *AA Approved*
STANDARD CREDIT TYPE   *4*
An introduction to life processes at the cellular, tissue, and organ levels; genetic control, metabolism, energy production, respiration, photosynthesis; plant growth, transport, and reproduction; animal growth, organ systems, and reproduction. Intended for science majors.

BIO132 Animal Care and Rehabilitation
STANDARD CREDIT TYPE   *2*
Principles of wild animal maintenance and care, with emphasis on handling and rearing animals and treatment of injuries during rehabilitation. Lecture and lab at "Calkins Campus" Nature Area and work with live animals housed there.

BIO138 Field Ecology
STANDARD CREDIT TYPE   *3*
Recognizing and understanding organisms in their natural communities. Emphasis on native trees and shrubs, fishes and the aquatic environment, and native amphibians and reptiles. Laboratory includes field collection and identification, interpretation, and behavioral roles.

BIO140 Field Ecology II
STANDARD CREDIT TYPE   2
Study of habitat requirements, identification, and behavior of native mammals and birds. Emphasis on game species but includes aesthetic as well as economic impacts. Lecture and lab experiences include field trips, use of "Calkins Campus" Nature Area and ECC natural science museum, as well as lab studies.

BIO142 Ecological Concepts
STANDARD CREDIT TYPE   3
Provides an overview of ecological concepts including nutrient cycling, water cycling, energy pathways, and the interactions of living things with each other and the nonliving environment.

BIO144 Field Biology: Spring Flowers
STANDARD CREDIT TYPE   1
Examination of plant communities as they develop from early spring to summer. Attention given to marsh, prairie, and forest environments. Field study will include identification and natural history of common spring flowers.

BIO146 Genetics *AA Approved*
STANDARD CREDIT TYPE   3
Study of classical transmission genetics, principles of human genetics with special emphasis on genetically controlled malformations and diseases, microbial genetics, radiation biology, and current observations and concepts of the nature, organization, and action of the genetic material. Not recommended for students with credit in BIO148.

BIO148 Human Genetics *AA Approved*
STANDARD CREDIT TYPE   3
Principles of genetics as applied to human families and population, including sex determination, sex linkage, Mendelian characteristics, population genetics, inborn errors of metabolism, chromosome behavior, effects of radiation and drugs. Not recommended for students with credit in BIO146.

BIO151 Nutrition *AA Approved*
STANDARD CREDIT TYPE   3
Understanding and implementing present-day knowledge of nutrition. Use of food for health and satisfaction of the individual and the family.

BIO168 Human Anatomy and Physiology I *AA Approved*
Prerequisite: Background in either a high school level or introductory college level biology course and a high school level chemistry course are strongly recommended.
STANDARD CREDIT TYPE   4
Introduces the structure and function of the human body, with an emphasis on cell and tissue organization, and the integumentary, musculoskeletal, and nervous systems.

BIO173 Human Anatomy and Physiology II *AA Approved*
Prerequisite: BIO168
STANDARD CREDIT TYPE   4
The structure and function of the human body, with an emphasis on the endocrine, cardiovascular, pulmonary, urinary, digestive, and reproductive systems.

BIO186 Microbiology *AA Approved*
STANDARD CREDIT TYPE   4
This course presents a survey of microorganisms, their structure, metabolism, growth characteristics, and replication. It will also emphasize their importance to the health sciences, biotechnology, and the environment. The lab will include procedures for manipulating, identifying, counting, and culturing microorganisms.

BIO190 Introductory Biotechnology
STANDARD CREDIT TYPE   3
Introduction to the application and issues of modern molecular biology in medicine and agriculture. Information on recombinant DNA technology, monoclonal antibodies, cell culture techniques, and embryo manipulation methods are presented. Topics also include medical diagnostics and treatments, environment, agriculture, and food.

BIO192 Laboratory Technology I
STANDARD CREDIT TYPE   1
Relates the student's field experience with classroom instruction. Includes career information, field trips, and discussions of current topics in the field of laboratory technology.

BIO193 Laboratory Technology 2
STANDARD CREDIT TYPE   1
Involves student-faculty exchange of ideas as they relate to curriculum, course content, and the cooperative field experience.

BIO194 Government Regulations
STANDARD CREDIT TYPE   2
Coverage of federal, state, and local government agencies responsible for determining and enforcing rules and regulations affecting pollution of the environment; laboratory work; and health and safety of people in the laboratory and industry. Offered on demand.

BIO238 Field Ecology II
STANDARD CREDIT TYPE   3
Study of habitat requirements, identification, and behavior of native mammals and birds. Emphasis on game species but includes aesthetic as well as economic impacts. Lecture and lab experience include field trips, use of "Calkins Campus" Nature Area and ECC natural science museum, as well as lab studies.

BIO244 Application of Biotechnology
Prerequisite: BIO190
STANDARD CREDIT TYPE   4
This course provides hands on experience in Biotechnology topics. This course is a second semester course for biotechnology majors. Emphasis will be on major biotechnology basic laboratory techniques. Laboratory work complements each of these areas of study. Lecture and lab must be taken concurrently

BIO245 Genetic Engineering
STANDARD CREDIT TYPE   3
Current studies involving recombinant DNA technology and its application to analysis of biological processes. Concepts underlying recombinant DNA technology together with strategies for cloning genes, applications of recombinant DNA technology to research and biotechnology (including screening for genetic diseases, gene therapy, animal and plant improvement, and production of proteins useful in medicine, agriculture, and industry).

BIO290 Tissue Culture
STANDARD CREDIT TYPE   4
Lecture and laboratory experiments involving cells, tissues, and organs as systems of modern experimental biology. Principal methods of tissue explanation and of tissue and cell maintenance and propagation in artificial environments, the genetic cytological and biochemical characteristics of normal and malignant cells in culture; fundamental and applied use of tissue culture systems. Offered on demand.

BIO532 Human Body: Health and Disease
STANDARD CREDIT TYPE   3
Concepts and characteristics of human diseases, focusing on etiology, epidemiology, health promotion and education. Emphasis on understanding the relationship between clinical signs/symptoms and the disease process.

BIO741 PLTW Prin. Biomedical Science
CAREER AND TECHNICAL CREDIT TYPE   3
This course provides an introduction to the biomedical sciences through exciting hands-on projects and problems. Students investigate concepts of biology and medicine as they explore health conditions including heart disease, diabetes, sickle-cell disease, hypercholesterolemia, and infectious diseases. They will determine the factors that led to the death of a fictional woman as they piece together evidence found in her medical history and autopsy report. Students will investigate lifestyle choices and medical treatments that might have prolonged the woman's life and demonstrate how the development of disease is related to changes in human body systems.

BIO742 PLTW Human Body System
CAREER AND TECHNICAL CREDIT TYPE   *3*
Students examine the interactions of human body systems as they explore identity, power, movement, protection, and homeostasis. Students design experiments, investigate the structures and functions of the human body, and use data acquisition software to monitor body functions such as muscle movement, reflex and voluntary action, and respiration. Exploring science in action, students build organs and tissues on a skeletal manikin, work through interesting real world cases and often play the roles of biomedical professionals to solve medical mysteries.

BIO743 PLTW: Medical Interventions
CAREER AND TECHNICAL CREDIT TYPE   *3*
Students follow the life of a fictitious family as they investigate how to prevent, diagnose, and treat disease. Students explore how to detect and fight infection; screen and evaluate the code in human DNA; evaluate cancer treatment options; and prevail when the organs of the body begin to fail. Through real-world cases, students are exposed to a range of interventions related to immunology, surgery, genetics, pharmacology, medical devices, and diagnostics.

BIO744 PLTW: Biomedical Innovations
CAREER AND TECHNICAL CREDIT TYPE   *3*
In the final course of the PLTW Biomedical Science sequence, students build on the knowledge and skills gained from previous courses to design innovative solutions for the most pressing health challenges of the 21st century. Students address topics ranging from public health and biomedical engineering to clinical medicine and physiology. They have the opportunity to work on an independent design project with a mentor or advisor from a university, medical facility, or research institution.

BIO907 Co-op Field Experience
Prerequisite: Instructor's approval
STANDARD CREDIT TYPE   *Varied Credit*
Supervised on-the-job training in student's area of emphasis.

BIO917 Experimental Course
STANDARD CREDIT TYPE   *Varied Credit*
New courses as student interests demand.

BIO927 Honors Study
STANDARD CREDIT TYPE   *Varied Credit*
This course is designated as an honors course in biology as a special project.

BIO943 Iowa Habitats: Ecology & Management
STANDARD CREDIT TYPE   *Varied Credit*
An introduction to the natural history, settlement and development, and major habitats of Central Iowa. Students will learn the common plant, animal and soil characteristics of prairies, woodlands and wetlands. Course includes techniques of management and restoration.

BIO929 Individual Projects
STANDARD CREDIT TYPE   *Varied Credit*
Special topics as arranged with instructor.

BPT – Bioprocess Technology

BPT160 Intro to Renewable Energy Tech.
CAREER AND TECHNICAL CREDIT TYPE   *3*
Overview of various renewable energy technologies and their current applications. Emphasis will be placed on Biomass renewable energy i.e. ethanol and bio-diesel production, wind and to some extent on solar and geothermal energy. Topics include principles of energy conversion, processes involved in converting biomass into fuels, energy storage and delivery and government standards/regulations for fuels.

BPT161 Processes in Renewable Energy Techn
CAREER AND TECHNICAL CREDIT TYPE   *4*
In depth understanding in the processes in ethanol and Bio-diesel production from biomass. Introduction to renewable energy, rationale, economics, principles, and techniques used both ethanol and bio-diesel production, analytical methods used in process control and specifications for the final product. The laboratory exercises included will provide hands on experiences and the vocational skills needed for entry into renewable energy industry employment.

BPT168 Introduction to OSHA
CAREER AND TECHNICAL CREDIT TYPE   *1*
This OSHA-16 hour course has been designed for ethanol and biodiesel plant employees, labors and anyone involved in the biofuels industry. Course addresses jobsite conditions and personal safety issues as well as employer safety responsibilities regarding OSHA Standards CFR1926. Students will gain knowledge of employee and employer responsibilities to ensure and maintain a jobsite free of recognized hazards.

BPT917 Experimental Course
CAREER AND TECHNICAL CREDIT TYPE   *Varied Credit*
New courses as student interests demand.

BUS – Business

BUS102 Introduction to Business
STANDARD CREDIT TYPE   *3*
Functions and practices of modern business. General survey as well as foundation for students preparing for specialized and advanced courses.

BUS130 Intro to Entrepreneurship
STANDARD CREDIT TYPE   *3*
Designed to introduce students to the entire process of owning and managing a small business. Students will learn about risk verses reward in business. They will learn about strategies for starting and maintaining a business. This course will focus on the skills required by the entrepreneur to help them succeed. The students will learn about types of ownership and what their options are. The students will learn the importance of setting goals and objectives. Students will learn about meeting a market need and work through the marketing process. Students will learn the importance of developing a working business plan.

BUS141 Small Business Startup
Prerequisite: BUS130
STANDARD CREDIT TYPE   *3*
Emphasis is on writing an effective business plan. A well written business plan takes time and the student will be working through the process step by step learning proven business planning techniques to move their business in the right direction. Students will be working to develop a polished, professional and results oriented plan from beginning to end. Some topics the students will be studying include: market research, assessment, location, determining asset needs, forecasting sales, identifying job tasks and determining human resource needs. Prerequisite: BUS130.

BUS150 E-Commerce
STANDARD CREDIT TYPE   *3*
Introduction to electronic commerce activities on the world wide web. E-commerce covers the unique aspects of creating a business strategy in the e-commerce environment and focuses on the internet as a medium for promotion and distribution. This course will address the new technological environment that marketers are facing in the business world of today. Students will explore the basics of marketing and business arenas and how they can be transformed in this environment.

BUS161 Human Relations
CAREER AND TECHNICAL CREDIT TYPE   *3*
Examine basic aspects of human relationships as they apply to the individual and his/her total world - occupation, society, home, and interpersonal relationships.

BUS182 Intro to Law
STANDARD CREDIT TYPE   *3*
General history and structure of law; law's action in guiding and changing economic and social patterns. Prerequisite for UI transfers: ECN120.

BUS185 Business Law I
STANDARD CREDIT TYPE   *3*
History of the legal system, legal rights and social effects of laws. Topics include contracts, agency, commercial paper, personal property, and bailment.

BUS186 Business Law II
STANDARD CREDIT TYPE   *3*
Partnerships, corporations, sales, property, security devices, insurance, investment, estates, bankruptcy, and regulation of business.

BUS220 Intro to International Business
STANDARD CREDIT TYPE   *3*
An overview of the global business environment; organizational, social, cultural, environmental variables that create change in the international marketplace.

BUS230 Quant Methods for Business Decmkng *AA Approved*
Prerequisite: COMPASS algebra score of 55 or better, COMPASS college algebra score of 25 or better, ACT math score of 20 or better, midterm grade of A- or better in MAT074*, or grade of C- or better in MAT062, MAT077, or MAT156; Cross listed with MAT140
STANDARD CREDIT TYPE   *3*
Linear programming. Critical path method and PERT techniques for project management. Computer programming to solve linear programming problems. Transportation and inventory techniques. Time value of money, curve fitting, and forecasting.

BUS235 Calculus for Business and Soc Science *AA Approved*
Prerequisite: COMPASS college algebra score of 51 or better, ACT math score of 25 or better, or grade of C- or better in either MAT121 or MAT129, or BUS230; Cross listed with MAT165
STANDARD CREDIT TYPE   *3*
Differential calculus, integral calculus, linear algebra and introduction to max-min theory for functions of two variables.

BUS291 Employment Portfolio and Career Dev.
STANDARD CREDIT TYPE   *2*
Develop employment portfolio including resumes, application letters and forms, and follow-up letters. Set career goals, develop prospective employer lists, explore employment tests, learn interviewing strategies, and discuss job etiquette and professional conduct.

BUS917 Experimental Course
STANDARD CREDIT TYPE   *Varied Credit*
New courses as student interests demand.

BUS927 Honors Study
STANDARD CREDIT TYPE   *Varied Credit*
This course is designated as an honors course in business as a special project.

BUS929 Individual Projects
Prerequisite: Instructor's approval
STANDARD CREDIT TYPE   *Varied Credit*
Special topics as arranged with instructor.

BUS932 Internship
Prerequisite: One semester in business courses
CAREER AND TECHNICAL CREDIT TYPE   *Varied Credit*
Experience gained on-the-job with cooperating business firms. Maximum of 3 hours credit per semester. May be repeated for a maximum of 6 (six) credit hours.

CAD – Computer Aided Drafting

CAD105 CAD I
CAREER AND TECHNICAL CREDIT TYPE   *2*
CAD uses in industry. CAD equipment functions, system set-up, and operation. Methods of data input to create working drawings. Output methods to produce finished drawings.

CAD185 2-D CAD IA
CAREER AND TECHNICAL CREDIT TYPE   *3.5*
Engineering graphics as a language, the drafting office, drawing media and filing, basic drawing requirements, theory of shape description, and applied geometry. Covers chapters 1, 2, 3, 4, 5, 6.

CAD186 2-D CAD IB
CAREER AND TECHNICAL CREDIT TYPE   *3.5*
Basic dimensioning, detail and assembly drawings, and sections and conventions. Covers chapters 7, 8, 9, 13.

CAD187 2-D CAD IIA
CAREER AND TECHNICAL CREDIT TYPE   *3.5*
The drawing of threaded fasteners, auxiliary views, construction of pictorial drawings, construction of miscellaneous fasteners, drawing for numerical control, and the development of sheet metal intersections. Covers chapters 10, 15, 16, 18, 25.

CAD188 3-D CAD IIB
CAREER AND TECHNICAL CREDIT TYPE   *3.5*
Construction of computer-aided detail drawings using 3D and solid modeling techniques. Additional review of solid modeling primitives and extruding profiles of complicated images. Application of CAD dimensioning processes and dimension variables.

CAD189 3-D CAD IIIA
CAREER AND TECHNICAL CREDIT TYPE   *3.5*
Theory of limits and fits dimensioning using the basic hole system. Review of geometric dimensioning and tolerancing and the construction of detailed and assembly drawings using solid modeling techniques. Advanced dimensioning practices and the application of geometric dimensioning and tolerancing.

CAD190 3-D CAD IIIB
CAREER AND TECHNICAL CREDIT TYPE   *3.5*
Construction of detailed and assembly drawings of a hydraulic cylinder using solid modeling techniques. The application of limits and fits, geometric dimensioning and tolerancing, plus advanced dimensioning practices.

CAD191 3-D Automation IA
CAREER AND TECHNICAL CREDIT TYPE   *3.5*
This hands-on course covers Autodesk Inventor® features used to create, edit, constrain, document, and print part assemblies using Inventor techniques. The class will become familiar with basic functions and toolbars that Inventor offers. The course will feature real world projects as well as projects from the textbook.

CAD192 3-D Automation IB
CAREER AND TECHNICAL CREDIT TYPE   *3.5*
Construction of detailed and assembly drawings along with animation and part interferences with constraints. Internet features will be covered. Final presentations are required. An assembly drawing will be constrained to show how to put assembly together. Additional topics will cover the different drawing file types that Inventor offers.

CAD917 Experimental Course
CAREER AND TECHNICAL CREDIT TYPE   *Varied Credit*
New courses as student interests demand.

CHM – Chemistry

CHM103 Metallurgy
CAREER AND TECHNICAL CREDIT TYPE   *2*
Understand metal properties to better manage your materials, understand what metals are, how chemical composition and microstructure influences mechanical properties.

CHM122 Introduction to General Chemistry *AA Approved*
Prerequisite: 1 year of high school algebra
STANDARD CREDIT TYPE   *4*
Basic principles and materials of inorganic chemistry, atomic theory, chemical bonding, formulas and equations, metric system, periodic table and basic laboratory techniques. Designed for pre-nursing, home economics and agricultural science students.

CHM165 General Chemistry I *AA Approved*
Prerequisite: High school chemistry or CHM101 within the past 5 years (with B or above) and 2 years high school algebra or equivalent college math
STANDARD CREDIT TYPE   *4*
A systematic study of the principles of inorganic chemistry with emphasis on scientific measurement, atomic structure, chemical bonding, nomenclature, stoichiometry and chemical reactions. Primarily for chemistry and biology majors (or minors) pre-med, pre-vet, pre-dental and others who need science-related background.

CHM175 General Chemistry II *AA Approved*
Prerequisite: CHM165
STANDARD CREDIT TYPE   *4*
A continuation of CHM165 with emphasis on thermodynamics, kinetics, equilibrium, electrochemistry, solubility products, pH, buffers, metal complexion, and acid-base theory.

CHM210 Analytical Instrumentation
Prerequisite: CHM165
STANDARD CREDIT TYPE   *4*
Addresses the operational theory and principles of instruments used in qualitative and quantitative analysis. Spectrophotometry: UV, VIS, IR, AA, and Chromatography: GC, HPLC.

CHM261 Organic Chemistry I *AA Approved*
Prerequisite: CHM175 or instructor's approval
STANDARD CREDIT TYPE   *4*
A study of the synthesis, properties and uses of common classes of organic compounds with emphasis on nomenclature, structural principles, and reaction mechanisms. Alkanes, alkenes, alkynes, alcohols, ethers, polymers, stereo-chemistry and benzene are covered.

CHM271 Organic Chemistry II *AA Approved*
Prerequisite: CHM261 or instructor's approval
STANDARD CREDIT TYPE   *4*
A continuation of CHM261 covering aromatic substitution arenas, carbonyls, carboxylic acids and their derivatives, amines, phenols, and physiologically active molecules. Some topics of biochemistry are introduced.

CHM290 Survey of Biochemistry
Prerequisite: CHM165
STANDARD CREDIT TYPE   *3*
Survey of biochemistry that will include topics such as structure and function of amino acids, proteins, carbohydrates, lipids, and nucleic acids; enzymology; metabolism; biosynthesis; and selected topics.

CHM917 Experimental Course
STANDARD CREDIT TYPE   *Varied Credit*
New courses as student interests demand.

CHM929 Individual Projects
Prerequisite: Instructor's approval
STANDARD CREDIT TYPE   *Varied Credit*
Special topics as arranged with instructor.

CIS – Computer Programming

CIS125 Intro to Programming Logic w/Lngge
STANDARD CREDIT TYPE   *3*
Introduction to computer programming with structured program development and module designs emphasized. Write programs related to several areas, including input/output, numerical computation, iteration, recursion, data manipulation, and interactive processing.

CIS126 Intro to Programming Logic w/Lngge
STANDARD CREDIT TYPE   *4*
Structured computer programming techniques, algorithm development, elementary data structures, and program documentation.

CIS152 Data Structures
STANDARD CREDIT TYPE   *3*
A comprehensive study of computer data organization and structures including arrays, stacks, queues, trees, and graphs. Common algorithms for searching, sorting, hashing are explored.

CIS161 C++
STANDARD CREDIT TYPE   *3*
Advanced structured programming techniques. Comparison of popular languages, structured approach to sorting, arrays, databases, and file manipulation.

CIS207 Fundamentals of Web Programming
STANDARD CREDIT TYPE   *3*
Elementary design concepts for pages on the World Wide Web. Programming techniques for linking and thread support. Development of Java applets.

CIS402 Cobol
STANDARD CREDIT TYPE   *3*
Using COBOL to solve business-oriented data processing needs. Write programs using structured programming techniques which include table handling, sorting, branching, and reporting from files.

CIS450 PLTW Computer Science Software Engineering
CAREER AND TECHNICAL CREDIT TYPE   *3*
This course is designed to be the first computer science course for students who have never programmed before. ICS is an optional starting point for the PLTW Computer Science program. In this course, students will create interactive stories in Scratch™ (an easy-to-use programming language); work in teams to create simple apps for mobile devices using App Inventor; and analyze data about students' health, social habits, and interests using functions in Excel®. Students will learn the impact of computing in society and the application of computing across career paths. They will also transfer the understanding of programming gained in App Inventor to a third language, Python®, in which they learn introductory elements of text-based programming. The course aligns with the Computer Science Teachers Association (CSTA) 3A standards.

CIS503 Intro to Systems Analysis
STANDARD CREDIT TYPE   *2*
Industrial program documentation procedures and user manual development.

CIS504 Structured Systems Analysis
STANDARD CREDIT TYPE   *3*
Operating system, job control language, access methods, database management, batch jobs, multi-tasking, and multi-user operating systems on mainframe and microprocessor systems.

CIS582 Assembler
STANDARD CREDIT TYPE   *3*
Processor machine language, assembler, macros, conditional assembly, interactive assembly, structure assembly, and program and user documentation.

CIS588 Computer Organization
STANDARD CREDIT TYPE   *3*
Explore the design and structure of PC hardware. Binary logic, AND/OR/NOT gates, and combination circuits. CPU, register, and bus design. Machine code, operating system, and assembly language principles are studied.

CIS917 Experimental Course
Prerequisite: Instructor's approval
STANDARD CREDIT TYPE   *Varied Credit*
New courses as student interests demand.

CIS929 Individual Projects
Prerequisite: Instructor's approval
STANDARD CREDIT TYPE   *Varied Credit*
Special topics as arranged with instructor.

CIS952 Topics
STANDARD CREDIT TYPE   *Varied Credit*
Varied topics to serve the needs of the community.

CLS – Cultural Studies

CLS150 Latin American History and Culture *AA Approved*
STANDARD CREDIT TYPE   *3*
Study of diverse cultural topics (literature, film, fine arts, history, politics, popular culture) to explore the ethnic and cultural diversity of Latin American societies from pre-Columbian time to the present, and the Latino presence in the United States. Conducted in English.

CLS163 Thai Culture *AA Approved*
STANDARD CREDIT TYPE *3*
Examines the country and people of Thailand, including history, government, culture, religion, geography, economy, language, music, and art.

CLS917 Experimental Course
STANDARD CREDIT TYPE *Varied Credit*
New courses as student interests demand.

CNS – Conservation Technology

CNS140 Parks, Planning and Maintenance
STANDARD CREDIT TYPE *3*
Study of the planning process used in development and evaluation of maintenance programs for recreational buildings and grounds in conservation areas. Field trips, including visits to municipal, county, state and private facilities, will identify proper management procedures. Offered on demand.

CNS150 Occupations in Conservation
STANDARD CREDIT TYPE *1*
Survey opportunities in the field of conservation at the various levels of government and private enterprise. Methods, techniques and skills involved in job seeking will be covered. Some guest speakers utilized.

CNS160 Apps. of Global Positioning Systems
STANDARD CREDIT TYPE *2*
Fundamental processes of global positioning system (GPS) with emphasis on application to conservation, agriculture, and recreation. General technical aspects of the GPS satellites, differential correction, and hardware. The specific application of this technology for mapping, navigation, and data collection will be discussed and demonstrated.

CNS170 Wildland Firefighting
STANDARD CREDIT TYPE *3*
This course consists of three National Wildlife Coordinating Group (NWCG) courses: S130-Firefighter Training (L180-Human Factors on the Fireline is included in the S130 course); S190-Introduction to Wildland Fire Behavior; and, I100-Incident Command System Orientation. Completing these three courses plus a physical fitness test (Pack Test) will qualify students for a red card certification. This course will be taught to NWCG standards.

CNS917 Experimental Course
STANDARD CREDIT TYPE *Varied Credit*
New courses as student interests demand.

CNS907 Co-op Field Experience
STANDARD CREDIT TYPE *Varied Credit*
Supervised on-the-job training in student's area of emphasis.

CNS929 Individual Projects
Prerequisite: Instructor's approval
STANDARD CREDIT TYPE *Varied Credit*
In-depth experiences in conservation. Projects developed in cooperation with and supervised by the instructor dealing with construction, habitat maintenance, wildlife census, habitat mapping, trail development, observation of conservation boards, etc. Includes paper describing the project from start to finish. Hours of credit depend on the scope and depth of the project.

COM – Communication

COM712 Business Communications
Cross listed with ADM154
CAREER AND TECHNICAL CREDIT TYPE *3*
Basic written communication development through emphasis on writing skills used in business documents; incorporates skills in listening and oral communications.

CON – Construction

CON105 Industrial Relations
CAREER AND TECHNICAL CREDIT TYPE *1*
Basic theory and knowledge of human relations in business and industry. Special emphasis is placed on understanding of the causes of behavior and its effects on the employee in industry.

CON108 Construction Safety

CAREER AND TECHNICAL CREDIT TYPE *1*
An introduction to OSHA safety rules designed to familiarize students with national safety standards for residential and commercial construction. Students receive OSHA certification upon successful completion of this 10-hour safety course.

CON127 Construction Safety II
CAREER AND TECHNICAL CREDIT TYPE *2*
A comprehensive safety program designed for construction foremen, field managers, supervisors, safety directors, trainers, and instructors.

CON155 Carpentry Level I
CAREER AND TECHNICAL CREDIT TYPE *3*
An introduction to the materials used in the construction industry and methods involved in the application of those materials. Students will learn the proper use and selection of hand and power tools with an emphasis on maintenance and safety. Students will become familiar with and develop skills in concrete foundation, concrete flatwork, rough framing, roofing and insulation (blown in and fiberglass). Students will demonstrate a working knowledge of cranes and similar equipment and hand signals. Students will also learn to locate symbols and interpret general information from blueprint drawings.

CON157 Carpentry Level II
CAREER AND TECHNICAL CREDIT TYPE *6*
Students continue the learning sequence as it relates to Carpentry Level I. Students will continue to develop knowledge and skills in advanced blueprint reading, site layout, stair construction and code applications, exterior finish, drywall installation/finish/texture, interior doors and trim, cabinet installation and countertop applications, introduction to concrete and reinforcing materials, and finish up with the study of foundations and flatwork concrete applications. The students will gain additional skills necessary to complete the house project as well.

CON185 Construction Lab I
CAREER AND TECHNICAL CREDIT TYPE *10*
Introduction to rough framing, which may include floor, wall, roof framing, and some interior work after the house is enclosed.

CON186 Construction Lab II
CAREER AND TECHNICAL CREDIT TYPE *10*
This sequence follows Construction Lab I and is a continuation of learning applied to hands-on knowledge and skill development. This phase is devoted to the finish aspects of residential construction. Includes installation of insulation, vapor barrier, drywall and finishing drywall, interior wood finish trim materials, cabinets and countertops, etc. Students will learn as they test theories, develop knowledge and skill and techniques in applying finish materials to complete the house project.

CON210 Fundamentals of Carpentry
CAREER AND TECHNICAL CREDIT TYPE *3*
Introduction to basic skills in construction and provide a comprehensive overview of OSHA safety rules, use of tools in the construction trade, and exposure to different trades in construction.

CON260 Commercial Carpentry I
CAREER AND TECHNICAL CREDIT TYPE *6*
Apply residential construction principles as they relate towards commercial applications. Equipment, tool usage as well as development of knowledge and skills involved in commercial construction will be explored. Areas of instruction will include commercial concrete forming, reinforcement and placement methods, stair construction, metal framing, interior finishes, suspended ceiling systems, metal framing and drywall applications, commercial roofing methods and systems. Students will be exposed to the installations methods of various suspended ceiling systems. CON261 Commercial Construction Lab I is a required class in order to meet the requirements of the school-to-work apprenticeship competencies.

CON261 Commercial Construction Lab I
CAREER AND TECHNICAL CREDIT TYPE   *4*
Participate in lab exercises in order to demonstrate competencies required or at times take the positions of lead carpenter at the lab site, supervising freshmen in the construction of the lab project or participate on commercial job sites in the form of paid OJT (on-the-job-training). Students will expand knowledge obtained from CON260 Commercial Carpentry I to hands-on skills in lab project demonstrations or partnering in actual job site construction industry. The instructor will monitor optional OJT sites at regular intervals to access student experiences.

CON262 Commercial Carpentry II
CAREER AND TECHNICAL CREDIT TYPE   *6*
A continuation of CON260 Commercial Carpentry I and is the final phase of the carpentry program. Introduced to supervision skills, motivation and peer relations, planning, scheduling, and working with other trades. Students will identify components, operation and assembly techniques for commercial stair, roof, floor, and wall systems as well as metal building assembly. Various suspended ceilings including their components and applications are discussed. Light equipment and welding are introduced and applied to facilitate the safe usage of each in various worksite applications. Students also further their knowledge in site layout, gaining utilization and application techniques for total stations and transits in horizontal and vertical layout control.

CON263 Commercial Construction Lab II
CAREER AND TECHNICAL CREDIT TYPE   *4*
The National Center for Construction Education and Research has developed a "Wheels of Learning" accredited craft training program. The Associated Builders and Contractors, Inc. (Iowa) endorses and applies the curriculum toward an "ABC Certificate of Completion of Apprenticeship Training." CON262 Commercial Carpentry II offers the Iowa Custom Carpentry version of the Wheels of Learning. The student receives instructional modules on supervision, mechanical and laser site layout instruments, commercial wall, floor, roofing, stair, suspended ceiling and metal buildings. The student will receive hand-on applications working with light equipment and welding to facilitate the safe usage of each in various worksite applications.

CON264 Commercial Construction
CAREER AND TECHNICAL CREDIT TYPE   *6*
A continuation of Commercial/Heavy Construction and is the final phase of the commercial carpentry program. Identify components, operations and assembly techniques for commercial stair, roof, floor, and wall systems as well as metal building assembly. Further knowledge of interior finish metal frames and metal studs. Various suspended ceiling including their components and applications are discussed.

CON265 Commercial Construction Lab
Corequisite: CON264
CAREER AND TECHNICAL CREDIT TYPE   *4*
A continuation of Commercial/Heavy Construction and is the final phase of the commercial carpentry program. Identify components, operations and assembly techniques for commercial stair, roof, floor, and wall systems as well as metal building assembly. Further knowledge of interior finish metal frames and metal studs. Various suspended ceiling including their components and applications are discussed.

CON268 Commercial/Heavy Construction
Prerequisite: CON108
CAREER AND TECHNICAL CREDIT TYPE   *6*
Apply residential construction principles as they relate towards commercial and heavy construction applications. Equipment, tool usage as well as development of knowledge and skills involved in commercial and heavy construction will be explored. Areas of instruction will include concrete forming, reinforcement and placement, basic rigging, concrete placement, manufactured forms, tilt-up walls, site layout II, intro to project management, welding and light equipment.

CON269 Commercial/Heavy Construction Lab
Corequisite: CON268
CAREER AND TECHNICAL CREDIT TYPE   *4*
Apply residential construction principles in a lab setting as they relate towards commercial and heavy construction applications. Equipment, tool usage as well as development of knowledge and skills involved in commercial and heavy construction will be explored. Areas of instruction will include concrete forming, reinforcement and placement, basic rigging, concrete placement, manufactured forms, tilt-up walls, site layout II, intro to project management, welding and light equipment.

CON293 Cabinet Making I
CAREER AND TECHNICAL CREDIT TYPE   *3*
Practical knowledge and skills of cabinetry and basic furniture making and skills associated with common joinery, construction and finishing techniques for fine cabinetry. Students will work on assigned projects and instructor approved projects in lab.

CON421 On-the-job Training
Prerequisite: CON155 and CON157
CAREER AND TECHNICAL CREDIT TYPE   *Varied Credit*
Students will be placed in the workforce as an apprentice. Having completed the first year curriculum, students will participate in industry learning from various journeymen and supervisory personnel. Students are encouraged to work in the commercial construction areas with local contractors as part of the partnering process the program has developed. This is a paid OJT experience of 320 hours. The hourly rate of pay will be determined by the field of work and the student's negotiations with the contractor. Students will be required to meet employment requirements as any standard employee.

CON800 Construction Lab I A
CAREER AND TECHNICAL CREDIT TYPE   *Varied Credit*
A portion of the construction lab course including an introduction to the materials used in the construction industry and methods involved in the application of those materials. Students will learn the proper use and selection of hand and power tools with an emphasis on maintenance and safety. Students will become familiar with and develop skills in concrete foundation, concrete flatwork, rough framing, roofing and insulation (blown in and fiberglass). Students will demonstrate a working knowledge of cranes and similar equipment and hand signals. Students will also learn to locate symbols and interpret general information from blueprint drawings.

CON801 Construction Lab II A
CAREER AND TECHNICAL CREDIT TYPE   *Varied Credit*
Developed to assist the career academy student to participate in the lab portion of the first year residential program. The variable credit hour aspect of this class reflects the Career Academy student's option to take either 6 or 4.5 credit hours depending upon their participation in extracurricular activities at their High School. This part of the program is devoted to the interior finish aspects of residential construction. This includes but is not limited to installation of Insulation, Vapor Barriers, Hanging and Finishing Drywall, Interior Wood Finish trim materials, Cabinets and Countertops, Advanced Blueprint Reading, Concrete and Reinforcing Materials and Concrete Formwork as related to Foundations and Flatwork. This lab allows students to learn as they test theories, develop knowledge and problem solving skills and techniques in applying finish materials to complete the lab projects.

CON802 Construction Lab I B
CAREER AND TECHNICAL CREDIT TYPE   *Varied Credit*
A portion of the construction lab course including an introduction to the materials used in the construction industry and methods involved in the application of those materials. Students will learn the proper use and selection of hand and power tools with an emphasis on maintenance and safety. Students will become familiar with and develop skills in concrete foundation, concrete flatwork, rough framing, roofing and insulation (blown in and fiberglass). Students will demonstrate a working knowledge of cranes and similar equipment and hand signals. Students will also learn to locate symbols and interpret general information from blueprint drawings.

CON803 Construction Lab II B
CAREER AND TECHNICAL CREDIT TYPE   *Varied Credit*
Developed to assist the career academy student to complete the lab portion of the first year residential program upon returning for the fall semester after his High School Career Academy participation. The variable credit hour aspect of this class reflects the Career Academy student's option to take either 6 or 4.5 credit hours depending upon their participation in extracurricular activities. This part of the program is devoted to the interior finish aspects of residential construction. This includes but is not limited to installation of Insulation, Vapor Barriers, Hanging and Finishing Drywall, Interior Wood Finish trim materials, Cabinets and Countertops, Advanced Blueprint Reading, Concrete and Reinforcing Materials and Concrete Formwork as related to Foundations and Flatwork. This lab allows students to learn as they test theories, develop knowledge and problem solving skills and techniques in applying finish materials to complete the lab projects.

CON917 Experimental Course
CAREER AND TECHNICAL CREDIT TYPE   *Varied Credit*
New courses as student interests demand.

CON929 Individual Projects
Prerequisite: Instructor's approval
CAREER AND TECHNICAL CREDIT TYPE   *Varied Credit*
Special topics as arranged with instructor.

CRJ – Criminal Justice

CRJ100 Intro to Criminal Justice
STANDARD CREDIT TYPE   *3*
Examine and compare the philosophies and operations of the three social control agencies that deal with crime and delinquency: Police, courts, and corrections.

CRJ101 Ethics in Criminal Justice
STANDARD CREDIT TYPE   *3*
A straightforward presentation of the major ethical systems followed by a discussion of moral development and the ideal of justice. Information will be provided to enable students to solve complex moral dilemmas within the complicated criminal justice system.

CRJ110 Patrol Procedures
STANDARD CREDIT TYPE   *3*
Will teach the basic concepts and skills used in the day to day duties of the average street officer. Includes explanations and demonstrations of the proper way to respond to various calls for service including domestic disturbances, intoxicated persons, missing children, stalking, harassment, and medical problems. Other topics covered will include basic criminal investigation, police communications, traffic enforcement, crimes in progress, interview & interrogation, arrest, use of force, officer survival and stress response, and report writing.

CRJ120 Introduction to Corrections
STANDARD CREDIT TYPE   *3*
Introduces a wide range of topics, including the development and purposes of corrections and an explanation of how correctional operations relate to the overall system of criminal/juvenile justice. Other topics: Jails and detention centers, the sentencing process, long-term institutions for adults and juveniles, and community-based corrections such as probation, parole, half-way houses, fines, restitution, etc.

CRJ130 Criminal Law
STANDARD CREDIT TYPE   *3*
Designed to furnish students in Criminal Justice and Prelaw a concise yet comprehensive introduction to American criminal law, and provide an appropriate reference for the criminal justice professional who needs to understand the legal environment in which he/she functions.

CRJ133 Constitutional Criminal Procedure
STANDARD CREDIT TYPE   *3*
Explore the U.S. Constitution. Principles of constitutional law emphasized through a study of the Bill of Rights, the 14th Amendment, U.S. Supreme Court cases, and court decisions regarding equal protection of the laws, due process, legal rights of the accused, and other aspects of criminal and juvenile justice.

CRJ141 Criminal Investigation
STANDARD CREDIT TYPE   *3*
Includes fundamental methods of investigating crime: Crime scene search and sketching; recording, collecting and preserving evidence; interview and interrogation techniques; methods of search and seizure; and rules of evidence.

CRJ145 Police Photography
STANDARD CREDIT TYPE   *3*
Fundamentals of photography for police work. Topics include description of the police photographer requirements, advanced cameras, techniques of exposure in crime photography, evidence photography, and identification. Students will operate a 35mm camera, develop film, and make prints.

CRJ160 Intro to Forensic Investigation
STANDARD CREDIT TYPE   *3*
This course introduces the non-science student to various disciplines and techniques in forensic investigation. Topics include Forensic Anthropology, Forensic Odontology, Forensic Entomology, Forensic Serology, and Criminalistics.

CRJ183 Terrorism and Homeland Security
STANDARD CREDIT TYPE   *3*
This course seeks to theoretically and analytically examine the concept of terrorism presently and historically and identify some of the problems with identification of terrorism, general tactics and concepts of terrorism, and some of the major implications of the "war on terror," the Patriot Act, and immigration.

CRJ200 Criminology
STANDARD CREDIT TYPE   *3*
Study crime and criminals; causes of criminal behavior; theories of punishment, correction, and rehabilitation; police and court procedures; the disposition of offenders; "penal" institutions; and prevention.

CRJ201 Juvenile Delinquency
STANDARD CREDIT TYPE   *3*
A comprehensive and balanced treatment of juvenile justice that traces history, development, and current practices of the system that deals with juvenile behavior, its control and treatment. Concentration is on processes that make the juvenile justice system work, people involved in the system, and programs aimed at meeting the needs of children in trouble.

CRJ210 Law Enforcement Management
STANDARD CREDIT TYPE   *3*
An understanding of contemporary law enforcement principles and practices, including accepted administrative methods for supervision of regular staff, special operational units, and auxiliary/technical units.

CRJ211 Multicultural Policing
STANDARD CREDIT TYPE   *3*
Focus will be on cross-cultural contact that police officers and civilian employees in criminal justice have with citizens, victims, suspects, and co-workers from diverse backgrounds. This course will explore the pervasive influence of culture, race, and gender in the workplace and the community served by law enforcement professionals.

CRJ212 Community-Oriented Policing
STANDARD CREDIT TYPE   *3*
An in-depth study of the development of the police in partnerships with the community they serve in order to increase effectiveness in crime response and prevention. Methods of deployment, organizational change, and police officer development will be studied. Implementation strategies and obstacles will be examined. The building of relationships with the majority as well as the minority community, youth, elderly, and disabled will be studied. Interaction with churches, schools, businesses, and the media will be included.

CRJ251 Firearms
Prerequisite: Criminal Justice Majors only or instructor's approval
STANDARD CREDIT TYPE   *3*
Includes the legal and moral aspects of firearms use, safety, nomenclature and care of weapons and firing principles of handguns and shotguns. Students must obtain qualifying scores according to the Iowa Law Enforcement Academy - Tactical Revolver course standard.

CRJ907 Co-op Field Experience
STANDARD CREDIT TYPE   *Varied Credit*
A one-half semester on-the-job training experience in one of many areas of criminal justice and/or juvenile justice, including law enforcement; the courts or corrections (adult and juvenile) at the federal, state, county, or local level; or private security. May be repeated one time.

CRJ917 Experimental Course
STANDARD CREDIT TYPE   *Varied Credit*
New courses as students interests demand.

CRJ929 Individual Projects
STANDARD CREDIT TYPE   *Varied Credit*
Special topics as arranged with instructor.

CSC – Computer Science

CSC118 Computer Systems and Applications *AA Approved*
Prerequisite: Basic computer competence
STANDARD CREDIT TYPE   *3*
Study computers and applications as used in business today including relevant business applications such as database, spreadsheet, word processing, and presentation software.

CSC119 Computer Systems & Apps II
Prerequisite: CSC118
STANDARD CREDIT TYPE   *3*
Continuation of CSC118 studying computers and advanced applications as used in business today including relevant business applications such as database, spreadsheet, word processing and presentation software.

CSC120 Computer Systems & Apps III
STANDARD CREDIT TYPE   *3*
Application and integration of technology and advanced computer software in business.

DEA – Dental Assistant

DEA103 Orientation to Dental Assisting
CAREER AND TECHNICAL CREDIT TYPE   *2*
This course introduces students to dentistry, certification, dental terminology, and legal and ethical aspects of dental practice. Concepts and procedures of preventative dentistry and oral health education are also included.

DEA252 Dental Science
CAREER AND TECHNICAL CREDIT TYPE   *3*
Includes anatomical identification and discussion of function of the structures of the oral cavity and the surrounding landmarks of the face, head, and neck. Development and nomenclature of the teeth as well as application pertaining to occlusion, anesthesia, mastication, radiographic interpretation, and identification of variations in anatomy and charting are incorporated in this course.

DEA263 Dental Science II
CAREER AND TECHNICAL CREDIT TYPE   *2*
This course provides students with a basic understanding of biomedical and dental sciences including: oral pathology and disease processes, pharmacology and therapeutics, including emergency treatment.

DEA294 Microbiology and Infection Control
CAREER AND TECHNICAL CREDIT TYPE   *3*
Focuses on scientifically accepted principles and practices of infection control with emphasis on the characteristics of micro-organisms, production and transmission of disease, and occupational safety hazards. Also, includes methods and practical application of infection control and barrier precautions for both laboratory and clinical proficiency.

DEA312 Dental Radiography I
CAREER AND TECHNICAL CREDIT TYPE   *3*
An introduction to the physics and biology of radiation, radiation hygiene, and dental x-ray equipment and care. Includes theory and application of intraoral film exposure utilizing the paralleling technique and processing chemistry and techniques. Attention to infection control methods is emphasized.

DEA321 Dental Radiography II
Prerequisite: DEA312
CAREER AND TECHNICAL CREDIT TYPE   *2*
Utilizes foundations established in DEA312 expanding to theories and application of intraoral bisecting angle and occlusal techniques, identification and correction of dental radiographic errors, introduction to extra oral and digital radiographic techniques, and clinical application of the intraoral paralleling and bisecting techniques.

DEA402 Dental Materials
CAREER AND TECHNICAL CREDIT TYPE   *2.5*
Studies the materials utilized in the laboratory aspect of dentistry along with the support materials utilized in treatment. Emphasis is on the characteristics, manipulation, economical control, storage, and delivery of materials.

DEA428 Laboratory Procedures
Prerequisites: DEA252, DEA402, and DEA503
CAREER AND TECHNICAL CREDIT TYPE   *2*
Applies laboratory and selected clinical application of dental specialties. Includes identification of armamentarium, coronal polish techniques, application of fluoride, fabrication of specialty appliances and temporaries, as well as the basic principles of denture repair.

DEA503 Principles of Dental Assisting
CAREER AND TECHNICAL CREDIT TYPE   *4.5*
Provides instruction on the principles of clinical chair side dental assisting: dental equipment use, care, maintenance, and safety; oral evacuation and instrument transfer; instrument identification; and tray set-ups by procedures for oral diagnosis, operative dentistry, and anesthesia. Emphasis is on patient management during restorative procedures, including applied infection control methods.

DEA550 Assisting Clinic I
Prerequisite: Completion of all first semester courses; completion of or enrollment in second semester courses.
CAREER AND TECHNICAL CREDIT TYPE   *3*
One day per week clinical application of dental assisting skills in the MCC dental clinic working with two licensed dentists providing quality dentistry to the public. Includes recording and sharing clinical experiences with classmates in a seminar setting. Also encompasses CPR training, job-seeking skills, and preparation for state and national boards.

DEA551 Assisting Clinic II
Prerequisite: DEA550
CAREER AND TECHNICAL CREDIT TYPE   *2*
One day per week clinical application of dental assisting skills in a contracted extramural general dental office or clinic. Includes recording and sharing clinical experiences with classmates in a seminar setting.

DEA552 Assisting Clinic III
Prerequisite: DEA551
CAREER AND TECHNICAL CREDIT TYPE   *3*
Six week, five days per week clinical application of dental assisting skills in one or more contracted extramural dental offices or clinics. May include specialty dental practice assignments as well as general dental practice assignments. Includes final preparation for Dental Assisting National Board Exam (CDA) as well as Iowa Board of Dental Examiners Registered Dental Assistant (RDA) exams.

DEA603 Dental Specialties
Prerequisite: DEA503
CAREER AND TECHNICAL CREDIT TYPE   *2*
Introduction to dental specialties. Examines the essential components, clinical procedures performed, and armamentarium (instruments/equipment) used in various dental specialties. Students will learn the interactive roles of each dental team member in the practice of dental specialties. Includes an introduction to clinical advances and new trends in dentistry.

DEA702 Dental Office Procedures
CAREER AND TECHNICAL CREDIT TYPE   *2*
Reception procedures: appointment book control; filing; clinical and financial record keeping; patient financial arrangements; third-party claims; recall systems; office equipment; collection procedures; office disbursement and payroll records; tax reports; mailing procedures; supplies and inventory. Instruction is all provided in computer applications relating to these office management procedures.

DRA – Film and Theatre

DRA102 Elements of Theatre *AA Approved*
STANDARD CREDIT TYPE   *3*
An exploration into all elements of theater with emphasis on the audience as receptive and perceptive participants.

DRA110 Introduction to Film *AA Approved*
STANDARD CREDIT TYPE   *3*
Elements, principles of cinema; exemplary films viewed and analyzed.

DRA120 Introduction to Stage Management
STANDARD CREDIT TYPE   *3*
The student will learn the processes and procedures of backstage organization and management in order to be a stage manager for theater and film production.

DRA121 Advanced Stage Management
Prerequisite: DRA120
STANDARD CREDIT TYPE   *3*
An advanced course in stage management rules and regulations of Actors Equity and Union contracts for the theater. This course is designed to prepare the student to work in a semi-professional or professional theater setting.

DRA130 Acting I
STANDARD CREDIT TYPE   *3*
Includes the fundamentals of acting, stressing the basic skills and techniques of character analysis and interpretation, culminating with elementary scene work.

DRA145 Oral Interpretation
STANDARD CREDIT TYPE   *3*
Develop your skills in oral interpretation as you explore adventures in prose, drama and poetry for broadcast as we create radio drama, poetry readings and prose for pod casts and recording.

DRA150 Play Production
STANDARD CREDIT TYPE   *Varied Credit*
Join our play production team onstage as an actor or behind the scenes. Actors need to attend auditions. All other students interested in working behind the scenes in stage management and assistant to directors and designers also need to sign up at auditions.

DRA160 Production Studio
STANDARD CREDIT TYPE   *Varied Credit*
Join a running crew backstage to build and operate all the technical elements of a production. No experience necessary – we will teach you all you need to know.

DRA164 Drafting Scenery
STANDARD CREDIT TYPE   *3*
If you can dream it, you can draft it! Join us to explore pencil and computer drafting for the entertainment industry. Emphasis will be placed on drawings required for theatrical set design.

DRA165 Stagecraft
STANDARD CREDIT TYPE   *3*
The student will develop hands on knowledge of methods and principles of backstage production by way of lab and lecture periods. As an introductory level course, the student will gain basic skills and a working vocabulary in scenery, costume, lighting, sound, property construction, scene painting, and stage management.

DRA169 Drafting Light Plots
STANDARD CREDIT TYPE   *2*
Learn how to map out a light plot for television and theater production. Pencil drafting and computer aided drafting instruction for Vectorworks Spotlight and Lightwrite software.

DRA188 Advanced Stagecraft
Prerequisite: DRA165
STANDARD CREDIT TYPE   *3*
Will develop a hands-on knowledge of methods and principles of advanced staging techniques. As an advanced level course, the student will gain skills and a working vocabulary in multi-set scenic construction, scenic and soft goods rigging techniques and steel construction methods for the stage.

DRA190 Lighting Design Technology I
STANDARD CREDIT TYPE   *3*
If you have ever wanted to design lighting for a rock concert, a play or for television join us for an introduction to lighting history, the lighting chain, instrumentation, dimming and control systems, lighting maintenance and safety, lighting rig and focus.

DRA191 Lighting Design Technology II
Prerequisite: DRA190
STANDARD CREDIT TYPE   *3*
Principles of lighting design for thrust, arena, dance, opera, concert and television lighting setups. Introductions to programming and mechanics for robotic lighting and projection systems for the stage.

DRA193 Sound Design Technology
Prerequisite: DRA165
STANDARD CREDIT TYPE   *3*
Introduction to sound engineering for application to theater and concert production. This course will cover sound reinforcement, playback and recording techniques for the theater.

DRA195 Scene Design Technology I
Prerequisite: DRA165
STANDARD CREDIT TYPE   *3*
Learn how to build those fantastic sets you see for a Broadway show or a community theater production. This class will teach you all the basics to the mechanics and principles of set design for box sets and scenery for the proscenium stage.

DRA196 Scene Design Technology II
Prerequisite: DRA195
STANDARD CREDIT TYPE   *3*
Introduction to the mechanics and principles of set design for unit sets, multiple unit sets for proscenium, arena, thrust and found space set installations. Emphasis placed on scenic modeling and moving techniques.

DRA197 Prop Design Technology I
Prerequisite: DRA165
STANDARD CREDIT TYPE   *3*
Introduction to prop organization, management, and basic prop construction techniques.

DRA198 Prop Design Technology II
Prerequisite: DRA197
STANDARD CREDIT TYPE *3*
Advanced prop making techniques of upholstery, molds and casting techniques, faux finishes and furniture construction.

DRA296 Theater Automation
Prerequisite: DRA160, DRA164, and DRA165
STANDARD CREDIT TYPE *3*
Will develop a hands-on knowledge of methods and principles of theater automation. As an advanced level course, the student will gain skills and a working vocabulary in: rigging, lifts, moving scenery, fly systems, truss, chain motors, pneumatics and hydraulics; all of which are control systems used in the theatre industry.

DRA917 Experimental Course
STANDARD CREDIT TYPE *Varied Credit*
New courses as student interests demand.

DRA929 Individual Projects
Prerequisite: Instructor's approval
STANDARD CREDIT TYPE *Varied Credit*
Specialized assignment designed by student/instructor.

DRA932 Summer Repertory Internship
Prerequisite: DRA165 and DRA190, DRA193, DRA195, or DRA197
STANDARD CREDIT TYPE *3*
The student will fulfill a crew head position in technical theater for the summer repertory program and be a member of the production build team for the summer program. This is a summer intensive program.

DRA953 Theater Practicum
STANDARD CREDIT TYPE *Varied Credit*
Production Assignment credit for a production position with the local high school, local community theater, regional professional theater or film company.

DSL – Diesel

DSL837 Commercial Driver's License & Tools
STANDARD CREDIT TYPE *1.5*
Covers certification for Commercial Driver's License concepts. Students will learn concepts that may lead to obtaining a CDL license, as well as learn how to operate heavy equipment and utilize common hand tools related to the job.

ECE – Early Childhood Education

ECE103 Intro to Early Childhood Education
STANDARD CREDIT TYPE *3*
Gives students a historical and philosophical foundation of the field of early childhood education. Includes an overview of assessment and trends that influence best practices. Explores careers in the field. Addresses influences of families and diversity.

ECE133 Child Health, Safety and Nutrition
STANDARD CREDIT TYPE *3*
Focuses on current concepts in the fields of health, safety and nutrition and their relationship to the growth and development of the young child ages birth to eight. Blends current theory with practical applications and assessments. Includes the influences of families and diversity on health, safety, and nutrition in early childhood settings.

ECE158 Early Childhood Curriculum I
STANDARD CREDIT TYPE *3*
Focuses on the development, implementation and assessment of appropriate environments and curricula for young children ages three through eight. Students prepare to utilize developmentally appropriate practices in a context of family and culturally sensitive care. Emphasis is on understanding children's developmental stages and developing appropriate learning opportunities, interactions and environments in the following area: dramatic play, art, music, fine and gross motor play.

ECE159 Early Childhood Curriculum II
STANDARD CREDIT TYPE *3*
Focuses on the development, implementation and assessment of appropriate environments and curricula for young children ages three through eight. Students prepare to utilize developmentally appropriate practices in a context of family and culturally sensitive care. Emphasis is on understanding children's developmental stages and developing appropriate learning opportunities, interactions and environments in the following areas: emergent literacy, math, science, technology and social studies.

ECE170 Child Growth and Development
STANDARD CREDIT TYPE *3*
Reviews typical and atypical development of children from conception to adolescence in all developmental domains. Presents interactions between child, family and society within a variety of community and cultural contexts. Examines theories associated with our understanding of children.

ECE221 Infant/Toddler Care and Education
Prerequisite: ECE170
STANDARD CREDIT TYPE *3*
Focuses on care, education and assessment of children ages birth to 3. Prepares student for evidence-based practices, including responsive caregiving, routines as curriculum as well as collaborative relationships with diverse children and their families.

ECE243 Early Childhood Guidance
STANDARD CREDIT TYPE *3*
Focuses on effective approaches and positive guidance strategies for supporting the development of all children. Emphasizes supportive interactions and developmentally appropriate environments. Uses assessment to analyze and guide behaviors. Studies impact of families and diversity on child guidance.

ECE270 Practicum in Child Care I
Corequisite: ECE103 or instructor's approval
STANDARD CREDIT TYPE *3*
Supervised observation/participation in a variety of child care settings.

ECE271 Practicum in Child Care II
Prerequisite: ECE270
STANDARD CREDIT TYPE *3*
Supervised field experience in a child care center using curriculum principles, techniques and child development information. Prepare activities to facilitate language, social, emotional, physical and cognitive growth for the children in assigned centers.

ECE280 Student Teaching in Child Care
Prerequisite: ECE271; Corequisite: ECE290
STANDARD CREDIT TYPE *5*
Directed experience in a child care center involving planning and overall operation of a center. Exposure to parent programming, special needs programs and curriculum development is included.

ECE290 Early Childhood Program Admin
Prerequisite: Must have completed 12 ECE credits before registering
STANDARD CREDIT TYPE *3*
Analysis and interpretation of supervision and administrative procedures relevant to early childhood education. Emphasis on management principles, funding, federal and state regulations, staff and community relations, recordkeeping, and child advocacy.

ECE917 Experimental Course
STANDARD CREDIT TYPE *Varied Credit*
New courses as student interests demand.

ECE929 Individual Projects
STANDARD CREDIT TYPE *Varied Credit*
Specialized assignment designed by student/instructor.

ECN – Economics

ECN115 Personal Finance
STANDARD CREDIT TYPE *3*
A brief introduction to demand, supply and price analysis; factor market with emphasis on the labor market. Personal financial decision making (budgeting, taxes, insurance, financial services, estate planning).

ECN120 Principles of Macroeconomics *AA Approved*
STANDARD CREDIT TYPE *3*
Introduction to resource allocation, demand and supply, national income and employment, inflation and price levels, fiscal policy, monetary policy and operation of the U.S. banking system, and international economics.

ECN130 Principles of Microeconomics *AA Approved*
STANDARD CREDIT TYPE *3*
Theories of production and consumption, pricing and the market system, perfect and imperfect competition, factor markets (emphasis on the labor market). Issues within the capitalistic system such as problems of poverty, housing, and the environment. International trade.

ECN907 Co-op Field Experience
Prerequisite: Instructor's approval
STANDARD CREDIT TYPE *Varied Credit*
Individually designed job experience/related assignments.

ECN917 Experimental Course
Prerequisite: Instructor's approval
STANDARD CREDIT TYPE *Varied Credit*
New courses as student interests demand.

ECN929 Individual Projects
Prerequisite: Instructor's approval
STANDARD CREDIT TYPE *Varied Credit*
Specialized assignment designed by student/instructor.

EDU – Education

EDU126 Observation & Management/Behavior
STANDARD CREDIT TYPE *3*
Basic behavioral teaching methods with an emphasis on the application of behavioral principles. Students will observe, practice, and demonstrate competence on required skills, including reinforcement, prompting, fading, extinction, and overcorrection.

EDU140 Sign Language Shorthand
STANDARD CREDIT TYPE *1*
Introduces students to elementary sign language for use with intellectually disables persons. Emphasizes the use of shorthand signs rather than finger spelling.

EDU160 Human Growth and Development *AA Approved*
STANDARD CREDIT TYPE *3*
Examines physical, social, and cognitive development from conception to death, utilizing current research.

EDU175 Intro/Human Disabilities & Services
STANDARD CREDIT TYPE *3*
Introduces careers related to working with people with disabilities. Includes an introduction to special education, residential services, vocational services, and other services for children and adults with disabilities. Covers specific disabilities, ways in which people with disabilities learn, child development, and stress and time management. Also covers professionalism, teamwork, communication skills, and behavior management. Completion of the course requires performing service projects. Successful completion of this course and EDU126 enables a student to become certified in Iowa as a Para-educator.

EDU213 Introduction to Education
STANDARD CREDIT TYPE *3*
Survey of the aims, organization, politics, history and leaders in European and American education.

EDU235 Children's Literature
STANDARD CREDIT TYPE *3*
Introduction to selection principles, evaluation criteria, and utilization of book and non-book media for the child (early childhood through sixth grade).

EDU240 Educational Psychology
Prerequisite: PSY111
STANDARD CREDIT TYPE *3*
Includes the learning process, theories of motivation, psychology in the classroom, and research pertinent to teaching and learning.

EDU245 Exceptional Learner
STANDARD CREDIT TYPE *3*
Etiology, diagnosis, treatment prognosis, and vocational implications of physical/mental disabilities.

EDU255 Technology in the Classroom
Prerequisite: CSC118
STANDARD CREDIT TYPE *3*
Explores the utilization of technology for teaching and learning. The course focuses on both reviewing the current theory and the use of instructional technology, and on providing experiences that will enable the student to select and evaluate software and hardware for the classroom.

EDU282 Field Experience: Exploring Teaching
Prerequisite: EDU160; Corequisite: EDU240
STANDARD CREDIT TYPE *1*
Purpose of this field experience is to help students familiarize themselves with the roles and responsibilities of teachers in relationship to their students, administrators, and each other. The student will spend 34 hours observing the methods, practices, and interactions of a selected mentor teacher. These observations will then serve as the information base for the student to either confirm or refute intent to become a teacher.

EDU917 Experimental Course
Prerequisite: Instructor's approval
STANDARD CREDIT TYPE *Varied Credit*
New courses as student interests demand.

EDU927 Honors Study
STANDARD CREDIT TYPE *Varied Credit*
This course is designated as an honors course in education as a special project.

EDU929 Individual Projects
Prerequisite: Instructor's approval
STANDARD CREDIT TYPE *Varied Credit*
Special topics as arranged with instructor.

EGT – Engineering Technology

EGT127 Statics and Strength
Prerequisite: PHY121 or PHY162
CAREER AND TECHNICAL CREDIT TYPE *4*
The study of static force systems, centroids and moments of inertia, shear and moment diagrams, properties of materials, and the stress and strain of materials when loaded in tension, compression, shear, torsion and bending. This is an algebra-based course designed for vocational-technical students; it could be good preparation for a university level statics course.

EGT128 Statics
Prerequisite: MAT210, MAT216, and PHY212
STANDARD CREDIT TYPE *3*
Vector and scalar treatment of coplanar and noncolanar force systems. Resultants, equilibrium, friction, centroids, moments and products of inertia of areas.

EGT141 Fluid Power
CAREER AND TECHNICAL CREDIT TYPE *3*
Construction and operation of the basic components of hydraulic systems; valves, cylinders, pumps, motors, fluid preparation devices, and fluid storage devices. Symbolic construction. Fluid power systems for power transmission and control purposes.

EGT182 Engineering Technology Problems
Prerequisite: C- or better in MAT129 or MAT132; or instructor's approval
CAREER AND TECHNICAL CREDIT TYPE   *3*
The development of skills necessary for the technician to communicate with the engineer. Orderly methods of solving problems using paper, calculator, and spreadsheets.

EGT183 Engineering Technology Lab
Prerequisite: C- or better in MAT129 or MAT132; or instructor's approval
CAREER AND TECHNICAL CREDIT TYPE   *1*
The development of skills necessary to work in a technical or engineering field. Research, testing, and documentation of an engineering project. Laboratory measurement, analysis, and documentation.

EGT186 Engineering Problems with Prgrmmng
Prerequisite: COMPASS college algebra score of 55 or better, ACT math score of 26 better, MAT121.
STANDARD CREDIT TYPE   *3*
Solving engineering problems and presenting solutions through technical reports. Graphing and curve-fitting. Use of SI units and significant figures. Introduction of engineering statistics. Solution of engineering problems using the VBA programming language.

EGT192 Engineering Graphics and Design
Prerequisite: COMPASS college algebra score of 55 or better, ACT math score of 26 or better, or MAT121.
STANDARD CREDIT TYPE   *3*
Integration of fundamental graphics, computer modeling, and engineering design. Applications of multi-view drawings and dimensioning. Techniques for visualizing, analyzing and communicating 3D geometries. Application of the design process. Freehand and computer methods.

EGT400 PLTW-Intro to Engineering Design
Prerequisite or Corequisite: One year of high school algebra
STANDARD CREDIT TYPE   *3*
This course uses a design development process while enriching technical and engineering problem-solving skills; students create and analyze models using specialized computer software (AutoCAD Inventor).

EGT410 PLTW-Principles of Engineering
Prerequisite: EGT400
STANDARD CREDIT TYPE   *3*
Using technology systems and manufacturing processes, students find out how math, science, and technology help people. This course was developed by Project Lead the Way.

EGT420 PLTW-Digital Electronics
Prerequisite: EGT400
STANDARD CREDIT TYPE   *3*
Uses computer simulations to teach students the logic of electronics as they design, test and construct circuits and devices. This course was developed by Project Lead the Way.

EGT430 PLTW-Aerospace Engineering
Prerequisite: EGT400
STANDARD CREDIT TYPE   *3*
This course exposes students to the world of aeronautics, flight, and engineering. Students will be introduced to the Project Lead The Way® activity-based, project-based, and problem-based learning through exploring the world of aerospace engineering. Students should have experience in physics, mathematics, and technology education. They will employ engineering and scientific concepts in the solution of aerospace problems.

EGT440 Biotechnical Engineering
Prerequisite: Instructor's approval
STANDARD CREDIT TYPE   *3*
Using activities, projects and problems, students learn first-hand how engineers and technicians operate in the worlds of bio-technology and bio-engineering.

EGT450 PLTW-Computer Integrated Manufact
Prerequisite: EGT400
STANDARD CREDIT TYPE   *3*
Teaches robotics and automated manufacturing concepts by creating three-dimensional designs with modeling software, then producing actual models of student designs. This course was developed by Project Lead the Way.

EGT460 PLTW-Civil Engineering and Architec
Prerequisite: EGT400
STANDARD CREDIT TYPE   *3*
Introduces teams of students to collaboration on the development of community-based building projects and conceptual design for project presentations. This course was developed by Project Lead the Way.

EGT470 PLTW-Engineering Design and Develop
Prerequisite: EGT400
STANDARD CREDIT TYPE   *3*
An engineering research course in which students work in teams to research, design and construct a solution to an open-ended engineering problem. Students apply principles developed in the four preceding courses and are guided by a community mentor. They must present progress reports, submit a final written report and defend their solutions to a panel of outside reviewers at the end of the school year.

EGT917 Experimental Course
Prerequisite: Instructor's approval
STANDARD CREDIT TYPE   *Varied Credit*
New courses as student interests demand.

EGT929 Individual Projects
Prerequisite: Instructor's approval
STANDARD CREDIT TYPE   *Varied Credit*
Special topics as arranged with instructor.

ELE – Electrical Technology

ELE151 Nat'l Elec. Code & Elec. Wire.
CAREER AND TECHNICAL CREDIT TYPE   *3*
The study of the NEC to prepare the students to layout, plan and install wiring systems in commercial and industrial complexes.

ELE359 Adv. Electrical Theory & Principles
CAREER AND TECHNICAL CREDIT TYPE   *3*
Defines the principles within utility technician electrical theory including communications, programs, mathematics, tools and operations.

ELE360 Adv. Electrical Technical Skills
CAREER AND TECHNICAL CREDIT TYPE   *5*
Implements the skills within utility technician electrical theory including communications, programs, mathematics, tools and operations.

ELE361 Line Utility Field Training 1
Prerequisite: IND171
CAREER AND TECHNICAL CREDIT TYPE   *8*
Introduction to hazards, safety and documentation of pole-climbing. Students learn the proper use of climbing gear, belts, hooks, and tools. Basic construction standards in digging and mounting poles. Climbing situations are practiced with students working out situations on a pole with installations. Some rescue situations are practiced.

ELE362 Line Utility Field Training 2
Prerequisite: IND171
CAREER AND TECHNICAL CREDIT TYPE   *8*
Minimum approach distances are explored along with overhead and underground construction. Setting and framing of poles are practiced. Drilling, stringing wire, installing conduit, operating mechanical equipment, and setting single phase transformers and cabinets are situations for student training.

ELE363 Line Utility Field Training 3
Prerequisite: IND171
CAREER AND TECHNICAL CREDIT TYPE   *8*
Students experience transformer connections, capacitor banks, regulator banks, substation basics, single and 3-phase connections are mapped and modeled on the field. Transformer situational problem-solving is experienced by testing and trouble-shooting.

ELE917 Experimental Course
CAREER AND TECHNICAL CREDIT TYPE   *Varied Credit*
New courses as student interests demand.

ELT – Electronics

ELT111 Introduction to Electronics
CAREER AND TECHNICAL CREDIT TYPE   *3*
Use of lab equipment, measuring techniques, familiarization with circuit components, basic electronic circuits.

ELT170 Introduction to PLCs
Corequisite: ELT220 or instructor's approval
CAREER AND TECHNICAL CREDIT TYPE   *3*
The principles of control circuits in industrial equipment, how PLCs are programmed, and trouble-shooting.

ELT220 AC-DC Motors and Controls
CAREER AND TECHNICAL CREDIT TYPE   *5*
A study of the construction, operation, maintenance, and troubleshooting of AC and DC motors and generators. The class also allows students to identify electric symbols as they apply to motor controls and to interpret and draw various electrical diagrams. The course gives hands on experience in wiring and troubleshooting motor control circuits.

ELT241 PLCs II
Prerequisite: ELT170 or instructor's approval
CAREER AND TECHNICAL CREDIT TYPE   *3*
Study of using a PC to program and troubleshoot PLCs.

ELT395 Advanced Electrical Circuits
Prerequisite: ELT111 or instructor's approval
CAREER AND TECHNICAL CREDIT TYPE   *5*
Complete circuit analysis for typical electronic circuits. Study of small-signal amplifiers, operational amplifiers, oscillators, filters, and voltage regulators.

ELT815 Electronic Troubleshooting
CAREER AND TECHNICAL CREDIT TYPE   *3*
Self-paced course/interactive video. A series of lessons to develop an understanding of the fundamental principles, concepts, types, methods, and approaches to troubleshooting electronic components.

ENG – English Composition

ENG002 Spelling
DEVELOPMENTAL CREDIT TYPE   *2*
Self-paced course to teach and/or review the basic rules of spelling as well as offer practice in their application.

ENG005 Vocabulary
DEVELOPMENTAL CREDIT TYPE   *2*
Self-paced course to help students develop the vocabulary necessary for academic success and effective communications.

ENG048 Communication through Reading & Wrt
DEVELOPMENTAL CREDIT TYPE   *4*
Development of basic composition and critical reading skills needed to assist students in becoming successful college students. Focuses on generating well-developed and well organized essays; using proper grammar, punctuation, and spelling; expanding college-level vocabulary; and interpreting and analyzing text.

ENG060 College Preparatory Writing I
DEVELOPMENTAL CREDIT TYPE   *3*
Designed to help students gain fluency and confidence in writing, generating well-developed and well-organized essays, and learning college-level writing. Topics include rules of grammar, punctuation, and spelling.

ENG061 College Preparatory Writing II
Prerequisite: COMPASS writing score of 38 or better, ACT English score of 13 or better, or grade of C or better in ENG060
DEVELOPMENTAL CREDIT TYPE   *3*
Designed for students whose writing skills fall between the College Prep Writing I and Composition I levels. The course will prepare students for Composition I and will emphasize the transition from effective paragraphs to effective college essays, as well as review the necessary grammar basics.

ENG073 Academic Transitions Writing III
Prerequisite: COMPASS ESL grammar score of 50-69
DEVELOPMENTAL CREDIT TYPE   *3*
This course is designed to introduce students with an intermediate English proficiency to the written language skills needed to be successful in college classes and in the community. It will introduce students to basic writing skills as well as expand vocabulary, grammar and syntax knowledge.

ENG074 Academic Transitions Writing IV
Prerequisite: COMPASS ESL grammar score of 70-79 or grade of C- or better in ENG073
DEVELOPMENTAL CREDIT TYPE   *3*
This course is designed to continue a students' development of intermediate English skills needed to be successful in college classes and in the community. It will expand students' vocabulary, grammar and syntax knowledge.

ENG105 Composition I *AA Approved*
Prerequisite: COMPASS writing score of 60 or better, ACT English score of 18 or better, grade of A- or better in ENG060 or grade of C or better in ENG061.
STANDARD CREDIT TYPE   *3*
Written communication using various rhetorical methods.

ENG106 Composition II *AA Approved*
Prerequisite: ENG105
STANDARD CREDIT TYPE   *3*
A study of written communication emphasizing argumentation, persuasion, investigation, and the research paper.

ENG111 Technical Writing
STANDARD CREDIT TYPE   *3*
Introduces students to technical and business communications, both written and oral. Includes correspondence, mechanical description, procedure, informal and formal reports.

ENG210 Adv. Critical Thinking in Writing
STANDARD CREDIT TYPE   *3*
Advanced course in written communication with major emphasis on writing non-fiction prose. Appropriate for students who will use writing in their vocations or engage in writing as an avocation. Offered on sufficient demand.

ENG221 Creative Writing
Prerequisite: ENG105
STANDARD CREDIT TYPE   *3*
An introduction to writing poetry, short fiction, and creative nonfiction. A writer's workshop is conducted throughout the term. Emphasis on revision.

ENG917 Experimental Course
Prerequisite: Instructor's approval
STANDARD CREDIT TYPE   *Varied Credit*
New courses as student interests demand.

ENG927 Honors Study
STANDARD CREDIT TYPE   *Varied Credit*
This course is designated as an honors course in English composition as a special project.

ENG929 Individual Projects
Prerequisite: Instructor's approval
STANDARD CREDIT TYPE   *Varied Credit*
Special topics as arranged with instructor.

ENV – Environmental Science

ENV115 Environmental Science
STANDARD CREDIT TYPE *3*
Current energy and environmental topics present reality of concerns, dangers, necessities, cost and procedures to effect a needed balance. Content flexible to include current developments and meet student interests/needs. Includes practicality of man's dependence and impact on environment.

ENV120 Environmental Biology *AA Approved*
STANDARD CREDIT TYPE *3*
Introductory ecology course for science or non-science majors. Practical understanding of human dependence and impact on the physical and biological environment.

ENV122 Environmental Biology *AA Approved*
STANDARD CREDIT TYPE *4*
Exploration of environmental science from a biological perspective. Participants will learn basic biological concepts of ecology, including adaptation and evolution of species, ecology of soils, aquatic and marine systems, nutrient and energy cycles (including renewable and non-renewable energy), biodiversity, conservation practices, species population cycles (including human population growth), global climate behavior, some toxicology, and more. The course goal is to provide basic training in the process of science and equip students with the skills and information they need to make informed decisions about the increasing amount of science and technology in their lives. There will be many opportunities to apply knowledge to daily life and current issues. Students will acquire skills to enable them to participate in research - both experimental and observational.

ENV917 Experimental Course
STANDARD CREDIT TYPE *Varied Credit*
New courses as student interests demand.

ESL – Non-intensive ESL

ESL002 Vocabulary
DEVELOPMENTAL CREDIT TYPE *2*
Self-paced course designed to help the non-English speaking student develop the vocabulary necessary for academic success and effective communications.

ESL045 ESL Reading III
Prerequisite: COMPASS/ESL reading usage score of 50 or better.
DEVELOPMENTAL CREDIT TYPE *3*
Designed to introduce students with limited English proficiency to the reading skills that will be needed to be successful in academic classes and in the community.

ESL051 ESL Writing III
Prerequisite: COMPASS/ESL grammar usage score of 50 or better.
DEVELOPMENTAL CREDIT TYPE *3*
Designed to introduce students with limited English proficiency to the written language skills that will be needed to be successful in academic classes and in the community.

ESL065 ESL Reading IV
Prerequisite: COMPASS/ESL reading score of 71or better, or ESL045
DEVELOPMENTAL CREDIT TYPE *3*
Designed to continue an ESL student's development of the Cognitive Academic Language Proficiency (CALP) skills required for college reading success. Not a transfer course.

ESL071 ESL Writing IV
Prerequisite: COMPASS/ESL grammar usage score of 71 or better, or ESL051
DEVELOPMENTAL CREDIT TYPE *3*
Designed to continue an ESL student's development of the Cognitive Academic Language Proficiency (CALP) skills required for college writing success. Requires a COMPASS/ESL Grammar Usage score is between 84-93. Not a transfer course.

ESL074 ESL Listening/Speaking IV
Prerequisite: COMPASS/ESL listening score of 50 or better.
DEVELOPMENTAL CREDIT TYPE *3*
Designed to introduce students with limited English proficiency to the oral language skills that will be needed to communicate successfully in academic classes and in the community.

ESL085 ESL Reading V
Prerequisite: COMPASS/ESL reading score of 81 or better, or ESL065.
DEVELOPMENTAL CREDIT TYPE *3*
Designed to introduce students with advanced English proficiency to the reading skills that will be needed to be successful in academic classes and in the community.

ESL086 ESL Writing V
Prerequisite: COMPASS/ESL grammar usage score of 81or better, or ESL071
DEVELOPMENTAL CREDIT TYPE *3*
Designed to introduce students with advanced English proficiency to the written language skills that will be needed to be successful in academic classes and in the community.

ESL087 ESL Listening/Speaking V
Prerequisite: COMPASS/ESL listening score of 71or better, or ESL074
DEVELOPMENTAL CREDIT TYPE *3*
Designed to prepare non-native speakers for all levels of oral communication in academic settings. The primary emphasis is on individual and group presentations.

ESL917 Experimental Course
STANDARD CREDIT TYPE *Varied Credit*
New courses as student interests demand.

FIN – Finance

FIN101 Principles of Banking
STANDARD CREDIT TYPE *3*
An overview of money and banking institution and their role and functions in the economy. Includes study of Federal Reserve System, characteristics of financial intermediaries, and regulatory institutions. Topics include principles of monetary and fiscal policy, commercial banking structures, and financial markets.

FIN105 AIB Principles of Banking
STANDARD CREDIT TYPE *2*
A comprehensive introduction to diversified services offered by the banking industry today, history, economic and community environment, banking documents and language, the deposit function, check processing and collection, bank bookkeeping, bank loans and investments, trust department services, specialized services, and bank regulation and examination.

FIN180 Intro to Investments
STANDARD CREDIT TYPE *3*
Investments, security markets and security valuation. Development of investment strategies based on efficient markets, asset pricing and portfolio theory.

FIN917 Experimental Course
STANDARD CREDIT TYPE *Varied Credit*
New courses as student interests demand.

FIN929 Individual Projects
STANDARD CREDIT TYPE *Varied Credit*
Special projects as arranged with instructor.

FLR – Foreign Language – Russian

FLR141 Elementary Russian I
STANDARD CREDIT TYPE *4*
An introductory course that takes a contemporary and authentic approach to developing functional competence in reading, speaking, writing, and listening. Students will expand their cultural knowledge of this populous and intriguing society.

FLR142 Elementary Russian II
Prerequisite: FLR141
STANDARD CREDIT TYPE *4*
A continuation of FLR141. Students continue to develop proficiency in reading, speaking, writing, and listening.

FLR241 Intermediate Russian I
Prerequisite: FLR142
STANDARD CREDIT TYPE *4*
First semester of a second-year course. Expand a basic command of Russian with particular emphasis on more advanced aspects of Russian grammar (cases, verbal aspect, verb morphology).

FLR242 Intermediate Russian II
Prerequisite: FLR241
STANDARD CREDIT TYPE *4*
Second semester of a second-year course. Expand a basic command of Russian with particular emphasis on more advanced aspects of Russian grammar (cases, motion verbs, adjectives, pronouns, numbers, participles, and gerunds).

FLR917 Experimental Course
STANDARD CREDIT TYPE *Varied Credit*
New student courses as student interests demand.

FLR929 Individual Projects
STANDARD CREDIT TYPE *Varied Credit*
Specialized assignment designed by student/instructor.

FLS – Foreign Language – Spanish

FLS030 Occupational Spanish: Swine Mgmt
CAREER AND TECHNICAL CREDIT TYPE *1*
Introduces and explains common terms, commands and everyday Spanish words that swine management workers and employers might use on the job. Course focuses on the practice of useful language techniques and phrases.

FLS128 Conversational Spanish
DEVELOPMENTAL CREDIT TYPE *3*
This course introduces the basic components of Spanish grammar and how to use them in basic conversations related to specific vocational fields.

FLS141 Elementary Spanish I
STANDARD CREDIT TYPE *4*
A beginning course in the Spanish language that takes a communicative approach to developing proficiency in listening, speaking, reading and writing. Students understand and talk about people, places, and activities of interest in their daily lives. They also develop an awareness of Hispanic culture in other countries and in the U.S.

FLS142 Elementary Spanish II
Prerequisite: FLS141
STANDARD CREDIT TYPE *4*
A continuation of FLS141. Students develop skill in narrating in past tenses while listening to and talking about familiar features of daily life. Learn more about people and places in the Hispanic world.

FLS241 Intermediate Spanish I *AA Approved*
Prerequisite: FLS142
STANDARD CREDIT TYPE *4*
Learn more complex aspects of Spanish grammar (subjunctive, compound tenses, etc.) while continuing to develop skill in listening, speaking, reading, and writing. A look at significant history and art of the Hispanic world.

FLS242 Intermediate Spanish II *AA Approved*
Prerequisite: FLS241
STANDARD CREDIT TYPE *4*
Develop skills by reading, discussing, and writing about short works of Spanish literature. Includes review of Spanish grammar, writing short compositions, and engaging in conversations.

FLS917 Experimental Course
STANDARD CREDIT TYPE *Varied Credit*
New student courses as student interests demand.

FLS929 Individual Projects
STANDARD CREDIT TYPE *Varied Credit*
Specialized assignment designed by student/instructor.

GEO – Geography

GEO121 World Regional Geography *AA Approved*
STANDARD CREDIT TYPE *3*
Introduction to elements of cultural, physical and political geography; includes land forms, climate, soils, population, maps, globes, charts, and statistical materials of major areas of the world.

GEO917 Experimental Course
Prerequisite: Instructor's approval
STANDARD CREDIT TYPE *Varied Credit*
New courses as student interests demand.

GEO929 Individual Projects
Prerequisite: Instructor's approval
STANDARD CREDIT TYPE *Varied Credit*
Special topics as arranged with instructor.

GIS – Geographic Information Systems

GIS111 Intro to Geographic Information Sys
STANDARD CREDIT TYPE *3*
Geographic Information System (GIS) has revolutionized transportation systems, urban and rural planning, and agricultural management by making them more efficient. If you have ever looked up driving directions online or used Google Earth; you have used a GIS system. The objective of the course is to help you understand what is GIS, object representation, data structure, and GIS capabilities. Data structure will introduce vector and raster data, and how these data structure work. The GIS capabilities section will introduce different methods for analyzing and manipulating mapped (spatial) data such as querying data, creating buffer zones, and joining spatial data. At the conclusion of this course, you will have an understanding of GIS and its capabilities.

GIS130 Remote Sensing
Prerequisite: GIS213
STANDARD CREDIT TYPE *3*
Will introduce students to working with remotely sensed data. Students will develop skills necessary for basic interpretation of aerial photography data, how it is collected, and the ability to analyze maps created from the data collected. Course will also cover sensors operating in the visible, infrared, and microwave range of the electro-magnetic spectrum. The use of imaging GIS software for manipulation and image processing of digital satellite data is also emphasized.

GIS211 Mapping for Decision Making
Prerequisite: GIS111 or AGP333; and GIS213
STANDARD CREDIT TYPE *4*
Builds on the skills developed in GIS111 and GIS213. The course will utilize case studies and applications to examine real-world situations and evaluate and incorporate data into a GIS project using common ArcGIS extensions. The course will give students an understanding of how to apply the skills and knowledge learned in GIS111 and GIS213 classes to aid in evaluating problems in a wide range of areas.

GIS213 Intermediate GIS
Prerequisite: GIS111
STANDARD CREDIT TYPE *4*
Builds upon basic GIS applications skills with more advanced skill sets. Topics in this course include mapping densities, overlays, mapping changes, geographic distributions, and analyzing patterns. Students will complete a project in the course using actual local community involved endeavors. Students should have a basic working knowledge of GIS before enrolling.

GIS240 GIS Projects
Prerequisite: GIS130 and GIS211
STANDARD CREDIT TYPE   *3*
This is a capstone course designed for students to develop the skills necessary for the design and implementation of GIS. The student will present his/her project to a client and train the client in the system that they developed. The student will also develop skills in project management and system documentation.

GIS907 Cooperative Field Experience
STANDARD CREDIT TYPE   *4*
Will gain practical applied work experience in production and business related directly to GIS applications. Will be employed by a firm or individual selected by the student and agreed upon by the instructor. A signed contract between the student, college, and employer is required unless strictly prohibited by company policy of the cooperator. The student will gain operational, teamwork skills, and applied skills in all phases of the business operation. The student is not to be an extra menial laborer.

GIS917 Experimental Course
STANDARD CREDIT TYPE   *Varied Credit*
New courses as student interests demand.

GRA – Graphic Communications

GRA110 Graphic Arts Principles
CAREER AND TECHNICAL CREDIT TYPE   *3*
This is a studio course that introduces tools, their usage and the design type, space and imagery. Layout of 2-D graphic design for print-based media. It is about the theory and practice of graphic design.

GRA127 Illustrator I
CAREER AND TECHNICAL CREDIT TYPE   *3*
This studio course introduces Illustrator and other digital software. The course is the use of digital tools for digital and print-based output of vector-based illustration. Computer animation is also explored.

GRA140 Digital Imaging
CAREER AND TECHNICAL CREDIT TYPE   *3*
This studio course introduces Photoshop and other design and Web-based software tools. This is a basic course in computer design in digital input and manipulation, software filters, dpi, rasterizing imagery for digital output.

GRA141 Digital Imaging II
Prerequisite: GRA140
CAREER AND TECHNICAL CREDIT TYPE   *3*
This studio course expands the use of Photoshop, Illustrator, and other digital software. Advanced techniques for digital output, refinement of Web-based output, and digital navigation will be addressed.

GRA917 Experimental Course
Prerequisite: Instructor's approval
CAREER AND TECHNICAL CREDIT TYPE   *Varied Credit*
New courses as student interests demand.

GUS – Gunsmithing

GUS102 Introduction to Firearms
CAREER AND TECHNICAL CREDIT TYPE   *2*
This course is an orientation and introduction to basic firearms safety, the history of firearms and ammunition, firearms design and function and the modern firearms. Students completing the course will receive an NRA Home Firearms Safety Certificate.

GUS105 Gunsmith Machining I
Prerequisite: MVGSM Program Acceptance
CAREER AND TECHNICAL CREDIT TYPE   *3*
Learn the theory and practice of basic gunmetal lathe and milling machine operations. Also includes the use of precision measuring tools, bench grinders and other machine tools as needed. Projects involve making specialized gunsmithing tools. General machine shop safety practices are strongly emphasized.

GUS110 Firearms Bench Metal I
Prerequisite: MVGSM Program Acceptance
CAREER AND TECHNICAL CREDIT TYPE   *4*
This course emphasizes shop safety and hand work, including: the proper use of measuring and hand tools, layout, drilling, sawing, filing, soldering, silver soldering, forging, heat treatment, and hand polishing.

GUS114 Bench Metal II
Prerequisite: MVGSM Program Acceptance and GUS110
CAREER AND TECHNICAL CREDIT TYPE   *3*
This course emphasizes safety in the shop with hand and machine tools, addressed the use of hand tools and welding equipment. Proper use of measuring tools are explained and demonstrated. Material covers layout and building of tools and gun parts, using common basic processes, including a study of basic metallurgy, heat treatment, soldering and brazing.

GUS118 Firearms History & Development
Prerequisite: MVGSM Program Acceptance
CAREER AND TECHNICAL CREDIT TYPE   *2*
Course provides an overview of firearms history and development. Includes history of firearms and ammunition, firearms parts nomenclature, cycles of operation, basic troubleshooting and repair procedures.

GUS119 Stockmaking
Prerequisite: MVGSM Program Acceptance
CAREER AND TECHNICAL CREDIT TYPE   *3*
Stockmaking for bolt action rifles from semi-inletted blanks will be the main focus of the course. The course will cover inletting the barrel and trigger guard, installing grip cap, steel butt plate or recoil pad, fore-end, swivels, shaping, sanding and finishing.

GUS123 Firearms Repair I
Prerequisite: MVGSM Program Acceptance
CAREER AND TECHNICAL CREDIT TYPE   *5*
This introductory course provides an overview of firearms repair. The following topics will be covered: design, function, takedown, troubleshooting, repair, and assembly. This course will cover various rifles, handguns and shotguns students may expect to encounter throughout their career.

GUS135 Firearm Conversions
Prerequisite: MVGSM Program Acceptance
CAREER AND TECHNICAL CREDIT TYPE   *3*
Learn the techniques of the conversion of military rifle actions into customized sportier rifle actions. Bolt handles, safeties, iron sights, scope mounts, adjustable triggers, and trigger guard contouring and other custom conversion and accessory will be included. This course deals with the miscellaneous jobs brought into the gun shop other than normal repairs related to the bolt action rifle.

GUS140 Checkering I
Prerequisite: MVGSM Program Acceptance
CAREER AND TECHNICAL CREDIT TYPE   *4*
Learn an overview of the building of a sporter style rifle stock from a stock blank. Study in stock design, wood cutting hand tools and their application, stock layout, wood selection, routing and inletting, forend tip and grip cap installation, shaping, recoil pad installation, sanding, finishing and refinishing with oil based finishes.

GUS154 Gun Shop Records
Prerequisite: MVGSM Program Acceptance
CAREER AND TECHNICAL CREDIT TYPE   *1*
Introduces BATF records and other general recordkeeping requirements for the smooth operation of a gunshop or gunsmithing business. Focuses on basic business practices and ethics.

GUS205 Firearms Machining II
Prerequisite: MVGSM Program Acceptance and GUS105
CAREER AND TECHNICAL CREDIT TYPE   *3*
This course is an advanced study of machine tool operation with special emphasis on gunsmithing procedures. Course work includes safety, cutting speeds and feeds, rifle barrel lining, abrasive machining, carbide tooling, machine maintenance, spring winding, advanced barrel fitting and chambering.

GUS220 Advanced Machine Practice
Prerequisite: MVGSM Program Acceptance and GUS205
CAREER AND TECHNICAL CREDIT TYPE   *2*
Focuses on continued theory and practice of machine tool operation with special emphasis on gunsmithing procedures. Projects include specialized gunsmithing tools and fixtures. Covers safety, milling cutters, cutting speeds and feeds, rifle barrel lining, abrasive machining, cutting tool materials, and machine maintenance. Shop safety is strongly emphasized.

GUS245 Stockmaking II
Prerequisite: MVGSM Program Acceptance and GUS119
CAREER AND TECHNICAL CREDIT TYPE   *5*
Learn stockmaking techniques starting from a semi-inletted for one and two piece gunstocks of both wood and synthetics materials. Techniques in glass bedding, gun fitting, installation of custom hardware and finishing techniques will be studied.

GUS248 Firearms Repair II
Prerequisite: MVGSM Program Acceptance and GUS123
CAREER AND TECHNICAL CREDIT TYPE   *5*
Serves as an advanced gunsmithing course in firearms repair theory. Includes design, function, takedown, troubleshooting, assembly and repair of selected shotguns, rifles, and handguns. Also covers the use of specialized tools and fixtures.

GUS257 Firearms Business Practices I
Prerequisite: MVGSM Program Acceptance
CAREER AND TECHNICAL CREDIT TYPE   *3*
This course is designed specifically for the individual who is opening a firearms (repair and/or retail) business. The student will select an ownership method, create a business plan, develop inventory controls, ensure compliance with regulatory agencies specific to firearms, apply basic accounting principles, develop pricing strategies, and be able to apply human resource management skills to ensure business success.

GUS272 Firearms Business Practices II
Prerequisite: MVGSM Program Acceptance and GUS257
CAREER AND TECHNICAL CREDIT TYPE   *3*
This course is designed specifically for the individual who is opening a firearms business. The student continues to explore best business practices in the following areas: customer service, human resource management, time and motion studies, marketing and advertising, equipment purchase and maintenance, and managing growth.

GUS292 Firearms Repair III
Prerequisite: MVGSM Program Acceptance
CAREER AND TECHNICAL CREDIT TYPE   *5*
Focuses on nomenclature, cycle of operation, malfunctions and trouble shooting of revolvers and shotguns. Includes the study of action types and variations. Covers analysis or procuring, stocking and retailing new and used firearms as well as new and used parts. Emphasizes private enterprise.

GUS293 Firearms Repair Workshop
Prerequisite: MVGSM Program Acceptance
CAREER AND TECHNICAL CREDIT TYPE   *3*
Continues analysis for procuring, stocking new and used firearms as well as new and used parts. Emphasizes private enterprise.

GUS929 Individual Projects
CAREER AND TECHNICAL CREDIT TYPE   *varied credit*
This course allows student lab time to complete a capstone project in their second year of study for the completion of the degree.

GUS917 Experimental Course
STANDARD CREDIT TYPE   *Varied Credit*
New courses as student interests demand.

GUS932 Practicum
Prerequisite: MVGSM Program Acceptance
CAREER AND TECHNICAL CREDIT TYPE   *3*
Experience gained on-the-job with cooperating firms. Maximum of 3 credits per semester. May be repeated for a maximum of 9 credit hours.

HCM – Hospitality, Culinary & Mgt

HCM100 Sanitation and Safety
CAREER AND TECHNICAL CREDIT TYPE   *2*
This course provides the student with a solid foundation in foodservice sanitation and safety. Students are required to pass the state sanitation exam for certification in order to continue in the culinary arts curriculum.

HCM116 Fundamentals Of Baking
Prerequisite: HCM100
CAREER AND TECHNICAL CREDIT TYPE   *3*
This course is for a student with very little baking/pastry experience. Students will cover the basics of theory and preparation of baked items. Science and math will play a large role in this course. Items the students will prepare include yeast bread, cookies, creams, puddings, pie crusts and filling, and quick breads. The focus of the course is on standard production methods for a successful product in small and large scale batches.

HCM154 Basic Food Prep
Prerequisite: HCM100, HCM180, HCM501
CAREER AND TECHNICAL CREDIT TYPE   *2*
Upon completion of this course, students will have attained basic skills in grilling, frying, broiling, sautéing, vegetable cookery, recipe conversion/costing and soups/stocks.

HCM155 Garde Manger
Prerequisite: HCM100, HCM160, HCM241
CAREER AND TECHNICAL CREDIT TYPE   *3*
Students will prepare all foods associated with a true garde manger station in a restaurant including salads, pate, terrines, cold appetizers, showpieces, ice carvings, canapés and show platters.

HCM156 Intermediate Food Prep
Prerequisite: HCM100, HCM154, HCM180
CAREER AND TECHNICAL CREDIT TYPE   *3*
Upon completion of this course, students will have attained a medium level of skills in equipment usage, knife skills including mandolin, starches and vegetable cookery, protein fabrication, derivative sauces, fish and shell fish cookery, stone oven and Rational cooking, beginning sous vide cookery, and sanitation skills.

HCM160 Advanced Food Preparation
Prerequisite: HCM156 and MAT743
CAREER AND TECHNICAL CREDIT TYPE   *3*
Through this course students will develop food preparation and professional standards at an advanced level. Skill areas addressed include knife cuts, industry based equipment, mother sauces and their derivatives, culinary brigade, chef management, and the preparation of soups, starches, vegetables, protein, sushi, healthy alternatives and one-bit foods.

HCM180 Food Fundamentals
Prerequisite: HCM100
CAREER AND TECHNICAL CREDIT TYPE   *2*
This course is an overview of foodservice and culinary arts. Students look at industry structure, developing trends and influences of management. Students will develop their awareness of food products and the world of food.

HCM212 Industry Management
Prerequisite: HCM100, HCM255
CAREER AND TECHNICAL CREDIT TYPE   *3*
This course will expose students to theoretical concepts as well as practical applications to develop management skills related to the restaurant industry. The course is service-oriented with emphasis on staff and guest relations.

HCM233 Menu Planning & Nutrition
Prerequisite: HCM100, HCM160, HCM241
CAREER AND TECHNICAL CREDIT TYPE   *3*
Emphasis will be on basic food nutrients and their use in restaurant cooking. USDA guidelines and USRDA standards are covered. Students will calculate body energy requirements, and create a nutritionally sound menu using classical tools/preparation methods.

HCM241 Menu Planning/Sales Promotion
Prerequisite: HCM154, HCM280
CAREER AND TECHNICAL CREDIT TYPE   *3*
Students will learn what influences impact menus and how to target menus to specific needs. Menus from other cultures and menus for a variety of functions will be covered. The student will learn to prepare a cost-effective, seasonally oriented and overall aesthetic menu.

HCM255 Purchasing
Prerequisite: HCM180, MAT743
CAREER AND TECHNICAL CREDIT TYPE   *3*
This course will provide the student with a general understanding of purchasing in a professional food service setting and introduce the student to all aspects of obtaining goods: calculating quantities, costs, budgets, menu planning, choosing vendors, delivery schedules as well as storage needs. The student will apply culinary math calculations to analyze purchasing options.

HCM280 Food Cost Accounting
CAREER AND TECHNICAL CREDIT TYPE   *3*
This course teaches students to effectively calculate and control costs in foodservice establishments. Students are provided with the basic concepts to yield a profit in the kitchen and manage effective control over income and expenses in the restaurant industry.

HCM301 Beverage Control
CAREER AND TECHNICAL CREDIT TYPE   *3*
This course will provide an in-depth study of wines, beverages, spirits and beers. Topics covered include purchasing, storage and developing a wine list that is compatible with a variety of foods. Students must be 21 years of age to taste alcoholic beverages.

HCM501 Culinary Practicum I
Prerequisite: HCM100 or corequisite
CAREER AND TECHNICAL CREDIT TYPE   *3*
Students will complete a total of nine practicums (6000 hours total) in addition to classroom study. Practicums provide the students with on-the-job training following the work processes documented in the IVCCD's [MCC] Patterns & Standards for the Occupation of Cook. A focus of this practicum is for the student to develop and practice the skills of a kitchen steward.

HCM502 Culinary Practicum II
Prerequisite: HCM100, HCM501
CAREER AND TECHNICAL CREDIT TYPE   *3*
Students will complete a total of nine practicums (6000 hours total) in addition to classroom study. Practicums provide the students with on-the-job training following the work processes documented in the IVCCD's [MCC] Patterns & Standards for the Occupation of Cook. A focus of this practicum is for the student to develop and practice the skills of a breakfast cook.

HCM503 Culinary Practicum III
Prerequisite: HCM502
CAREER AND TECHNICAL CREDIT TYPE   *1.5*
Students will complete a total of nine practicums (6000 hours total) in addition to classroom study. Practicums provide the students with on-the-job training following the work processes documented in the IVCCD's [MCC] Patterns & Standards for the Occupation of Cook. A focus of this practicum is for the student to develop and practice the skills of vegetable cookery.

HCM504 Culinary Practicum IV
Prerequisite: HCM503
CAREER AND TECHNICAL CREDIT TYPE   *3*
Students will complete a total of nine practicums (6000 hours total) in addition to classroom study. Practicums provide the students with on-the-job training following the work processes documented in the IVCCD's [MCC] Patterns & Standards for the Occupation of Cook. A focus of this practicum is for the student to develop and practice the skills of protein fabrication.

HCM505 Culinary Practicum V
CAREER AND TECHNICAL CREDIT TYPE   *3*
Students will complete a total of nine practicums (6,000 hours total) in addition to classroom study. Practicums provide the students with on-the job training following the IVCCD's [MCC] Standard's and Practices for the Occupation of Cook.

HCM506 Culinary Practicum VI
CAREER AND TECHNICAL CREDIT TYPE   *1.5*
Students will complete a total of nine practicums (6,000 hours total) in addition to classroom study. Practicums provide the students with on-the job training following the IVCCD's [MCC] Patterns & Standards for the Occupation of Cook. A focus of this practicum is for the student to develop and practice the skills of a Soup & Sauce Cook.

HCM507 Culinary Practicum VII
CAREER AND TECHNICAL CREDIT TYPE   *3*
Students will complete a total of nine practicums (6,000 hours total) in addition to classroom study. Practicums provide the students with on-the job training following the IVCCD's [MCC] Patterns & Standards for the Occupation of Cook. A focus of this practicum is for development of the skills of a Pantry Cook and Garde Manger.

HCM508 Culinary Practicum VIII
Prerequisite: HCM507
CAREER AND TECHNICAL CREDIT TYPE   *3*
Students will complete a total of nine practicums (6,000 hours total) in addition to classroom study. Practicums provide the students with on-the job training following the IVCCD's [MCC] Patterns & Standards for the Occupation of Cook. The practicum is for the student to develop and practice the skills of saute cook.

HCM509 Culinary Practicum IX
Prerequisite: HCM508
CAREER AND TECHNICAL CREDIT TYPE   *1.5*
Students will complete a total of nine practicums (6000 hours total) in addition to classroom study. Practicums provide the students with on-the-job training following the work processes documented in the IVCCD's [MCC] Patterns & Standards for the Occupation of Cook. A focus of this practicum is for the student to develop and practice the skills of supervisor/lead cook.

HCR – Heating and Air Conditioning

HCR101 Basic Heat/Air Conditioning/Refrig
CAREER AND TECHNICAL CREDIT TYPE   *4*
Basic heating and cooling equipment including gas, electric, heat pump, and standard air conditioning units. Study of function/operation of heating/cooling systems.

HEQ – Heavy Equipment

HEQ125 Heavy Construction
CAREER AND TECHNICAL CREDIT TYPE   *6*
Develop knowledge of the tools, equipment, building styles and materials utilized in heavy construction. Apply heavy construction and equipment principals as they relate towards heavy equipment applications. Areas of instruction will include Intro to earth moving, Principles of cranes, earth moving, structures, below grade const., plant operation, on site equipment, soils part 2, grades part 2, pumps, paving, planning and scheduling, and lift planning. Heavy construction lab is a required class in order to meet the requirements of the school to work apprenticeship competencies.

HEQ126 Heavy Construction Lab
CAREER AND TECHNICAL CREDIT TYPE   *4*
Develop knowledge of the tools, equipment, building styles and materials utilized in heavy construction in lab or on site. Apply heavy construction and equipment principals as they relate towards heavy equipment applications. Areas of instruction will include Intro to earth moving, Principles of cranes, earth moving, structures, below grade const., plant operation, on site equipment, soils part 2, grades part 2, pumps, paving, planning and scheduling, and lift planning. Heavy construction lab is a required class in order to meet the requirements of the school to work apprenticeship competencies.

HIS – History

HIS112 Western Civil: Ancient to Early Mdrn *AA Approved*
STANDARD CREDIT TYPE *4*
Survey of social, political, intellectual, and cultural development of Western peoples from ancient times to the 1500s.

HIS113 Western Civil: Early Modern to Prsnt *AA Approved*
STANDARD CREDIT TYPE *4*
Survey of Western peoples from 1300s to the present.

HIS145 Modern East Asian Cultures *AA Approved*
STANDARD CREDIT TYPE *3*
Is focused on Asian cultures beginning in the 1600 to the present. East Asia Cultures focus on China, Japan, Korea and Vietnam and emphasizes on commonalities and differences among East Asian Countries.

HIS151 U.S. History to 1877 *AA Approved*
STANDARD CREDIT TYPE *3*
Survey of major political, economic, and social developments in American history from the Age of Discovery through the Civil War.

HIS152 U.S. History since 1877 *AA Approved*
STANDARD CREDIT TYPE *3*
Survey of the development of modern America, 1865 to the present.

HIS214 Russian History and Culture *AA Approved*
STANDARD CREDIT TYPE *3*
Examines the history of Russia from pre-Kievan to the present. Cultural and social aspects of Russian history, plus geographic, economic, demographic, and political conditions and factors throughout Russian history.

HIS254 American Indian History *AA Approved*
STANDARD CREDIT TYPE *3*
Overview of the history and cultures of American Indians in the U.S. from pre-Columbian (pre-contact with Europeans) times until the present with a major focus on white/American Indian relations.

HIS257 African American History
STANDARD CREDIT TYPE *3*
An overview of African-American history from the 1600s to the present.

HIS261 American Civil War
STANDARD CREDIT TYPE *2*
Survey of causes, major events and individuals, economic, political and social factors, and consequences associated with the Civil War, 1861-1865.

HIS917 Experimental Course
STANDARD CREDIT TYPE *Varied Credit*
New courses as student interests demand.

HIS927 Honors Study
STANDARD CREDIT TYPE *Varied Credit*
This course is designated as an honors course in history as a special project.

HIS929 Individual Projects
Prerequisite: Instructor's approval
STANDARD CREDIT TYPE *Varied Credit*
Special topics as arranged with instructor.

HSC – Health Sciences

HSC110 Introduction to Health Occupations
CAREER AND TECHNICAL CREDIT TYPE *3*
This course covers issues and practices in the health care industry. Topics include an in-depth exploration of health careers and employment expectations to assist in career development decisions; basic medical communication; and common health care safety practices.

HSC113 Medical Terminology
CAREER AND TECHNICAL CREDIT TYPE *2*
Medical terms related to medical science (describing human body and functions). Emphasis on building a medical vocabulary through understanding root words, prefixes and suffixes, accurate spelling, and pronunciation.

HSC129 Anatomy & Phys for Health Sciences
CAREER AND TECHNICAL CREDIT TYPE *5*
For health occupations students. Human anatomy and physiology form simple structures to the more complex and the interrelationships between them. Basic concepts of medical terminology will be incorporated.

HSC134 First Aid/CPR
CAREER AND TECHNICAL CREDIT TYPE *1*
Knowledge and skills for the emergency care of the injured and prevention of accidents. Certification in CPR, victim assessment, basic life support procedures and techniques for adults and children, foreign body airway obstruction in adults and children.

HSC166 Health Occupations Preparation
CAREER AND TECHNICAL CREDIT TYPE *1*
This course is for healthcare professionals who need to know how to perform CPR, as well as other lifesaving skills, in a wide variety of in-hospital and out-of-hospital settings. The course also prepares students to identify and report suspected child abuse and dependent adult abuse and it is a required course for mandatory reporters.

HSC172 Nurse Aide
CAREER AND TECHNICAL CREDIT TYPE *3*
This 75-hour nurse aide course prepares the student for state competency testing and employment in a long-term care nursing facility. Emphasis is on achieving a basic level of knowledge and demonstrating basic nursing care skills in order to provide safe, effective resident care. The course consists of classroom, lab and clinical experiences.

HSC175 Nurse Aide Phase II
Prerequisite: HSC166 and CPR Card
CAREER AND TECHNICAL CREDIT TYPE *3.5*
This course is for the person with a nurse aide certificate who wants to increase knowledge regarding basic nursing care for individuals receiving health care services. Upon successful completion the student is qualified to work as a nurse aide in an acute care setting. The course consists of classroom and clinical experiences.

HSC917 Experimental Course
Prerequisite: Instructor's approval
CAREER AND TECHNICAL CREDIT TYPE *Varied Credit*
New courses as student interests demand.

HSC929 Individual Projects
Prerequisite: Instructor's approval
CAREER AND TECHNICAL CREDIT TYPE *Varied Credit*
Special topics as arranged with instructor.

HUM – Humanities

HUM118 Humanities: Experience & Expression
STANDARD CREDIT TYPE *Varied Credit*
An exploration of interdisciplinary humanities topics as they relate to the development of human understanding and creation of the arts.

HUM287 Leadership Development Studies
STANDARD CREDIT TYPE *3*
Designed to provide emerging and existing leaders the opportunity to explore the concept of leadership and to develop and improve their leadership skills. Integrates readings from the humanities, experiential exercises, films, and contemporary readings on leadership.

HUM917 Experimental Course
STANDARD CREDIT TYPE *Varied Credit*
New courses as student interests demand.

HUM927 Honors Study
STANDARD CREDIT TYPE *Varied Credit*
This course is designated as an honors course in humanities as a special project.

IND – Industrial Technology

IND105 Introduction to Mechatronics
CAREER AND TECHNICAL CREDIT TYPE   *3*
Hands-on class of industrial systems and maintenance techniques. Areas covered include mechanical systems, hydraulic and pneumatics, motor controls, automated manufacturing, simple robotics, equipment lubrication and equipment moving. Students will work in groups to learn about and disassemble gearboxes, pumps, cylinders and automated machinery to uncover the inner workings and understand how the unit works.

IND110 CPR, First Aid and Safety
CAREER AND TECHNICAL CREDIT TYPE   *1*
Demonstration of fire extinguishers. Knowledge and skills needed for emergency care of the injured and prevention of accidents. General safety rules of the shop.

IND115 Occ.Safe/Health/Envir Concerns
CAREER AND TECHNICAL CREDIT TYPE   *1*
Safety techniques in the work environment.

IND125 Introduction to Process Control
CAREER AND TECHNICAL CREDIT TYPE   *3*
A study of control terminology and theory, control systems and controller circuit design, controller operation, maintenance, alignment, calibration, and tuning are covered. Application and operation of relays in the control circuit is covered.

IND132 Mechanical Instruments
CAREER AND TECHNICAL CREDIT TYPE   *3*
A study of pneumatic instrumentation measurement and control equipment. Topics include calibration, calibration standards, documentation, maintenance and repair of manometers, pressure regulators, pressure gauges, recorders, D/P cell transmitters, pressure transmitters, level displacement instruments, valve positioners, and control valves.

IND135 Print Reading for Process Management
CAREER AND TECHNICAL CREDIT TYPE   *3*
Introduction to mechanical print reading for the valve and regulator industries.

IND153 Industrial Mechanics
CAREER AND TECHNICAL CREDIT TYPE   *3*
Teaches the knowledge and skills required to do the following: install and maintain mechanical power transmissions systems, install and align coupling and shafts, perform proper lubrication on these systems, perform maintenance on these systems will be demonstrated as part of the course.

IND160 Seals, Bearings and Lubrication
CAREER AND TECHNICAL CREDIT TYPE   *3*
Self-paced course/interactive video. Basic information about seals and bearings used in industrial applications; selection and application of lubrication to machinery.

IND169 Basic Plumbing and Pipework
CAREER AND TECHNICAL CREDIT TYPE   *2*
Study of typical in plant applications of piping and fittings in an industrial plant. Emphasis will be placed on basic skills of installing metal and plastic pipe. Course includes cutting, bonding, and joining pipe.

IND171 General Utility Technical Skills
CAREER AND TECHNICAL CREDIT TYPE   *4*
Overview of the utility technician industry with basic skill preparation in the areas of gas, electrical and mechanical drives theories.

IND172 Adv. Gas Theory & Principles
CAREER AND TECHNICAL CREDIT TYPE   *3*
Defines the principles within utility technician gas theory including communications, programs, mathematics, tools and operations.

IND173 Adv. Gas Technical Skills
CAREER AND TECHNICAL CREDIT TYPE   *5*
Implements the skills within utility technician gas theory including communications, programs, mathematics, tools and operations.

IND177 Adv. Mechanical Theory & Principles
CAREER AND TECHNICAL CREDIT TYPE   *3*
Defines the principles within utility technician mechanical drives theory including communications, programs, mathematics, tools and operations.

IND178 Adv. Mechanical Technical Skills
CAREER AND TECHNICAL CREDIT TYPE   *5*
Implements the skills within utility technician mechanical drives theory including communications, programs, mathematics, tools and operations.

IND189 Introduction to Mechatronics
CAREER AND TECHNICAL CREDIT TYPE   *5*
Is designed to give the student an understanding of the operation, adjustment, and troubleshooting of an automated manufacturing system components including the programmable logic controller.

IND193 Introduction to Pumps
CAREER AND TECHNICAL CREDIT TYPE   *4*
This course introduces the student to the different types of pumps, their construction, and operation. It gives the students the ability to troubleshoot and then the hands on experience in disassembling, replacing parts, and reassembling various types of pumps found in industry.

IND194 Pole Climbing Certification
CAREER AND TECHNICAL CREDIT TYPE   *2.5*
Covers the basics of pole climbing techniques leading to certification in the utility technician industry.

IND250 Fundamentals/Maintenance Management
CAREER AND TECHNICAL CREDIT TYPE   *3*
Methods of planning, organizing, and supervising maintenance technicians.

IND270 Valve Maintenance DVC Mounting
CAREER AND TECHNICAL CREDIT TYPE   *3*
Basics of control valve body and actuator maintenance in conjunction with the latest in digital instrumentation. Basic hardware (valve body, bonnet, and actuator) of the control valve assembly. Topics include valve and actuator setup, maintenance, repair and troubleshooting. State of the art control valve instrumentation; i.e., the Fisher DVC (Digital Valve Controller) family (DVC2000, DVC5000, and DVC6000). DVC mounting, configuration, calibration, diagnostics, and troubleshooting are key subjects. The 275/375 handheld communicator and AMS ValveLink software are used as configurators. This course teaches only those instruments that are based on the HART protocol.

IND271 Valve Technician I
CAREER AND TECHNICAL CREDIT TYPE   *3*
Broad overview to control valve operation and maintenance from the technician's perspective. How control valves, actuators, and related instruments function and how they are installed and calibrated. It emphasizes installation, troubleshooting, parts replacement, and calibration. A broad range of instrumentation is covered - from legacy pneumatic devices through modern digital valve controllers (DVC's). Students spend 50% of their time in hands-on workshops.

IND361 Gas Utility Field Training 1
Prerequisite: IND171
CAREER AND TECHNICAL CREDIT TYPE   *8*
Students continue study of gas and combustion properties, locating and mapping, detection of leaks, and various equipment operation in the field (backhoe, trencher, skid loader, etc). General DOT192 regulations and O&M surveys are also covered.

IND362 Gas Utility Field Training 2
Prerequisite: IND171
CAREER AND TECHNICAL CREDIT TYPE   *8*
Students will work with customer meters and regulations. Joining techniques and other construction hands on experiences in the gas field are explored including general construction, steel construction, plastic construction, coatings and corrosion control are handled in lab settings.

IND363 Gas Utility Field Training 3
Prerequisite: IND171
CAREER AND TECHNICAL CREDIT TYPE 8
Students continue lab experiences in metering, pressure regulation and protection, working with regulator stations, valves and gauges, tapping/stoppering, review of plastic fusion and pipeline coatings and experience labs in odorization, cathodic protection, mechanical fittings, pigging, pressure testing, purging and leak surveying. Transmission line special requirements and National Fuel Gas code requirements are also covered.

IND911 On-the-job Training
Prerequisite: Instructor's approval
CAREER AND TECHNICAL CREDIT TYPE *Varied Credit*
Will provide an opportunity for students to have experience in the process industry.

IND917 Experimental Course
Prerequisite: Instructor's approval
CAREER AND TECHNICAL CREDIT TYPE *Varied Credit*
New courses as student interests demand.

JOU – Journalism

JOU110 Introduction to Mass Media **3**
STANDARD CREDIT TYPE
Discussion of the mass communication process, the characteristics and responsibilities of the mass media, and the relationship of the mass media to society.

JOU121 Newswriting and Reporting
STANDARD CREDIT TYPE 3
Designed to provide basic instruction in principles of news and feature writing with emphasis on style, organization of ideas, identification of news, and interviewing techniques. Other issues discussed include media careers, law, and ethics. To be taken in conjunction with JOU146 for those interested in media careers.

JOU146 Publications Staff
STANDARD CREDIT TYPE 1
Supervised writing, design and photography work on the college publications. May be repeated four times.

JOU917 Experimental Course
STANDARD CREDIT TYPE *Varied Credit*
New courses as student interests demand.

JOU929 Individual Projects
STANDARD CREDIT TYPE *Varied Credit*
Specialized assignment designed by student/instructor.

LIT – Literature

LIT101 Introduction to Literature *AA Approved*
STANDARD CREDIT TYPE 3
Critical analysis of various types of fiction, poetry, and drama.

LIT110 American Literature to Mid-1800's *AA Approved*
STANDARD CREDIT TYPE 3
A survey of American literature from its beginning through the Civil War and Whitman.

LIT111 American Literature sin. Mid-1800's *AA Approved*
STANDARD CREDIT TYPE 3
A survey of American literature from the post-Civil War era (Mark Twain) to the present.

LIT120 American Novel *AA Approved*
STANDARD CREDIT TYPE 3
Examine key movements in American fiction (Romanticism, Realism, and Naturalism) and study important authors from each to achieve historic and aesthetic balance.

LIT127 American Folklore *AA Approved*
STANDARD CREDIT TYPE 1
Mini-survey of the literature of American folklore.

LIT129 African American Literature *AA Approved*
STANDARD CREDIT TYPE 1
Brief survey of the writings of contemporary African American writers.

LIT133 Minority Voices in US Literature *AA Approved*
STANDARD CREDIT TYPE 3
A survey of literature of African-Americans, Hispanic-Americans, Native Americans and Asian-Americans. Special attention is also given to women authors.

LIT140 British Literature I *AA Approved*
STANDARD CREDIT TYPE 3
Survey of major English writers from Chaucer through the Neoclassical age.

LIT141 British Literature II *AA Approved*
STANDARD CREDIT TYPE 3
Survey of major English writers of the Romantic, Victorian, and early modern periods.

LIT150 World Literature I *AA Approved*
STANDARD CREDIT TYPE 3
Analysis of major literary works from Homer to the Renaissance.

LIT151 World Literature II *AA Approved*
STANDARD CREDIT TYPE 3
Analysis of major literary works from the Neoclassical period to the present. Continuation of material in LIT150; however, that course is not a prerequisite.

LIT162 The Short Novel *AA Approved*
STANDARD CREDIT TYPE 1
Mini-survey of representative short novels.

LIT163 The Short Story *AA Approved*
STANDARD CREDIT TYPE 1
Brief survey of short stories from a variety of countries and cultures.

LIT164 Modern Short Novel *AA Approved*
STANDARD CREDIT TYPE 3
Survey of short novels of the Modern period (1914-1965).

LIT180 Mythology *AA Approved*
STANDARD CREDIT TYPE 3
This course emphasizes the historical development and the craft of mythology through the study of major, representative works from ancient to modern day. Students will explore how mythology contributes to an understanding of the world and universe, and critically examine its pertinence to contemporary society.

LIT188 Detective Fiction *AA Approved*
STANDARD CREDIT TYPE 3
Survey of detective fiction in novels, stories, and film from its origins in the 19th century to the present, including classic, hard-boiled, police procedural, spy, and thriller fiction.

LIT199 Literature of the Fantastic *AA Approved*
STANDARD CREDIT TYPE 3
Examines recurring themes and motifs in fantastic and popular literature, including science fiction, fantasy, and horror.

LIT917 Experimental Course
STANDARD CREDIT TYPE *Varied Credit*
New courses as student interests demand.

LIT927 Honors Study
STANDARD CREDIT TYPE *Varied Credit*
This course is designated as an honors course in literature as a special project.

LIT929 Individual Projects
Prerequisite: Instructor's approval
STANDARD CREDIT TYPE *Varied Credit*
Specialized assignment designed by student/instructor.

MAP – Medical Assistant

MAP111 Medical Office Management I
CAREER AND TECHNICAL CREDIT TYPE 3
Presents the principles of administration for the medical office including facility and supply management, telephone and appointment techniques, managing records and medical bookkeeping.

MAP118 Medical Office Management II
Prerequisite: MAP111
CAREER AND TECHNICAL CREDIT TYPE   *4*
Utilization of computer applications in the medical office. Maintain medical records, including appointment scheduling, record keeping, and medical transcription. Various medical management software programs will be demonstrated.

MAP141 Medical Insurance
Prerequisite: E/MVMED: HSC129 or BIO168 and BIO173; E/MVMDP: HSC129 or BIO168 and HSC113.
CAREER AND TECHNICAL CREDIT TYPE   *3*
Provides a practical approach in medical insurance billing. Emphasis will be placed on current procedures (CPT-4) and international classification of disease codes (ICD-9CM) used to facilitate proper coding in submitting electronic billing. Pertinent billing tips will be offered for each type of insurance.

MAP225 Medical Lab Procedures I
CAREER AND TECHNICAL CREDIT TYPE   *4*
Introduction to medical lab procedures, ethics, laboratory personnel and OSHA regulations. Includes use of equipment and application of basic microbiological principles. Routine urinalysis: physical, chemical and micro examination. Quality control is emphasized.

MAP229 Medical Lab Procedures II
Prerequisite: MAP225
CAREER AND TECHNICAL CREDIT TYPE   *6*
Techniques of assisting with examinations, diagnostic and testing procedures including EKG. Clinical skills include vital signs, sterile procedures and medical asepsis, pulmonary function.

MAP510 Medical Office Pharmacology
CAREER AND TECHNICAL CREDIT TYPE   *1*
This course provides a basic background in the classification of drugs, their sources, uses and legal implications. Discuss characteristics of topical drugs, side effects, precautions, interactions and patient education.

MAP512 Medical Assisting Pharmacology
Prerequisite: HSC129 or BIO168 and BIO173
CAREER AND TECHNICAL CREDIT TYPE   *2*
Provides a basic background in the classification of drugs, their sources, uses and legal implications. Discusses characteristics of topical drugs, side effects, precautions, interactions and patient education.

MAP602 Clinical Experience Seminar
CAREER AND TECHNICAL CREDIT TYPE   *1*
Provides an opportunity for the student to discuss situations that arise in the clinical experience.

MAP616 Medical Assistant Externship
CAREER AND TECHNICAL CREDIT TYPE   *6*
Provides an opportunity for the student to discuss situations that arise in the clinical experience.

MAP917 Experimental Course
CAREER AND TECHNICAL CREDIT TYPE   *Varied Credit*
New courses as student interests demand.
**Note: Students must be accepted into the E/MVMED program to take MAP courses. Must be in E/MVMDP to take MAP111, MAP118, MAP141, and MAP510.

MAT – Mathematics

MAT005 Math Refresher
DEVELOPMENTAL CREDIT TYPE   *1*
A refresher course for vocational-technical and nursing students that covers additions, subtraction, multiplication, division, fractions, decimals and ratio/proportion/percents. Can also be individualized to cover different math concepts to meet student needs.

MAT020 Computational Methods for Science
DEVELOPMENTAL CREDIT TYPE   *1*
Intended to give the student the mathematical preparation necessary to solve problems in the basic science courses. Topics include operations with signed numbers, exponents, scientific notation, using labels to solve problems, and the use of the pocket calculator, as they apply to science problems.

MAT040 Basic Mathematics
Prerequisite: COMPASS pre-algebra score of less than 40, or ACT math score of less than 12.
DEVELOPMENTAL CREDIT TYPE   *2*
A review of the mathematical operations of whole numbers, fractions, decimals, proportions and percents in a manner that will prepare the student to continue to another developmental math class.

MAT052 Pre-Algebra
Prerequisite: COMPASS pre-algebra score of 40 or better, ACT math score of 12 or better, or MAT040.
DEVELOPMENTAL CREDIT TYPE   *3*
Designed for students with no background in algebra or for students who need a review before proceeding further. Covers topics basic to learning higher mathematics and basic problem-solving techniques using algebraic concepts. Not a transfer course.

MAT062 Elementary Algebra
Prerequisite: COMPASS algebra score of 41 or better, ACT math score of 15 or better, COMPASS college algebra score of 24 or below, or MAT052.
DEVELOPMENTAL CREDIT TYPE   *3*
Number systems, solutions of equations and inequalities, polynomials, rational expressions, exponents, radicals and complex numbers. Not a transfer course.

MAT072 Elementary Algebra II
DEVELOPMENTAL CREDIT TYPE   *3*
This course is another preview course of the topics basic to learning higher mathematics. Students will expand upon the knowledge gained in Elementary Algebra with more difficult problems and new concepts such as inequalities, higher powered terms and more variable equations.

MAT074 College Preparatory Math 1
Prerequisite: COMPASS pre-algebra score of 40 or better, COMPASS algebra score less than 55, ACT math score less than 20, COMPASS college algebra score of 24 or below, or grade of C- or better in MAT040.
DEVELOPMENTAL CREDIT TYPE   *Varied Credit*
Provides students with the knowledge necessary for success in college-level mathematics courses. Students will work at their own pace through a sequence of modules. Using a computer-based delivery system, students will master objectives over whole numbers, integers, fractions, decimals, proportions, percents, real numbers and solutions to algebra based application problems. Completion of Module 1 - 4 is required to receive 3 hours of credit.

MAT075 College Prep Statistics
Prerequisite: Grade of C- or better in MAT074
DEVELOPMENTAL CREDIT TYPE   *Varied Credit*
Preferably taken at the same time as Statistics, this course supports students in five ways: 1) Reviewing fundamental math concepts needed for Statistics material. 2) Introduce Statistical concepts. 3) Learning about effective note taking. 4) Critical thinking and problem solving techniques. 5) Statistics problem solving guidance.

MAT077 College Preparatory Math 2
Prerequisite: Grade of C- or better in MAT074
DEVELOPMENTAL CREDIT TYPE   *Varied Credit*
This course is a continuation of MAT074. It provides students with the knowledge necessary for success in college-level mathematics courses. Students will work at their own pace through a sequence of modules. Using a computer-based delivery system, students will master objectives over polynomials, factoring, linear and absolute value equations and inequalities, systems of linear equations and inequalities, complex numbers and quadratic equations. It is designed for students who did not complete Modules 1 - 8 when taking MAT074. Completion of Modules 5 - 8 is required for 3 hours of credit.

MAT098 College Preparatory Math 3
Prerequisite: Grade of C- or better MAT077
DEVELOPMENTAL CREDIT TYPE   *Varied Credit*
This course is a continuation of MAT074 and MAT077. Students will work at their own pace through modules 9 and 10. Using a computer-based delivery system, students will master objectives over the topics of radical and rational expressions and equations. It is designed for students who have completed Modules 1 - 8 and need to prepare for Calculus level classes. Completion of Modules 9 and 10 is required for 2 hours of credit.

MAT110 Math for Liberal Arts *AA Approved*
Prerequisite: COMPASS algebra score of 55 or better, COMPASS college algebra score of 25 or better, ACT math score of 20 or better, grade of C- or better in MAT062, midterm grade of A- or better in MAT074*, or grade of C- or better in MAT077.
STANDARD CREDIT TYPE   *3*
An exploration of critical thinking, problem solving and decision making based on the study of various fields of mathematics, including logic, sets, counting, probability and statistical reasoning, and selected topics such as financial math, modeling, history of mathematics. The emphasis is on understanding the usefulness of mathematics in everyday situations.

MAT117 Math for Elementary Teachers
Prerequisite: COMPASS algebra score of 55 or better, ACT math score of 20 or better, grade of C- or better in MAT062, midterm grade of A- or better in MAT074*, grade of C- or better in MAT077, or grade of C- or better in MAT110.
STANDARD CREDIT TYPE   *3*
Mathematics as problem solving, communication, connections, and reasoning with regard to tasks involving numeration, relationships, estimations. Also, number sense of whole and rational numbers, measurement, probability, statistics, geometry, and spatial sense. Activities and models appropriate to teaching elementary school mathematics are used to represent the topics.

MAT121 College Algebra
Prerequisite: COMPASS algebra score of 55 or better, COMPASS college algebra score of 25 or better, ACT math score of 20 or better, grade of C- or better in MAT062, midterm grade of A- or better in MAT074*, grade of C- or better in MAT077, or grade of C- or better in MAT110.
STANDARD CREDIT TYPE   *4*
Coordinate geometry, complex numbers, quadratic and polynomial equations, functions, graphing, systems of equations, exponential and logarithmic functions determinants.

MAT129 Precalculus *AA Approved*
Prerequisite: COMPASS college algebra score of 51 or better, ACT math score of 25 or better, grade of C- or better in MAT098,MAT121, or MAT132.
STANDARD CREDIT TYPE   *5*
Topics in algebra, trigonometry and analytical geometry: exponents, exponential functions, logarithmic functions, polynomial and rational functions, sequences and series, trigonometric functions, identities, complex numbers, lines in the plane, conic sections, polar coordinates, parametric equations.

MAT132 Algebra, Geometry and Trigonometry
Prerequisite: COMPASS algebra score of 55 or better, ACT math score of 20 or better, grade of C- or better in MAT062, midterm grade of A- or better in MAT074*, grade of C- or better in MAT077, or MAT790 and MAT786.
STANDARD CREDIT TYPE   *4*
A problem solving approach to algebra, geometry and trigonometry. Topics include polynomial and rational functions, coordinate systems and graphing, systems of equations, angles, perimeter and area, trigonometric functions, inverses and identities, vectors, exponents, logarithms.

MAT140 Finite Math
Prerequisite: COMPASS algebra score of 55 or better, COMPASS college algebra score of 25 or better, ACT math score of 20 or better, or midterm grade of A- or better in MAT074*, or grade of C- or better in MAT062, MAT077, or MAT156; Cross listed with BUS230.
STANDARD CREDIT TYPE   *3*
Linear programming. Critical path method and PERT techniques for project management. Computer programming to solve linear programming problems. Transportation and inventory techniques. Time value of money, curve fitting, and forecasting.

MAT156 Statistics *AA Approved*
Prerequisite: COMPASS algebra score of 55 or better, COMPASS college algebra score of 25 or better, ACT math score of 20 or better, grade of C- or better in MAT062, midterm grade of A- or better in MAT074*, or grade of C- or better in MAT077.
STANDARD CREDIT TYPE   *3*
Descriptive statistics, probability concepts, binomial and normal distribution and introduction to inference.

MAT158 Statistics II *AA Approved*
Prerequisite: Grade C- or better in MAT156
STANDARD CREDIT TYPE   *3*
Probability, sampling distributions, inference, hypothesis testing, confidence intervals, linear regression, multiple regression, use of statistical software.

MAT165 Business Calculus
Prerequisite: COMPASS college algebra score of 51 or better, ACT math score of 25 or better, or grade of C- or better in either MAT121 or MAT129, or BUS230; Cross listed with BUS235
STANDARD CREDIT TYPE   *3*
Differential calculus, integral calculus, linear algebra and introduction to max-min theory for functions of two variables.

MAT210 Calculus I *AA Approved*
Prerequisite: COMPASS college algebra score greater than or equal to 60 and COMPASS trigonometry score greater than or equal to 51, ACT math score greater than or equal to 28, or grade of C- or better in MAT129
STANDARD CREDIT TYPE   *4*
Limits, continuity, derivatives, applications, integration.

MAT216 Calculus II *AA Approved*
Prerequisite: Grade of C- or better in MAT210
STANDARD CREDIT TYPE   *4*
Inverses; logarithmic, exponential and trigonometric functions; techniques of integration; infinite series.

MAT219 Calculus III *AA Approved*
Prerequisite: Grade of C- or better in MAT216
STANDARD CREDIT TYPE   *4*
Three-dimensional geometry and vectors; partial derivatives; gradient; multiple integration; vector fields. Offered on condition of sufficient enrollment.

MAT267 Differential Equations *AA Approved*
Prerequisite: Grade of C- or better in MAT216
STANDARD CREDIT TYPE   *4*
Solution methods for ordinary differential equations. First order equations, linear equations, constant coefficient equations. Eigenvalue methods for systems of first order linear equations. Introduction to stability and phase plane analysis. Laplace transforms and series solutions to ordinary differential equations.

MAT720 Industrial Math & Measurements I
CAREER AND TECHNICAL CREDIT TYPE   *3*
Self-paced course using interactive video. Develop basic math skills using practical job-related examples.

MAT743 Technical Math
CAREER AND TECHNICAL CREDIT TYPE   *3*
Applied mathematics skills are reviewed and concepts in measurement, basic algebra, graphs, geometry, and trigonometry are covered.

MAT772 Applied Math

CAREER AND TECHNICAL CREDIT TYPE   *3*

Designed to accommodate carpentry, masonry, agriculture and also meet vocational general education needs. Students gain practical and working knowledge of mathematics used in carpentry, masonry and agriculture. Students will gain experience with supply estimating, including lineal, board, square, and angular measurements. Fractions, decimals, and measurements as applied to specified areas. This will enable students to become proficient and develop a foundation for applied mathematical calculations familiar to the trade.

MAT781 Applied Mathematics I

Prerequisite: COMPASS algebra score of 55 or better, COMPASS college algebra score of 25 or better, ACT math score of 20 or better, grade of C- or better in MAT062, midterm grade of A- or better in MAT074* or grade of C- or better in MAT077.

CAREER AND TECHNICAL CREDIT TYPE   *4*

Review of numerical computations, fractions and algebraic operations. Simultaneous linear equations, coordinate systems, triangle solutions, vectors and quadratic equations.

MAT782 Applied Mathematics II

Prerequisite: Grade of C- or better in MAT781

CAREER AND TECHNICAL CREDIT TYPE   *4*

Logarithms and exponentials, trigonometric functions, complex numbers, and introduction to analytic geometry and calculus.

MAT783 Applied Mathematics III

Prerequisite: Grade of C- or better in MAT781

CAREER AND TECHNICAL CREDIT TYPE   *4*

Mathematical analysis, test data, and proper data acquisition techniques.

MAT786 Mechanical Design Math

CAREER AND TECHNICAL CREDIT TYPE   *1*

The development of additional mathematical skills necessary to work in the field of Mechanical Design.

MAT790 Shop Mathematics

CAREER AND TECHNICAL CREDIT TYPE   *3*

Problem solving using a scientific calculator. Fractions to decimals and vice versa; calculation of volume, elementary geometrical concepts, numerical trigonometry of right triangles.

MAT791 Shop Mathematics II

Prerequisite: Grade of C- or better in MAT790

CAREER AND TECHNICAL CREDIT TYPE   *1*

Geometry and trigonometry for advanced shop problems; use of hand-held calculator.

MAT917 Experimental Course

Prerequisite: Instructor's approval

STANDARD CREDIT TYPE   *Varied Credit*

New courses as student interests demand.

MAT927 Honors Study

STANDARD CREDIT TYPE   *Varied Credit*

This course is designated as an honors course in mathematics as a special project.

**Note: *= This grade will be given when a student in MAT074 College Preparatory Math 1 is on track to finish all 8 modules in 1 semester.

MFG – Manufacturing

MFG101 Measuring Tools

CAREER AND TECHNICAL CREDIT TYPE   *1.5*

Identification, use, and care of shop measuring tools.

MFG121 Machine Trade Print Reading I

CAREER AND TECHNICAL CREDIT TYPE   *2*

Study of lines, symbols, conventions and abbreviations of shop drawings. Orthographic projection, sections, conventional dimensioning. Intersections and development. The study of title blocks and related notes that may appear on shop drawings.

MFG131 Machine Trade Print Reading II

Prerequisite: MFG121

CAREER AND TECHNICAL CREDIT TYPE   *2*

Study of screw thread terminology, computing, angles for locating part features. Study of computing, linear measurements in various units. Geometric dimensioning and tolerancing (GD&T) symbols and basic application.

MFG133 Machine Trade Print Reading III

CAREER AND TECHNICAL CREDIT TYPE   *3*

Designed to cover the study of lines, symbols, conventions, abbreviations, title blocks, and drawing notes found on shop drawings. Also covered is the study of orthographic projection, reading multi-view drawings, section views, basic dimensional practices, along with thread specifications, screw thread terminology, and computing linear measurements and angles of various units for locating part features. Identify the differences between auxiliary views and primary views will also be covered.

MFG200 Electric Discharge Machine (EDM)

Prerequisite: MFG101

CAREER AND TECHNICAL CREDIT TYPE   *1*

Students will learn how wire EDM machines operate, the machines basic parts, and their functions. Be able to read and write programs using G and M codes, and set machine control parameters. They will learn to setup and operate the machine to make assigned projects.

MFG204 Manufacturing Processes

CAREER AND TECHNICAL CREDIT TYPE   *4*

Study of manufacturing processes, including Lean Manufacturing principles, value stream mapping, and plant layout. Covers skills to map the current state of a product or process and how plant layout effects the cost and manufacture of a product. Learn to identify basic manufacturing processes such as drilling, milling, lathes, etc., and the cause and effect of prints/design on these processes. Proper use and care of measurement tools is covered, as well as understanding the interaction of people and materials in each stage of the manufacturing process.

MFG209 Machine Shop Practices

CAREER AND TECHNICAL CREDIT TYPE   *3*

Classroom and hands on training will be provided in machine shop safety and the use of machine shop tools and machines. Training will include the proper use of hand tools, measuring tools, milling machines, grinders, lathes, drills and saws.

MFG255 Engine Lathe Operations

CAREER AND TECHNICAL CREDIT TYPE   *5*

Safety precautions; types and construction; set-up and operation; attachments and maintenance; cutting tools. 3-jaws and Buch chuck turning; turning on centers, boring, tapping, threading, honing/grinding, tolerances/fits.

MFG262 Mill Operations Theory

CAREER AND TECHNICAL CREDIT TYPE   *3*

Safety precautions, type and construction, attachments and accessories, milling cutters; set-up and operation. Speeds and feeds; gear cutters, indexing head. Selecting correct index plans.

MFG270 Grinders Theory

Prerequisite: MFG101

CAREER AND TECHNICAL CREDIT TYPE   *1*

Safety precautions; construction and applications of pedestal, universal tool cutter, and surface grinders.

MFG275 Hand & Bench Machine Tools

CAREER AND TECHNICAL CREDIT TYPE   *1*

Use/care of shop bench, layout tools, power band saws.

MFG280 Drill Presses

CAREER AND TECHNICAL CREDIT TYPE   *1.5*

Safety precautions. Types of drill presses, selection of drills and other cutters. Use of coolants. Set-ups, speeds, and feeds. Analyzing drilling difficulties.

MFG282 CNC Plasma Table
Prerequisite: MFG101
CAREER AND TECHNICAL CREDIT TYPE   *1*
Students will learn how a CNC plasma table operates, its basic parts and their functions. Be able to create programs using the machines software, and know to setup and operate the machine.

MFG290 Heat Treatments
CAREER AND TECHNICAL CREDIT TYPE   *1*
Identification and classification of low carbon steels, alloy steels; heat treating and steels.

MFG314 Advanced Machining Operations
Prerequisite: MFG101
CAREER AND TECHNICAL CREDIT TYPE   *5*
Advanced projects are completed using a variety of manual and CNC equipment. Projects have tighter tolerances and need to be completed with minimal instruction.

MFG322 Introduction to CAD/CAM
CAREER AND TECHNICAL CREDIT TYPE   *3*
Introduction to computer aided machining programming, to program projects by using the C.A.M. software on the computer.

MFG353 CNC Lathe
Prerequisite: MFG101
CAREER AND TECHNICAL CREDIT TYPE   *2.5*
CNC programming concepts, operation of computer terminal to program projects and evaluate simulated machining. The operation, set-up, and cutting of parts on the CNC lathe.

MFG357 CNC Mill
Prerequisite: MFG101
CAREER AND TECHNICAL CREDIT TYPE   *3.5*
CNC programming using G and M codes, and introduction of conversational programming using Hurco simulation software. Ability to load, edit, and evaluate created programs. The operation, set-up, and cutting of parts on the CNC mill.

MFG407 Basic Die Making
Prerequisite: MFG314
CAREER AND TECHNICAL CREDIT TYPE   *7*
Selecting die set; building each component per print or sketch, assembling die; producing piece parts in punch press; fitting and adjusting die.

MFG418 Advanced Die Making
Prerequisite: MFG407 or instructor's approval
CAREER AND TECHNICAL CREDIT TYPE   *9*
Selecting die set; each die component; assembling die; fitting and adjusting of die unit. Producing piece part in press; measure and inspect part; die correction to product part "within print."

MFG425 Jig and Fixtures
Prerequisite: MFG314
CAREER AND TECHNICAL CREDIT TYPE   *6*
Building mill, drill, and weld jigs and fixtures.

MFG456 Injection Mold Making
Prerequisite: MFG101
CAREER AND TECHNICAL CREDIT TYPE   *6*
Machining of mold cavity; selecting the proper tools used in mold making; polishing of the mold cavity to remove all machine marks; fitting of the mold insert to the mold chase; cutting runners and air vents in the mold; producing molded parts; measuring and inspecting parts; mold correction and produce the desired part.

MFG505 Lean Concepts
CAREER AND TECHNICAL CREDIT TYPE   *1*
Designed to teach the participants the principles of Lean Manufacturing through a live simulation of "Buzz Electronics". Lean principles concentrate on eliminating waste within the organization by eliminating non-value adding activities such as overproduction, excess inventory, material movement, motion, waiting, processing, and correction. Additionally this course will provide the participant the ability to read and create Operational Instruction Sheets (OIS) which are designed to provide work instructions and content as well as safety, quality and process information. Operational Instruction Sheets are placed strategically throughout the work environment to enhance production and eliminate errors and defects. Also this course

is designed to teach the participants the concepts and techniques of 5S and Visual Controls (lines, signs and labels). Participants will learn the 5S's, sort, set in order, shine, standardize and sustain.
Finally this course will provide the participant the ability to create a Value Stream Map. Participants will begin the process by creating a current state map of "Buzz Electronics" that shows all of the current manufacturing steps to create the product. Then they will plan a future state map showing where they what to go with the processes to stream line the value stream and eliminate non-value added activities, which will reduce lead times and reduce operating costs. Students will learn through lecture presentation and factory simulations.

MFG506 Quality Assurance
CAREER AND TECHNICAL CREDIT TYPE   *1*
Application of statistical process controls to a wide variety of industrial situations. Statistical process control, capability analysis, capability of measurement systems, introduction to designed experiments.

MFG917 Experimental Course
CAREER AND TECHNICAL CREDIT TYPE   *Varied Credit*
New courses as student interests demand.

MGT – Management

MGT101 Principles of Management
STANDARD CREDIT TYPE   *3*
Examines decision-making, communication, policy formulation, scientific management, staffing and training, employee relations, and other areas of management responsibility.

MGT130 Principles of Supervision
STANDARD CREDIT TYPE   *3*
Principles of employment supervision; styles of leadership; motivation, delegation and evaluation; handling complaints and grievances; and group supervisory techniques.

MKT – Marketing

MKT110 Principles of Marketing
STANDARD CREDIT TYPE   *3*
Fundamental principles of the flow of goods and services from producer to consumer. Buying, selling, transportation, storage, risk-taking, financing, promotion, and marketing information are all studied to determine their importance in the marketing structure.

MKT140 Principles of Selling
STANDARD CREDIT TYPE   *3*
Covers the three main areas of selling: specialty, wholesale, and retail. Selling principles and tactics developed for a wide variety of selling situations. Stresses personality development and practical steps in selling.

MKT150 Principles of Advertising
STANDARD CREDIT TYPE   *3*
Decision-making in advertising and sales promotion, advertising and promotional techniques, establishing budgets, and evaluating the effectiveness of advertising and promotional endeavors.

MKT160 Principles of Retailing
STANDARD CREDIT TYPE   *3*
Understanding of retail store organization and operation. Explores location and layout, retail buying techniques, franchising, pricing and merchandising, and careers.

MKT162 Retail Merchandising
CAREER AND TECHNICAL CREDIT TYPE   *3*
Examines the areas of retail merchandising and merchandising mathematics. Intended to provide students with the necessary background to buy and promote merchandise profitably.

MKT181 Customer Service Strategies
CAREER AND TECHNICAL CREDIT TYPE   *2*
This course is designed to introduce students to the concepts of customer service and to help them learn the skills necessary to provide excellent service to the internal and external customers of the organization for which they work. Special areas of emphasis include problem solving, development of a customer service strategy, creating a professional service image, creating customer service systems, coping with challenging customers, customer retention, and measuring satisfaction.

MKT907 Co-op Field Experience
CAREER AND TECHNICAL CREDIT TYPE   *Varied Credit*
Designed to give the student actual work experience at an approved training center under the supervision of a program coordinator.

MKT917 Experimental Course
Prerequisite: Instructor's approval
CAREER AND TECHNICAL CREDIT TYPE   *Varied Credit*
New courses as student interests demand.

MKT929 Individual Projects
Prerequisite: Instructor's approval
CAREER AND TECHNICAL CREDIT TYPE   *Varied Credit*
Special topics as arranged with instructor.

MKT945 Seminar in Business I
CAREER AND TECHNICAL CREDIT TYPE   *Varied Credit*
Designed to assist students in developing an understanding of business and marketing trends. Become familiar with developing resumes and job interviewing techniques. Problems encountered in training stations are reviewed.

MKT946 Seminar in Business II
CAREER AND TECHNICAL CREDIT TYPE   *1*
Designed to assist the student in acquiring a position in a chosen career area. Includes job interviewing techniques, resumes, letters of application, application forms, and interview follow-up.

MMS – Mass Media Studies

MMS105 Audio Production
CAREER AND TECHNICAL CREDIT TYPE   *3*
Theoretical and practical experiences producing radio programming, including the art of performing on radio as well as the production aspect of the business.

MMS136 Writing for Digital Media
CAREER AND TECHNICAL CREDIT TYPE   *3*
Focus on writing for the digital media that includes blogging, scriptwriting, writing for social media networks and news writing for the broadcast industry.

MMS147 TV Sports Production
CAREER AND TECHNICAL CREDIT TYPE   *1*
Will be introduced to the field of sports production which includes play by play/color commentary announcing, videotaping athletic events, interviewing and producing video sports segments.

MMS207 Post Production Editing
CAREER AND TECHNICAL CREDIT TYPE   *1*
Will learn how to use post production editing software for editing video and multimedia projects.

MMS225 Advanced Television Production
CAREER AND TECHNICAL CREDIT TYPE   *3*
Production techniques in television and video production, plus theoretical and practical experience in the art of producing TV programs and being on-camera talent.

MMS236 TV News Production
CAREER AND TECHNICAL CREDIT TYPE   *3*
Students will produce a weekly TV newscast that will be aired on MET 12. Students will write, shoot, edit and produce a news program for the local community. Students will learn all aspects of the TV news business from generating story ideas to final postproduction editing.

MMS245 Intro to Virtual Reality
CAREER AND TECHNICAL CREDIT TYPE   *3*
Development of virtual reality technology. Topics covered include 3-D devices, 3-D sound, real-time software, projections systems, high definition television, and immersive displays.

MMS250 Multimedia Design
CAREER AND TECHNICAL CREDIT TYPE   *3*
Development and use of multimedia tools in corporate applications, including theoretical foundations of multimedia development, design principles, and effective use of multimedia in corporate scenarios.

MMS932 Internship
Prerequisite: Instructor's approval
CAREER AND TECHNICAL CREDIT TYPE   *Varied Credit*
Accumulate 180 hours of work-related experience at area radio/TV stations or corporate media departments; gain valuable training in commercial broadcasting or corporate public relations/media. Additional opportunities to acquire media production skills by working with the college cable TV station, video production services, satellite technology and the Iowa Communications Network.

MUA – Music – applied
Each of the applied courses offers half-hour lessons of private instruction, with a minimum of 30 minutes of practice per day. The goal is the development of both fundamental and advanced techniques. Each MUA course may be repeated four times.

MUA101 Applied Voice   **1**
MUA102 Applied Voice II   **1**
MUA120 Applied Piano   **1**
MUA122 Applied Organ   **1**
MUA124 Applied Guitar   **1**
MUA126 Applied Strings   **1**
MUA143 Applied Brass   **1**
MUA170 Applied Woodwinds   **1**
MUA171 Applied Woodwinds II   **1**
MUA180 Applied Percussion   **1**
MUA220 Applied Piano II   **1**

MUS – General Music

MUS100 Music Appreciation *AA Approved*
STANDARD CREDIT TYPE   *3*
For students with no formal background in music. Includes historical information with an emphasis on developing the skills and tools of critical and appreciative listening. Covers specific musical periods, composers, styles, instruments, and social influences.

MUS120 Music Theory I
STANDARD CREDIT TYPE   *3*
Examines all the basic materials of music, which include notation, scales, intervals, chords, melody, harmony, rhythm, and texture. Other areas of analysis take in cadence types, chord inversions, figured bass harmonization, and principles of part writing based on 18th century models. Introduces fundamentals of the aural skills, ear training, and sight singing.

MUS121 Music Theory II
Prerequisite: MUS120
STANDARD CREDIT TYPE   *3*
A continuation of MUS120, this course will examine in more detail the harmonic element of music. Discussions will include the harmonic progression, modulation, and specific types of seventh chords as they relate to 18th century counterpoint. Further development of the aural skills, ear training, and sight singing are included.

MUS140 Concert Choir
STANDARD CREDIT TYPE   *1*
Chorus is open to all qualified students. Emphasis is placed on reading and singing standard and contemporary literature. Participation in all rehearsals and public performances is required.

MUS145 Concert Band
Prerequisite: Previous band experience
STANDARD CREDIT TYPE   *1*
Study and performance of quality band literature and jazz repertoire with emphasis on musicianship and interpretation. Participation in all rehearsals and public performances is required.

MUS148 College Community Band
STANDARD CREDIT TYPE   *1*
For all students; also open to non-students with band experience. No audition required. Weekly practices, four concerts/year. Some instruments available for students.

MUS149 Pep Band
Prerequisite: Previous band experience
STANDARD CREDIT TYPE   *1*
The Pep Band plays for athletic events and spirit events during the school year. Some instruments available for students.

MUS150 Chamber Ensemble
STANDARD CREDIT TYPE   *1*
Membership is offered on an audition basis. Chamber choir literature, including Renaissance madrigals through contemporary show choir literature with choreography, will be studied and performed.

MUS152 Vocal Ensemble
STANDARD CREDIT TYPE   *1*
Auditions will be held for small vocal ensembles; practices will be arranged following auditions. Ensembles will be decided according to interest and needs each year. The ensembles will perform before school, civic, and community groups. Offered on demand, or as needed.

MUS162 Instrumental Ensembles
STANDARD CREDIT TYPE   *1*
Auditions will be held for small instrumental ensembles; practices arranged following auditions. Ensembles will be decided according to interest and needs each year. The ensembles will perform before school, civic, and community groups. Offered on demand, or as needed.

MUS205 Jazz History and Appreciation *AA Approved*
STANDARD CREDIT TYPE   *3*
Survey of the development of American jazz from the late 19th century to the present, with emphasis on its ethnic origins, cities where jazz developed, styles that evolved, and the influential personalities.

MUS206 Modern Music
STANDARD CREDIT TYPE   *3*
Study of music since 1910 including popular and serious styles, jazz development, music theater and electronic music development. No background in music theory or performance necessary.

MUS907 Co-op Field Experience
STANDARD CREDIT TYPE   *Varied Credit*
Individually designed job experience/related assignment.

MUS917 Experimental Course
STANDARD CREDIT TYPE   *Varied Credit*
New courses as student interests demand.

MUS929 Individual Projects
Prerequisite: Instructor's approval
STANDARD CREDIT TYPE   *Varied Credit*
Special topics as arranged with instructor.

NET – Computer Networking

NET123 Computer Hardware Basics
CAREER AND TECHNICAL CREDIT TYPE   *4*
Microcomputers and how they work: Computer theory, CPUs, disk drives, buses, and memory. A microcomputer operating system will be examined in the lab.

NET235 CCNA Cisco 1
CAREER AND TECHNICAL CREDIT TYPE   *3*
This course introduces the architecture, structure, functions, components, and models of the Internet and other computer networks. The principles and structure of IP addressing and the fundamentals of Ethernet concepts, media, and operations are introduced to provide a foundation for the curriculum. By the end of the course, students will be able to build simple LANs, perform basic configurations for routers and switches, and implement IP addressing schemes.

NET236 CCNA Cisco 2
Prerequisite: NET235
CAREER AND TECHNICAL CREDIT TYPE   *3*
This course describes the architecture, components, and operations of routers and switches in a small network. Students learn how to configure a router and a switch for basic functionality. By the end of this course, students will be able to configure and troubleshoot routers and switches and resolve common issues with RIPv1, RIPv2, single-area and multi-area OSPF, virtual LANs, and inter-VLAN routing in both IPv4 and IPv6 networks.

NET237 CCNA Cisco 3
Prerequisite: NET236
CAREER AND TECHNICAL CREDIT TYPE   *3*
This course describes the architecture, components, and operations of routers and switches in a larger and more complex network. Students learn how to configure routers and switches for advanced functionality. By the end of this course, students will be able to configure and troubleshoot routers and switches and resolve common issues with OSPF, EIGRP, STP, and VTP in both IPv4 and IPv6 networks. Students will also develop the knowledge and skills needed to implement DHCP and DNS operations in a network.

NET238 CCNA Cisco 4
Prerequisite: NET236
CAREER AND TECHNICAL CREDIT TYPE   *3*
This course discusses the WAN technologies and network services required by converged applications in a complex network. The course enables students to understand the selection criteria of network devices and WAN technologies to meet network requirements. Students learn how to configure and troubleshoot network devices and resolve common issues with data link protocols. Students will also develop the knowledge and skills needed to implement IPSec and virtual private network (VPN) operations in a complex network.

NET270 Mobile Application Development
CAREER AND TECHNICAL CREDIT TYPE   *3*
In today's business environment, we have traveling sales forces, cottage industries, and integrated server platforms. Mobile apps are a large part of the digital economy. They are a growing trend in entertainment, network communications, and information management. Traditional media now has to fit on mobile platforms and be compatible with thousands of devices and configurations. This course will prepare students for multi-platform mobile applications development.

NET271 Mobile App Development 2
CAREER AND TECHNICAL CREDIT TYPE   *3*
This course allows students to create a variety of mobile applications for various Android devices. Students will learn how to implement Android design principles and best practices in real applications.

NET303 Windows Workstn Operating Syst
CAREER AND TECHNICAL CREDIT TYPE   *3*
This course will prepare the student for supporting and using Windows Operating System Platform in a business setting. Topics include: installation, administration of resources, troubleshooting, networking, optimization, and security.

NET304 Windows Workstation Operating Systm
CAREER AND TECHNICAL CREDIT TYPE   *4*
A study of workstation operating systems software. Students will implement, administer, and troubleshoot workstation operating systems.

NET313 Windows Server
CAREER AND TECHNICAL CREDIT TYPE   *3*

This course provides the core foundation for supporting network based servers. Students will learn the skills necessary to install, configure, customize, optimize, network, integrate and troubleshoot a server based operating system. Students will study the design, implementation, and support a Network Server network including specialized servers that are common to most network.

NET453 UNIX
CAREER AND TECHNICAL CREDIT TYPE 3
This course deals with the UNIX operating system and introduces the Common Desktop Environment (CDE). Students will learn fundamental command-line features of the UNIX environment including file system navigation, file permissions, the text editor, command shells, and basic network use.

NET612 Fundamentl of Network Security
CAREER AND TECHNICAL CREDIT TYPE 3
This course is designed to provide student with a fundamental understanding of network security principles and implementation. Students examine the technologies used and principles involved in creating a secure computer networking environment.

NET614 Network Security
Prerequisite: NET314
CAREER AND TECHNICAL CREDIT TYPE 4
Securing network services, network devices, and network traffic. Students will build on their knowledge and professional experience with computer hardware, operating systems, and networks as they acquire specific skills required to implement basic security services on any type of computer network. Implement and monitor security on networks and computer systems, and respond to security breaches.

NET616 VMware
CAREER AND TECHNICAL CREDIT TYPE 3
This course equips students with the knowledge, skills, and abilities to build and run a VMware vSphere environment. It focuses on the installation and configuration of VMware ESX/ESXi hosts and VMware vCenter Server and on the management of ESX/ESXi hosts and virtual machines with vCenter Server. The course prepares students to achieve the status of VMware Certified Professional. The course is based on VMware's VCP certification and as such when VMware changes their VCP certification this course will change to reflect the most current certification requirements.

NET785 Fundamnt. of Desktop Support
CAREER AND TECHNICAL CREDIT TYPE 3
This course will introduce the student to the service concepts, skill sets, career paths, and operations of the help desk industry. Students will master the role of a help desk analysis, navigate the help desk environment, and learn crucial problem solving skills. Through this course students will develop the "soft skills" and the "self-management skills" needed to deliver excellent customer support at the help desk. This course provides an overview of the help desk for individuals interested in pursuing a career in technical support. The course will integrate strong real-world computer support examples.

NET917 Experimental Course
CAREER AND TECHNICAL CREDIT TYPE *Varied Credit*
New courses as student interests demand.

PEA – Physical Education Activities

Activities that are basically individual in nature. The courses include skills, rules, and strategies required to participate in these activities. Aerobics and fitness classes include exercise activities which increase cardiovascular endurance, muscular strength, muscular endurance, and/or flexibility.

PEA102 Aerobic Fitness I	**1**
PEA104 Aquatrim I	**1**
PEA106 Archery I	**1**
PEA108 Archery/Badminton I	**1**
PEA114 Bicycling I	**1**
PEA117 Bowling I	**1**
PEA118 Bowling/Golf I	**1**
PEA120 Canoeing I	**1**
PEA134 Golf I	**1**
PEA138 Lifeguard Training I	**1**
PEA146 Physical Fitness I	**1**
PEA151 Racquet Sports I	**1**
PEA153 Racquet Sports II	**1**
PEA154 Racquetball I	**1**
PEA166 Swimming Red Cross Level I - III	**1**
PEA168 Swimming Red Cross Level IV - VI	**1**
PEA170 Tae Kwon Do I	**1**
PEA174 Tennis I	**1**
PEA187 Weight Training I	**1**
PEA190 Yoga/Stretching I	**1**
PEA214 Bicycling II	**1**
PEA253 Racquetball II	**1**
PEA160 Soccer I	**1**
PEA178 Volleyball/Softball I	**1**

PEA181 Water Safety Instruction I
Prerequisite: PEA138
STANDARD CREDIT TYPE 1
Designed to train instructor candidates to teach American Red Cross Swimming and Water Safety Courses, and Community Water Safety. Develops understanding of course materials and methods of conducting training sessions and evaluating participants' progress. Additional training is available for qualified candidates.

PEA183 Water Safety Instruction/Lifeguarding
Prerequisite: PEA138
STANDARD CREDIT TYPE 2
Designed to train instructor candidates to teach American Red Cross Swimming and Water Safety Courses, American Red Cross Lifeguarding (including First Aid), CPR for the Professional Rescuer, Lifeguarding Instructor Aide, and Community Water Safety. Develops understanding of course materials and methods of conducting training sessions and evaluating participants' progress. Additional training is available for qualified candidates.

PEA264 Advanced Swimming
STANDARD CREDIT TYPE 1
Activities that require a group of people or two teams for participation. These courses include skills, rules, and strategies required to participate in each activity.

PEA917 Experimental Course
Prerequisite: Instructor's approval
STANDARD CREDIT TYPE *Varied Credit*
New courses as student interests demand.

PEC – Coaching Officiating

PEC102 Coaching Authorization
STANDARD CREDIT TYPE 5
Integrates critical concepts from human development, anatomy/physiology, physical education with coaching philosophy/techniques. Successful completion of 4 mini-courses qualifies for Iowa Coaching Endorsement.

PEC105 Coaching Ethics
STANDARD CREDIT TYPE 0.5
Coaching ethics completes an aspect of renewing the Coaching Authorization certificate.

PEC109 Coaching Ethics, Techniques & Theory
STANDARD CREDIT TYPE 1.5
Knowledge and understanding of the techniques and theory of coaching interscholastic athletics and also deals with professional ethics in coaching.

PEC115 Athletic Dev. And Human Growth
STANDARD CREDIT TYPE 1
Knowledge and understanding of human growth and development of children in youth in relation to physical activity.

PEC120 Body Structure and Function
STANDARD CREDIT TYPE 1
Knowledge and understanding of the structure and function of the human body in relation to physical activity.

PEC130 Care and Prevention. Of Ath. Injuries
STANDARD CREDIT TYPE   *1.5*
Knowledge and understanding of the prevention and care of athletic injuries and medical and safety problems relation to physical activity.

PEC151 Theory of Coaching Soccer
STANDARD CREDIT TYPE   *2*
Provides students with a background of the entire game of soccer. Students will also be equipped with the knowledge to be able to coach youth soccer and set up successful practices. Areas of instruction will include Laws of the Game, principles of play, Care & Prevention, team management, methods of soccer, designing practice sessions, and the abilities to analyze the game. The completion of this class there will be a final test to see if the individual will receive a National or State United States Soccer Federation (USSF) "D" license.

PEC180 Sports Off:Ftball,Wrstlng,Voll
STANDARD CREDIT TYPE   *2*
Principles and practice in officiating games and contests.

PEC182 Sports Off:Bsktbll,Sftbll,Bsbl
STANDARD CREDIT TYPE   *2*
Principles and practices in officiating games and contests.

PEC917 Experimental Course
STANDARD CREDIT TYPE   *Varied Credit*
New courses as student interests demand.

PEH – General Physical Education & Health

PEH102 Health
STANDARD CREDIT TYPE   *3*
Study of several of the dimensions of personal health with emphasis on the physical and emotional dimensions. Principles of a healthy lifestyle and how these principles apply to their own behavior.

PEH110 Personal Wellness *AA Approved*
STANDARD CREDIT TYPE   *2*
Principles of physical fitness, good nutrition, stress management. Applications and practice of these principles in everyday life. Includes some physical activity.

PEH142 First Aid
STANDARD CREDIT TYPE   *3*
Basic treatment: All types of injuries, accidents, wounds, sudden illnesses, and medical emergencies. Includes eight hours of CPR.

PEH150 Basic Cardiac Life Support
STANDARD CREDIT TYPE   *1*
Provides information about prudent living, prevention of unnecessary heart disease, and early warning of heart attack. Includes extensive training in pulmonary resuscitation techniques. Certification in Basic Life Support.

PEH161 Introduction to Physical Education
STANDARD CREDIT TYPE   *2*
Designed to orient prospective physical education majors and minors in the field of physical education. Includes history, philosophy, trends, and developments of physical education. Observations of physical education programs and classes in the surrounding community, with opportunity for discussion and evaluation included.

PEH175 Sports Psychology
STANDARD CREDIT TYPE   *2*
Study of the personality of the athlete, anxiety and arousal in sport, arousal adjustment strategies, cognitive-behavioral intervention in sport, motivation, and self-confidence in sport.

PEH210 Elementary Physical Education
STANDARD CREDIT TYPE   *3*
Study of theory, practice, and methods for teaching physical education in the elementary school. Basic wellness, games and sports, rhythms, and student evaluation will be presented. Child health and safety, school policies and curriculum, and contemporary issues related to total child wellness as well as preparing unit plans, lesson plans, and self-testing activities for kindergarten through sixth grades.

PEH220 Lifestyle Management
STANDARD CREDIT TYPE   *1*
Developing a healthy lifestyle through exercise and diet. Includes assessment of status, planning, and participating in a program based on individual needs.

PEH250 Swimming Pool Management
STANDARD CREDIT TYPE   *1*
Designed to meet state health requirements for Certified Pool Operators. Topics include risk management, sanitation, and equipment purchase and operation.

PEH255 Principles of Sports Management
STANDARD CREDIT TYPE   *3*
Introduction to the academic and professional field of sports management. An overview of sports management rather than detailed instructions about how to manage sport enterprises.

PEH256 Current Issues in Sports Management
STANDARD CREDIT TYPE   *3*
Studies current issues, problems, and trends in sports management. Ethical, technological, and social issues will be discussed.

PEH260 Recreational Leadership
STANDARD CREDIT TYPE   *3*
Provides students with a working proficiency in the area of recreation. Emphasis on coordinating practical lab experiences in which the student will have an opportunity to perform a wide variety of recreational skills, and classroom discussion of the principles of recreation leadership.

PEH917 Experimental Course
STANDARD CREDIT TYPE   *Varied Credit*
New course as student interests demand.

PEH929 Individual Projects
STANDARD CREDIT TYPE   *Varied Credit*
Specialized assignment designed by student/instructor.

PEH932 Internship
Prerequisite: PEH255
STANDARD CREDIT TYPE   *3*
Experience applied in a professional setting in a sports management, fitness, or similar agency.

PET – Physical Education Training

PET105 Basic Athletic Training
STANDARD CREDIT TYPE   *3*
Provides students with knowledge of the profession of the certified athletic trainer, factors associated with injury prevention, evaluation, treatment, emergency care of athletic injuries, protective equipment, basic organization, and administrative and legal concepts in the athletic training setting. Allows the student athletic trainers to gain a working knowledge of the basic skills required to become a certified athletic trainer.

PET115 Introduction to Taping
STANDARD CREDIT TYPE   *2*
This is an entry level class that will introduce you to the taping aspects of the Athletic Training profession. The time spent in class will cover the most common taping and wrapping techniques needed to become a successful Athletic Training Student (ATS). Students will be tested during class and lab time.

PET140 Athletic Training Practicum I
STANDARD CREDIT TYPE *1*
Athletic training skills instruction for the beginning student athletic trainer. Practical examinations cover material taught during scheduled meeting times and observation hours. Observation of athletic training skills and techniques used concurrent with athletic events. The purpose of this class is to provide students with clinical rotations during their freshman year. The rotation will be at multiple sites and sports with supervision from the Certified Athletic Trainer. Students will be expected to attend practices and games as assigned. At this time they will practice and demonstrate skills taught in the classroom. They will be in charge of a daily journal of activities and hours.

PET150 Athletic Training Practicum II
STANDARD CREDIT TYPE *1*
Athletic training skills instruction for the beginning student athletic trainer. Practical examinations cover material taught during scheduled meeting times and observation hours. Observation of athletic training skills and techniques used concurrent with athletic events. The purpose of this class is to provide students with clinical rotations during their freshman year. The rotation will be at multiple sites and sports with supervision from the Certified Athletic Trainer. Students will be expected to attend practices and games as assigned. At this time they will practice and demonstrate skills taught in the classroom. They will be in charge of a daily journal of activities and hours.

PET170 Athletic Training Practicum III
STANDARD CREDIT TYPE *3*
The purpose of this class is to provide students with clinical rotation during their sophomore year. Students will be expected to attend practices and events for their assigned sport. In addition, they will be involved in making treatment plans and maintaining good record keeping. During this time, each student will provide, demonstrate and refine the skills taught in the classroom. The student will be responsible for the professional duties of communication between the athlete, coach and the Certified Athletic Trainer. The sophomore students will have more responsibilities and duties than previously, to prepare them for a smooth transfer to a four-year college.

PET180 Athletic Training Practicum IV
STANDARD CREDIT TYPE *3*
The purpose of this class is to provide students with clinical rotation during their sophomore year. Students will be expected to attend practices and events for their assigned sport. In addition, they will be involved in making treatment plans and maintaining good record keeping. During this time, each student will provide, demonstrate and refine the skills taught in the classroom. The student will be responsible for the professional duties of communication between the athlete, coach and the Certified Athletic Trainer. The sophomore students will have more responsibilities and duties than previously, to prepare them for a smooth transfer to a four-year college.

PET189 Advanced Athletic Training
Prerequisite: PET105
STANDARD CREDIT TYPE *3*
Allow sophomore students to continue learning the basics of athletic training by focusing more about anatomy and physiology of the human body. Students will also be learning how to accomplish an injury evaluation, assessment, and also treatment plans. Therefore, each student should feel confident to cover practices/games as an athletic training student, with supervision of the Certified Athletic Trainer.

PET191 Advanced Athletic Training II
Prerequisite: PET105 and PET189
STANDARD CREDIT TYPE *3*
This class will allow sophomore students to continue learning the basics of athletic training by focusing more about anatomy and physiology of the human body. Students will also be learning how to accomplish an injury evaluation, assessment, and also treatment plans. Therefore, each student should feel confident to cover practices/games as an athletic training students, with supervision of the Certified Athletic Trainer.

PET917 Experimental Course
STANDARD CREDIT TYPE *Varied Credit*
New course as student interests demand.

PEV – Intercollegiate Physical Education

Participation at an intercollegiate level with emphasis on perfecting skills during practice, learning strategies, and competing successfully during games.

PEV115 Varsity Baseball	**1**
PEV120 Varsity Basketball	**1**
PEV130 Varsity Cross Country	**1**
PEV135 Varsity Football	**1**
PEV140 Varsity Golf	**1**
PEV150 Varsity Soccer	**1**
PEV156 Drill Team	**1**
PEV160 Varsity Softball	**1**
PEV170 Varsity Volleyball	**1**
PEV180 Varsity Wrestling	**1**
PEV190 Varsity Spirit Squad	**1**

PHI – Philosophy

PHI101 Introduction to Philosophy *AA Approved*
STANDARD CREDIT TYPE *3*
Reasons for existence. Problem of science and religion, social and political life. Methods of study. Approaches to search for truth.

PHI105 Introduction to Ethics *AA Approved*
STANDARD CREDIT TYPE *3*
Concepts of "right" and "wrong." Historical development of ethical systems from Greek civilization to present.

PHI917 Experimental Course
STANDARD CREDIT TYPE *Varied Credit*
New courses as student interests demand.

PHI927 Honors Study
STANDARD CREDIT TYPE *Varied Credit*
This course is designated as an honors course in philosophy as a special project.

PHS – Physical Science

PHS120 Exploring Physical Science *AA Approved*
Prerequisite: 1 year high school algebra or college equivalent
STANDARD CREDIT TYPE *4*
Laboratory course designed to introduce the physical sciences to students with limited science background. Topics in chemistry, physics, and at least one of the following: geology, astronomy, or meteorology.

PHS142 Principles of Astronomy *AA Approved*
Prerequisite: High school algebra or equivalent
STANDARD CREDIT TYPE *3*
Basic information for better understanding the nature of the universe, including the earth as a celestial body, the sun, the moon, our solar system, and the galaxies. Field experience in naked eye and telescopic observation techniques. Various types and construction of telescopes.

PHS917 Experimental Course
Prerequisite: Instructor's approval
STANDARD CREDIT TYPE *Varied Credit*
New courses as student interests demand.

PHS929 Individual Projects
Prerequisite: Instructor's approval
STANDARD CREDIT TYPE *Varied Credit*
Specialized assignment designed by instructor.

PHT – Commercial Photography

PHT208 Basic Photojournalism
Prerequisite: ART184 or instructor's approval
STANDARD CREDIT TYPE 3
Use of photographs with news, features, ads. Documentary photography: Picture editing and layout, copy and captions. Freelance photography, photography ethics. Development of color slides, printing color photos from slides.

PHT929 Individual Projects
STANDARD CREDIT TYPE *Varied Credit*
Specialized assignment designed by student/instructor.

PHY – Physics

PHY106 Survey of Physics *AA Approved*
Prerequisites: COMPASS algebra score of 55 or better, ACT math score of 20 or better, grade C- or better in MAT062.
STANDARD CREDIT TYPE 4
An introduction to the basic concepts of physics. Includes elementary topics from mechanics, properties of matter, heat, sound, electricity, magnetism, and light. Emphasizes a conceptual understanding of basic principles in the everyday experience.

PHY121 Elements of Physics *AA Approved*
Prerequisites: COMPASS algebra score of 55 or better, ACT score of 20 or better, grade of A- or better in MAT052, grade of C- or better in MAT062, MAT121, MAT132, BUS230, MAT129, or MAT210.
STANDARD CREDIT TYPE 4
A quantitative course on the principles and applications of physics. Selected topics include mechanics, properties of matter, fluids, gases and thermodynamics.

PHY162 College Physics I *AA Approved*
Prerequisite: COMPASS college algebra score of 55 or better, ACT math score of 26 or better, or MAT121.
STANDARD CREDIT TYPE 4
General physics for science majors; not intended for engineering majors. Algebra-based, topics include Netonian mechanics, properties of matter, and waves.

PHY172 College Physics II *AA Approved*
Prerequisite: PHY162 or PHY212
STANDARD CREDIT TYPE 4
Continuation of PHY162. Topics include thermodynamics, electricity and magnetism, and optics.

PHY212 Classical Physics I *AA Approved*
Prerequisite: MAT210
STANDARD CREDIT TYPE 5
Physics for engineers and science majors. Calculus based, topics include Newtonian mechanics, properties of matter, and waves.

PHY222 Classical Physics II *AA Approved*
Prerequisite: MAT216 and PHY212
STANDARD CREDIT TYPE 5
Continuation of PHY212. Topics include thermodynamics, electricity and magnetism, and optics.

PHY917 Experimental Course
STANDARD CREDIT TYPE *Varied Credit*
New courses as student interests demand.

PHY929 Individual Projects
STANDARD CREDIT TYPE *Varied Credit*
Special topics as arranged with instructor.

PNN – Practical Nursing

PNN110 Fundamentals of Nursing I
Prerequisite: BIO151, BIO168, BIO173, BIO186, and EDU160
NURSING CREDIT TYPE 3
Orients the student to nursing and the nursing process. Develops technical skills used within the scope of practical nursing in Iowa and enhances knowledge and professionalism in the use of interpersonal communication and professional and medical ethics.

PNN111 Fundamentals of Nursing II
Prerequisite: BIO151, BIO168, BIO173, BIO186, and EDU160
NURSING CREDIT TYPE 3.5
Orients the student to nursing and the nursing process. Develops technical skills used within the scope of practical nursing in Iowa and enhances knowledge and professionalism in the use of interpersonal communication and professional and medical ethics.

PNN231 Pharmacology
Prerequisite: BIO151, BIO168, BIO173, BIO186, and EDU160
NURSING CREDIT TYPE 3
Introduction to the study of drugs which affect various body systems. Various pharmacological classifications, dose ranges, actions, side effects, and methods of administration of commonly-prescribed medications. Foundation for safe and effective drug preparation and dosage calculations will be a focus.

PNN403 Mental Health Concepts
Prerequisite: BIO151, BIO168, BIO173, BIO186, and EDU160
NURSING CREDIT TYPE 2
Nursing skills related to an understanding of mental health care and the promotion of mental wellness.

PNN412 Introduction to Pediatrics
Prerequisite: BIO151, BIO168, BIO173, BIO186, and EDU160
NURSING CREDIT TYPE 2.5
This course includes health teaching related to the study of family centered nursing care. Pediatric focus: Emphasizes the application of principles of human growth and development to provide nursing care to families with infants, children, or adolescents. The study of nursing care for the prevention and treatment of common pediatric disorders is highlighted. The clinical component is in acute care obstetrical and a variety of pediatric settings.

PNN424 Introduction to Obstetrics
Prerequisite: BIO151, BIO168, BIO173, BIO186, and EDU160
NURSING CREDIT TYPE 2
This course includes health teaching related to the study of family centered nursing care. Maternity focus: The study of preconception; pregnancy and major complications; the birth process; postpartum nursing care; and newborn care. Students learn about contraception; infertility; common neonatal birth defects; and differentiate principles of newborn care for preterm infants, term infants, and post term infants.

PNN500 Leadership & Professional Nsg
Prerequisite: BIO151, BIO168, BIO173, BIO186, and EDU160
NURSING CREDIT TYPE 1
This course is designed to assist students to assume their role as a member of the health care team. Concepts relating to leadership and management skills are included to facilitate the transition to professional nursing.

PNN520 Nursing CareoftheAdultClientI
Prerequisite: BIO151, BIO168, BIO173, BIO186, and EDU160
NURSING CREDIT TYPE 4
Applies a systematic approach for the comprehensive coverage of the nursing care of adults with disorders requiring medical and surgical management. Each unit covers a body system and begins with assessment, age-related changes, diagnostic tests and procedures, and common therapeutic measures that are related to the body system discussed. Specific disorders and nursing care are then discussed. Students continue to develop skills using NANDA terminology and the nursing process. There is an associated clinical component in an acute care setting.

PNN525 Nursing Care of the Adult II
Prerequisite: BIO151, BIO168, BIO173, BIO186, and EDU160
NURSING CREDIT TYPE 4
Continues the systematic approach for the comprehensive coverage of the nursing care of adults with disorders requiring medical and surgical management covered in Nursing Care of the Adult Client I. There is and associated clinical component in the acute care setting.

PNN530 Nursing Care of the Adult III
Prerequisite: BIO151, BIO168, BIO173, BIO186, and EDU160
NURSING CREDIT TYPE 3.5
Continues the systematic approach for the comprehensive coverage of the nursing care of adults with disorders requiring medical and surgical management covered in Nursing Care of the Adult Client II. There is an associated medication pass clinical component in a setting in which students pass medications to a group of assigned patients and a preceptorship experience in which students complete 48 hours of clinical in a one-on-one situation with a LPN or RN in a facility assigned by the faculty.

PNN540 Leadership Clinical Experience
Prerequisite: BIO151, BIO168, BIO173, BIO186, and EDU160
NURSING CREDIT TYPE 1
Leadership clinical experience in a long term care facility.

PNN917 Experimental Course
NURSING CREDIT TYPE *Varied Credit*
New courses as student interests demand.
Note: There is a prescribed schedule for progression through the nursing program. Students will register for their nursing courses according to the schedule of courses on their campus.

POL – Political Science

POL111 American National Government *AA Approved*
STANDARD CREDIT TYPE 3
Survey of national government with emphasis on power and politics; includes principles, structure and function of the government.

POL112 American State and Local Government
STANDARD CREDIT TYPE 3
Study of state constitutions; the executive, legislative and judicial branches; taxes and finance; political parties; state and federal relationship; public schools; county and municipal governments.

POL907 Co-op Field Experience
Prerequisite: Instructor's approval
STANDARD CREDIT TYPE *Varied Credit*
Individually designed job experience and related assignment for students planning a career in government or a related area.

POL917 Experimental Course
Prerequisite: Instructor's approval
STANDARD CREDIT TYPE *Varied Credit*
New courses as student interests demand.

POL927 Honors Study
Prerequisite: Instructor's approval
STANDARD CREDIT TYPE *Varied Credit*
Honors topic arranged with instructor.

POL929 Individual Projects
Prerequisite: Instructor's approval
STANDARD CREDIT TYPE *Varied Credit*
Special topics as arranged with instructor.

PRL – Paralegal

PRL101 Paralegal Studies Orientation
STANDARD CREDIT TYPE 3
Provides an overview of the American legal system and the practice of law. Introduces students to legal processes; court systems; courses of law; basic legal research methods; and to the nature, ethics and regulation of legal professions. Introduces the substantive law and skill areas students will encounter in subsequent courses. Examines the relationship between different kinds of legal systems and between social science and law.

PRL109 Introduction to Legal Research
STANDARD CREDIT TYPE 1
Provides instruction in law library and computer technology resources needed for law applicable to solving legal problems, including research strategies, analysis and application of law.

PRL114 Advanced Legal Research and Writing
Prerequisite: PRL101 and PRL109
STANDARD CREDIT TYPE 3
Provides instruction in using computer based legal research methods to address complex legal research problems and in utilizing research results in briefs and other advocacy legal documents. Introduction to and utilization of office practice software.

PRL131 Torts and Litigation I
STANDARD CREDIT TYPE 3
A study of the basic law relating to personal and property damage. Topics include intentional tort, negligence, nuisance, strict liability and automobile law. Principles of trial practice including drafting basic pleadings and organization of materials for trial.

PRL132 Torts and Litigation II
Prerequisite: PRL131
STANDARD CREDIT TYPE 3
A continuation of PRL131. Areas of concentration will be premise liability, family torts, defamation, governmental immunity, malpractice and wrongful death. Advanced trial practice including drafting of pleadings and discovery documents.

PRL151 Real Estate Law
STANDARD CREDIT TYPE 3
A study of the law of real property and a survey of the more common types of real estate transactions. Emphasis is on the preparation of the instruments necessary to complete various real estate transactions.

PRL161 Family Law
STANDARD CREDIT TYPE 3
The legal aspects of the family relationship. The rights and duties of the parties in marriage, annulment, divorce, child custody and adoption. The course will emphasize the use of domestic law forms.

PRL165 Estate Planning and Probate Law
STANDARD CREDIT TYPE 3
Provides a working knowledge of lifetime and testamentary estate planning enabling the student to draft trusts and wills, and to compute tax consequences. Provides understanding of the process of settling estates both within and outside probate court.

PRL172 Administrative and Bankruptcy Law
STANDARD CREDIT TYPE 3
Provides a working knowledge of administrative law and procedure, and the practical skills necessary for advocacy before an administrative agency. Teaches the Bankruptcy Act, applicable rules and selected case law and their application to the preparation of a bankruptcy filing.

PRL183 Employment Law
STANDARD CREDIT TYPE 3
Surveys selected legal aspects of the employer-employee relationship, such as federal labor laws, civil rights laws, Americans with Disabilities Act, privacy and harassment laws, and human resource management issues.

PRL184 Alternative Dispute Resolution
STANDARD CREDIT TYPE 3
Classroom study of arbitration, mediation, negotiation, and client contact in an ADR case. Students will study the purpose of ADR using "objective" criteria.

PRL283 Legal Ethics/Office Management
CAREER AND TECHNICAL CREDIT TYPE 3
An in-depth study of how a law office functions. The class will focus on the structure of firms/corporate legal departments, use of technology in administering a law office and various administrative and support roles performed by lawyers and non-lawyers in a law office setting. Additionally, the student will study the canons of professional ethics and disciplinary rules applicable to lawyers and legal assistants, together with applicable disciplinary proceedings and court decisions.

PRL934 Legal Practicum
Prerequisite: PRL101 or Instructor's approval
CAREER AND TECHNICAL CREDIT TYPE　　*Varied Credit*
The practicum assists students in obtaining work experiences prior to graduation. Under the supervision of a person in the student's field of study, the student becomes involved through observation and exploratory experience in various areas of the law, such as clerical duties, client interviews, legal research, brief preparation, trial preparation, and post-trial documentation, depending on his/her selected intern site. The student will have an opportunity to be introduced to office practice and the skills involved in his/her chosen career. The student will receive one credit hour for every 60 hours of work completed.

PRL917 Experimental Course
STANDARD CREDIT TYPE　　*Varied Credit*
New courses as student interests demand.

PSY – Psychology

PSY111 Introduction to Psychology *AA Approved*
STANDARD CREDIT TYPE　　*3*
Basic concepts, methods and principles of the study of behavior and mental processes.

PSY171 Health Psychology
Prerequisite: PSY111
STANDARD CREDIT TYPE　　*3*
Overview of the contributions of psychology and its sub-fields to the understanding of the etiology, prevention, assessment, intervention, and treatment of physical illness and disease. Includes the reciprocal interaction of behavior and physical health, recovery from injury and illness, and adjustment to chronic illness.

PSY211 Psychology of Adjustment
STANDARD CREDIT TYPE　　*3*
This course is intended to raise awareness of various factors inherent in human relationships and psychological adjustment patterns of individuals and groups.

PSY212 Psych. of Human and Work Relations
STANDARD CREDIT TYPE　　*3*
Application of the methodology and empirical findings of psychology to the industrial setting. Topics include organizational behavior, supervision, stress as it applies to the workforce, ADA, labor unions, motivation and workplace violence.

PSY224 Adolescent Psychology
STANDARD CREDIT TYPE　　*3*
Examines theoretical and empirical literature related to adolescents, emphasizing biological, psychological, and social aspects of maturation and development from puberty to young adulthood.

PSY241 Abnormal Psychology *AA Approved*
Prerequisite: PSY111
STANDARD CREDIT TYPE　　*3*
History, classification, diagnosis, and treatment of mental illness. Includes discussion of etiology, prevention, and legal/social issues.

PSY245 Introduction to Counseling Theories
STANDARD CREDIT TYPE　　*3*
Survey of the major counseling theories, including classical (e.g., psychoanalytic and Adlerian), historical (e.g., humanistic/existential), and contemporary (e.g., cognitive/behavioral and family systems).

PSY246 Introduction to Counseling Skills
STANDARD CREDIT TYPE　　*3*
Introduction to basic counseling techniques for students wishing to work with a variety of clients in various human services agencies, including self-help techniques such as assertiveness training and self-control.

PSY251 Social Psychology *AA Approved*
STANDARD CREDIT TYPE　　*3*
Examines theoretical and empirical approaches to understanding the individual as a member of society, including the development of attitudes, social behavior, group processes, motives, attitudes, norms, and the socialization process.

PSY292 Intro. to Experimental Psychology
Prerequisite: 6 hours in Psychology
STANDARD CREDIT TYPE　　*3*
Psychological phenomena studies through applied research in psychology. Statistics and computer used for data analysis. Field work required.

PSY917 Experimental Course
Prerequisite: Instructor's approval
STANDARD CREDIT TYPE　　*Varied Credit*
New courses as student interests demand.

PSY920 Field Experience
Prerequisite: Instructor's approval
STANDARD CREDIT TYPE　　*Varied Credit*
Supervised experience in a human services agency. Students will spend 200 hours in an agency mutually chosen by Human Services faculty and the student to explore interests and options in the field.

PSY927 Honors Study
STANDARD CREDIT TYPE　　*Varied Credit*
This course is designated as an honors course in psychology as a special project.

PSY929 Individual Projects
Prerequisite: Instructor's approval
STANDARD CREDIT TYPE　　*Varied Credit*
Special topics as arranged with instructor.

PSY941 Practicum
Prerequisite: PSY111 and instructor's approval
STANDARD CREDIT TYPE　　*Varied Credit*
An independent project involving on-site agency work experiencing psychology and its attending clinical intervention. May involve reading and research, and must meet specific academic goals.

RDG – Reading

RDG036 College Prep Reading
DEVELOPMENTAL CREDIT TYPE　　*3*
Development of the vocabulary, comprehension, and critical reading skills needed to assist students in becoming successful college students. Practical application in the content area and expository reading.

RDG038 College Preparatory Reading I
DEVELOPMENTAL CREDIT TYPE　　*3*
Designed to improve students' reading, vocabulary, and thinking skills, to assist the student whose present reading level is not sufficiently developed to meet the requirements of college level assignments. The course is for students whose assessment scores indicate a need for supplemental work in reading.

RDG039 College Preparatory Reading II
Prerequisite: COMPASS reading score of 57 or better, or RDG038
DEVELOPMENTAL CREDIT TYPE　　*3*
Designed to improve students' basic reading skills.

RDG053 Academic Transitions Reading III
Prerequisite: COMPASS reading score of 50-69
DEVELOPMENTAL CREDIT TYPE　　*3*
This course is designed to introduce students with limited English proficiency to the written language skills that will be needed in order to be successful in academic classes and in the community. While its focus will be primarily on the graphically related skills of reading and writing, it will also introduce students to basic speaking and listening skills as well as expand vocabulary, grammar, and syntax knowledge.

RDG054 Academic Transitions Reading IV
Prerequisite: COMPASS reading score of 70-79 or grade of C- or better in RDG053
DEVELOPMENTAL CREDIT TYPE　　*3*
This class continues a student's development of the Cognitive Academic Language Proficiency (CALP) skills required for college reading success.

RDG917 Experimental Course
Prerequisite: Instructor's approval
STANDARD CREDIT TYPE *Varied Credit*
New courses as student interests demand.

RDG929 Individual Projects
Prerequisite: Instructor's approval
STANDARD CREDIT TYPE *Varied Credit*
Special topics as arranged with instructor.

REL – Religion

REL101 Survey of World Religions *AA Approved*
STANDARD CREDIT TYPE *3*
Contributions of religions to world culture. Includes Christianity, Confucianism, Buddhism, Hinduism, Islam, Taoism, Judaism.

REL917 Experimental Course
STANDARD CREDIT TYPE *Varied Credit*
New courses as student interests demand.

SCI – Science

SCI005 Preparation for Science
DEVELOPMENTAL CREDIT TYPE *2*
Preparation of students lacking a science background for success in basic biology, chemistry, and physics courses. Investigation of methods, tools, and thought processes used by scientists.

SDV – Student Development

SDV022 Study Strategies
DEVELOPMENTAL CREDIT TYPE *2*
Strategies for improving textbook reading, note-taking, test-taking, and time management. Career choice guidance. Independent study or classroom setting.

SDV108 The College Experience
STANDARD CREDIT TYPE *1*
Designed to direct students' attention to the college academic culture, facilitate development of academic success skills and connect them to campus resources that will aid in their success. Students in this course will discuss issues important to college students, facilitate becoming actively involved in college life, act as a support group, encourage appreciation of cultural diversity, and provide insight into how to assure success at college.

SDV111 Success Seminar
STANDARD CREDIT TYPE *1*
Success seminar is taken to acclimate students to college life and responsibilities. Class meets twice weekly for a half-term to discuss issues important to college students, develop tools for academic success, facilitate becoming actively involved in college life, act as a support group, encourage appreciation of cultural diversity, and provide insight into how to assure success at college.

SDV113 Strategies for Academic Success
STANDARD CREDIT TYPE *2*
Strategies for improving textbook reading, note-taking, test-taking, and time management. Career choice guidance. Independent study or classroom setting.

SDV130 Career Exploration
STANDARD CREDIT TYPE *1*
To enable students to develop a systematic approach to career decision-making. Emphasis on the process of choosing a career, assessing employment opportunities, and marketing individual skills. Topics: self-assessment, decision-making, career exploration, job search strategies, resume development, and interviewing techniques.

SDV135 Job Seeking Skills
STANDARD CREDIT TYPE *1*
Effective techniques to secure work that matches skills, interests, and goals in a competitive job market.

SDV151 Leadership Training & Skill Dev.
STANDARD CREDIT TYPE *3*
Students will both learn about leadership theory and application and develop their own leadership skills by defining, building, and applying leadership skills.

SDV182 Human Potential Seminar
STANDARD CREDIT TYPE *2*
Positive-oriented group experience emphasizing and realizing potential, setting goals, and clarifying values.

SDV185 Advanced Human Potential Seminar
Prerequisite: SDV182
STANDARD CREDIT TYPE *2*
Techniques to identify, prevent, resolve, and manage conflict.

SDV194 Team Building
STANDARD CREDIT TYPE *2*
Communicating in groups, group processes, roles of group members, leadership styles, simulations.

SDV251 Service Learning Peer Mentoring
STANDARD CREDIT TYPE *1*
Offers a hands-on opportunity to explore professional and technical aspects within an organization. Through this service learning project, the student will be involved in the following: a meaningful activity with an academic connection and an opportunity to reflect on the experience.

SDV917 Experimental Course
Prerequisite: Instructor's approval
STANDARD CREDIT TYPE *Varied Credit*
New courses as student interests demand.

SDV927 Honors Study
STANDARD CREDIT TYPE *Varied Credit*
This course is designated as an honors course in student development as a special project.

SDV929 Individual Projects
Prerequisite: Instructor's approval
STANDARD CREDIT TYPE *Varied Credit*
Special topics as arranged by the instructor.

SOC – Sociology

SOC110 Introduction to Sociology *AA Approved*
STANDARD CREDIT TYPE *3*
Beginning course in sociology with emphasis on terminology. Includes basic concepts such as group influence on individual behavior, principles and processes, culture, social institutions, social class, collective behavior, and ethnic groups.

SOC115 Social Problems *AA Approved*
STANDARD CREDIT TYPE *3*
Survey of human problems. Applies sociological principles to contemporary social problems such as mental illness, drug abuse, crime, alcoholism, suicide, sexual behavior, interracial relations, and over-population.

SOC120 Marriage and Family *AA Approved*
STANDARD CREDIT TYPE *3*
This course surveys variations on the family by social class and ethnic groups, and the family over the life cycle. Topics include intimacy, dating, co-habitation, marriage, alternative family structures, divorce, remarriage, and step-families.

SOC160 Introduction to Social Work
STANDARD CREDIT TYPE *3*
Introduces the principles of social work practice. Emphasis is on social work careers, practice settings, description of methods, skills and standards of practice, definitions of the helping role, survey of agencies and institutions, and an overview of social issues and client needs relative to social work practice.

SOC210 Men, Women and Society
STANDARD CREDIT TYPE 3
This interdisciplinary course is designed for first or second year students to explore men's and women's experiences in American society and the role that ideas about sexual differences have played in shaping those experiences. Areas of inquiry will include, but are not limited to, the following: the construction of gender roles and sexuality; the relationship between gender and other social, political, and legal structures and institutions; and the interplay of gender with race, class, and ethnicity in cultural perceptions and expectations of both men and women. This course will strive to assist students in formulating questions about gender as it relates to their on-going work in various disciplines across the curriculum.

SOC220 Sociology of Aging
STANDARD CREDIT TYPE 3
Introductory course on aging and social issues involving later stages of adult development including health, psychological, diversity and life stage areas. Presenting overview of terms, programming and themes in older adult research.

SOC917 Experimental Course
Prerequisite: Instructor's approval
STANDARD CREDIT TYPE *Varied Credit*
New courses as student interests demand.

SOC927 Honors Study
STANDARD CREDIT TYPE *Varied Credit*
This course is designated as an honors course in sociology as a special project.

SOC929 Individual Projects
Prerequisite: Instructor's approval
STANDARD CREDIT TYPE *Varied Credit*
Special assignment designed by student/instructor.

SPC – Speech

SPC064 Academic Transitions Speaking IV
Prerequisite: COMPASS listening score of 42-66
DEVELOPMENTAL CREDIT TYPE 3
This course is designed to introduce students with limited English proficiency to the oral language skills that will be needed in order to communicate successfully in academic classes and in the community. They will learn how to summarize, how to recognize important points, organize and outline information presented in audio and visual formats. They will also learn the basics of small group communication, including appropriate preparation, roles, small group dynamics, cultural variations, and small group facilitation and leadership. They will be exposed to a variety of dialects, speech patterns, idioms, and cultural forms of communication appropriate to the classroom/college experience.

SPC112 Public Speaking *AA Approved*
STANDARD CREDIT TYPE 3
Principles of speech communication; preparation, delivery and adjustment to the audience; informative and persuasive speaking. Emphasis on both speaking and listening.

SPC122 Interpersonal Communication
STANDARD CREDIT TYPE 3
This course explores how humans communicate in one-on-one and group situations through personal and professional relationships. Special emphasis is placed on improving workplace communication in small group settings. Critical thinking skills and understanding how conversations influence our social environment are also highlighted.

SPC917 Experimental Course
Prerequisite: Instructor's approval
STANDARD CREDIT TYPE *Varied Credit*
New courses as student interests demand.

SPC929 Individual Projects
Prerequisite: Instructor's approval
STANDARD CREDIT TYPE *Varied Credit*
Specialized assignment designed by student/instructor.

WEL – Welding

WEL101 Welding Safety
CAREER AND TECHNICAL CREDIT TYPE 1
Welding shop safety and basic first aid.

WEL103 Oxy-Acetylene Welding & Brazing
CAREER AND TECHNICAL CREDIT TYPE 1
Fillet welds and brazing in the flat and horizontal positions. Oxy-Acetylene equipment safety, storage and nomenclature.

WEL110 Welding Blueprint Reading
CAREER AND TECHNICAL CREDIT TYPE 2
The basics needed to read shop drawings are learned. Covers interpreting welding symbols on blueprints, identifying proper layout methods and tools, and proper joint design necessary for various welding processes.

WEL112 Welding Blueprint Reading/ Advanced
Prerequisite: WEL110
CAREER AND TECHNICAL CREDIT TYPE 2
Emphasizes welding symbols and definitions through which the engineer or designer communicates with the welder. Welding symbols are considered an integral part of blueprint reading for the welder. Topics include: welding symbols and abbreviations; basic joints for weldment fabrications; industrially used welds; surfacing back or backing, and melt-thru welds; and structural shapes and joint design.

WEL116 General Welding
CAREER AND TECHNICAL CREDIT TYPE 1
Studies welding heat, polarities, and electrodes for use in joining ferrous metal by arc, mig, tig, and gas welding processes.

WEL134 Cutting Processes
CAREER AND TECHNICAL CREDIT TYPE 2
Set-up and operation of oxy-fuel cutting and plasma arc cutting equipment. Carbon steel, stainless steel and aluminum cutting will be practiced including beveling techniques for metal prep.

WEL154 Introduction to Arc Welding (SMAW)
CAREER AND TECHNICAL CREDIT TYPE 4
Basic fillet welds on carbon steel and stainless steel in all positions using E6010, E7018 and E308-16 electrodes. Practice geared to AWS D1.1 Structural Steel and D1.6 Structural Stainless Steel Welding Code standards.

WEL172 Adv. Shielded Metal Arc Welding II
Prerequisite: WEL154
CAREER AND TECHNICAL CREDIT TYPE 4
Multiple pass fillet welds on carbon steel in all positions using 5/32" diameter E7018 electrodes. Practice geared to AWS D1.1 Structural Steel or D1.6 Structural Stainless Steel Welding Code standards. Opportunity for SMAW structural welder qualification/certification to AWS D1.

WEL186 GMAW
CAREER AND TECHNICAL CREDIT TYPE 4
Basic fillet welds on carbon steel, stainless steel and aluminum in all positions using a variety of shielding gas blends and wire diameters appropriate for the materials welded. Practice geared to AWS D1.1 Structural Steel, D1.6 Structural Stainless Steel, D1.2 Structural Aluminum, D1.9 Sheet Metal and D1.3 Structural Sheet Steel Welding Code standards. Opportunity for GMAW structural welder qualification/certification to AWS D1.1, D1.6, D1.2 D1.9 or D1.3 Code for fillet welds.

WEL187 Advanced GMAW
Prerequisite: WEL186
CAREER AND TECHNICAL CREDIT TYPE   *4*
Continued laboratory practice of Gas Metal Arc Welding (GMAW) introduced in WEL186. Groove welds with and without backing on carbon steel and stainless steel in all positions using a variety of shielding gases and wire diameters appropriate for the materials welded. Practice geared to AWS D1.1 Structural Steel or D1.6 Structural Stainless Steel Welding Code standards. Opportunity for GMAW structural welder qualification/certification to AWS D1.1 or D1.6 Code for groove welds on 3/8" and 1" plate.

WEL190 Gas Tungsten Arc Welding
Prerequisite: WEL103
CAREER AND TECHNICAL CREDIT TYPE   *2*
Fillet welds and groove welds on carbon steel and stainless steel, and aluminum in all positions. Welder qualification to AWS EG 2.0 performance standards.

WEL221 Flux Cored Arc Welding
Prerequisite: WEL186
CAREER AND TECHNICAL CREDIT TYPE   *2*
Fillet welds and groove welds on carbon steel and stainless steel in all positions using self-shielded and gas shielded electrodes. Practice geared to AWS D1.1 Structural Steel Welding Code standards. Opportunity for FCAW structural welder qualification/certification to AWS D1.1 Structural Steel Code for groove welds on 3/8" and 1" plate.

WEL228 Welding Safety/Health: SENSE1
CAREER AND TECHNICAL CREDIT TYPE   *1*
This course will provide students with orientation to the welding profession and will cover the basics of safety & health within the welding profession. This course aligns to SENSE Level 1, Module 1 and Module 2 – Key Indicators 1-6.

WEL233 Print Read/Sym Inter: SENSE1
CAREER AND TECHNICAL CREDIT TYPE   *3*
Provides instruction in interpreting elements of welding prints (drawings or sketches), focusing on measurement, American Welding Society welding symbols, and fabrication requirements. Students will understand how to prepare, assemble and tack welding parts according to drawings or sketches, using proper materials and tools. This course aligns to SENSE Level 1 Module 3: Drawing and Welding Symbol Interpretation, Key Indicators 1 and 2.

WEL244 GMAW Sh Cir Transfer: SENSE1
CAREER AND TECHNICAL CREDIT TYPE   *2*
Focuses on proper weld safety, machine setup and welding techniques of Gas Metal Arc Welding Short-Circuiting Transfer. Students perform American Welding Society compliant welds on carbon steel, in flat, horizontal, vertical and overhead positions. This course will prepare students to take an AWS welder certification test, which is recommended. This course aligns with SENSE Level 1 Module 5 Key Indicators 1-7.

WEL245 GMAW Spray Transfer: SENSE1
CAREER AND TECHNICAL CREDIT TYPE   *2*
Focuses on proper weld safety, machine setup and welding techniques of Gas Metal Arc Welding Spray Transfer. Students perform American Welding Society compliant welds on carbon steel in flat and horizontal positions. This course will prepare students to take an AWS welder certification test, which is recommended for its successful completion. It aligns with SENSE Level 1 Module 5 Key Indicators 1, 2 and 8-12, as well as Module 2 - Indicator 7, Module 3- Key Indicator 3, and Module 9 – Key Indicator 2.

WEL251 GTAW Carbon Steel: SENSE1
CAREER AND TECHNICAL CREDIT TYPE   *2*
Focuses on proper weld safety, machine setup and welding techniques for Gas Tungsten Arc Welding. Students perform American Welding Society compliant welds on carbon steel in flat, horizontal, vertical and overhead positions. This course will prepare students to take an AWS welder certification test, which is recommended for successful completion of this course. This course aligns to SENSE Level 1, Module 7 – Key Indicators 1-7, as well as Module 2 - Key Indicator 7, Module 3- Key Indicator 3, and Module 9 – Key Indicator 2.

WEL252 GTAW Aluminum: SENSE1
CAREER AND TECHNICAL CREDIT TYPE   *1*
Focuses on proper weld safety, machine setup and welding techniques for gas tungsten arc welding. Students perform American Welding Society compliant welds on aluminum in flat and horizontal positions. This course will prepare students to take an AWS welder certification test, which is recommended for successful completion of this course. This course aligns to SENSE Level I, Module 7 Key Indicators 1, 2 and 13 – 17, as well as Module 2 - Key Indicator 7, Module 3- Key Indicator 3, and Module 9 – Key Indicator 2.

WEL253 GTAW Stainless Steel: SENSE1
CAREER AND TECHNICAL CREDIT TYPE   *1*
Focuses on proper weld safety, machine setup and welding techniques for Gas Tungsten Arc Welding. Students perform American Welding Society compliant welds on austenitic stainless steel in flat, horizontal, and vertical positions. This course will prepare students to take an AWS welder certification test, which is recommended for successful completion of this course. This course aligns to SENSE Level I, Module 7 Key Indicators 1, 2 and 8-12 as well as Module 2 - Key Indicator 7, Module 3- Key Indicator 3, and Module 9 – Key Indicator 2.

WEL254 Inspection/Test Princ: SENSE1
CAREER AND TECHNICAL CREDIT TYPE   *1*
Students will visually examine test weldments and thermally cut surfaces per multiple welding codes, standards, and specifications. This course aligns to SENSE Level I, Module 9: Welding Inspection and Testing Principles.

WEL262 OFC-I Manual & Mech: SENSE1
CAREER AND TECHNICAL CREDIT TYPE   *2*
Focuses on proper safety, equipment setup and cutting techniques for manual and mechanized OxyFuel cutting on carbon steel. Students perform American Welding Society compliant cutting operations in the flat position. The student will also perform scarfing and gouging operations to remove base and weld metal in flat and horizontal positions on carbon steel. This course aligns to SENSE Level 1 Module 8 - Units 1 and 2, as well as Module 2 - Key Indicator 7 and Module 9 – Key Indicator 1.

WEL263 PAC/CAC: SENSE1
CAREER AND TECHNICAL CREDIT TYPE   *2*
Focuses on proper safety, equipment setup and cutting techniques for Plasma and Carbon steel Arc cutting on carbon steel, austenitic stainless steel, and aluminum. Students perform American Welding Society compliant cutting operations in the flat position. The student will also perform scarfing and gouging operations to remove base and weld metal in flat and horizontal positions. This course aligns to SENSE Level 1 Module 8 - Units 3 and 4, as well as Module 2 - Key Indicator 7 and Module 9 – Key Indicator 1.

WEL274 SMAW I: SENSE1
CAREER AND TECHNICAL CREDIT TYPE   *3*
Focuses on safety, amperage settings, polarity and the proper selection of electrodes for the shielded metal arc welding process. Students will perform American Welding Society compliant welds on carbon steel, using visual and destructive methods for determining weld quality. This course aligns to SENSE Level 1.

WEL275 SMAW II: SENSE1
CAREER AND TECHNICAL CREDIT TYPE   *3*

Focuses on safety, amperage settings, polarity and the proper selection of electrodes for the Shielded Metal Arc Welding (informally known as stick welding) process. Students perform American Welding Society complaint welds on carbon steel, in vertical up and overhead configurations, using visual and destructive methods for determining weld quality. This course aligns to SENSE Level 1 Module 4: Shielded Metal Arc Welding Key Indicators 1-7 for the flat and horizontal positions, as well as Module 2 - Key Indicator 7, Module 3- Key Indicator 3, and Module 9 – Key Indicator 2.

WEL280 FCAW Self-Shielded: SENSE1
CAREER AND TECHNICAL CREDIT TYPE   *2*

Focuses on proper weld safety, machine setup and welding techniques for Flux Cored Arc Welding Self-Shielded. Students perform American Welding Society compliant welds on carbon steel in flat, horizontal, vertical and overhead positions. This course will prepare students to take an AWS welder certification test, which is recommended for its successful completion. It aligns to SENSE Level 1 Module 6 - Key Indicators 1, 2 and 8-12, as well as Module 2 - Key Indicator 7, Module 3- Key Indicator 3, and Module 9 – Key Indicator 2.

WEL281 FCAW Gas-Shielded: SENSE1
CAREER AND TECHNICAL CREDIT TYPE   *2*

Focuses on proper weld safety, machine setup and welding techniques for Flux Cored Arc Welding (Gas Shielded). Students perform American Welding Society compliant welds on carbon steel in flat, horizontal, vertical and overhead positions. This course will prepare students to take an AWS welder certification test, which is recommended for its successful completion. It aligns to SENSE Level 1, Module 6 - Key Indicators 1-7, as well as Module 2 - Key Indicator 7, Module 3- Key Indicator 3, and Module 9 – Key Indicator 2.

WEL300 Pipe Welding Basics
CAREER AND TECHNICAL CREDIT TYPE   *1*

Covers basics of pipe welding techniques unique to the utility technician industry. Students will perform stress tests and simple pressurized welding and some techniques in fusion of the plastic pipes.

WEL917 Experimental Course
CAREER AND TECHNICAL CREDIT TYPE   *Varied Credit*

New courses as student interests demand.

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