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With global vision and innovative curriculum, Kirkwood is redefining the role of the community college. At Kirkwood, you can find your future and save a fortune!

Our Mission
Consistent with the philosophy held by the college and in accordance with the charge given it by the State of Iowa as an institution of higher education and in concert with other agencies:

Kirkwood Community College
- Identifies community needs
- Provides accessible, quality education and training
- Promotes opportunities for lifelong learning

Our Vision
To be the leader in regional, national, and global education.

Our Values
- Respect
- Excellence
- Responsibility
- Diversity

Equal Employment Opportunity
Kirkwood Community College declares and affirms to its students, employees and to the public that it does not discriminate on the basis of sex, race, color, creed, religion, national origin, age, physical or mental ability, sexual orientation, gender, gender identity, physical attributes, veteran status, genetic information, socioeconomic status, and actual or potential parental, family or marital status in its educational programs, activities, admission procedures or employment practices. The college affirms its commitment to comply with all applicable federal, state, and local laws, regulations and orders.

If you have questions or complaints related to compliance with this policy, please contact Wes Fowler, Vice President, Human Resources at Kirkwood Community College, 313 Kirkwood Hall, 6301 Kirkwood Blvd., SW, Cedar Rapids, IA 52404, or by phone to (319) 398-7797, or email to wes.fowler@kirkwood.edu; or Vice President, Student Services, Jon Buse, 307 Mansfield Center, at (319) 398-4977, or e-mail jon.buse@kirkwood.edu; or Vice President, Academic Affairs, Bill Lamb, 100 Iowa Hall, at (319) 398-5509, or e-mail to bill.lamb@kirkwood.edu; or the Director of the Office for Civil Rights, U.S. Department of Education, Citigroup Center, 500 W Madison, Suite 1475, Chicago, IL 60661, phone number (312) 730-1560, fax (312) 730-1576.
Kirkwood Locations

Cedar Rapids Main Campus
6301 Kirkwood Boulevard SW
Cedar Rapids, IA 52404
ask@kirkwood.edu

The main campus of Kirkwood Community College is located in Cedar Rapids, Iowa, a metropolitan area of approximately 150,000 residents. U.S. highways 30, 151, 218 and Interstate 380 run through the city. Kirkwood sits just south of the Highway 30 and I-380 interchange.

Iowa City Campus
1816 Lower Muscatine Road
Iowa City, IA 52240
319-887-3658

Kirkwood Community College’s Iowa City Campus brings academic excellence, first class facilities and a convenient location together to serve its growing student population.

The Iowa City Campus is one of the fastest-growing campuses in Iowa. And even though more than 3,500 students attend there, the center hasn’t lost the friendliness and student focus for which Kirkwood is known.

Services include those listed for center locations, as well as academic and transfer advising, personal counseling, financial aid advising, a cashier for tuition payment and a full-service bookstore.

Center Locations
Kirkwood centers are located in Benton, Cedar, Iowa, Johnson, Jones, Linn and Washington counties. Kirkwood centers offer college credit courses, continuing education classes and high school completion programs to students of all ages. Students can complete all the required courses to earn Associate of Arts degrees through local Kirkwood centers. Classes at each center are delivered by traditional face-to-face classroom instruction, Distance Learning and interactive video classrooms.

The centers offer the same services as those available to students at the main campus in Cedar Rapids:

- Advisors who assist students with course schedules
- Placement testing
- Wireless computer access with software required for college credit courses
- Tutoring for students in college credit classes

Benton County
Benton County Center
111 West Third Street
Vinton, IA 52349
319-472-2318
www.kirkwood.edu/bentoncounty

Tippie-Mansfield Center
1214 Ninth Avenue
Belle Plaine, IA 52208
319-444-2549
www.kirkwood.edu/belleplaine

Cedar County
Cedar County Center
100 Alexander Drive, Suite 2
Tipton, IA 52772
563-886-2950
Kirkwood Locations

www.kirkwood.edu/cedarcounty

**Iowa County**
Iowa County Center
200 West Street
Williamsburg, IA 52361
319-668-2461
www.kirkwood.edu/iowacounty

**Johnson County**
Iowa City Campus
1816 Lower Muscatine Road
Iowa City, IA 52240
319-887-3658
www.kirkwood.edu/iowacity

Iowa City Learning Center
1810 Lower Muscatine Road
Iowa City, IA 52240
319-887-3656

Kirkwood Regional Center at the University of Iowa
2301 Oakdale Blvd
Coralville, IA 52241
319-358-3100
www.kirkwood.edu/kirkwoodui

**Jones County**
Jones County Regional Center
220 Welter Drive
Monticello, IA 52310
319-465-2302
www.kirkwood.edu/jonesregional

**Linn County**
Linn County Regional Center
1770 Boyson Road
Hiawatha, IA 52233
319-398-1052
www.kirkwood.edu/linnregional

**Washington County**
Washington County Regional Center
2192 Lexington Blvd
Washington, IA 52353
319-653-4655
www.kirkwood.edu/washingtonregional
Programs of Study

For the most up-to-date list of programs offered at Kirkwood, go to: www.kirkwood.edu/programs

Career Programs
Get a great start here with certificate, diploma or degree programs designed to provide the training and expertise you need to begin your new career in as little as one year. Listed below are Applied Science career programs.

Administrative Management
Advanced Manufacturing and Robotics Technologies
Advanced Welding Technologies
Agricultural Geospatial Technology
Agriculture Business
Agriculture Production Management
Apparel Merchandising and Design
Architectural Technology
Automation and Instrumentation Technologies
Automotive Collision Repair
Automotive Technology
Baking and Pastry Arts
Business Administration
Business Administration: Accounting
Business Administration: Financial Services
Business Administration: Management
Business Administration: Marketing Management
CAD/Mechanical Engineering Technology
Carpentry
CNC Machining Technology
Computer Software Development
Computer Support Specialist
Construction Management
Criminal Justice
Culinary Arts
Dental Assisting
Dental Hygiene
Dental Technology
Diagnostic Assistant (Radiologic Technology)
Diesel Ag Technology
Diesel Truck Technology
Early Childhood Education
Electroneurodiagnostic Technology
Electronics Engineering Technology
Energy Production and Distribution Technologies
Entry-level Firefighter
Exercise Science and Wellness
Golf Course and Athletic Turfgrass
Graphic Communication Technology
Health Information Technology
Hospitality Management
Human Services
Humane Officer Training
HVAC Installer
Industrial Maintenance Technology
Interior Design
Landscape Horticulture Studies
Medical Assisting
Medical Laboratory Technology
Medical Transcription
Network and System Administration
Nursing Practical, Associate Degree (RN)
Occupational Therapy Assistant
Paralegal Studies
Paramedic
Parks and Natural Resources
Pet Grooming
Pharmacy Technician
Physical Therapist Assistant
Plumbing Pre-Apprenticeship
Respiratory Therapist
Skilled Trades
Surgical Technology
Veterinary Assistant
Veterinary Technician
Water Environmental Technology
Web Technologies

Liberal Arts Degrees

If you plan to continue your education after Kirkwood, our Liberal Arts Program will provide the foundation and transferable courses you need to prepare for that next step.

The Liberal Arts Program offers the following transfer interest areas. Depending upon your transfer institution and your transfer interest area, you may earn an Associate of Arts or an Associate of Science degree in Liberal Arts, or you may take only the credits you need to transfer to the institution of your choice. If you have questions about the transfer of specific courses, consult www.transferiniowa.org

Liberal Arts - Associate of Arts (A.A.) degree
We can help you transfer your A.A. degree and follow a degree pathway, including:
Art
Anthropology/Cultural Studies
Business Administration
Communication Studies
Criminal Justice
Digital Media
Early Childhood Education
Economics
Education
Engineering
English
History
Human Services/Social Work
Humanities
Journalism
Math
Music
Philosophy
Political Science
Psychology
Religion
Science
Sociology
Theater
World Languages
Liberal Arts - Associate of Science (A.S.) degree

We can help you transfer your A.S. degree and find a pathway, including:
- Engineering
- Math
- Science

Reverse Transfer Option

Reverse Transfer is an option for students who do not finish their associate degree before they transfer to an Iowa public university. When a student applies to the university, he/she may indicate their interest in applying future credits earned at the university toward the completion of his/her associate degree. By doing so, the student agrees to have his/her university contact information and transcript sent back to Kirkwood the first three terms of enrollment at the university. Kirkwood then evaluates this coursework to determine if degree requirements are met. More information is available at www.transferiniowa.org/reverse_credit_transfer.php.

Certificates

Certificate programs are designed for entry-level employment and may provide specialization in specific areas. Courses are usually taken from diploma and degree programs, and may be completed within 12 to 29 semester hours.

- ACE Industry
- Animal Control Assistant
- Architectural Technology
- Clinical Laboratory Assistant
- Construction Estimator
- Construction Management
- Construction Supervision
- Database Technologies
- Desktop Customer Service
- Early Childhood Education
- Emergency Medical Technician (EMT)
- Entrepreneurship
- Entry-level Firefighter
- Fire Science
- Global Perspectives in Business
- Healthcare IT Technician
- Human Resources
- Industrial Robotics Medical Laboratory Technology
- Java Programming
- Landscape Construction
- Landscape Design
- Mobile App Development
- Network and System Administration
- Network Security
- .NET Programming
- Paraeducator Certification**
- Plant Science
- Project Management (Design/Build)
- Project Management
- Retail Marketing
- Sales
- Small Scale Food Production
- Social Media Marketing
- Technical Accounting
- Web Design
- Web Development

**For Paraeducator certification, apply to Liberal Arts - Associate of Arts (A.A.)

Online Degrees

Earn any of these degrees online. The Associate of Arts or Associate of Applied Science degree you earn is equivalent to a traditional classroom degree.

- Business Administration: Management
- Liberal Arts
- Water Environmental Technology
Degrees and Core Requirements

**Associate of Arts (A.A.)**
**Associate of Science (A.S.)**
A.A. and A.S. degrees are generally considered "transfer level" degrees. Most students earning these degrees transfer to a four-year college or university and continue their studies. Requirements will differ between colleges, so students should work closely with their transfer institutions and Kirkwood advisors to choose classes that meet their needs.

**Associate of Applied Science (A.A.S.)**
Students who earn A.A.S. degrees typically enter the workforce; however, some Applied Science and Technology programs also have transfer agreements with four-year institutions. Students work with an advisor to determine which degree program best suits their goals.

**Diploma**
**Certificate**
Diploma and certificate programs normally take nine to 12 months to complete and provide entry-level skills to begin a chosen career. Those in the workforce who already have two- or four-year degrees may also seek certificates to advance their careers. Diploma and certificate programs generally do not transfer, but it is best to check with an advisor.

**A.A. and A.S. Degree Requirements**
The adjacent table provides degree requirements for students pursuing a two-year transfer program at Kirkwood. Additional requirements of the three programs include:
- Earn a minimum of 62 semester hours of credit.
- Complete 16 semester hours in residence at Kirkwood.
- Maintain a minimum cumulative grade point average of 2.0.
- Students seeking an A.A. degree must complete one approved diversity course.

**Electives**
Electives are transferable courses required for completing all three degrees. They go beyond core and general education requirements in providing an opportunity to pursue subjects of special interest.

Electives can be chosen from:
- All courses with "Arts & Sciences Elective Code A" in the course description (transfer courses).
- Up to 16 credit hours of courses with "Arts & Sciences Elective Code B" in the course description (technical courses).

**A.A.S. Degree Requirements**
To receive an Associate of Applied Science degree, the following requirements must be completed:
- Earn 62-86 semester hours of credit in the courses required for the specific Applied Science program.
- Earn 16 semester hours in residence at Kirkwood in the program for which the degree is sought.
- Maintain a minimum cumulative grade point average of 2.0.
- Complete a minimum of 15 semester credit hours of coursework in the following basic learning core:
  - Communication 2 courses
  - Humanities 1 course
  - Social Science 1 course
  - Mathematics/Science 1 course

All basic core learning requirements can be satisfied from courses with Arts & Sciences Elective Code B in the course description (technical courses) or Arts & Sciences Elective Code A in the course description (transfer courses).
Degrees and Core Requirements

Degree Requirements

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<thead>
<tr>
<th></th>
<th>Associate of Arts (A.A.)</th>
<th>Associate of Science (A.S.)</th>
<th>Associate of Applied Science (A.A.S.)</th>
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<td>Communication – Speech</td>
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<td>History-Cultures</td>
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Diploma Requirements

- Earn 30-48 semester hours of credit in the courses required for the specific Applied Science program.
- Earn eight semester hours in residence at Kirkwood in the program for which the diploma is sought.
- Maintain a minimum cumulative grade point average of 2.0.

Certificate Requirements

- Earn 12-29 semester hours of credit in courses required for the specific Applied Science program.
- Earn six semester hours in residence at Kirkwood in the program for which the certificate is sought.
- Maintain a minimum cumulative grade point average of 2.0.
Admissions, Tuition and Financial Aid

Admissions Services
Iowa Hall
319-398-5517 or 800-363-2220
info@kirkwood.edu

Kirkwood is proud to maintain an open admission policy, which means enrollment is open to all people with or without a high school diploma.

Applying for Admission

How to Apply
Complete an admission application and submit it online at www.kirkwood.edu/apply.

There is no application fee. Select one program area to receive more information about completing the admission process.

Some programs require a program conference. At the program conference, students meet with the program instructors to learn more about the expectations of the program. This is an important step because some programs fill quickly. Program advisors contact students with more information once applications are received.

Placement Exams
All new degree-seeking students registering for more than six credit hours are required to demonstrate college-level competency in writing, reading and/or math prior to registration. Appropriate course placement in either college or pre-college courses is determined by a variety of measures, including placement tests, previous academic experience, advising, and so on. Exemptions to this policy must be evaluated prior to registration. (Please allow at least two weeks for these exemptions to be evaluated.) To be exempt a student must have:
- Successfully completed (C or better) college-level math and writing classes at a regionally accredited college.
- Earned a Bachelor’s degree from an accredited college.

Call the Test Center at 319-398-5456 for more information and to find a location closest to you.

Financial Aid
Submit the Free Application for Federal Student Aid (FAFSA) as soon as possible after October 1. Start early - the financial aid process can take some time to complete. Go to www.fafsa.gov.

Scholarships
Kirkwood awards over $3 million in scholarships to students each year. Applications for first-round scholarships open October 1 and close March 15. Applications received after the deadline will be eligible for a limited amount of second-round funding opportunities and new scholarships developed after the March 15 deadline. Applications for second-round opportunities are due July 15. Apply at www.kirkwood.edu/scholarships.

Housing
Contact the Housing office at 319-398-7647 or www.kirkwood.edu/housing. You can tour available housing during our scheduled campus visits.

Transcripts
Transfer or returning adult students who want credit for previous coursework must provide the One Stop office with an official transcript from each college or university attended.

Admission to the college does not guarantee acceptance into all programs.
Generally, admission to programs is granted on a continuous basis as applicants complete the required admission procedures. Applicants should apply as soon as they have decided to seek admission. Students can submit applications one year prior to program start dates. (Check the entry time in the program descriptions in this catalog.)

Students should complete their applications well in advance of the semester they plan to enter to gain the maximum pre-enrollment assistance from college staff. Those with college degrees can send their transcripts to the One Stop office to be used for advising purposes.

College Credit While in High School
College-ready high school students have the opportunity to earn both high school and college credit through an agreement between the local high school district and Kirkwood Community College. With recommendation and approval from the high school district, students who have satisfied the prerequisite coursework may enroll in individual classes or a sequence of career emphasis classes. Courses are available within the high school setting, Kirkwood distance learning and online classes, or classes held at one of Kirkwood’s campus locations throughout the seven-county service area. Students wishing to earn credit, independent of high school, should contact Kirkwood’s Dean of Students office.

International Programs
Cedar Rapids Main Campus
1154 Linn Hall
319-398-5579

Kirkwood’s International Programs department is the home of global services. Students come to Kirkwood from more than 100 different countries around the world. This global village on our campus enriches the total learning environment. Students learn how to encounter differences with tolerance, as well as appreciate the rich complexity of our global economy. Students develop a mutual respect and understanding of everyone’s interconnectedness throughout the year by participating in special activities including study abroad programs. The following resources are available:
• International student advising
• International recruiting and prospective student services
• International student scholarships
• SEVIS advising and compliance
• Faculty exchanges and global professional development
• International grants/special projects
• International Education Week each November
• Cultural activities and celebrations
• Study Abroad programs
• Study Abroad scholarships

English Language Proficiency
3051 Cedar Hall
319-398-4998

To assure that students whose first language is not English are prepared to complete college-level coursework, proficiency in English must be demonstrated. These students, including graduates of American high schools, international students, permanent residents, refugees and U.S. citizens, can demonstrate English language proficiency by earning one of the following:

• ACT composite scores of 18 or higher with English sub scores of 18 or higher.
• SAT writing scores of 430 or higher.
• Standard TOEFL paper-based scores of 500 or higher or Internet-based equivalent scores of 63 or higher.
• IELTS scores of 5.0 or higher.
• Kirkwood English Language Acquisition (ELA) placement scores of Level Six.

Note: All test scores must be earned within the two years prior to applying to the college.

Students may not register for non-ELA credit classes until they complete, or are completing, Level Five of the ELA course of study. Exceptions may be made for students who plan to study Industrial Technology majors. ELA coursework is intended to provide developmental preparation for other college credit classes.

Nine elective credits are awarded for Elements of Writing, Effective Reading Strategies, and Fundamentals of English Grammar.

Students who do not plan to take credit classes, but want to obtain the basic English language skills and knowledge necessary for employment and self-sufficiency, should contact 319-784-1510.

International Students
1154 Linn Hall
319-398-5579

An international student is a person who enters the United States with an F-1 or J-1 student visa.

International admission steps are found at www.kirkwood.edu/intapply.

The international student advisor is available in the International Programs office and is the principal designated school official for all international students.

Residence Qualifications
319-398-7600

Students enrolling at Kirkwood are classified as residents or nonresidents of Iowa, or as international students, for admission and tuition purposes by the college’s One Stop office.

The college definition requires 90 consecutive days of residency within the state for a U.S. citizen or permanent resident (green card) prior to the start of enrollment. Residency status is established at the start of the student’s first program. Students who come to the state of Iowa for the purpose of attending college are classified as non-resident. Residency status can only be changed after completion of the program, after a three-year absence from higher education verified by the National Student Clearinghouse, or if the person has become a U.S. citizen or lawful permanent resident. Residency status changes are not automatic. They must be requested by the student and supported with appropriate documentation.

Tuition Rates
The Kirkwood Board of Trustees established current tuition charges in May 2018. Additional fees may be applied for technology, and other incidentals as described in the Fee Policy. Tuition and fees are due two weeks before the term starts.

Iowa Residents
• $169 per credit hour, per semester.
• Tuition for an average, full-time schedule (15 credit hours) is $2,535 per semester.

Nonresidents
• $215 per credit hour, per semester.
• Tuition for an average, full-time schedule (15 credit hours) is $3,225 per semester.

International Students
• $338 per credit hour, per semester.
• Tuition for an average, full-time schedule (12 credit hours) is $4056 per semester.
• Mandatory international student health insurance for one year is estimated to be $1,300.

Installment Payments
319-398-5631

The Kirkwood Payment Plan is designed to help students meet educational expenses without debt. It is not a loan program, therefore students have no debt, there are no interest or finance charges assessed, and there is no credit check. There is no cost to enter the interest-free monthly payment plan. Students may pay tuition and fees with an automatic bank payment (ACH) or credit card.

Refund of Tuition
See policy in Academic and Student Policies section.

Financial Aid
Cedar Rapids Main Campus
202 Kirkwood Hall
319-398-7600
financial@kirkwood.edu
Financial aid consists of grants, loans, scholarships and work-study.

The Kirkwood One Stop office helps qualified students receive financial assistance, enabling them to pursue their academic goals.

To receive the maximum consideration for financial aid, students should apply as soon after October 1 as possible. Application for financial aid must be made each year.

**Eligibility Requirements**

All students seeking financial aid must:

1. Be enrolled and accepted in a diploma or degree credit program.
2. Be seeking a degree related to the educational objective.
3. Be a citizen of the United States or an eligible non-citizen.
4. Have completed a high school diploma or GED.
5. Not be in default for any previous education loans or owe a grant overpayment.
6. Be making satisfactory academic progress according to Kirkwood’s published policy.
7. Attend the classes for which they are enrolled.

**How to Apply for Financial Aid**

To apply for financial aid, follow these steps:

1. Submit the Free Application for Federal Student Aid (FAFSA) at www.fafsa.gov as soon as possible after October 1.
2. Track your financial aid status at Kirkwood by logging into EagleNet and choosing "Financial Aid Checklist" from the student menu. Review your checklist for additional requirements.
3. Activate or decline your loans by completing that step on the financial aid checklist. Please ensure that you have loan funds for the terms you will be attending. This would include fall, spring and summer, if applicable.
4. If you activate your loans, complete the Department of Education’s entrance counseling and Master Promissory Note (www.studentloans.gov).
5. Sign up for Direct Deposit through EagleNet. If an amount remains after tuition and books are paid, it will be sent once your attendance is verified. If you choose not to sign up for direct deposit, your refund will be mailed to you at the address on file.

**Federal and State Financial Aid Programs**

Kirkwood participates in state and federal financial aid programs. Kirkwood uses the FAFSA information to determine eligibility. For more information on these programs, go to www.kirkwood.edu/onestop.

**Scholarships**

Kirkwood awards over $3 million in scholarships to students each year. Applications for first-round scholarships open October 1 and close March 15. Apply at www.kirkwood.edu/scholarships.

**American Opportunity Tax Credit**

The American Opportunity Tax Credit is available to eligible students during their first four years of college or post-secondary education.

To be eligible, a student must be enrolled in a degree, certificate or other program leading to a recognized education credential and be enrolled at least halftime. Students listed as a dependent on another person’s tax return are not eligible for this credit.

Visit the Internal Revenue Service website for complete information on current tax law.

**College Work-Study**

Cedar Rapids Main Campus
202 Kirkwood Hall
319-398-7600

Iowa City Campus
Room 148

319-887-3947

Through College Work-Study, students can work at a part-time job and earn money for educational or personal expenses. For additional information visit www.kirkwood.edu/workstudy.
The Dean of Students Office supports students through a variety of programs and services including Counseling, Career Services, Advising and Transfer Center, Project START, New Student Orientation, Room Scheduling, Student Assistance and Concerns, KPACE and Vocational Rehabilitation.

Counseling
Cedar Rapids Main Campus
108 Iowa Hall
319-398-5540
Iowa City Campus
112 Credit Center
319-887-3658
www.kirkwood.edu/counseling

Counselors are available for students by appointment or on a walk-in basis. The following services are available:

- Personal counseling.
- Assertiveness skills and anger management.
- Student advocacy.
- Teaching coping strategies for test anxiety, time management, stress reduction, and social anxiety.
- Problem solving and decision-making skills for career and academic issues, independent living, and relationship issues.
- Mental health counseling.
- Crisis intervention.
- Information and referral to community resources.
- Online resources are available at www.kirkwood.edu/counseling.

For additional information or an appointment, please contact the campus nearest to you.

Career Services
Cedar Rapids Main Campus
108 Iowa Hall
319-398-5540
www.kirkwood.edu/careerservices

Career Services assists students, alumni and community members with the career development process and/or job seeking skills.

- Complete online assessments FOCUS 2 and Career Coach to learn more about your interests, values and skills.
- Search current job opportunities and post your resume on Kirkwood's jobs posting website at www.kirkwood.edu/jobs.
- Receive one-on-one career exploration/career search assistance.
- Free workshops to assist you in navigating the career development process.
- Free workshops to assist in the job search including resume building, interviewing preparation and job search.

EagleNet
EagleNet is your online access to Kirkwood resources and registration information. EagleNet allows you to:

- Check your grades.
- Register for classes.
- Drop classes.
- Get your class schedule.
- Check your tuition bill.
- Check your financial aid status; and more.

For a complete list of EagleNet features and functions, go to www.kirkwood.edu/eaglenet and click on EagleNet for Students.

Your EagleNet user ID is sometimes called your k-number. Your k-number is the letter k and a sequence of seven numbers (example: k003750). Your k-number and password are kept confidential. If you forget your k-number, go to the One Stop Office, 2nd floor, Kirkwood Hall and provide photo identification or www.kirkwood.edu/knumber.

Advising and Transfer Office
Cedar Rapids Main Campus
108 Iowa Hall
319-398-5540
Iowa City Campus
112 Credit Center
319-887-3658
att@kirkwood.edu
www.kirkwood.edu/advising

Students who are planning to transfer to four-year institutions can receive assistance in the Advising and Transfer Office. The office serves as a liaison between Kirkwood and four-year colleges and universities. Whether it is navigating the transfer process, planning the courses best suited for your transfer major, or simply finding a schedule of upcoming four-year college visits, the Advising and Transfer Office can provide many pieces of information to students.

Project START
Cedar Rapids Main Campus
108 Iowa Hall
319-398-4934

Project START (Supported Training and Retraining) helps students overcome barriers they may encounter while reaching their academic and career goals. We can help students by providing financial assistance, helping with study skills and test taking, monitoring class progress, arranging special assistance, and serving as an advocate with instructors and other college personnel.

START assistance is available for a maximum of two or three consecutive semesters. Referrals are accepted on an ongoing basis from community agencies and Kirkwood counselors.
instructors and staff. Students must apply and be accepted into the program.

Project START began as a cooperative effort between Kirkwood and the Hall-Perrine Foundation, and receives continued funding from the Kirkwood Foundation.

**KPACE**

**Kirkwood’s Pathways for Academic Career Education and Employment**
Cedar Rapids Main Campus
108 Iowa Hall
319-398-5899 ext 5069

KPACE provides academic, personal and financial supports to individuals who are currently earning a wage lower than a livable wage for their family. Kirkwood offers short-term and long-term training to prepare individuals to work in a middle-skill industry that is experiencing a shortage in the current Iowa workforce.

KPACE allows individuals the opportunity to seek training based on their developmental needs, career goals, and personal situations. KPACE assistance has been successful in alleviating student and life stressors that can cause barriers to student success.

Unique to this Kirkwood award, students will be connected with a Pathway Navigator who offers guidance and support from the beginning to the end of their educational and career pathway. KPACE financial assistance is available for a maximum of six consecutive semesters.

Referrals are accepted on an ongoing basis from community agencies, and Kirkwood counselors, instructors and staff. Students must apply and be accepted into the program.

**Vocational Rehabilitation**
Cedar Rapids Main Campus
102 Iowa Hall
319-398-4925
www.ivrs.iowa.gov

The Vocational Rehabilitation office works with Iowans with disabilities to:
- Find employment or expand skills to increase employment possibilities.
- Gain accessibility to school or work, and increase independence.
- Find financial support through counseling and guidance.
- Assist students to determine a viable vocational direction.

**Student Assistance and Concerns**
Cedar Rapids Main Campus
108 Iowa Hall
319-398-5540

Students, faculty, staff, service providers and visitors who are involved with any aspect of the college’s mission are members of the Kirkwood learning community. As such, we share certain rights and responsibilities to each other and the learning process, among them the right to a positive educational climate and the responsibility to uphold the values that create and sustain this climate including:
- Valuing diversity.
- Respecting and managing resources.
- Promoting opportunities for educational growth and development.
- Encouraging a spirit of ethical judgment.
- Learning to engage in a sustained and independent search for truth.
- Maintaining an orderly, civil and safe campus environment.

If you have concerns about these areas, contact the dean of students, 108 Iowa Hall, 319-398-5540.

**Learning Services**
Cedar Rapids Main Campus
2063 Cedar Hall
319-398-5574
www.kirkwood.edu/learningservices

Learning Services offers a variety of services to assist students to achieve success. Testing and Tutoring Services are housed in Learning Services as well as Disability Accommodation Services. We also provide TRiO Student Support Services and VITAL, two programs specifically designed to assist students in the transition to the academic rigors and social changes of a college environment.

**Test Centers**
Cedar Rapids Main Campus
2055 Cedar Hall
319-398-5456
testcenter@kirkwood.edu
www.kirkwood.edu/testcenter

Iowa City Campus
1816 Lower Muscatine Road
319-887-3642

All regional and county Kirkwood campuses have test centers that will proctor placement and academic examinations. Please contact your preferred test center for its schedule and procedures.

A wide variety of testing services are provided to prospective students, current students, graduates and the community at large. Prospective students participate in placement testing to help determine their readiness for college-level classes. Once prospective students complete placement testing, advisors help them determine results. Current students use the center for department make-up and Distance Learning exams. Provides testing accommodations for disabilities. Alumni and members of the community use the center for continuing education and professional certification testing. In addition, English Language Acquisition (ELA) tests are given to incoming students whose native language is not English.

A photo ID is required for all tests.

**Accommodation Services**
Cedar Rapids Main Campus
2063 Cedar Hall
319-398-5574
www.kirkwood.edu/accommodations

The Learning Services department offers support for students needing academic accommodations. Students must self-identify and make a request for accommodations by completing the ‘Request for Accommodations’ form available at our website or by stopping by the Learning Services office. Students will be asked to provide documentation supporting their request.
Each student will meet with a case manager to determine reasonable accommodations for their classes. Accommodations can be provided to students at all Kirkwood campuses as well as to students in Distance Learning courses. These services are provided at no cost to qualified students. For more information contact our office, view the website or refer to the college policy regarding students with accommodations in the "General Policies and Student Rights" section of this catalog.

**TRiO Student Support Services**

Cedar Rapids Main Campus  
2063 Cedar Hall  
319-398-5574  
trio@kirkwood.edu  
www.kirkwood.edu/studentsupportservices

TRiO Student Support Services is a program specifically designed to assist students in the transition to higher education and the college environment. TRiO staff provide Kirkwood students with advice, guidance, and support to achieve their academic goals, such as obtaining an associate’s degree and/or transferring to a four-year post-secondary institution. Students work with an individual advisor to meet TRiO program supports including but not limited to: goal and solution-based counseling, financial aid process assistance, math and writing support, and transfer decision-making and connecting.

TRiO programs are federally funded under the Higher Education Act of 1965. TRiO programs help students overcome class, social and cultural barriers in higher education.

To be eligible for the TRiO program a student must meet one of the following eligibility criteria and be a citizen or national of the United States:

1. First generation student (neither parent has graduated with a bachelor’s degree).
2. Low income.
3. Physical or mental disability.

**Tutoring Services**

Cedar Rapids Main Campus  
2071 Cedar Hall  
319-398-5425  
www.kirkwood.edu/tutoring

Iowa City Campus  
112 Credit Center  
319-887-3658

Tutoring services are available by request for any student enrolled in a credit course at Kirkwood. There is no charge to the learner, and tutoring is available every term, day and evening.

Many tutors are Kirkwood students who are paid by the college for their services. Students interested in being tutors may apply through the Tutoring Services office.

**VITAL**

Cedar Rapids Main Campus  
2042/2044 Cedar Hall  
319-398-5574  
www.kirkwood.edu/VITAL

VITAL provides vocational, training and support services to students who were enrolled in special education programs in high school and are now enrolled in Applied Science and Technology programs at Kirkwood. The Vocational Individualized Training and Learning (VITAL) program is jointly administered by Kirkwood, Grant Wood Area Education Agency and local high schools.

**Other Educational Opportunities**

**College 101**

Cedar Rapids Main Campus  
108 Iowa Hall  
319-398-5540

College 101 is a three-credit-hour course offered to first-time Kirkwood students, aimed at developing the skills needed to be successful. Some of the course topics include:

- Adjusting/transitioning to college.
- Learning college-level study skills.
- Planning career pathways.
- Connecting to the college culture.
- Developing a plan of study.

- Advancing personal growth.
- Continuing education after Kirkwood.

**Honors Program**

The Kirkwood Community College Honors Program offers outstanding students the opportunity to push their academic boundaries, work closely with faculty in their career fields and make themselves more attractive to selective four-year schools.

Qualified students work with a faculty member to develop a one-credit-hour honors project. The nature of a student’s honors project is left open to inspire creativity in both the student and the faculty member, as well as to allow for adaptation to a variety of disciplines. Program details can be found at: www.kirkwood.edu/honorsprogram.

**Honors Program Credits**

The Kirkwood Foundation pays for honors program credits. Eligible students may receive up to four free honors credits.

**Phi Theta Kappa**

Phi Theta Kappa is the only internationally-recognized honor society for students attending two-year colleges. Kirkwood’s local chapters are Alpha Eta Rho, for main campus students, and Beta Lambda Tau, for students at the Iowa City Campus.

Both organizations give achievement-minded Kirkwood students the opportunity to network with and energize one another, participate in service projects within the community and be part of a highly-esteemed group on campus.

Members of Alpha Eta Rho or Beta Lambda Tau must complete 12 credit hours at Kirkwood and have a 3.5 or greater cumulative GPA.

**Study Abroad**

Students earn college credits while embarking on once-in-a-lifetime adventures through Kirkwood’s Study Abroad programs. They greatly expand their horizons by stepping outside the conventional college environment,
meeting and traveling with other college students, and fully experiencing world cultures.

Financial aid can be applied to Study Abroad programs and scholarships are also available. For more information about Kirkwood’s Study Abroad programs visit www.kirkwood.edu/studyabroad.

**Veterans Services**

**Cedar Rapids Main Campus**

2nd floor Kirkwood Hall

319-398-5633

www.kirkwood.edu/va

Kirkwood is committed to serving those in the community who have served or are serving in the military. Almost all programs are approved by the Department of Education for payment of Department of Veterans Affairs educational benefits. The Veterans Services Coordinator/School Certifying Official is a full-time staff person who is available to assist veterans in the application process to ensure the students’ programs meet federal guidelines.

As another service to our student-veterans, Kirkwood offers a Veterans Lounge, available to all veterans and open during regular college hours. Located on the third floor of Iowa Hall next to the Amana Room, the Veterans Lounge provides a spot to check emails, quietly study or just to enjoy camaraderie with fellow veterans.

**Veterans Benefits**

Veterans and members of the Selected Reserve may be eligible to receive educational benefits while enrolled in and pursuing an approved program of education and training. Veterans have 10-15 years from their date of active duty discharge in which to use their educational benefits, depending upon when they served.

Spouses of veterans who are rated by the VA and found to be totally and permanently disabled from a service-related disability or have died due to a service-related disability, have 10-20 years from their initial date of eligibility. Children of these veterans have until age 26.

Members of the Selected Reserve, who have not served active duty other than training, are required to remain actively drilling in order to maintain eligibility. Reservists who were ordered to active duty after September 11, 2001, in response to war or national emergency, have no delimiting date as long as they remain in their reserve component.

To be eligible for veterans educational benefits, students must:

1. Be eligible under one of the benefit programs of the Department of Veterans Affairs;
2. Be pursuing courses at least as half-time students to receive monthly benefits;
3. Maintain a 2.0 grade point average for graduation or show satisfactory progress each term while on academic probation;
4. Pursue one program at a time;
5. Take only courses applicable to the stated, current program.

**Servicemembers Opportunity Colleges**

Kirkwood is designated as a member of the Servicemembers Opportunity Colleges (SOC), a group of more than 1,200 colleges and universities throughout the world providing post-secondary education to members of the military.

As a SOC member, Kirkwood recognizes the unique nature of the military lifestyle and has committed itself to easing the transfer of relevant course credits, providing flexible academic residency requirements and crediting learning from appropriate military training.

**Veterans Education Outreach Program (VEOP)**

Recognizing students who receive veterans educational benefits periodically need special services, the college has established the VEOP. The Veterans Services Coordinator/School Certifying Official:

- Coordinates veterans’ services with other campus services such as admissions, financial aid, counseling or placement.
- Maintains communication with military Reserve and National Guard units, as well as local members of the active military, to identify and serve people eligible for benefits and entitlements.
- Serves as the principal contact person and advocate for eligible students attending or seeking to attend Kirkwood. This may include facilitating admission, evaluating military credits, developing and monitoring degree programs, or serving as an information-referral source.

Further questions should be directed to the Veterans Services Coordinator/School Certifying Official.

**Library Services**

**Cedar Rapids Main Campus**

Benton Hall

319-398-5697

Toll free: 1-866-452-8504

Iowa City Campus

111 Credit Center

319-887-3613

Toll free 1-866-452-8504

www.kirkwood.edu/library

library@kirkwood.edu

Kirkwood’s Cedar Rapids and Iowa City libraries are open to all students, staff, faculty and area residents. The librarians are experts in helping you conduct college-level research by defining what information you need, finding material, evaluating sources, organizing your research, and communicating your findings clearly and ethically. If the information you need is not available in our physical libraries, electronic databases, or ebook collections, we will order it for you from another library through the Inter Library Loan program.

If you are working from home, are a distance education student or attend class at one of the Kirkwood centers, the same library services are available to you. The library website provides a full array of resources and services that you would find inside the libraries, along with instant messaging reference and handouts on creating citations and finding reliable websites. Librarians are available by phone to help you with your research and can send library
Academic Resources

materials to Kirkwood centers for your use.

Information Resources and Technology
In addition to quality books, journals and DVDs to use in your research, we have many online databases of magazine, journal, news and reference articles that you can access from any campus computer or your home computer. If you prefer working from a library table or relaxing in a stuffed chair as you write, you may check out a laptop for use within the library or bring your laptop to connect with the campus wireless network. Wireless Internet access is available in both libraries, and all library laptops have Microsoft Office.

Facilities
The Cedar Rapids main campus library is located in Benton Hall. You will find many places to study on the first and second floors, comfortable seating, study carrels and natural lighting. The second floor is designated as a quiet study area and has several group study rooms.

The Iowa City Campus library provides the same services but on a smaller scale. Study space, comfortable seating, individual carrels and a group study room are available. You will find the library in the Credit Center Building in the middle of the first floor.

Information Literacy SDV-119
This is a one credit-hour class taught by librarians who introduce students to the library research process. Students learn to systematically and efficiently locate, evaluate and use information through hands-on practice. Students will learn skills essential for any college student, but the class is especially helpful for students planning to transfer to a four-year college.

Writing Centers
Cedar Rapids Main Campus
3067 Cedar Hall
WritingCenter@kirkwood.edu
www.kirkwood.edu/writingcenter

Iowa City Campus
134 Credit Center
www.kirkwood.edu/site/index.php?d=171

The Writing Centers help students of any level of ability to improve all aspects of their writing, and at any stage of a writing project, from brainstorming ideas, organizing thoughts, developing arguments, explaining concepts and processes, to editing and proofreading.

While the Writing Centers are not a proofreading service, instructors assist students in becoming better readers of their own work and developing their writing skills. The Writing Centers are available to help students with writing tasks in any class, with personal writing, and for applying for jobs and scholarships.

Distance Learning
Distance Learning
Online
Cedar Rapids Main Campus
319-398-4958

Classes offer students the flexibility to learn outside the traditional classroom. Most courses start on specific dates in August, September, January, February or May and meet for 16 weeks or 12 weeks. Other variable date and flexible delivery courses can be found on the distance learning website or in EagleNet. A qualified teacher is available to answer questions, respond to assignments, and grade exams, and designs each course. Courses are offered in an online format and many will have weekly assignments. All courses meet the goals and objectives of the same courses offered in the traditional classroom and transfer to other institutions in the same way.

Distance Learning courses are delivered online, which provides an enriching and engaging environment for learning. There are a variety of resources available to help students succeed online, including a student help desk and online tutoring.

Kirkwood Community College has been approved by Iowa to participate in the National Council for State Authorization Reciprocity Agreements. NC-SARA is a voluntary, regional approach to state oversight of postsecondary distance education.

For more information about Distance Learning go to www.kirkwood.edu/distancelearning.

Web Live Classrooms
Cedar Rapids Main Campus
319-398-4958

Kirkwood students can take courses and programs over an interactive instructional video system that links instructors to students at many different locations. Where internet is available this technology provides two-way audio and video communication. Interactive video classrooms greatly increase the number of courses the college can offer at Kirkwood centers and other locations. The delivery system saves students time and travel, while providing an interactive learning environment with the instructor and other students.

For more information go to www.kirkwood.edu/distancelearning.

Adult Accelerated Learning Classes
2196G Linn Hall
319-398-1052
accelerated@kirkwood.edu
www.kirkwood.edu/accelerated

Adult Accelerated Learning classes are designed for working adults who want to further their education while balancing work and family. After earning an associate degree from Kirkwood, you can transfer to a four-year college or university to complete your bachelor’s degree.

You can take courses online or in the evening, once a week, in five- or ten-week blocks. Outside projects and assignments complement the abbreviated class meeting schedule.

If you’re interested in Adult Accelerated Learning, you need a minimum of three years work experience, be at least 21 years old and demonstrate competencies in reading, writing and math, either through placement test scores or previous college experiences.

Secondary Programs
Kirkwood Center for Lifelong Learning
6301 Kirkwood Blvd SW
Cedar Rapids, IA 52404
Adult Education and Literacy
The Adult Education and Literacy program assists adult learners to become literate and obtain the knowledge and skills necessary for employment and self-sufficiency. The program also assists adults in the completion of a secondary school education.

Kirkwood coordinates volunteer tutor programs in Cedar Rapids, Iowa City and Washington. Tutors are recruited, trained in basic teaching techniques, and matched with an adult who can benefit from instruction in English, reading or math. Tutoring services are available to adults who have not earned a secondary diploma or its equivalent, or who lack basic skills.

Through the Adult Education and Literacy program, Kirkwood offers classes to English language learners. Instruction focuses on the development of English skills in life and work contexts. Classes are offered in Cedar Rapids, Iowa City, and Washington. Volunteer tutors may also be available to learners who are unable to attend the classes.

High School Completion Programs
Students 17 years of age or older who have not completed their high school education may be eligible to earn a diploma through Kirkwood’s High School Completion program. More than 50 independent study, online and structured courses are offered at Kirkwood learning centers located in the seven-county service area.

Computers are available to provide students with coursework, enrichment activities and vocational experience. Students are also encouraged to take interest and career assessment inventories, tour program facilities on the main campus, and explore other career and academic resources as part of their high school experience.

Preparation and testing for the Iowa High School Equivalency Diploma (HSED) are also available at Kirkwood learning centers. Students may enroll in classes, study independently, work with a teacher or tutor, use HSED instructional software, and view instructional videos to learn or review HSED competencies.

High School Distance Learning (HSDL) Program
Students unable to attend a Kirkwood learning center can earn high school credits or transfer credits through the High School Distance Learning program. Often, students who are currently enrolled in high school complete courses through this program to meet the requirements of their local high school diploma, with the approval of their local high school. Courses are available in packet and online formats.

Corrections Education
Through a contract with the Iowa Department of Corrections, Kirkwood manages the educational programs offered to offenders at the Anamosa State Penitentiary and the Iowa Medical and Classification Center in Oakdale. Literacy, HSED preparation and testing, and life skills are the instructional priorities.
Student Life and Services

**Student Life**
Cedar Rapids Main Campus
230 Iowa Hall
319-398-5578

Iowa City Campus
112 Credit Center
319-887-3947
www.kirkwood.edu/studentlife

**Student Clubs and Organizations**
Clubs are formed through academic programs and special interest groups and are given formal recognition by the Student Life office. Faculty or staff members serve as advisors to both groups. Information about clubs and organizations may be obtained through Student Life, or online at www.kirkwood.edu/clubs.

**Student Leadership Council**
This group represents the Kirkwood student body to plan and promote events on campus. This leadership organization is an extension of the Student Life office and can be a vital part of the student experience at Kirkwood. It provides a networking opportunity between organizations at Kirkwood and allows students to be involved with various aspects of the student experience, including the entire event planning process, community service, public relations and promotion of other activities on campus.

**Social and Special Events**
Student Life coordinates several events and activities throughout the year. From daytime events such as live music or bingo, to evening entertainment including hypnotists, comedians and movie nights, there is always something going on at Kirkwood. All events are free for students to attend. Information on upcoming activities can be obtained through Student Life. An online calendar of events can be found at www.kirkwood.edu/events.

**EagleCard**
131 Nielsen Hall
319-398-5680
www.kirkwood.edu/eaglecard

The EagleCard is the official Kirkwood Community College identification card. It is required for the following:
- Buying books at the Kirkwood bookstores.
- Selling books back at book buy-back time.
- Checking out books from the Kirkwood library.
- Admittance to the Michael J. Gould Recreation Center, computer labs, and athletic and entertainment events.

A student has the option of depositing money on his/her EagleCard account and using it as a debit card. The EagleCard is accepted at the EagleTech Store, main campus food services, The Cafe in Iowa Hall and the Mini Cafe in Linn Hall, and both Iowa City and main campus bookstores.

Students can obtain their EagleCard at the EagleCard office, Recreation Center, or the Cedar Rapids or Iowa City campus bookstores.

**Bookstores**
Cedar Rapids Main Campus
Benton Hall
319-398-5469

Iowa City Campus
1st floor Credit Center
319-887-3640

In addition to providing course materials for all Kirkwood courses, both the Cedar Rapids and Iowa City bookstores carry supplies, logo apparel and gifts. At the end of each semester, students have an opportunity to sell back previously purchased course materials.

**EagleTech**
Cedar Rapids Main Campus
Benton Hall
319-398-5415

EagleTech is Kirkwood's technology destination to purchase cutting-edge devices including Apple and Windows products. The highly trained technology gurus and ninja-skilled Apple technicians to fix your computer problems. Hang-out in our lounge, play with our toys like VR and 3D printers, or talk tech with us anytime.

**Bus Service**
Many students ride the Cedar Rapids Transit to and from campus. Students with a bus sticker on their EagleCard can ride route 7 for free. Stickers are available to students in the Bookstore, the EagleCard office or Student Life. Discounted tickets for other routes can be purchased on campus at the Bookstore and are also available at the Cedar Rapids bus station downtown. For more information on bus stop locations and bus routes, visit www.cedar-rapids.com/transit.

The Iowa City Campus is accessible by Iowa City Transit bus service. Monthly passes are available at the Iowa City Bookstore.

**Housing**
Cedar Rapids Main Campus
230 Iowa Hall
319-398-7647

Iowa City Campus
112 Credit Center
319-887-3947
www.kirkwood.edu/housing

Kirkwood does not provide on-campus housing, but nearly 2,500 students live in privately-owned apartments near the campus. The Housing office provides information and assistance with roommate issues and serves as a liaison between apartment managers and student tenants. The Cedar Rapids Housing office coordinates apartment
showings, which are available by appointment.

Traffic and Parking

Thousands use the Kirkwood campuses each day. For everyone's protection, Campus Security will enforce traffic regulations. Students may park in any of the non-designated parking lots. Disability (handicap) spaces are reserved for those vehicles that display valid State of Iowa disability identification. Visitor spaces are for campus guests and should not be used by Kirkwood students, faculty or staff. Taking parts of two spaces, or parking on the lawn, sidewalks or roadways is not permitted.

Reckless driving and speeding are prohibited at all times. Kirkwood's traffic and parking rules are based upon Section 206C.14 of the Code of Iowa. As Kirkwood has campuses located in various cities and towns, the local laws and ordinances also apply.

Administrative fees for violations will be considered the same as any other debt owed to the college. If a ticket is received, students must do one of the following:

- Pay the fee at the cashier, 2nd floor Kirkwood Hall.
- Mail the fee to Kirkwood in the envelope provided.
- Submit an appeal form within 48 hours. Appeal forms may be obtained and completed at www.kirkwood.edu/security, click "Parking."

Campus Security

319-389-1774
www.kirkwood.edu/security

Campus Security officers patrol the main campus, respond to emergencies and other calls for service on all campuses, conduct traffic checks, walk through campus buildings, staff special events, and facilitate a variety of safety and security presentations.

Campus Security officers may ask persons for identification to determine whether they have legitimate business at the college. Campus Security officers have the authority to investigate offenses involving rule violations and to make a referral to the appropriate area of the college.

Campus Security officers do not possess arrest powers and do not carry firearms. Criminal incidents are referred to local law enforcement who have jurisdiction on campus. Campus Security maintains a highly professional working relationship with law enforcement. Anyone who is the victim of, or witness to a crime is strongly encouraged to report the crime immediately to Campus Security and local law enforcement.

Services (offered 24 hours a day, 365 days a year at the Cedar Rapids Main Campus):

- Enforcement of college, as well as local, state, and federal laws and regulations.
- Investigations.
- Escorts on main campus.
- Unlocking and jump starting of vehicles on main campus.
- Monitoring and enforcing of traffic regulations.
- Emergency response.
- Member of Threat Assessment Team.
- Blue-light emergency phones located throughout campus.
- Safety and security presentations.

Campus Security (Clery) Act

Because safety is a community issue, Campus Security, working in partnership with students, faculty and staff, can make this community a safer place to live, work and learn. Campus Security prepares the Campus Security publication annually for students, parents, faculty and staff at Kirkwood. In the report, you will find campus crime statistics for the last three years as well as safety-related policies and procedures. Information is prepared in accordance with the Crime Awareness and Campus Security Act enacted by Congress in 1990. The act was amended a number of times, and renamed the Jeanne Clery Disclosure of Campus Security Policy and Campus Crime Statistics Act and recently amended as part of the Violence Against Women Reauthorization Act. The Clery Act, as it is commonly called, requires all institutions of higher education give timely warnings of crimes that represent a threat to the safety of students or employees, and to make public their campus security policies. It also requires that crime data is collected, reported and disseminated to the campus community, and submitted to the U.S. Department of Education. The act is intended to provide accurate, complete and timely information about safety on campus so you may make informed decisions.

To obtain a printed copy of the report, contact Campus Security, 6301 Kirkwood Blvd. SW, Cedar Rapids, Iowa 52406, or call us at 319-398-5561. This report is also available at www.kirkwood.edu/security.
Kirkwood is a publicly-supported college that serves Benton, Cedar, Iowa, Johnson, Jones, Linn and Washington counties in eastern Iowa. Kirkwood operates under the regulations of the Iowa Department of Education and is governed by a publicly-elected, nine-member board of trustees.

In January 1965, a steering committee conducted a study to establish a vocational school to serve parts of eastern Iowa, then known as Area X. Soon after this local study, the Iowa General Assembly approved legislation that created a system of community colleges throughout the state.

On July 1, 1966, Kirkwood was officially established, originally called "Area X Community College." The college immediately assumed responsibility for the federally-funded vocational/technical programs the Cedar Rapids Community School District had provided since 1964. The college added the Arts and Sciences, Student Services and Community Education divisions a year later. In 1969, the college board of trustees decided on a new name—"Kirkwood Community College," to honor Samuel J. Kirkwood, Iowa’s governor during the Civil War years.

In 1982, Kirkwood became a board member of the League for Innovation in the Community College, a consortium of 20 of the nation’s finest two-year colleges.

Kirkwood awards Associate of Arts and Associate of Science degrees that transfer to four-year colleges and universities. Graduates in Applied Science and Technology programs are prepared to enter specialized technical careers.

Kirkwood Community College is accredited by the Iowa Department of Education and by The Higher Learning Commission.

The Higher Learning Commission can be reached at 800-621-7440 or www.hlcommission.org. Appropriate professional associations within their respective fields accredit individual college programs. For more information go to www.kirkwood.edu/accreditation.

Legal Basis of the College

Kirkwood was established and continues to operate as prescribed by Iowa Code section 260C.48 and Iowa Administrative Code 281-IAC 24.

Area community colleges offer, to the greatest extent possible, educational opportunities and services in each of the following areas:

1. The first two years of college work including pre-professional education.
2. Vocational and technical career training.
3. Programs for in-service training and retraining of workers.
4. Programs for high school completion for students of post-high school age.
5. Programs for all students of high school age who may best serve themselves by enrolling for vocational and technical training while also enrolled in a local high school, public or private.
6. Student personnel services.
7. Community services.
8. Vocational education for persons who have academic, socioeconomic or other disabilities that prevent them from succeeding in regular vocational education programs.
9. Training, retraining and all necessary preparation for productive employment of all citizens.
10. Vocational and technical training for persons who are not enrolled in high school and who have not completed high school.
Academic and Student Policies

Introduction

Productive Classroom Learning Environment

The best learning takes place in an environment where faculty and students exhibit trust and mutual respect.

In a productive learning environment, faculty and students work cooperative-ly, recognize and respect differences, model the values of character and citizenship, and become lifelong learners.

Special Notice to Students

Each student is responsible for being familiar with the information appearing in this catalog. Failure to read the regulations will not be considered an excuse for noncompliance. The college reserves the right to change policies or revise curricula as needed due to unanticipated circumstances. Rules and regulations have been adopted by the faculty and administration of the college. If a student finds that extenuating circumstances might justify the waiver of a particular college regulation, that student may file an appeal of policy with the One Stop office, according to established procedures.

Grades

Academic Appeals

Academic appeals are addressed to the College Academic Policies and Procedures Committee.

Appeal Process

You may appeal a final course grade provided that:

- Conferences have been held first with the instructor assigning the grade and then the appropriate dean;
- The appeal is presented in writing to the chairperson of the committee;
- The written appeal must be presented to the committee within 100 calendar days from the date of which the grade was assigned.

Final Course Grade Hearing Procedure

The chairperson will notify all participants in the appeal of the time and location of the hearing. The format of the hearing consists of a verbal presentation by the student, a verbal presentation by the instructor or designee, and questions by committee members. The student and the faculty person will each have 10 minutes to present information and answer committee questions. All persons directly involved in the appeal will be given written notification of the outcome. The committee’s decision is final.

Staff Rights

Any faculty/staff member directly involved with any student appeal will be notified of the appeal upon receipt of such by the committee chairperson. The chairperson will also notify the staff person of the date, time and place of the appeal hearing and request that the staff member provide written information responsive to the appeal. The involved faculty/staff person or designee has the right to appear before the committee, personally present information and answer questions pertinent to the appeal.

Student Rights

The student will be notified by the chairperson of the date, time and place of the appeal hearing. The student has the right to appear before the committee, and personally present information and answer questions pertinent to the appeal.

Other Appeals

The committee may also hear other academic policy and procedure appeals as may be designated by the vice president of Academic Affairs for a committee recommendation.

Disposition of Appeals

Within 10 business days of the hearing, all persons directly involved in the appeal will be given written notification by the committee chairperson of the committee’s decision about the appeal. The committee’s decision is final. The plurality of the vote or the nature of the votes cast by individual committee members will not be disclosed.

Auditing Courses

Audit enrollment in courses provides students the opportunity to attend a class as a noncredit participant, usually as a listener-observer. This kind of enrollment may have value for students who want an introduction to subjects outside of their major fields, a review or refresher, or other purposes where credit and grades are not needed or would pose an unnecessary academic threat.

With the permission of the faculty member and department dean, students can enroll in any courses on an audit basis. Students and instructors must agree on what portion(s) of courses the students plan to audit and the requirements the instructors have for attendance and participation. If the students fulfill the agreement for the audit, the grade of "N" will be entered on the students’ academic transcripts. If the students do not fulfill the audit agreements, the registrar, upon request from the instructor, will withdraw the students from the courses and assign a grade of "W."

Audit enrollments carry no credit or grade point value. No inference is made regarding the quality of a student’s mastery of the course subject matter.

Standard tuition applies to all audit enrollments regardless of the length and scope of the audit. The last day to change from graded credit to audit is the fifth business day of the semester. Once changed to audit, the class cannot be changed to graded credit.
**Computing Grade Point Average**

Grade point average is computed by multiplying the number of semester credits for each Kirkwood and transfer course by the numerical value, or "grade points", of the grade given for that course. These values are then added together for the total grade points, which are then divided by the total semester credits for the GPA. The grade point average is not weighted.

Example:

<table>
<thead>
<tr>
<th>Course</th>
<th>Grade</th>
<th>Grade Points</th>
<th>Semester Credits</th>
<th>Total Grade Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>X</td>
<td>A</td>
<td>4.0</td>
<td>x 3</td>
<td>= 12</td>
</tr>
<tr>
<td>Y</td>
<td>B</td>
<td>3.0</td>
<td>x 3</td>
<td>= 9</td>
</tr>
<tr>
<td>Z</td>
<td>F</td>
<td>0.0</td>
<td>x 4</td>
<td>= 0</td>
</tr>
</tbody>
</table>

Total grade points (21) divided by total semester credits (10) = 2.10 GPA.

**Credit Assignment in Emergency Situations**

After completing at least two-thirds of an academic term, a student may petition to receive a grade and credit for all courses in the program at the time of such emergency situations as:

- Induction, but not enlistment, into the United States armed services.
- Serious personal or family illness requiring the student to withdraw from all classes.
- Death in the immediate family.
- Other similar emergency circumstances that prevent the student from completing the academic term.

Students who believe they are entitled to consideration under this policy must file petitions with the One Stop office, 202 Kirkwood Hall. Appropriate documentation of emergencies must accompany petitions. A committee will review the petitions to ensure conformity with the policy. Those found to be in conformity with this policy will be forwarded for response to instructors involved. Instructor response may include assigning grades then in progress, assigning reduced grades in consideration of unmet course requirements or declining to assign grades. In any case, students retain the right to withdraw from courses.

**Dean's List**

Students with outstanding academic records are named to the Dean’s List. To qualify, a student must have completed 12 credit hours of graded coursework and achieved a grade point average of 3.3 or higher. A minimum of six graded credit hours must be earned in the term of the award.

**Forgiveness for Failing Grades**

Grades of "F" (or any other failing grades) can be changed to "O" (no credit) if the student has either not been enrolled in any program of higher education for a period of at least three consecutive years or has honorably served in the U.S. armed services for at least two years, between the final day of the term last attended and the first day of the term they returned.

The student must also have returned to Kirkwood and 1) completed a term earning at least half-time credit hours and a minimum 2.0 term GPA, and 2) have no unpaid balance for the term.

Courses with grades changed in accordance with this policy will not satisfy graduation requirements.

Changing of grades under this policy may only be done once and will not impact a student’s satisfactory academic progress status for financial aid.

For more information, contact the One Stop office, 202 Kirkwood Hall, 319-398-7600.

**Incomplete Grades**

A student who is in good standing but unable to complete a segment of the assigned coursework due to extenuating circumstances may be assigned the grade "I" (Incomplete) by the faculty member. In such cases, the instructor and the student must complete an Incomplete Grade Agreement form documenting the course requirements remaining and the date by which they must be completed.

The Incomplete grade is not intended for use with a student who misses a majority of the course, even when the reasons are valid. In these instances, the student should apply for a tuition...
The student is placed on a Warning status the first term his/her academic transcript does not meet the standards of SAP with one exception. Students who fail to complete any courses within their first term of enrollment (a combination of Fs and Ws) will be placed on Suspension for the following term.

If progress during the Warning term is adequate to bring the cumulative record up to the standard, the Warning status is removed. If progress in the Warning term is not enough to bring the cumulative record up to standard, the student will receive a Suspension status and be ineligible for financial aid. This suspension includes scholarships, work-study, loans and grants.

A student can regain eligibility by completing at least one additional term of half-time work and maintaining the standards of the policy. This is an out-of-pocket expense. When this is accomplished, the student must notify the Financial Aid office and submit an academic plan agreement (see below). Financial aid is reinstated on an Academic Plan status. Progress is monitored and the Academic Plan status is extended as long as the student follows the academic plan each semester, until the cumulative record meets the standard or the student graduates. Alternatively, the student may submit an appeal (see below).

The student has the right to appeal the SAP policy if he/she believes extenuating circumstances prevented him/her from meeting the standards of the policy. Examples of extenuating circumstances would include prolonged illness for which medical attention was received, or extreme personally uncontrollable circumstances. Appeals must be in writing and include documentation of the circumstances that led to the student’s academic performance along with an academic plan agreement. Appeals should also address changes made to ensure future academic success. An appeals committee determines whether the appeal is approved. The decision of the committee is final and cannot be appealed further.

If an appeal is approved, and the student is mathematically capable of reaching a Satisfactory status after one term of work, a student is placed on Probation. If the appeal is approved, but the student is mathematically incapable of reaching a Satisfactory status after one term of work, the student is placed on Academic Plan status. Students on Probation must reach Satisfactory status after one term of work or they will go on Suspension. Academic Plan students must follow the academic plan until their cumulative record meets the standard or the student graduates. If a student on an Academic Plan has a term completion rate of 75 percent or higher and a term GPA of 2.0, the Academic Plan status will be extended. If a student on an Academic Plan has a term completion rate of less than 75 percent or a term GPA of less than 2.0, or both, he/she will be placed on Suspension.

Federal regulations stipulate that students must complete their educational program in a reasonable length of time, which is defined as no more than 150 percent of the credit hours required for graduation in that program, regardless of major changes. For example, if a student is working toward a Liberal Arts A.A., which is 62 credit hours; he or she can receive aid up to 150 percent of the credits for that program, which is 93 credit hours. Once a student has exceeded 93 earned credits, he/she will be placed on suspension. All transfer credits are included in the earned credits including those earned as part of another degree or diploma. Students have the right to appeal the suspension as noted above. To continue to receive financial aid, they must follow the academic plan. Their academic plan may only contain courses that are required for their program. Students will be warned of this status at 125 percent of the credits required for graduation in their program. Students can contact the One Stop Office with questions regarding SAP.

Financial Aid Policies

Financial Aid Eligibility Requirements

To receive the maximum consideration for financial aid, students should apply...
as soon as the Federal Application for Federal Student Aid (FAFSA) is available. An application for financial aid must be made each year. All students seeking financial aid must:

- Be enrolled or accepted in a credit diploma or degree program;
- Be seeking a degree related to the educational objective;
- Be a citizen of the United States or an eligible non-citizen;
- Not be in default for any previous education loans or owe a grant overpayment;
- Be making satisfactory academic progress according to Kirkwood’s published policy;
- Attend the classes in which they are enrolled.

**Work-Study Hiring and Compensation**

a. Work-study assignments are designed to provide students with an opportunity to gain experience in their career field or to develop general work skills that are transferable to a multitude of different jobs.

b. Work-study students who mark "yes" on their FAFSA form and are eligible for work-study dollars will receive an eligibility e-mail from Kirkwood Community College confirming their eligibility.

1. Eligibility e-mails will direct students to the work-study job listing site.
2. To be considered for a position, work-study students must contact the department by phone or e-mail for application instructions.
3. Work-study students must be enrolled in at least one Title IV class.

**Hiring Department**

a. Qualified work-study students who apply for a work-study position will be interviewed either by phone or in-person.

1. All qualified work-study candidates must be interviewed, unless the pool of work-study candidates exceeds five students. In that case only the top five work-study candidates need to be interviewed.

b. The hiring department must verify the student’s work-study eligibility with the Financial Aid Office.

c. The hiring department will complete the New Hire Work-study Form indicating, the award amount they are requesting for the work-study student.

d. Work-study students will need to complete the new hire packet that includes: HR cover letter, ACA Disclosure, W4, I-9, and direct deposit.

1. Work-study students will not have to redo their new hire paperwork if they have worked in the last six months.
2. Work-study students will not have to complete the background check forms/process as long as they are enrolled as a student and working under the work-study program.

a. The exception is if the work-study student will be in regular contact with children under the age of 18 years of age or if required by one of our partner non-profit organizations.

b. HR will cover the cost for the background checks for all eligible work-study students that require one.

c. Work-study students who are no longer students, or transition to a regular part-time or full-time position will be required to complete a background check.

e. To ensure that work-study students are properly compensated for the work that they perform for the College, their job responsibilities/classification will be placed into one of three pay bands.

1. Work-study students may be paid up to 10% above the minimum of their pay classification so long as it does not exceed the pay of regular part-time employees. To request a salary adjustment above the minimum, the employer/department must submit their reasons in writing to the Human Resources Department.

2. Returning work-study students who return for a second fiscal year and who have been in the position for six months or longer prior to the new fiscal year, may receive an increase equal to that of the part-time staff at Kirkwood.

3. Work-study students may not work more than 20 hours a week during the school year. Work-study students may work up to 28 hours per week during break periods and during the summer.

f. Termination of Employment

1. Hiring departments will need to notify the Financial Aid Office and the Human Resources Department when the work-study student concludes their assignment.

**Financial Aid Office**

a. The Financial Aid Office will manage the work-study program, providing departments with the resources needed so they can monitor their department budget.

b. When individual work-study funding levels fall near the $500 mark, the Financial Aid Office will verify with the department whether or not they plan to continue to employ the student. If employment will continue, Financial Aid Office will:

1. Attempt to increase the work-study award amount for the student by examining student’s need as well as the department’s budget.

or

2. Notify the department that the Human Resources department will switch the student to a regular part-time employment status.

c. Each year, the Financial Aid Office will request completed “Work-study Budget Request” forms from the departments. These are due March 1.
d. Every March/April, the Financial Aid Office will verify with existing work-study employers/Departments their need for work-study students for the upcoming fiscal year.

1. Employer/Departments should inform the Financial Aid Office by June 1 of any returning work-study students. Departments should encourage students to file the FAFSA as soon as possible.

2. The Financial Aid Office will confirm with the employer/department the amount of the work-study funding available for their area for the upcoming fiscal year.

3. An employer/department that is not actively looking to fill their work-study position/s and has not filled the position by November 1st will have their funding re-allocated to other departments for that fiscal year.

4. The Financial Aid Office will continually review employer/department work-study accounts to ensure they are actively being utilized. If accounts are not being fully utilized, the Financial Aid Office will review the accounts in partnership with the employer/department and reallocate the funds based on usage.

5. If the employer/department has not used a work-study in the previous two fiscal years, they will be removed from the list and their funding will have to reapply if they wish to hire a work-study student.

   a. Employers/Departments that reapply will need to provide a job description if a current one is not on file.

   b. Employers/Departments will need to complete the "Work-study Budget Request" form.

   c. Employers/Departments will need to provide the part-time G/L for their respective departments when completing the work-study form. This G/L code will only be used in cases where the work-study will be retained by the department on a regular part-time basis and work-study funding is no longer available.

A “qualified individual with a disability” means:

• with respect to educational opportunities: a person with a disability who meets the academic and technical standards required for admission or participation in an education program or activity;

• with respect to public adult educational services: a person with a disability qualified to the same extent as non-disabled individuals who are provided such services, or of any age during which it is mandatory under state law to provide such services;

“Otherwise qualified” means: an applicant or student with a disability is “otherwise qualified” if he or she is qualified for receipt of educational opportunities, public adult educational services or other services, in that he or she satisfies all of the fundamental academic and technical standards, essential eligibility requirements and other applicable education-related selection criteria.

Reasonable Accommodation

When requested by an otherwise qualified applicant or student with a disability to do so, Kirkwood Community College is prepared to modify or adjust the admissions process or the educational environment to make "reasonable accommodations" to an applicant or student to enable the applicant or student to be considered for admission to the program, course, activity or service he or she desires; to meet and perform academic and technical standards required for performance of an education program or activity; to meet the essential eligibility requirements for the receipt of other services; or to enjoy equal benefits and privileges of education as are enjoyed by other similarly situated applicants or students without disabilities.

In determining the College’s ability to offer reasonable accommodation to an otherwise qualified applicant or student with a disability, each request for an...
accommodation will be evaluated on a case-by-case basis. Factors to be examined include, among others: the academic and technical standards required for admission or participation in an education program or service; the purpose and nature of the program, course, and/or service; the precise education-related abilities and functional limitations of the applicant or student and how those limitations could be overcome with reasonable accommodation; the nature and cost of the accommodation required in relation to the College’s financial resources.

An otherwise qualified applicant or student who requires attendant care services must make arrangements to provide for his/her own attendant care service. The College does not assume coordination or financial responsibilities for attendant care services.

The College will engage in an interactive process to determine if an accommodation can be made to admit or continue to enroll an individual with a disability to any particular program, course, and/or activity; and how those limitations could be overcome with reasonable accommodation; the nature and cost of the accommodation required in relation to the College’s financial resources.

The College will engage in an interactive process to determine if an accommodation can be made to admit or continue to enroll an individual with a disability to any particular program, course, and/or activity; and how those limitations could be overcome with reasonable accommodation; the nature and cost of the accommodation required in relation to the College’s financial resources.

An otherwise qualified applicant or student who requires attendant care services must make arrangements to provide for his/her own attendant care service. The College does not assume coordination or financial responsibilities for attendant care services.

To request reasonable accommodation under this policy, an applicant or student must submit a request form to the Dean of Learning Services (or his/her designee) requesting reasonable accommodation and describing the nature of the requested accommodation. An applicant or student should also indicate the nature of the claimed disability and identify his or her abilities and functional limitations with respect to the claimed disability. The applicant or student will be asked to provide sufficient documentation of a disability along with the request. Sufficient documentation includes medical, psychological, and educational records which outlines the need for accommodations.

In the request process, the applicant or student with a disability shall also assist the College in determining if and what reasonable accommodations might be provided by identifying in writing or otherwise:

- any special methods, skills, or procedures that would enable him or her to perform the tasks, functions, or requirements that he or she otherwise might not be able to perform because of his or her disability;
- the accommodations the College might make that would enable him or her to perform and meet the academic and technical standards required for admission to or participation in an educational program, course, service, and/or activity; and
- any equipment, aids, or services that the applicant or student is willing to provide and utilize that the College is not required to provide.

If the applicant or student requires secretarial or other assistance in preparing such written statement or request due to his or her disability, such assistance will be provided upon request.

Response to applicants and students who request reasonable accommodation

The College, through the Dean of Learning Services, will review the documentation and determine eligibility of a student within two (2) weeks (14 calendar days) upon receipt of all documentation and evaluations requested. Once the College determines the student is eligible for services and the student is registered for classes, the College will communicate that decision to the student by means of a letter or other appropriate form which assigns the student to an Accommodations Case Manager. The student is responsible for contacting their assigned Accommodations Case Manager upon receipt of the letter. The Dean of Learning Services (or designee or the case manager) will attempt to meet with the student and determine reasonable accommodation(s) within three (3) weeks.

The determination of whether and/or what reasonable accommodation will be made for an applicant or student shall be made by the Dean of Learning Services (or designee), individually or in consultation with appropriate administrators, instructors, and medical or other personnel related to the College.

When determining reasonable accommodations the Dean of Learning Services (or designee or the case manager) will engage in an interactive process with the student. The following will be
considered:

- the academic and technical standards required for admission or participation in an education program or activity by the applicant or student, and
- potential reasonable accommodations to overcome any limitations, and the effectiveness of various accommodations in enabling the applicant or student to perform the academic, technical, or other requirements of the course, program, activity, or service in question.
- the essential eligibility requirements necessary for receipt of other services will be made based on the individual’s precise academic and technical abilities and functional limitations and whether and/or how a reasonable accommodation would enable the applicant or student to overcome those limitations to perform and meet all of the required academic, technical, and other standards.

Once reasonable accommodations have been determined, an applicant or student in consultation with their Accommodations Case Manager will develop a written accommodation plan. The Dean of Learning Services will maintain a confidential file to document the applicant or student’s disability and written accommodation plan. The applicant or student will share a copy of the written accommodation plan with appropriate faculty.

Accommodations that would substantially modify the educational standards, operation, and/or mission of the College will not be offered and are, by definition, not “reasonable” accommodations. An accommodation that would be unduly costly, extensive, substantial, or disruptive or that would fundamentally alter the nature of the course, program, service, or activity offered by the College would constitute such a substantial modification.

A student or applicant can request accommodations at any time, however it is recommended to start the accommodations request process early in the semester to allow as much time as possible to develop and implement an accommodation plan which will be useful to the student. Accommodations are not retroactive and will not take effect until the written accommodation plan has been reviewed and acknowledged by the faculty. No student is assured of any particular accommodation or of the student’s preferred accommodation.

The College may make inquiries of applicants concerning the presence of a disability, but recognizes that such inquiries will be for the purpose of planning support services and such inquiries will not form the basis for any decision regarding acceptance or enrollment in educational programs.

Applicants or students who reject reasonable accommodation

An applicant or student with a disability has the right to reject an offered reasonable accommodation. However, in that event, admission to or current enrollment in the program, course, activity or academic support may be denied, withdrawn, or modified as deemed appropriate by the College.

Student appeal procedure

The Educational Equity Steering Committee will hear appeals pertaining to physical accessibility only if the matter cannot be resolved after a meeting with the case manager and then with the Dean of Learning Services. The Educational Equity Steering Committee will make final determination on the appeal.

For all other appeals, the Educational Equity Steering Committee will hear appeals only after the student has had a conference with the appropriate faculty member(s) and then with the appropriate dean. If the issue cannot be resolved at these two levels, the student may appeal to the Educational Equity Steering Committee which will make a final determination on the appeal.

Appeals must be submitted to the Educational Equity Steering Committee, Attn: Dean of Learning Services, 2063 Cedar Hall, Kirkwood Community College, Cedar Rapids, IA 52404, no later than fifteen (15) working days following the decision of the appropriate dean or Dean of Learning Services, as stated in paragraphs above. Appeals should be clearly printed, or preferably typed, on standard 8 ½ x 11 inch paper and include the student’s name, address, and date. It should be brief, clear and concise and state specifically what is being appealed, what relief the student is seeking, and why the Committee should grant the appeal. Supporting documentation, if any, should be submitted by the student and attached to the letter of appeal.

Within ten (10) working days of the receipt of the student appeal, the Educational Equity Steering Committee will convene to consider the appeal. The Chairperson will contact all parties involved in the appeal and determine whether they wish to appear in person for the appeal hearing or have the Educational Equity Steering Committee render a decision based entirely on the written appeal material. It is the intention of the Educational Equity Steering Committee to reach a decision concerning appeals within two (2) working days following the conclusion of the appeal hearing. The Chairperson of the Educational Equity Steering Committee will notify all parties involved of the Committee’s decision.

The decision of the committee is final and cannot be appealed within the College.

Although students are encouraged to resolve a grievance at the College level through the Education Equity Steering Committee, a student has the right to file a grievance directly with the Office for Civil Rights, U. S. Department of Education. Visit their website for more information, www2.ed.gov/ocr.

Alcohol and Drug Policy

Alcohol Policy

The on-campus use of alcoholic beverages is allowed at Kirkwood only where prior written approval for the serving of alcohol has been obtained from the president (or designee). All Iowa state laws and local statutes regarding the use, purchase, possession, distribution, or dispensation of alcohol must be ob-
served. Food and nonalcoholic beverages must also be made available at events in which alcoholic beverages are served. Alcohol is prohibited at any event in which the majority of participants are under the age of 21: where alcoholic beverages are the focal point of the event, or which contributes to alcohol overindulgence or abuse.

**Drug Policy**

The unlawful use, possession, distribution, or dispensation of any narcotic (including prescription medications), dangerous drug or controlled substance is strictly prohibited on campus or at any college-sponsored activity.

**Sanctions**

There are substantial penalties for drug and alcohol violations. Individuals are subject to federal, state and local laws, as well as college policies. Both state and federal laws prohibit distribution or manufacture of controlled substances or counterfeit controlled substances. Penalties can result in imprisonment and fines depending on the severity of the crime.

State and local ordinances regulate alcohol. Underage possession of alcohol, driving while intoxicated, public intoxication, public consumption, serving underage intoxicated individuals, open containers and large private parties are all affected by these laws. Check with the local police department for more information. The college may also impose sanctions against students and employees who violate this policy. The procedures for administering sanctions are described below under, "Procedures."

**Procedures**

Students who violate this policy may be referred for an educational/treatment program and may be subject to disciplinary action in accordance with the policies and procedures outlined in the Student Conduct Code. The Dean of Students or designee will determine if the student is responsible for violating this policy and will impose appropriate sanctions. Sanctions may include warning, probation, suspension, expulsion, and other discretionary sanctions, including educational or treatment programs.

**Hazards of Drug Use and Available Services**

Illicit drug use may result in:

- physical or psychological dependency;
- a craving or inability to stop using drugs;
- adverse effects on body systems;
- injury due to motor vehicle crashes, assaults or other unintended acts;
- disruption of personal relationships and work habits;
- ineligibility for some types of employment.

Additional information about specific drugs and their effects is available from the Campus Health office, Iowa Hall.

**Kirkwood Alcohol/Drug Abuse Program**

- Campus Health, 319-398-5588 (Support groups, substance abuse counselor, student assistance team)
- Employee Assistance Program
  Cedar Rapids, 319-398-6694
- Area Substance Abuse Council
  Cedar Rapids, 319-390-4611 or Vinton, 319-472-2443
- Sedlacek Treatment Center
  Cedar Rapids, 319-398-6226
- Alcoholics Anonymous
  Cedar Rapids, 319-365-5955
- Hillcrest Family Services
  Cedar Rapids, 319-362-3149
- Mental Health Institute
  Cedar Rapids, 319-398-3562 or Independence, 319-334-2853
- Mid-Eastern Council on Chemical Abuse
  Iowa City, 319-351-4357
- St. Luke’s Hospital Chemical Dependency Services
  Cedar Rapids, 319-369-7384

**Cancellation and Delay Policy**

The college may close on occasion due to weather or other emergency situations. Except in extreme cases (such as a multi-day blizzard), classes will always be cancelled in segments of the day. The first cancellation announcement will cancel daytime classes 7 a.m. -5 p.m. The cancellation will note that the evening decision will be made and announced by 3 p.m. In extreme conditions the President or his designated representative may close for the entire day and evening.

Some facilities (The Kirkwood Center, The Hotel, KCETC) serving employer clients or external rental customers will remain open based on client activities.

The college may close during the day if inclement weather requires it and times will vary based on the severity of the conditions and timing of the storm.

It is the general policy for office and services to close if the college has closed. Offices and services that would normally be open in the evening are required to be open if evening classes are held.

All locations will close at the same time with the following exceptions:

- Extreme cases such as flood waters cresting on different days, isolated ice storms, localized power outages, etc. may cause a location to close when main campus remains open. County Centers will not announce such closing to the CR/IC media to avoid confusion. Iowa City or other Linn County locations may use the media if the Executive Director, Communications & Marketing deems it necessary and effective. The lead person at each off campus site will make these calls in consultation with their cabinet member or Vice President, Facilities & Security.

**Copyright Policy**

Kirkwood Community College respects the legal right of ownership of intellectual property in all media. It is the policy of Kirkwood Community College that all members of the College adhere to the provisions of the United States Copy-
right Law (Title 17, United States Code, Sect. 101, et seq.).

Faculty and staff are reminded that it is unlawful to copy, distribute or display copyrighted material without written permission from the copyright holder, unless fair use or educational exceptions apply. Both the individual requesting such services and the individual performing the services may be liable for copyright infringement. Please consult the Kirkwood Libraries with questions concerning copyright exceptions.

**Discrimination and Harassment**

Kirkwood Community College is an equal access/equal employment opportunity institution in compliance with local, state and federal laws and does not discriminate on the basis of sex, race, color, creed, religion, national origin, age, sexual orientation, gender, gender identity, physical attributes, physical or mental ability, marital status, veteran status, genetic information, or socioeconomic status. The Human Resources Department is available to answer questions or provide additional information related to the College’s Equal Employment Policies and Affirmative Action Plan. Human Resources department may be reached at 319-398-5572.

Kirkwood employees and students who feel they have been discriminated against on the basis of sex, race, color, creed, religion, national origin, age, sexual orientation, gender, gender identity, physical attributes, physical or mental ability, marital status, veteran status, genetic information, or socioeconomic status may seek remedy through an internal complaint process. The College assures that full cooperation will be provided to any individual filing a complaint with no threat of penalty or reprisal to the complainant.

Any person who believes that they have been the recipient of a discriminatory or harassing act may file a complaint with the Vice President, Human Resources, Wes Fowler, 313 Kirkwood Hall, at extension 7797; or Vice President, Academic Affairs, Bill Lamb, 100 Iowa Hall, at extension 5509. If the complaint involves alleged discrimination or harassing behavior by the Vice President, Human Resources, the Vice President, Academic Affairs (319-398-5509) should be contacted in lieu of the Vice President, Human Resources.

If you witness or experience harassment or sexual harassment, we strongly encourage you to report the incident immediately.

**Domestic Travel Policy and Practice**

Off-campus travel by students must be approved in advance by the appropriate dean or designee if they travel:

1) includes an overnight stay;
2) involves a Kirkwood vehicle or rental vehicle, or
3) occurs outside of the College’s seven-county service area.

The department or student organization must designate a faculty or staff member to serve as the trip sponsor who is responsible for providing trip information to the appropriate individuals as outlined in section IV of this policy. The trip sponsor must accompany the students on the trip unless special permission is granted by the Vice President of Academic Affairs and/or the Vice President of Student Services or their designees allowing the student(s) to travel alone.

Other off-campus travel by students that does not meet one of the conditions set forth requires prior approval/notification to an immediate supervisor or designee by the faculty or staff member sponsoring an activity involving in-district travel.

**Modes of Transportation**

Whenever possible, each student will travel to and from their destinations in transportation provided by the College. Exceptions may be made by the appropriate dean or designee. When a personal mode of transportation is approved, the student(s) are responsible for making travel arrangements and all associated travel expenses, and the student(s) assume all liability in the event of an accident or mishap. The College cannot be held liable for accidents or injuries sustained in private vehicles.

**Student Conduct**

The Student Conduct Code applies to students who are participating in travel activities. Alleged student conduct violations occurring during travel will be adjudicated according to the procedures described in the Student Conduct Code. In such cases the trip sponsor will notify the appropriate dean or the Dean of Students of the alleged misconduct. The accused student may be sent home pending the outcome of these disciplinary proceedings as determined by trip sponsor, the supervising dean, and the dean of students. Such decisions will be made on a case by case basis.

Students must participate in all scheduled activities as directed by the trip sponsor. Students who wish to participate in activities outside of those directed by the trip sponsor must receive approval from the trip sponsor prior to beginning the activity. In such cases, the students are responsible for any expenses incurred relating to the outside activity.

**Notification and Approval Process**

The trip sponsor will ensure all necessary arrangements have been made prior to embarking on domestic travel. The procedures for domestic travel are as follows:

1. Complete the Student Domestic Travel Notification form. The notification will include the purpose of the trip, date(s), destination, mode of transportation, name and location of any overnight accommodations, names and contact information of participants, and their emergency contacts. The notification form will be submitted to the appropriate dean or designee at least five work days prior to the departure date for all travel requiring advance approval and prior to departure for all travel that does not require advance approval. The dean or designee will maintain a record of the notifications in the event the College needs to reach participants or their emergency contacts.

2. A travel contract must be completed prior to departure by students. Completed contracts will be filed in the of-
Office of the appropriate dean or designee along with the travel notification form.

Note: Student travel occurring outside of the United States is handled according to the policies and procedures described in the International Student Travel Policy.

Hoverboards

This policy prohibits all use, storage, charging and possession of hoverboards on all College premises including all buildings, facilities, and other property in the possession of or owned, used, or controlled by the College.

Minor Children on Campus

Student Guidelines

Children may visit certain college offices and facilities for limited periods of time when their parent or guardian is conducting routine business at the college. However, regular repeated visits by children are not permitted. Under no circumstances are children permitted in:

- Labs, shops, construction/repair sites, other areas where potential hazards exist or recreation facilities, unless those facilities are being used for activities intended to include children (e.g. family hours, sports camps, etc.).
- Testing centers.
- Computer classrooms.
- Classrooms: except when the child’s presence is necessary for classroom activities.
- A child should never be left unattended while the parent or guardian is attending class, conducting other business or attending a public event on campus.
- Line of sight supervision by the parent or guardian is required at all times; should a child become disruptive, the student and child may be asked to leave.

Visitor Guidelines

The following guidelines apply to bringing children to the campus by visitors:

- Line of sight supervision by the parent or guardian is required at all times.
- Parent or guardian must assure that children are not disruptive.
- Parent or guardian must not leave children unattended while on campus, including athletic or other Kirkwood activities.

Kirkwood Community College assumes no responsibility or liability for children, or for any accidents or injuries to children. For the purposes of this policy, a child is defined as any youth under the age of 18 who is not officially registered in a Kirkwood Community College class.

Preferred Name

Procedures

Prospective students and employees may provide a preferred first name on the admissions application or employment application provided the applicant provides social security number or other unique identifier.

Current students and employees may declare a preferred first name on EagleNet.

Alumni who are not current students or employees may declare a preferred first name in the Kirkwood Foundation Office.

Preferred Name Display

Kirkwood will attempt to use the preferred name wherever possible. This list provides examples of places where preferred and legal names will be used. These lists are not exhaustive and are subject to change.

Preferred Name
- EagleNet
- Talon
- Class Rosters
- Kirkwood email
- EagleCard
- Degree Audit Report
- Advisee Lists
- Library
- Diplomas
- Employee training, years of service, and excellence awards

Legal Name will be used (where required by law or with partner institutions)
- Financial aid documents and forms
- Student accounts and billing notices
- Clinical Placements
- 1098-T, 1099, and W-2 tax forms
- Applications for employment and civil service testing materials
- Employment, payroll records and benefits documents
- Responses to enrollment and degree verification requests
- Student health records
- Requisitions, direct payment vouchers, and travel documents
- Background check

Legal Name and Preferred Name will be used
- Transcripts
- Discipline records

Questions about this policy may be referred to the Registrar.

Sexual Misconduct Involving Students

I. The Policy

This Policy prohibits sexual misconduct in any form, including sexual assault, sexual harassment, sexual exploitation, stalking, domestic violence, dating violence, and retaliation, all as defined in Section II. The College will respond to reports of sexual misconduct in accordance with this policy.

II. Definitions

Sexual harassment can include unwelcome behavior (verbal, written, physical) that is directed at someone because of that person’s sex or gender, and that meets either of the following criteria:

- A College employee or agent explicitly or implicitly conditions an educational decision or benefit on submission to sexual conduct (e.g., sexual favors for a better grade, more playing time; threatening (explicitly or implicitly) negative con-
sequences if the student rejects sexual advances). OR

- The behavior creates a hostile, intimidating or demeaning environment that is sufficiently severe, pervasive or objectively offensive to substantially interfere with or deny participation in a student's educational activities and benefits or employment opportunities. Examples can include persistent efforts to develop a sexual relationship; bullying/cyber-bullying of a sexual nature or for a sexual purpose; unwelcome commentary about an individual's body or sexual activities; unwanted sexual attention; repeated and unwelcome sexually-oriented teasing, joking or flirting; verbal abuse of a sexual nature. Behavior could be verbal, non-verbal (e.g., gestures, touching), written or electronic.

Determination as to whether the alleged conduct constitutes sexual harassment should take into consideration all of the circumstances, including the context in which the alleged incidents occurred.

Sexual assault occurs when physical sexual activity is engaged in without the consent of the other person or when the other person is unable to consent to the activity due to incapacitation.

Consent means words or clear, unambiguous actions that show a knowing and voluntary agreement to engage in mutually agreed-upon sexual activity.

- Consent is voluntary. It must be given without coercion, force, threats, or intimidation.
- Consent is affirmative. Consent means positive cooperation in the act or expression of intent to engage in the act pursuant to an exercise of free will. Silence or the absence of resistance does not equate to consent.
- Consent is clear. If confusion or uncertainty on the issue of consent arises anytime during the sexual interaction, the sexual activity should cease.
- Consent is revocable. Consent to some form of sexual activity does not imply consent to other forms of sexual activity. Consent to sexual activity on one occasion is not consent to engage in sexual activity on another occasion. A current or previous dating or sexual relationship, by itself, is not sufficient to constitute consent. Even in the context of a relationship, there must be mutual consent to engage in sexual activity—every time. Consent must be ongoing throughout a sexual encounter and can be revoked at any time. Once consent is withdrawn, the sexual activity must stop immediately.
- Consent cannot be given when a person is incapacitated.

Incapacitation means the inability (temporarily or permanently) to give consent because the individual is mentally and/or physically helpless, asleep, unconscious, or unaware that sexual activity is occurring.
- Being intoxicated by drugs or alcohol oneself does not diminish the responsibility to obtain consent from the other party.
- The factors to be considered when determining whether consent was given include whether the accused knew, or whether a reasonable person should have known, that the complainant was incapacitated.

Sexual exploitation involves taking sexual advantage of another person, even though the behavior might not constitute sexual assault. Examples can include, but are not limited to:
- Distribution or publication of sexual or intimate information about another person without consent.
- Electronic recording, photographing, or transmitting sexual or intimate utterances, sounds, or images without knowledge and consent of all parties.
- Engaging in indecent exposure.
- Sexual intimidation, which is an implied or actual threat to commit a sex act against another person, or behavior used to coerce participation in a sex act, when no sex act actually occurs.
- Voyeurism, which involves both secretive observation of another's

sexual activity or secretive observation of another for personal sexual pleasure.

Retaliation. This Policy prohibits retaliation against a person who reports sexual misconduct, assists someone with a report of sexual misconduct, or participates in any manner in an investigation or resolution of a sexual misconduct report. Retaliation includes threats, intimidation, reprisals, and/or adverse actions related to employment or education.

Stalking means:

a. purposefully engaging in a course of conduct directed at a specific person ("target") that would cause a reasonable person to fear bodily injury to, or the death of, the target or a member of the target’s immediate family;

b. when the person ("stalker") knows or should know that the target will be placed in reasonable fear of bodily injury to, or the death of, the target or a member of the target’s immediate family by the course of conduct; and

c. the stalker’s course of conduct induces fear in the target of bodily injury to, or the death of, the target or a member of the target’s immediate family.

Dating Violence means violence committed by a person who is or has been in a social relationship of a romantic or intimate nature with the victim. The existence of such a relationship shall be determined based on a consideration of:

a. The length of the relationship.

b. The type of relationship.

c. The frequency of interaction between the persons involved in the relationship.

Domestic Violence: Means an assault, under any of the following circumstances:

a. The assault is between family or household members, who resided together at the time of the assault;

b. The assault is between separated spouses or persons divorced from
each other and not residing together at the time of the assault.

c. The assault is between persons who are parents of the same minor child, regardless of whether they have been married or have lived together at any time.

d. The assault is between persons who have been family or household members residing together within the past year and are not residing together at the time of the assault.

Investigators mean the individuals designated by the vice president for Student Services to conduct investigations of alleged sexual misconduct, and to determine whether to grant a hearing, as described in Article VI, B. Formal Resolution, of this Policy.

Sexual Misconduct Board means the group of faculty, staff, and administrators appointed by the vice president for Student Services to hear complaints of sexual misconduct, and who are trained to do so.

Student includes all persons taking courses at Kirkwood Community College, either full-time or part-time, pursuing degree or non-degree programs including continuing education and distance courses. Persons who withdraw after allegedly violating the Student Code, who are not officially enrolled for a particular term but who have a continuing relationship with the College, or who have been notified of their acceptance for admission are also considered "students," although not enrolled in this institution.

III. Policy Scope

A. Jurisdiction

This Policy applies to all Kirkwood Community College students, as defined in Section II, regardless of sexual orientation, and in particular students who:

- Are victims of any form of sexual misconduct, by any other person (student, employee, or others outside the College community).
- Are accused of engaging in behavior prohibited by this Policy.
- Are accused of engaging in behavior prohibited by this Policy.
- Are accused of engaging in behavior prohibited by this Policy.

Any person may file a complaint alleging sexual misconduct against a student. However, with respect to any complaint that is 1) by a person who is not a member of the College community, and 2) relating to non-College conduct, the College reserves the right to determine, in its sole discretion, whether the conduct described in the complaint bears a sufficient nexus to the educational program or employment relationship of a Kirkwood student/employee or constitutes a sufficient risk to the College community to proceed under this Policy.

B. Geographic Location (On and Off Campus)

This Policy applies to any allegation of sexual misconduct against a Kirkwood student, regardless of where the alleged sexual misconduct occurred.

IV. Confidentiality

Kirkwood is committed to creating an environment that encourages students to come forward if they have experienced any form of sexual misconduct. The College will work to safeguard the identities and privacy of the students who seek help or who report sexual misconduct. However, it is important that students understand the limits on confidentiality of individuals whom they may contact for such assistance. Different people, depending on their positions, have different obligations with regard to confidentiality.

Under Iowa law, communications with some individuals are confidential. Students who want to maintain confidentiality should always confirm whether confidentiality applies to the communication before they make the communication. Generally, confidentiality applies when a student seeks services from the following persons:

- Licensed Healthcare provider (including medical professionals at Kirkwood Student Health)
- Personal attorney representing the victim
- Religious/spiritual counselor

Any other College employee cannot guarantee complete confidentiality. However, information is disclosed only to select officials who have an essential need to know in order to carry out their job responsibilities. As is the case with any educational institution, the College must balance the needs of the individual student with its obligation to protect the safety and well-being of the community at large. Therefore, depending on the seriousness of the alleged incident, further action may be necessary, including a timely warning notice. The notice, would not contain any information identifying the student who brought the complaint.

V. Reporting Sexual Misconduct, including Sexual Assault and Sexual Harassment

Contacting Police or Campus Security does not mean a student must pursue charges. Campus Security and local law enforcement can advise students of their options and can also preserve evidence while the person considers her/his options.

A. Reporting to Law Enforcement

Because sexual misconduct may constitute both a violation of college policy and criminal activity, the college strongly encourages, but does not require, students to report concerns of sexual misconduct to law enforcement as soon as possible after the incident. A student may proceed under this Policy whether or not he or she elects to report to law enforcement as well.

For emergencies, contact 9-1-1.

To contact law enforcement in non-emergency situations, call the non-emergency number for your local police department.

B. Reporting to Kirkwood

To seek assistance and support, or to report misconduct in non-emergency situations, contact the Dean of Stu-
students Office, 108 Iowa Hall, 319-398-5540 or Campus Security, 319-389-1774. Other reporting options include:

- Contacting Title IX Coordinator, Jon Buse, Vice President for Student Services, at: Jon.Buse@kirkwood.edu
- 319-398-4977

307 Mansfield Center

- Contacting a Deputy Title IX Coordinator:
  a. Bobbi Miller, Associate Dean of Students, 319-398-7798, bobbi.miller@kirkwood.edu
  b. Melissa Jensen, Senior Director, Emergency Services and Campus Security, 319-398-5491, melissa.jensen@kirkwood.edu
  c. Melissa Payne, Dean of Students, 319-398-5584, melissa.payne@kirkwood.edu
  d. Wes Fowler, Vice President of Human Resources, 319-398-7797, wes.fowler@kirkwood.edu

C. Amnesty for Complainants and Participants in Investigations

The College will not pursue disciplinary action for improper use of alcohol or other drugs against a student who reports in good faith an incident of sexual misconduct, or who participates in good faith in an investigation into an incident of sexual misconduct.

D. Time Frames for Reporting and Response

The College strongly encourages prompt reporting of complaints and information. While there is no time limit in invoking this Policy in responding to complaints of alleged sexual misconduct, a complaint should be submitted as soon as possible after the event takes place.

Individuals are encouraged to report sexual misconduct immediately in order to maximize the College’s ability to respond promptly and equitably. The College does not, however, limit the time frame for reporting. The College will not be able to pursue disciplinary action against an individual who is no longer affiliated with the College. Under those circumstances, the College will still conduct a Title IX review.

In all cases, the College will conduct a prompt and equitable investigation of allegations of sexual misconduct. Generally the College will attempt to complete the process within 60 days. However, the time frames set forth in these procedures are meant to provide guidance, and the College may alter or extend time frames, with notice to the parties, as appropriate. The time it takes to complete the resolution of a sexual misconduct complaint may vary based on the complexity of the investigation and the severity and extent of the alleged conduct, as well as on whether there is a parallel criminal investigation, or if school breaks occur during the process.

VI. Process for Responding to Reports of Sexual Misconduct

A. Initial Steps

1. Initial Meeting with the Complainant

Upon receipt of any report of sexual misconduct, the Dean of Students or designee will first schedule a meeting with the reporter (referred to as “Complainant” for ease of reference, although a report does not necessarily have to result in a formal complaint) in order to provide the Complainant a general understanding of this Policy and to identify forms of support or immediate interventions available to the Complainant. The intake meeting may also involve a discussion of any accommodations that may be appropriate concerning the Complainant’s academic, employment, or housing arrangements.

If the Complainant would like assistance throughout any College investigation or adjudication process, the Dean of Students Office will make a student services staff member available to the Complainant. This staff member is not an “advocate” as that term is used below (see Article VII, A, Confidential Advocacy and Support), nor is that staff person a representative who will speak on behalf of the Complainant in any investigatory or adjudication process. Rather, the staff member serves as a point of contact to answer questions and explain processes, to make sure the Complainant’s expressed needs are being addressed, and to join the Complainant in meetings if requested. (The Dean also will provide the same resource to students accused of sexual misconduct.)

At the initial intake meeting with the Complainant, the Dean or designee will seek to determine how the Complainant wishes to proceed. The Complainant may opt for: (1) formal resolution (see section B, below); (2) informal resolution (see section C, below); or (3) not proceeding.

2. Notification of the Title IX Coordinator

The Dean of Students or designee will notify the Title IX Coordinator and the deputy Title IX coordinator(s) of the report (even if the report does not proceed). This is to keep the Title IX Coordinator apprised of any potential patterns of misconduct and/or the need for further training or other prevention measures.

B. Formal Resolution

A Complainant may elect to pursue a formal resolution, which involves a hearing before the Sexual Misconduct Board. Such a hearing is also referred to as “formal resolution,” and is described more specifically in this section.

1. Investigation

When the Complainant indicates a desire to pursue formal resolution, the Dean of Students will meet with the Complainant and prepare a written complaint. The Dean will consult with the Title IX coordinator and the deputy Title IX coordinators in appointing a person(s) to serve as investigator(s) of the complaint. The investigator(s) may be a College administrator or someone retained by the College, such as an attorney, mental health professional, or another person trained to conduct investigations of sexual misconduct. The investigators serve as neutral fact-finders, who during the course of the investigation, typically conduct in-
terviews with the Complainant, the accused student(s) and each third-party witness; visit and take photographs at each relevant site; and where applicable, coordinate with law enforcement agencies to collect and preserve relevant evidence.

2. Investigative Report
After conducting the investigation, the investigator(s) will complete an investigative report that includes, among other things:

- Summaries of interviews with the complainant, the accused student and each third-party witness; photographs of relevant sites and related logs; electronic and forensic evidence; and a detailed written analysis of the events in question.

- A recommendation on whether or not there should be a hearing, based on factors including whether there is a substantial dispute in the facts, the availability of witnesses and evidence, etc. The Title IX coordinator will make the ultimate decision on whether a hearing will be held.

The investigative report will be distributed, concurrently, to both of the parties and to the Dean of Students and Title IX Coordinator. If a hearing is held, the Sexual Misconduct Board will also be provided with a copy of the report.

3. Determining Whether to Hold a Hearing
If the Title IX Coordinator decides, upon consideration of the investigator’s recommendation, to hold a hearing, notice of that determination will be delivered, concurrently, to the Dean, the Complainant, and the accused student(s). A student whose request for a hearing is denied by the Title IX Coordinator may appeal that decision to the President or designee, whose decision will be final.

4. Complainant Changes Election to Informal Resolution or Accused Student Elects to Accept Responsibility.

After reviewing the investigative report, the Complainant may decide to elect Informal Resolution instead of formal resolution, by making such a request to the Dean of Students prior to the hearing date. At any point prior to the hearing, the accused student may elect to admit responsibility for the alleged sexual misconduct. In such cases, the Dean of Students or designee will propose a resolution to the complaint and a sanction. If both the Complainant and the accused student agree to the proposed sanction, the complaint is resolved without a hearing and without any further rights of appeal by either party. If either the complainant or the accused student objects to the proposed sanction, a hearing before the Board will be convened for the sole purpose of determining a sanction, and in these cases, the decision of the Board may be appealed pursuant to paragraph 13, “Appeals,” below. For purposes of this sanction hearing, all of the other provisions of this Policy relating to the imposition of a sanction for Sexual Misconduct will apply.

5. Advisors
The Complainant and the Accused Student may have an advisor present to assist them during the pre-hearing, hearing, and appeal stages of the complaint process. The advisor may be an attorney chosen at the student’s expense. However, advisors are not permitted to speak or to participate directly in the process, including at any hearing before a Sexual Misconduct Board. Students should select as an advisor a person whose schedule allows attendance at the scheduled date and time for the hearing because delays will not normally be allowed due to the scheduling conflicts of an advisor.

If a hearing is scheduled, the Dean of Students will provide written notice to both parties pursuant to Article IV, A. 4 of the Student Conduct Code. In addition, the Dean of Students or designee will schedule separate meetings with the Complainant and the accused student to review the hearing procedures and the complaint of sexual misconduct.

7. Hearing Procedures
Unless otherwise stated in this Policy, the pre-hearing and hearing procedures will follow the rules and procedures described in Article IV, of the Student Conduct Code.

8. Conduct of the Hearing
Formal rules of process, procedure, and/or technical rules of evidence, such as are applied in criminal or civil court, are not used in these proceedings. During the hearing, the parties will be expected not to repeat undisputed details or non-material circumstances that would merely duplicate information contained in the investigative report or in other written materials. Only the Board Chair and Board members may question the parties and other witnesses directly. The parties may pose written questions to the Chair to be asked of the other party or other witnesses consistent with Article IV, A, 10, i, of the Student Conduct Code. All procedural questions, including the decision to accept evidence and/or statements, will be made by the Chair, in his or her sole discretion.

In cases of sexual assault, measures may be taken to avoid contact during the hearing between the complainant and the alleged perpetrator (e.g., videoconferencing).

9. Standard of Proof
The determination of whether or not a violation of this Policy occurred will be made on the basis of whether it is more likely than not that the accused student violated this Policy. This standard is more formally referred to as the “preponderance of evidence” standard. In making its determination, the Board will carefully consider all of the evidence presented and follow the procedures stated in this Policy and the applicable sections of the Student Conduct Code in order to ensure as fair a hearing as possible for all parties.

10. Sanction
The Board is required to consider the suspension or expulsion (permanent suspension) of any student found responsible for sexual assault; however, the Board may impose any sanction that it finds to be fair and proportionate to the violation and in accordance with Article IV, B, of the Student Conduct Code.
11. Decision

The Board Chair will notify the Dean of Students of the decision and any sanctions imposed in writing within five (5) business days of completion of the hearing. Within ten (10) business days of completion of the hearing, the Dean of Students will notify the Complainant and accused student of the decision and any sanctions imposed.

12. Appeals

Within five (5) business days of delivery of the written decision to them, the Complainant, accused student, or both, may appeal the Board’s decision and/or the sanction imposed to the President or designee. Such appeals will be in writing and will be delivered to the Dean of Students or his or her designee. The President or designee will determine if the decision and/or sanctions imposed will be stayed pending the outcome of the appellate decision.

Except as required to explain the basis of new information, an appeal will be limited to a review of the verbatim record of the hearing and supporting documents for one or more of the following purposes:

- Determine whether the Sexual Misconduct Board Hearing was conducted in substantial compliance with prescribed procedures. Deviations from designated procedures will not be a basis for sustaining an appeal unless significant prejudice results.
- Determine whether substantial evidence supports the Board’s findings of fact.
- Determine whether the sanction(s) imposed were appropriate for the violation of this Policy and/or the Student Conduct Code which the student was found to have committed.
- Consider new, material information, which was not brought out in the original hearing, because such information was not known or was not available to the person appealing at the time of the original hearing.

The President of the College or designee may affirm, reverse, or modify the decision regarding the violation and/or sanctions imposed. The appeal decision of the President or designee is the final decision of the College, and no further appeals are permitted under this Policy.

All parties will be informed of the results of the appeal decision as promptly as possible.

C. Informal Resolution

A Complainant who does not wish to pursue formal resolution may request a less formal proceeding, known as “Informal Resolution.” Although less formal than formal resolution, Informal Resolution is an appropriate resolution process; it is not mediation.

1. Election of Informal Resolution

The College Title IX Coordinator will assess the severity of the alleged harassment and the potential risk of a hostile environment for others in the community to determine whether informal resolution may be appropriate.

2. Investigation

Upon determining that informal resolution is appropriate, and in instances when the Complainant makes such a request to the Dean of Students, the Title IX Coordinator will assign the informal resolution to an Investigator. The Investigator will consult further with the person initiating the request, inform the person who is the subject of the allegations, and gather additional relevant information as necessary from the parties and others, as indicated. The Title IX Coordinator also may put in place any appropriate interim measures to protect the educational and work environment. The Title IX Coordinator or the Investigator will attempt to aid the parties in finding a mutually acceptable resolution.

3. Advisors

The complainant and the accused student each may be assisted by an advisor throughout the Informal Resolution process. Advisors are assigned and subject to the same restrictions set forth for advisors in Formal Resolution (outlined above).

4. Informal Resolution Where Accused Student Acknowledges Responsibility

If during the course of the Informal Resolution, the accused student elects to admit responsibility for the alleged sexual misconduct, the Investigator will propose a resolution to the complaint and a sanction. If both the complainant and the accused student agree to the proposed sanction, the complaint is resolved without a hearing and without any further rights of appeal by either party. If either the complainant or the accused student objects to the proposed sanction, a hearing before the Sexual Misconduct Board will be convened for the sole purpose of determining a sanction, and in these cases, the decision of the board is subject to appeal pursuant to Article VI, B, 12, “Appeals,” above. For purposes of this sanction hearing, all of the other provisions of this policy relating to the imposition of a sanction for Sexual Misconduct will apply.

5. Election of Formal Resolution

The college or the complainant may, at any time prior to the conclusion of the informal resolution, elect to end such proceedings and initiate formal resolution instead. In such cases, statements or disclosures made by the parties in the course of the informal resolution may be considered in the subsequent formal resolution.

6. Privacy of Informal Resolution

In order to promote honest, direct, communication, information disclosed during informal resolution must remain private while the informal resolution is pending, except where disclosure may be required by law or authorized in connection with duties on behalf of the College.

D. Complainant Does Not Wish to Pursue Resolution or Requests Confidentiality

If the Complainant does not wish to pursue formal or informal resolution and/or requests that his or her report remain confidential, the Dean of Students or designee will inform the Complainant that the College’s ability to respond may be limited. The Dean or designee may conduct a preliminary investigation into the alleged sexual misconduct and may weigh the Com-
plaintant’s request against the following factors:

The seriousness of the alleged sexual misconduct,

Whether there have been other complainants of sexual misconduct against the same accused student, and

The accused student’s right to receive information about the allegations, including the name of the complainant.

The Dean or designee will inform the Complainant if the College cannot ensure confidentiality. Even if the College cannot take disciplinary action against the accused student because the Complainant insists on confidentiality or that the complaint not be resolved, the College reserves the authority to undertake an appropriate inquiry, issue a “no contact” order, and/or take other reasonably necessary measures, including the Immediate Actions described in VI. E, below, to promote a safe learning environment for the complainant and/or the entire College community.

E. Immediate Actions (Interim Measures)

The Dean of Students Office and Campus Security may take immediate interim actions to protect the safety of the college community, to enable students with complaints and witnesses to continue studies, and to ensure the integrity of an investigation. These actions may include interim suspension of the accused student or no-contact notice between the individuals involved. The Dean of Students Office and Campus Security may also take additional actions, as appropriate, including but not limited to:

- Modifying class or work schedules, or housing arrangements
- Addressing other academic concerns (e.g., absences, assignments, grades, leaves of absence, withdrawal)
- Safety planning
- Education/training

VII. Resources and Services for Students

There are campus and community services available to students regardless of whether or not a student chooses to report a violation of this Policy to the College or local law enforcement. The College strongly encourages students to seek assistance to care for themselves emotionally and physically through confidential crisis intervention, health care, and counseling. As students tend to their health, they should keep in mind that medical examinations are time-sensitive, and are critical in preserving evidence of sexual assault so that options can be considered at a later time.

A. Confidential Advocacy and Support

Riverview Center (Cedar Rapids)

Riverview Center provides trained advocates to assist victims of sexual assault. Advocates can assist students with medical and legal advocacy, counseling, and case management. Advocates can speak with students confidentially as they consider their options. Any communication with a Riverview Center advocate is legally protected under Iowa Code Section 915.20, which allows for confidential communications that cannot be disclosed without the student’s permission.

50 2nd Ave Bridge
Cedar Rapids, IA 52401
319-540-0080
Website: www.riverviewcenter.org

Sexual Assault Hotline (24 hours a day) 888-557-0310

Waypoint Services (Cedar Rapids)

Waypoint provides shelter and support for women and families in crisis due to domestic violence or sexual assault.

318 5th Street SE
Cedar Rapids, IA 52401
319-365-1458

24-Hour Crisis & Support Line 800-208-0388 or 319-363-2093

RVAP (Iowa City and Surrounding Counties)

RVAP is a comprehensive sexual abuse response center based in Iowa City, Iowa. RVAP provide support, information and advocacy to members of the Iowa City community and citizens of the following areas:

- Cedar County
- Iowa County
- Johnson County
- Washington County

332 S. Linn Street, Suite 100
Iowa City, IA 52240
319 335-6000
800-228-1625

Website: www.rvap.org

Kirkwood Counseling Services

Students can meet with a counselor during normal business hours. Services are free and confidential.

Contact information: www.kirkwood.edu/counseling

Cedar Rapids Iowa City
Campus Campus
108 Iowa Hall One Stop Office
319-398-5540 319-887-3658

In an emergency after hours, students may call the 24-hour Foundation 2 hotline at 319-362-2174 or 800-332-4224.

Campus Health

Students can meet confidentially with a health care provider. Contact information: www.kirkwood.edu/campushealth.

Cedar Rapids Iowa City
Campus Campus
Iowa Hall 132 Room 146
319-398-5588 319-887-3949
Open Tues/Wed
10 a.m.-2 p.m.

B. Additional Resources for Students

1. College Title IX Coordinator

The College has designated Jon Buse, Vice President for Student Services as
the Title IX Coordinator to ensure Title IX compliance for the entire campus. Because sexual assault is considered to be a severe form of sexual harassment, an alleged victim may wish to file a sexual harassment complaint with the Title IX Coordinator. The Title IX Coordinator is responsible for ensuring a non-discriminatory campus environment that is free from harassment. Questions or concerns may be directed to (319) 398-4977 or 307 Mansfield Center, Kirkwood Community College.

Deputy Title IX Coordinators are:

- Bobbi Miller, Associate Dean of Students, 319-398-7798
- Melissa Jensen, Senior Director of Facilities and Security, 319-398-5491
- Melissa Payne, Dean of Students, 319-398-5584
- Wes Fowler, Vice President of Human Resources, 319-398-7797

2. Campus Security

Campus Security provides services 24 hours a day and can respond to reports of emergencies. Campus Security works closely with law enforcement and can assist students understanding their options for reporting incidents and assisting students in contacting local law enforcement to report an incident of sexual misconduct. Contacting Campus Security or law enforcement does not mean a student must pursue criminal charges. Campus Security can also assist students in safety planning and provides escorts to students while on campus.

319-398-1774
www.kirkwood.edu/security

3. Dean of Students Office

Staff can assist a student in filing a report or, if the student is not ready to file a report, the staff can work with him or her to address concerns over housing, class assignments or schedules, leaves of absence, withdrawal or other academic concerns. Staff can also assist the student in notifying Campus Security or local law enforcement, if requested by the student and provides referrals to students to resources such as counseling or a confidential advocate.

108 Iowa Hall
319-398-5540

C. External Resources

A Complainant may choose to file a complaint with the state and federal agencies listed below.

Office for Civil Rights (OCR) – Chicago Office
U.S. Department of Education
Citigroup Center
500 W. Madison Street, Suite 1475
Chicago, IL 60661
Phone: (312) 730-1560
Fax: (312) 730-1576
TDD: (877) 521-2172
Email: OCR.Chicago@ed.gov
Web: www.ed.gov/ocr

Equal Employment Opportunity Commission (EEOC)
Reuss Federal Plaza
310 W. Wisconsin Avenue, Suite 800
Milwaukee, WI 53203-2292
Phone: (800) 669-4000
Fax: (414) 297-4133
TTY: (800) 669-6820
Web: www.eeoc.gov/

Iowa Civil Rights Commission (ICRC)
Grimes State Office Building
400 E. 14th Street
Des Moines, IA 50319
Toll free: (800) 457-4416
Phone: (515) 281-4121
Fax: (515) 242-5840
TDD: (877) 521-2172
Web: https://icrc.iowa.gov/

VIII. Reporting Requirements

The College can take action only if the College is made aware of the behavior. Therefore, if a College employee becomes aware of a complaint or other violation of this Policy, the employee must bring the information to the Title IX Coordinator or a Deputy Title IX Coordinator so that concerns are heard and services can be offered to the affected students.

IX. Prevention, Training, and Policy Communication

The College is committed to education, communication and training in order to prevent sexual misconduct and to assure an appropriate response when incidents occur. The College will provide information on the following to students, faculty and staff:

- Preventing sexual misconduct
- Procedures for responding to incidents of sexual misconduct
- Resources available to students in cases of sexual misconduct
- Pertinent contents of relevant policy and law

The College will maintain the above information on a website and will provide information about this Policy to all new students through orientation and to all registered students annually. This Policy is also available for distribution in printed form from the Dean of Students Office, Campus Security, and Human Resources and other College personnel involved in prevention and/or response activities.

The College will provide training on the above information to all College personnel involved in providing any part of the college’s response to reports of alleged sexual misconduct. All Sexual Misconduct Board members will receive annual training in their responsibilities. This training may include expertise drawn from campus and community resources, professional organizations, and other experts on the topic of sexual misconduct.

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1 If the alleged perpetrator of sexual harassment or misconduct is a Kirkwood employee, complainants may choose to report the conduct to the Executive Director, Human Resources, instead of or in addition to, other individuals to whom reports may be made under this Policy.

2 "Course of Conduct" means repeatedly maintaining a visual or physical proximity to a person without legitimate purpose or repeatedly conveying oral or written threats, threats implied by conduct, or a combination thereof, directed at or toward a person.

3 Assault, under Iowa law, means:

a. Any act which is intended to cause pain or injury to, or which is intended to result in physical contact
which will be insulting or offensive to another, coupled with the apparent ability to execute the act; or
b. Any act which is intended to place another in fear of immediate physical contact which will be painful, injurious, insulting, or offensive, coupled with the apparent ability to execute the act; or
c. Intentionally pointing any firearm toward another, or displaying in a threatening manner any dangerous weapon toward another.

Student Complaint Policy

Kirkwood encourages students to share concerns about the quality of service provided by any support area or the quality of the learning experience provided by faculty. Kirkwood’s complaint policy is intended to provide a clear process for the college to address student and community concerns. The vast majority of complaints can and should be handled by the department closest to the issue where the complaint originates. Given this goal, the expected process for student complaints is:

1. Discuss the complaint directly with the staff member or faculty involved. (In cases where this is not possible, such as alleged harassment or discrimination a student may move to the second step.)
2. Discuss complaint with the Director or Dean with supervisory responsibility over the area where the issue occurred.
3. In cases where a resolution is not reached at the department level, a student may submit a complaint in writing to the appropriate vice president; Bill Lamb (academic issues) or Jon Buse (student service and miscellaneous issues), or Kim Becicka (continuing education) by completing the Student Complaint Form: www.kirkwood.edu/studentcomplainnt.

This policy does not circumvent other existing review committees such as Special Appeals Committee, Academic Policies and Procedures Committee, or the Student Conduct Hearing board.

In the event that the complaint cannot be satisfied through one of these avenues, the Iowa Student College Aid Commission is authorized to receive and review complaints from students. You may also contact the Iowa College Student Aid Commission to register your complaint: www.iowacollegeaid.gov/sdrf-start

Student Conduct Code

Preamble

Kirkwood Community College is an academic community built on the principles of mutual respect, integrity, and honesty. The college strives to provide a community wherein individuals have the right to express their opinions and ideas, to assemble peacefully, and to associate freely in a manner that does not interfere with the rights of others and is in the confines of intellectual honesty. In order to thrive as an educational institution, the college has adopted this Student Conduct Code ("Student Code") to promote and preserve its educational mission for the benefit of all who are invited to be a part of the community.

Purpose

It is in the best interest of the college and all those who are students or who may desire to become students at the college that the disciplinary procedure be defined. This document prescribes procedures to be followed in disciplinary cases in order that cases may be handled in a timely manner while serving the interests of the college community and safeguarding the rights of all students. Administrative responsibility for the establishment and enforcement of policies governing non-academic student conduct and disciplinary action has been delegated by the Kirkwood Community College President to the Vice President for Student Services. The Vice President has, in turn, delegated considerable authority for the establishment of rules and handling of violations to the Dean of Students and other bodies as designated in this policy.

DEFINITIONS

1. The term "Accused Student" means any student accused of violating this Student Code.
2. The term "Board of Trustees" means the group of elected officials charged with oversight of the College.
3. The term "Business Days" means all days except Saturdays, Sundays, and College holidays. When counting days, the day a complaint is received at any point in the procedure shall be considered "day one."
4. The term "College" means Kirkwood Community College.
5. The term "College premises" includes all land, buildings, facilities, and other property in the possession of or owned, used, or controlled by the College (including adjacent streets and sidewalks.
6. The term "College official" includes any person employed by the College or any person performing assigned administrative or professional responsibilities on behalf of the College.
7. The term "Complainant" means any person who submits a charge alleging that a student violated this Student Code. When a student believes that s/he has been a victim of another student’s misconduct, the student who believes s/he has been a victim will have the same rights under this Student Code as are provided to the Complainant, even if another member of the College community submitted the charge itself.
8. The term "faculty member" means any person hired by the College to conduct classroom or teaching activities or who is otherwise considered by the College to be a member of its faculty.
9. The term "member of the College community" includes any person who is a student, faculty member, College official or any other person employed by the College. A person’s status in a particular situation will be determined by the Dean of Students or designee.
10. The term "staff member" means any person employed by the College who is not a faculty member or student employee.

11. The term "student organization" means any number of persons who have complied with the formal requirements for College recognition as a club or organization.

12. The term "policy" means the written regulations of the College as found in, but not limited to, the student conduct code, student handbook, college catalog, and college website.

13. The term "student" includes all persons taking courses at Kirkwood Community College, either full-time or part-time, pursuing degree or non-degree programs including continuing education and distance courses. Persons who withdraw after allegedly violating the Student Code, who are not officially enrolled for a particular term but who have a continuing relationship with the College or who have been notified of their acceptance for admission are considered "students," although not enrolled in this institution.

14. The term "Student Conduct Administrator" means a College official authorized by the Dean of Students to determine whether a student has violated the student conduct code and to impose sanctions.

15. The term "Student Conduct Board" means any person or persons selected by the Dean of Students, including but not limited to members of the Student Conduct Committee, to determine whether a student has violated the Student Conduct Code and to recommend sanctions that may be imposed when a rules violation has been committed.

16. The term "Student Conduct Board Chairperson" means an individual selected by the Dean of Students or designee to facilitate a Student Conduct Board.

17. The term "Student Conduct Committee" means the College committee appointed by the Vice President for Student Services to serve as participants on the Student Conduct Committee.

STUDENT CODE AUTHORITY

1. The Dean of Students will determine the composition of Student Conduct Boards and will determine which Student Conduct Board or Student Conduct Administrator will be authorized to hear each matter.

2. The Dean of Students will develop policies for the administration of the student conduct system and procedural rules for the administration of Student Conduct Board Hearings that are not inconsistent with provisions of the Student Code.

3. Decisions made by a Student Conduct Board and/or Student Conduct Administrator are final, pending the normal appeal process.

PROHIBITED CONDUCT

A. Jurisdiction of the Student Conduct Code

The Student Conduct Code will apply to conduct that occurs on College premises, at College-sponsored activities, and to off-campus conduct, including, but not limited to, activities on College partners' premises, that adversely affects the College community and/or the pursuit of its objectives. Each student will be responsible for his/her conduct from the time of application for admission through the actual awarding of a degree, even though conduct may occur before classes begin or after classes end, as well as during the academic year and during periods between terms of actual enrollment (and even if their conduct is not discovered until after a degree is awarded). The Student Conduct Code applies to a student's conduct even if the student withdraws from school while a disciplinary matter is pending.

B. Conduct—Rules and Regulations

Any student found to have committed or to have attempted to commit the following offenses is subject to the full range of disciplinary sanctions outlined in Article IV including warning, probation, suspension, or expulsion:

1. Acts of dishonesty, including but not limited to the following:
   a. Furnishing false information to any College official, faculty member, or office.
   b. Forgery, alteration, or misuse of any College document, record, or instrument of identification.

2. Disruption or obstruction of teaching, research, administration, disciplinary proceedings, other College activities, including its public service functions on or off campus, or of other authorized non-College activities when the conduct occurs on college premises.

3. Physical abuse, verbal abuse, threats, intimidation, harassment, coercion, and/or other conduct which threatens or endangers the health or safety of any person.

4. Violation of the Sexual Misconduct Involving Students policy, which prohibits sexual misconduct in any form and which includes any unwelcome behavior of a sexual nature that is committed without consent, by force, intimidation, coercion, or manipulation.

5. Attempted or actual theft of and/or damage to property of the College or property of a member of the College community or other personal or public property, on or off campus.

6. Hazing, defined as an act which, intentionally or recklessly, endangers the physical health or safety of a student, for the purpose of initiation, admission into, affiliation with, or as a condition for continued membership in, any organization operating in connection to the College.

7. Unauthorized possession, duplication or use of keys to any College premises or unauthorized entry to or use of College premises.

8. Violation of any College policy, rule, or regulation published in hard copy or available electronically on the College website.

9. Violation of any federal, state or local law.

10. Manufacturing, selling, distribution, use, or possession of marijuana, heroin, narcotics, or other controlled substances.
substances except as expressly permitted by law or possession of a device (drug paraphernalia) used to ingest or inhale an illegal drug or narcotic.

11. Manufacturing, selling, distribution, use, or possession of alcoholic beverages (except as expressly permitted by College regulations), or public intoxication. Alcoholic beverages may not, in any circumstance, be used by, possessed by, or distributed to any person under twenty-one (21) years of age.

12. Participating in an on-campus or off-campus demonstration, riot or activity that disrupts the normal operations of the College and/or infringes on the rights of other members of the College community; leading or inciting others to disrupt scheduled and/or normal activities within any campus building or area.

13. Obstruction of the free flow of pedestrian or vehicular traffic on College premises or at College sponsored or supervised functions.

14. Conduct that is disorderly, lewd, or indecent; breach of peace; or aiding, abetting, or procuring another person to breach the peace on College premises or at functions sponsored by, or participated in by, the College or members of the College community.

15. Any unauthorized use of electronic or other devices to make an audio or video record of any person while on College premises without his/her prior knowledge, or without his/her effective consent when such a recording is likely to cause injury or distress. This includes, but is not limited to, surreptitiously taking pictures of another person in a gym, locker room, or restroom.

16. Theft or other abuse of computer facilities and resources, including but not limited to:

a. Unauthorized entry into a file, to use, read, or change the contents, or for any other purpose.

b. Unauthorized transfer of a file.

c. Use of another individual’s identification and/or password.

d. Use of computing facilities and resources to interfere with the work of another student, faculty member or College official.

e. Use of computing facilities and resources to send obscene or abusive messages.

f. Use of computing facilities and resources to send obscene or abusive messages.

g. Use of computing facilities and resources in violation of copyright laws.

h. Any violation of College policies pertaining to use of information technology, including computer use policies.

17. Abuse of the Student Conduct Code, including but not limited to:

a. Failure to obey the notice from a Student Conduct Board or College official to appear for a meeting or hearing as part of the Student Conduct System.

b. Falsification, distortion, or misrepresentation of information before a Student Conduct Board.

c. Disruption or interference with the orderly conduct of a Student Conduct Board proceeding.

d. Institution of a Student Conduct Code proceeding in bad faith (e.g. filing a false complaint).

e. Attempting to discourage an individual’s proper participating in, or use of, the student conduct system.

f. Attempting to influence the impartiality of a member of a Student Conduct Board prior to, and/or during the course of, the Student Conduct Board proceeding.

g. Harassment (verbal or physical) and/or intimidation of a victim or other person who files a student conduct complaint or any participant(s) of a conduct proceeding, including but not limited to, their family members, friends, or acquaintances, witnesses, panel members, or advisors, prior to, during, and/or after a student conduct proceeding.

h. Retaliation against a victim or other person who files a student conduct complaint or any participant(s) of a conduct proceeding, including but not limited to, their family members, friends, or acquaintances, witnesses, Board members, or advisors, prior to, during, and/or after a student conduct proceeding. This includes any form of intimidation, threats, harassment (verbal or physical) or knowingly filing a false complaint.

i. Failure to comply with the sanction(s) imposed under the Student Conduct Code.

j. Influencing or attempting to influence another person to commit an abuse of the student conduct code system.

18. Intentionally sounding a false alarm or tampering with fire safety equipment.

19. Use or possession on the campus or at or during any College-authorized function or event of firearms, ammunition, or other dangerous weapons, substances, or materials, except as expressly authorized by the College, or of bombs, explosives, or explosive or incendiary devices prohibited by law or any other violation of the college weapons policy.

20. Undue or willful neglect to meet financial obligations to the College when properly notified by the College.

21. Failure to comply with directions of College officials or law enforcement officers acting in performance of their duties and/or failure to identify oneself to these persons when requested to do so.

22. Misuse of college identification - Transferring, lending, borrowing, or altering a college identification.
23. Violation of the Student Conduct Code while on disciplinary probation, or violation of the terms of one’s probation.

C. Violation of Law and College Discipline

1. College conduct proceedings are separate from criminal or civil litigation. Formal rules of process, procedure, and/or technical rules of evidence, such as are applied in criminal or civil court, are not used in student conduct code proceedings.

2. College disciplinary proceedings may be instituted against a student charged with conduct that potentially violates both the criminal law and this Student Code (that is, if both possible violations result from the same factual situation) without regard to the pendency of civil or criminal litigation in court or criminal arrest and prosecution. Proceedings under this Student Code may be carried out prior to, simultaneously with, or following civil or criminal proceedings off campus at the discretion of the Dean of Students or designee. Determinations made or sanctions imposed under this Student Code will not be subject to change because criminal charges arising out of the same facts giving rise to violation of college rules were dismissed, reduced, or resolved in favor of or against the criminal law defendant.

3. When a student is charged by federal, state, or local authorities with a violation of law, the College will not request or agree to special consideration for that individual because of his or her status as a student. If the alleged offense is also being processed under the Student Code, the College may advise off-campus authorities of the existence of the Student Code and of how such matters are typically handled within the college community. The College will attempt to cooperate with law enforcement and other agencies in the enforcement of criminal law on campus and in the conditions imposed by criminal courts for the rehabilitation of student violators (provided that the conditions do not conflict with campus rules or sanctions). Individual students and other members of the college community, acting in their personal capacities, remain free to interact with governmental representatives as they deem appropriate.

ARTICLE IV: STUDENT CONDUCT CODE PROCEDURES

A. Charges and Student Conduct Hearings

1. Any person may file charges against a student for violations of the Student Conduct Code. A charge should be prepared in writing and directed to the Dean of Students or designee. Any charge should be submitted as soon as possible after the event takes place, preferably within one calendar year. With respect to any complaint that is 1) by a person who is not a member of the college community, and 2) relating to non-college conduct, the College reserves the right to determine, in its sole discretion, whether the conduct described in the complaint constitutes a sufficient risk to the college community to warrant processing the complaint.

2. The Dean of Students or designee may conduct an investigation to determine if the charges have merit. If the accused student elects to acknowledge his or her actions and take responsibility for the alleged misconduct, the Dean of Students will propose a resolution to the complaint and a sanction. If the accused student agrees to the proposed sanction, the complaint is resolved without a hearing and without any further rights of appeal. If the accused student objects to the proposed sanction, the complaint is to be resolved with a hearing that ensures a prompt and equitable resolution. Student Conduct Board hearings are conducted by a panel of officers and students or designee who will hear the case; the name(s) of the Student Conduct Administrator or Student Conduct Board members, who will hear the case; and the related procedures outlined in Article IV. Like notice will also be provided concurrently to the Complainant.

3. Complaints alleging conduct that includes sexual harassment and other forms of sexual misconduct will be handled according to the rules and procedures described in the Sexual Misconduct Involving Students policy and the applicable sections of this policy.

4. All charges will be presented to the accused student in written form. A time will be set for an administrative hearing or Student Conduct Board hearing that ensures a prompt and equitable resolution, not less than five (5) nor more than thirty (30) business days after the accused student has been notified. Maximum time limits for scheduling of an administrative hearing or Student Conduct Board hearing may be extended at the discretion of the Dean of Students. Written notification to the Accused Student will include:
   a. the alleged conduct violation;
   b. a summary of the specific allegations;
   c. the time, date, and place of the hearing;
   d. the name(s) of the Student Conduct Administrator or Student Conduct Board members, who will hear the case;
   e. the potential disciplinary sanctions; and
   f. the related procedures outlined in Article IV.

5. Formal rules of process, procedure, and/or technical rules of evidence, such as are applied in criminal or civil court, are not used in Student Code proceedings.
6. The determination of whether or not a violation of the Student Conduct Code occurred will be made on the basis of whether it is more likely than not that the Accused Student violated the Student Conduct Code. This is more formally referred to as the, "Preponderance of the Evidence Standard."

7. The Dean of Students or designee will notify the Accused Student and the Complainant of the outcome of the hearing in writing within ten (10) business days of completion of the hearing.

8. If an Accused Student, with notice, does not appear for the hearing, the information in support of the charges will be presented and considered even if the accused student is not present.

9. A conduct violation that may not result in the sanction of suspension or expulsion will be resolved through an administrative hearing with the Dean of Students or Student Conduct Administrator. During the administrative hearing the accused student will have an opportunity to respond to the charges and to present evidence or witnesses contesting the charges. The Dean of Students or Student Conduct Administrator will determine if a violation occurred and will issue appropriate sanctions.

10. An alleged violation of the Student Conduct Code in which the accused student contests responsibility and that may result in the sanction of suspension or expulsion will be resolved through a Student Conduct Board Hearing according to the following guidelines:
   a. Hearings will be conducted in private.
   b. The Student Conduct Committee chairperson and two members of the Student Conduct Committee will be appointed by the Dean of Students to serve on the Student Conduct Board.
   c. The Complainant, Accused Student and their advisors, if any, will be allowed to attend the entire portion of the Student Conduct Board Hearing at which information is received (excluding deliberations). Admission of any other person to the Student Conduct Board Hearing will be at the discretion of the chairperson of the Student Conduct Board.
   d. In hearings involving more than one Accused Student, the Dean of Students, in his or her discretion, may permit the Student Conduct Board Hearing(s) concerning each student to be conducted either separately or jointly.
   e. The Complainant and the Accused Student have the right to challenge any member of the Student Conduct Board on grounds of prejudice. This challenge, with the reasons for the challenge, must be submitted in writing to the Dean of Students at least two (2) business days prior to the hearing. The Dean of Students or Designee will determine if the member will sit on that case. If the challenge is upheld, the Dean of Students or Designee will select another Student Conduct Committee member for the Student Conduct Board.
   f. The Complainant and the Accused Student have the right to be assisted by an advisor they choose, at their own expense. The Complainant and/or the Accused Student is responsible for presenting his or her own information, and therefore, advisors are not permitted to speak or to participate directly in any Student Conduct Board Hearing before a Student Conduct Board. The participants should select as an advisor a person whose schedule allows attendance at the scheduled date and time for the Student Conduct Board Hearing because delays will not normally be allowed due to the scheduling conflicts of an advisor.
   g. The Complainant, the Accused Student, Student Conduct Administrator, and the Student Conduct Board may arrange for witnesses to present pertinent information to the Student Conduct Board. The College will try to arrange the attendance of possible witnesses who are members of the college community, if reasonably possible, and who are identified by the Complainant and/or Accused Student at least two (2) weekdays prior to the Student Conduct Board Hearing. Witnesses will provide information to and answer questions from the Student Conduct Board.
   h. Questions may be suggested by the Accused Student and/or Complainant to be answered by each other or by other witnesses. This will be conducted by the Student Conduct Board with such questions directed to the chairperson, rather than to the witness directly. This method is used to preserve the educational tone of the hearing and to avoid creation of an adversarial environment. Questions of whether potential information will be received will be resolved in the discretion of the chairperson of the Student Conduct Board.
   i. Pertinent records, exhibits, and written statements (including Student Impact Statements) may be accepted as information for consideration by a Student Conduct Board at the discretion of the chairperson.
   j. All procedural questions are subject to the final decision of the chairperson of the Student Conduct Board.
   k. After the portion of the Student Conduct Board Hearing concludes in which all pertinent information has been received, the Student Conduct Board will determine by majority vote whether the Accused Student has violated each section of the Student Code which the student is charged with violating.
l. There will be a single verbatim record, such as a tape recording, of all Student Conduct Hearings before a Student Conduct Board (not including deliberations). Debriefings will not be recorded. The record will be the property of the college.

m. The Student Conduct Board may accommodate concerns for the personal safety, well-being, and/or fears of confrontation of the Complainant, Accused Student, and/or other witness during the hearing by providing separate facilities, by using a visual screen, and/or by permitting participation by telephone, videophone, closed circuit television, video conferencing, videotape, audio tape, written statement, or other means, where and as determined in the sole judgment of the Dean of Students or designee to be appropriate.

B. Sanctions

1. The following sanctions may be imposed upon any student found to have violated the Student Conduct Code:

   a. Warning—a notice in writing to the student that the student is violating or has violated institutional regulations.

   b. Probation—a written reprimand for violation of specified regulations. Probation is for a designated period of time and includes the probability of more severe disciplinary sanctions if the student is found to violate any institutional regulation(s) during the probationary period.

   c. Loss of Privileges—denial of specified privileges for a designated period of time.

   d. Fines—previously established and published fines may be imposed.

   e. Restitution—compensation for loss, damage, or injury. This may take the form of appropriate service and/or monetary or material replacement.

   f. Discretionary Sanctions—work assignments, essays, service to the college, or other related discretionary assignments.

   g. Deferred Suspension—A serious violation of College policy may result in the immediate suspension of the student from the College for a specified period of time after which the student would be eligible to return. Conditions for readmission may be specified prior to the student being eligible to return.

   h. Suspension—separation of the student from the College for a definite period of time, after which the student is eligible to return. Conditions for readmission may be specified.

   i. Expulsion—permanent separation of the student from the College.

   j. Revocation of Admission and/or Degree—admission to or a degree awarded from the College may be revoked for fraud, misrepresentation, or other violation of College standards in obtaining the degree, or for other serious infractions committed by the student prior to graduation.

   k. Withholding Degree—The College may withhold awarding a degree otherwise earned until the completion of the process set forth in this Student Conduct Code, including the completion of all sanctions imposed, if any.

   l. Delayed Registration—A student may be required to delay his/her course registration until a complaint or any other student(s) involved in a conduct matter has completed course registration. Delayed registration is for a specified number of semesters or may be required until the complaint or other involved student(s) graduate.

2. More than one of the sanctions listed above may be imposed for any single violation.

3. (a) Other than college expulsion or revocation or withholding of a degree, disciplinary sanctions will not be made part of the student’s permanent academic record but will become part of the student’s disciplinary record.

   (b) In situations involving both an Accused Student(s) (or group or organization) and a student(s) claiming to be the victim of another student’s conduct, the records of the process and of the sanctions imposed, if any, will be considered to be the education records of both the Accused Student(s) and the student(s) claiming to be the victim because the educational career and chances of success in the academic community of each may be impacted.

4. The following sanctions may be imposed upon groups or organizations:

   a. Those sanctions listed above in article IV(B)(1)(a)–(k).

   b. Loss of selected rights and privileges for a specified period of time.

   c. Deactivation—loss of all privileges, including college recognition, for a specified period of time.

5. In each case in which a Student Conduct Board or Student Conduct Administrator determines that a student and/or group or organization has violated the Student Conduct Code, the sanction(s) will be determined and imposed by the Dean of Students or Student Conduct Administrator with the exception of cases involving sexual misconduct, in which case the Sexual Misconduct Board or chair will determine the sanctions as prescribed in the Sexual Misconduct Involving Students policy.

C. Interim Suspension

In certain circumstances, the Dean of Students or designee may impose an interim suspension prior to the disposition of a student conduct hearing.

1. Interim suspension may be imposed only:
**Academic and Student Policies**

a. to ensure the safety and well-being of members of the college community or preservation of College property;

b. to ensure the student’s own physical or emotional safety and well-being; or

c. if the student poses an ongoing threat of disruption of, or interference with, the normal operations of the College.

2. During the interim suspension, a student will be denied access to the campus (including classes) and/or all other College activities or privileges for which the student might otherwise be eligible, as the Dean of Students or designee may determine to be appropriate.

3. The interim suspension does not replace the regular process, which will proceed on the normal schedule, up to and through an Administrative or Student Conduct Board proceeding, if required. However, the student should be notified in writing of this action and the reasons for the suspension. The notice should include the time, date, and place of a subsequent hearing at which the student may show cause why his or her continued presence on the campus does not constitute a threat and at which they may contest whether a campus rule was violated.

**D. Appeals**

1. The decision of a Student Conduct Administrator or Student Conduct Board including sanctions imposed may be appealed by the Accused Student(s), the Complainant(s) or both to the Vice President for Student Services or designee within five (5) business days of the decision. Such appeals will be in writing and will be delivered to the Dean of Students or his or her designee. The Vice President or designee will determine if the decision and/or sanctions imposed will be stayed pending the outcome of the appellate decision.

2. Except as required to explain the basis of new information, an appeal will be limited to a review of the verbatim record of the student conduct hearing and supporting documents for one or more of the following purposes:

a. To determine whether the Student Conduct Board Hearing was conducted fairly in light of the charges and information presented, and in conformity with prescribed procedures. Deviations from designated procedures will not be a basis for sustaining an appeal unless significant prejudice results.

b. To determine whether the sanction(s) imposed were appropriate for the violation of the Student Conduct Code which the student was found to have committed.

c. To consider new information, sufficient to alter a decision or other relevant facts not brought out in the original hearing, because such information and/or facts were not known to the person appealing at the time of the original hearing.

3. The vice president for Student Services may affirm, reverse, or modify the decision regarding the violation and/or sanctions imposed. The appeal decision of the vice president is the final decision of the college, and no further appeals are permitted under this policy.

4. All parties will be informed of whether the grounds for an appeal are accepted and the results of the appeal decision.

**ARTICLE V: COMPOSITION OF STUDENT CONDUCT COMMITTEE**

The Student Conduct Committee is appointed by the vice president for Student Services and is composed of two (2) staff members nominated by the Dean of Students, two (2) faculty members nominated by the vice president for Academic Affairs, and one (1) faculty/staff chairperson appointed by the Vice President for Student Services. The Dean of Students or designee will preside over all meetings of the Student Conduct Committee.

**ARTICLE VI: TRAINING**

The Dean of Students or designee will conduct annual training with persons involved in the administration of the student conduct system. This includes, but is not limited to, the Student Conduct Committee members and other Student Conduct Administrators. Training will be conducted in a manner that is consistent with provisions of the student conduct code.

**ARTICLE VI: INTERPRETATION AND REVISION**

A. Any question of interpretation or application of the Student Conduct Code will be referred to the Dean of Students or designee for final determination.

B. The Student Conduct Code will be reviewed every three years under the direction of the Dean of Students.

**Student International Travel**

All Study Abroad students will be compliant with the rules and regulations of Study Abroad at Kirkwood as set forth in the Study Abroad Student Contract and other Study Abroad policies in place in International Programs. For semester abroad programs, refer to the International Programs office policy and procedures.

Student groups must follow the following procedures:

- Complete the Study Abroad online application to be considered for participation in the program.

Once accepted, the Kirkwood Community College Study Abroad Student Contract must be completed and signed acknowledging the risks and obligations of the student. The Study Abroad Student Contract must be signed by the student and clearly outlines all student expectations in detail.

Participants in an approved study abroad program must be enrolled in academic credit. Participants traveling in a non-study abroad experience will receive an itinerary and program expectations outlined by the faculty/staff leader in conjunction with International Programs.
All students are responsible for full payment of tuition and program fees related to the travel program. For Study Abroad, program fees are inclusive of international airfare, some program-related expenses, and international health and travel insurance. Some personal travel expenses, activities and meals will be at the student's additional expense during travel.

Students must participate in all scheduled activities as directed by the faculty leader and program itinerary. Students are to remain within a 30-mile radius of the faculty leader for the duration of the program and are not to partake in unscheduled activities that cross international borders or that would place them outside of this 30-mile radius for program management purposes.

Students are required to attend all appropriate pre-departure orientations and post-program debriefings.

**Student Conduct**

Students agree to abide by the Kirkwood Community College Student Conduct Code at all times. Failure to comply may result in dismissal from the program.

The Student Conduct Code applies to students who are participating in travel activities. Alleged student conduct violations occurring during travel will be adjudicated according to the procedures described in the Student Study Abroad Contract and may ultimately result in the student being sent home at their own expense. In such cases, the faculty leader will notify the appropriate administrator at Kirkwood of the alleged misconduct. Disciplinary proceedings will be determined by the faculty leader, International Programs, the Study Abroad Emergency Team and the Dean of Students. Such decisions will be made on a case-by-case basis.

**Student Records**

**Definitions**

- **Attendance** at the College includes, but is not limited to, attendance in person or by correspondence, videoconference, satellite, Internet, or other electronic information and telecommunications technologies, and the period during which a person is working under a work-study program.
- **Directory Information** is information concerning a student that may be released publicly. The College designates the following items as directory information.
  - Student’s name
  - Date of Birth
  - Degrees, diplomas, certificates earned and awards (e.g., Dean’s list)
  - Dates of attendance (e.g., Fall 2015, Fall 2015-Spring 2017)
  - Enrollment status (full-time, part-time, not enrolled)
  - Participation in officially recognized activities (e.g., SIFE, DECA)
  - Participation in officially recognized sports
  - Height and weight of members of athletic teams
  - Major (for commencement program only)
  - Hometown (for commencement program only)

The College may disclose any of these items of directory information on any student, currently enrolled or not. Students have the right to request that no directory information be made public by completing a Directory Information Block Request or Removal form and filing it with the One Stop office.

- **Disclosure** means permitting access, release, transfer or other communication of personally identifiable information contained in education records by any means to any party.
- **Education Records** include any information or data recorded in any medium, including but not limited to electronic, print, handwriting, film, microfiche and e-mail, which is directly related to a student and maintained by the College or by a person acting for the College. The term "education records" does not include the following:
  - Records that are kept in the sole possession of the maker of the records, are used only as a personal memory aid, and are not accessible or revealed to any other person except a temporary substitute for the maker of the record.
  - Records created and maintained solely for law enforcement purposes by Campus Security.
  - Employment records made and maintained in the normal course of business and related exclusively to the individual in that individual’s capacity as an employee and are not available for use for any other purpose. This exception does not include records relating to a student in attendance at the College who is employed as a result of his/her status as a student (e.g., work study); such records are protected as "education records."
  - Records created or maintained by a physician, psychiatrist, psychologist, or other recognized professional or paraprofessional acting in his/her professional capacity and used only in the treatment of the student and not available to individuals other than those providing the treatment.
  - Alumni records created or received by the College after an individual is no longer a student in attendance and that are not directly related to the individual’s attendance as a student (e.g., information collected by the College pertaining to alumni accomplishments).
  - Grades on peer-graded papers before they are collected and recorded by a teacher.
  - Admission records for an individual who does not enroll at the College.
- **Legitimate Educational Interests** are the demonstrated “need to know” by those school officials who act in the student’s educational interest. A school official has a legitimate educational interest if the official needs to review an educational record in order to fulfill his/her professional responsibility.
- **Parent** means a parent of a student and includes a natural parent (custodial and/or non-custodial), a guardian, or an individual acting as...
a parent in the absence of a parent or a guardian. This definition includes adoptive and custodial stepparents. At the postsecondary level, FERPA rights have transferred to the student and parents have no rights under FERPA to inspect their student’s education records, which will not be released to parents except in certain circumstances in which the law allows a student’s education records to be disclosed to a parent without the prior consent of the student.

- **School Officials** demonstrating a legitimate educational interest within the limitations of their “need to know” may have access to student education records protected by FERPA. A school official is a person employed by the College as a faculty, administrative, clerical, medical, legal or professional employee or other person who manages student education records including the campus nurse, student employee or volunteer; a member of the Board of Trustees; a person, company or organization with whom the College has contracted or otherwise arranged to provide services that the College itself would otherwise have to provide, such as an attorney, auditor, collection agent, security service or other service provider.

- **Student** means any individual who is officially registered and in attendance, or who has been officially registered and in attendance, at the College, and about whom the College maintains education records. A person who has applied for admission to but has never been in attendance at the College is not a student. The right to inspect education records resides solely with the student. Parents have no rights under FERPA to their student’s postsecondary education records.

**Maintenance of Student Records**

All College personnel, including student employees, involved in the handling and maintenance of education records protected by FERPA shall be instructed concerning the confidential nature of such information and their responsibilities regarding it, pursuant to this policy and the provisions of FERPA. This instruction will be a part of each employee’s orientation procedure, including student employees, and will be finalized by their signing the Code of Responsibility form. Annual FERPA refresher instruction will be required for continuation of access to student education records.

**Annual Notice to Students of FERPA Rights**

The One Stop office provides public notice of student rights under FERPA annually by email and via the College Web site.

**Disclosure of Student Records**

**Directory Information**

The College may disclose directory information on any student, currently enrolled or not, without prior written consent. Students have the right to request directory information not be made public by completing a Directory Information Block Request or Removal form and filing it with the One Stop office.

**Education Records with Consent of the Student**

The College will obtain a signed and dated written consent from a student before it discloses personally identifiable information, other than directory information, from a student’s education records, except as authorized by law, to any individual, agency or organization. This consent will specify the records to be disclosed, the purpose of the disclosure, and the parties to whom the disclosure may be made.

**Education Records without Prior Consent of the Student as Authorized by Law**

All education records are maintained in confidence. However, under certain circumstances in accordance with the Act, they may be disclosed without the prior consent of the student. The agencies, institutions, entities and individuals who may receive or inspect these records are listed below.

Parties to whom personally identifiable information is released, as a general rule, are not permitted to disclose the information to others without the written consent of the student, nor misuse personally identifiable information, and must destroy these documents and/or electronic records when no longer needed.

The College will maintain a record of the requests for and disclosure of personally identifiable information from a student’s education records for the situations outlined below except for paragraphs 1, 9 and 12 below, those made by students for their own education records, requests involving written consent from the student, disclosures to school officials under the conditions of their legitimate educational interest, a party seeking directory information, or a federal grand jury or law enforcement subpoena, or court order, that prohibits disclosure.

The record will include the name of the individual or agency requesting information, the reason for the request including the legitimate educational interest the party had in obtaining the information, the date of the request, and the disposition of the request and will be made part of the student’s permanent record.

*Kirkwood Community College* school officials or their agents who have a legitimate educational interest in student records and data, and who require personally identifiable information to complete their assigned duties, may review such material.

**Officials of another institution** where the student seeks to enroll or is enrolled, or where the student receives services from the other institution in connection with the student’s participation in internships, affiliations or other programs related to the student’s courses or program at the College.

**Authorized representatives of institutions** from which the student has received financial aid or with which a student has applied for financial aid are entitled to access if needed to determine eligibility for, the amount of, or the conditions for aid, or to enforce terms or the conditions of such aid. "Financial aid" as used in this paragraph means a payment of funds provided to a student that is conditioned on his/her attendance at the College.
Authorized representatives of the federal, state and local educational authorities may review personally identifiable information from student records in connection with an audit or evaluation of federal or state supported education programs, or for the enforcement of or compliance with federal legal requirements related to those programs.

Federal, state, local and independent organizations engaged in studies for, or on behalf of, the college to develop, validate, or administer student aid programs, administer predictive tests, or improve education. Information is disclosed, however, only when these institutions confirm that the study will be conducted in a manner that does not permit personal identification of students by individuals other than representatives of the organization and the information will be destroyed when no longer needed for the purposes for which the study was conducted.

Accrediting organizations in order to conduct accrediting functions.

Information will be provided pursuant to a lawful subpoena or court order. Before complying with a subpoena, the College will attempt to notify the student involved that a subpoena has been issued, unless the subpoena prohibits such notification. The notification will be sent to the student's last known address and to counsel for the student, if known.

In the case of an emergency, the College may disclose personally identifiable information to the necessary parties if knowledge of the information is deemed by the College to be necessary to protect the health or safety of the student or other individuals based on the following considerations: (1) the nature of the emergency, (2) the need for information, (3) the relative assistance the parties can offer, (4) and the amount of time available. The Dean of Students will be the responsible officer in emergency cases, and if unavailable, another appropriate administrator.

To an alleged victim of a crime of violence or non-forceful sex offense of the final result of any institutional disciplinary proceeding against the alleged perpetrator of that crime with respect to that crime, regardless of the outcome of the proceeding. The final results of any disciplinary proceeding shall include only the name of the student, the violation committed, and any sanction imposed against the student.

To a court of law those education records that are necessary to defend the College against a student who initiates legal action against it, or those education records that are relevant to the College's case as a plaintiff in a legal action against a student.

Information regarding disciplinary action taken against a student for conduct that posed a significant risk to the safety or well being of that student, other students, or other members of the College community may be released to school officials or to school officials at other institutions who have been determined to have a legitimate educational interest in the behavior of the student.

To the parent of a student who is under the age of 21 information about a violation of any federal, state or local law, or any rule or policy of the College, governing the use or possession of alcohol or a controlled substance if the College determines that the student has committed a disciplinary violation with respect to such use or possession.

Although students have the right to opt out of the release of directory information, they may not choose to be anonymous within the classroom setting, whether in a traditional or distance learning class, by opting out. Disclosure of name and email address, as required by the instructor and classroom setting, for purposes of conducting the class and class discussion or activities is permissible under FERPA.

The College may disclose to third parties any student information that it has designated as directory information, provided that the student has not restricted such information from disclosure.

Under the Solomon Amendment, student military recruiting information (name, address, telephone number, age or year of birth, level of education [e.g., freshman, sophomore] and major of currently enrolled students) will be released to military recruiters unless students have previously requested that no directory information be disclosed to third parties under FERPA.

Access to Education Records by Students

The College will provide current and former students access to the student's own education records, with the exception of those listed below, within 45 days of receipt of the student's written request.

- They are not entitled to the financial aid records of the student's parents or guardian.
- They must not be permitted to view their education records if they contain information about another student; in such cases, they will be permitted to access only that part of the record which pertains to the inquiring student.

The substantive judgment of a faculty member about a student's work, expressed in grades and/or evaluations, is not within the purview of this right to challenge. The right to challenge grades does not apply under The Act unless the grade assigned was inaccurately recorded, in which case the record will be corrected.

Students have the right to challenge the content of their education records if they consider the information within to be inaccurate, misleading, or inappropriate. This process includes an opportunity for amendment of the records or insertion of written explanations by the student into such records.

Students challenging information in their records must submit, in writing, a request for a hearing to the College Registrar, listing the specific information in question and the reasons for the challenge. A hearing will be conducted by a College official who has no direct interest in the outcome of the hearing. The student shall be afforded a full and fair opportunity to present evidence relevant to the reasons for the challenge. The hearing officer will render a decision, in writing, noting the reason and summarizing all evidence presented within a reasonable timeframe after the challenge is filed.
The use of tobacco products, which includes smokeless and smoking tobaccos, is prohibited:
- in all areas within Kirkwood Community College buildings.
- on all property owned, leased, or occupied by Kirkwood Community College.
- in all vehicles owned, leased, or rented by the school.

This policy applies to all employees, students, partners and visitors.

Persons willfully refusing to comply will be considered in violation of Kirkwood Community College policy and subject to disciplinary actions.

All persons in non-compliance of the Smoke Free Air Act and Kirkwood’s policy will be considered in violation and subject to disciplinary action.

PROCEDURE:
1. No tobacco products shall be sold or distributed on Kirkwood Community College property.
2. Campus organizations are prohibited from accepting money or gifts from tobacco companies that promote use of their products.
3. Tobacco advertisements are prohibited in college-run publications and at any athletic or other campus events.
4. Signs stating that the entire campus is tobacco free are prominently posted at all campus and building entrances and other conspicuous places. All ash receptacles will be removed from the school grounds.
5. People who wish to consider employment at Kirkwood Community College will be notified of its tobacco-free environment through information provided on the school’s website, job advertisements, and job applications.
6. Employees will be advised of the provisions of this policy during new hire orientation. Supervisors will be responsible for notifying their employees of the provisions of this policy and assisting with enforcement.
7. This policy will be communicated to the public through signs, announcements, newsletters, media events, advertisements, the school website, and job postings.
8. Employees may attend tobacco cessation counseling. Announcements regarding cessation counseling and any incentives offered by administration will be communicated through the Tempo e-newsletter and posted announcements. The state and national tobacco quit lines will be promoted as well.
9. Employees or students smoking or using tobacco products on Kirkwood Community College property are in violation of the stated policy and subject to disciplinary action as outlined in the employee handbook or student handbook as applicable.
10. Employees and students will be educated on the tobacco policy and opportunities for cessation counseling throughout the disciplinary action process.
11. All Kirkwood Community College employees are authorized and encouraged to communicate and reinforce this policy with courtesy and diplomacy to anyone whom they see violating the policy. Individuals who refuse to comply with the policy should then be reported to security for immediate follow-up action.
12. Students, partners and visitors will be notified of this policy prior to arrival whenever possible.

Traffic and Parking

Kirkwood's traffic and parking regulations are based on the Code of the State of Iowa. As the College has a variety of locations, local laws and ordinances also apply. Students, faculty, staff, and guests are expected to comply with these regulations.

Traffic and parking violations such as speeding, failure to stop at a stop sign, reckless driving, and parking illegally are not permitted.

The majority of parking spaces on campus are to be used on a first come, first serve basis. Students, faculty, staff, and guests may park in any of the non-designated parking areas.

Reserved Parking
The following areas are reserved and are clearly marked:

- Disability (handicap) spaces are reserved for those vehicles that display valid State of Iowa Disability Identification. For additional information on the State of Iowa Persons with Disabilities Parking Law, click here.
- Visitor spaces designated for campus guests. These spaces are not to be used at any time by faculty, staff, or students.
- Kirkwood issued permit parking spaces. All vehicles parked in these spots must correctly display a valid Kirkwood issued parking permit they have been issued. See information below for additional information.
- Expectant Mother Signage – reserved for expectant students and others who bring small children to campus.
- Park & Ride – Located on the northwest end of Linn Hall parking lot, reserved for Park & Ride commuters.
- Overnight Parking - Vehicles are not be left on campus overnight. Exceptions may be made by contacting Campus Security.
- Other specially designated parking spaces. Examples of these reserved spaces are Service Vehicles, Maintenance, etc.

Kirkwood Issued Permit Parking

Kirkwood has special permit parking spaces available. The designated spaces are available on a temporary basis only. Permit designated spaces must display a Kirkwood issued permit to park in these locations.

Examples of circumstances which may qualify for special parking are:

- temporary disability which limits mobility
- other medical concerns
- pregnancy
- travel between buildings with limited time between classes

Campus Security maintains records, including the name of the requestor, vehicle and permit information, of vehicles authorized to park in reserved spots. Vehicles parked in reserved spots without authorization, outside the time frame, or with an expired permit, are subject to a fine as noted below.

The responsibility of finding a reserved space lies with the permit holder. Possessing a permit for a reserved parking space, or requesting a reserved spot, does not guarantee the availability of a preferential parking space. In the perceived or actual event a reserved space is not available, a reserved permit does not allow any preferential parking. Reserved permit holders may park in open, non-designated parking spaces at any time.

Reserved parking permits are the property of Kirkwood and may only be used by the permit holder. It is the responsibility of the permit holder to notify Campus Security of any relevant changes to their information on file, including but not limited to change of license plate, change of vehicle, or temporary use of an alternate vehicle. In the event a permit is lost, a replacement permit will be issued at the cost noted on the Administrative Fees Chart.

Parking in a reserved parking space is a privilege that may be revoked at any time at the discretion of Kirkwood.

Warnings & Violation Notices

Warning notices will be issued by Campus Security whenever possible. Violation notices, or tickets, will be issued when the warning notice has been ignored, or the violation is significant. Continual disregard of warnings and tickets may result in a vehicle being towed.

The city where the campus is located may also issue parking and/or moving violation tickets.

Administrative Fee & Violation Appeal Process

Administrative fees will be charged for violations. Administrative fees for violations will be considered the same as any other debt owed to the college. See the Administrative Fees & Violations Chart for cost.

If a ticket is received, students, faculty, staff, and guests must do one of the following:

- Pay the fee at the One Stop office, second floor, Kirkwood Hall.
- Mail the fee to Kirkwood in the envelope provided.
- Submit an appeal form within 5 days. Appeal forms may be obtained and completed at Administrative Fee/Violation Appeal Process.

Administrative Fees & Violations Chart

<table>
<thead>
<tr>
<th>Administrative Fees &amp; Violations</th>
<th>Fee</th>
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<tbody>
<tr>
<td>Speeding</td>
<td>$50</td>
</tr>
<tr>
<td>Speeding - 21 MPH over</td>
<td>$100</td>
</tr>
<tr>
<td>Failure to Stop at Stop Sign</td>
<td>$50</td>
</tr>
<tr>
<td>Reckless Driving</td>
<td>$50</td>
</tr>
<tr>
<td>Parking in Disabilities Area</td>
<td>$100</td>
</tr>
</tbody>
</table>

Parking in a restricted area. $30
Weapons Policy

Weapons of any kind, whether carried open or concealed, shall not be allowed on any Kirkwood Community College property or at any Kirkwood sponsored event. This is regardless of the individual having a federal or state weapons permit.

Mace or pepper spray is allowable under the policy but may not be used or possessed in such a way that violates this or other college policies.

Any member of the campus community who observes an individual possessing, transferring, selling or using a weapon, and who reasonably believes that the individual has not been specifically authorized by Kirkwood has an obligation to report immediately to Campus Security, the suspected violation.

Exemptions

Law Enforcement - This policy does not apply to law enforcement personnel or peace officers who are carrying the weapon in performance of their duties.

Props – Due to the risk of being identified as a real weapon, any item which looks like a weapon in appearance and is utilized for any purpose on any Kirkwood campus, must be reported and approved by the Senior Director prior to being used for any activity.

Individuals seeking an exception must submit in advance, a written request to the Senior Director. The Senior Director will review the request in consultation with other appropriate staff members and will respond to the request in writing.

Violations

Because the weapons may pose a clear risk to persons and property on the campus, violation of the regulations may result in disciplinary action from the college and/or prosecution under the appropriate state or federal laws.

Students in violation of the policy may be subject to disciplinary action up to and including expulsion. Faculty and staff violating this policy may be subject to disciplinary action, up to and including termination of employment. Guests, visitors and contractors found in violation of this policy may be permanently prohibited from returning to campus for any reason.

Individuals found in possession of weapons in violation of this policy may be reported to local law enforcement for further criminal action in accordance with the appropriate local, state, and federal laws.

Kirkwood will also pursue disciplinary, or criminal action as appropriate against anyone who violates this policy by engaging in violence, threats of violence, or intimidation.

Definitions

Firearm – Any device that shoots a bullet, pellet, flare, tranquilizer, spear, dart, or other projectile, whether loaded or unloaded. This includes but is not limited to, guns, air guns, dart guns, pistols, revolvers, rifles, shotguns, cannons, and any ammunition for such devices.

Weapon – Any device that is designed to, or traditionally used to inflict harm. This includes, but is not limited to: (1) firearms, slingshots, switchblades, daggers, bows and arrows, hand grenades, hunting knives, explosives; (2) any object that could reasonably be construed as a weapon or that is intended to be used to inflict bodily injury; or (3) any object legally controlled as a weapon or treated as a weapon by law.

Explosives – Any combustible capable of causing serious injury including but not limited to firecrackers, black powder, dynamite, plastic explosives or blasting caps.

Transfer Credit Policies

Acceptance of Vocational-Technical Credit

Kirkwood accepts vocational-technical credits earned in courses that are part of Associate of Applied Science degree programs at Kirkwood or other Iowa community colleges. Such credits are herein referred to as technical credits.

A maximum of 16 hours of technical credits are acceptable toward Associate of Arts or Associate of Science degrees, but the credits may not be used to satisfy core or general education requirements.

Policy on Awarding A.A., A.S., A.A.S. Degree when Student has B.A., B.S. Degree or Higher

When a student has a previously earned B.A., B.S., or higher degree and subsequently earns enough credits for an Associate degree from Kirkwood, the college will not award a degree if it is in the same program or area as the higher-level degree. The college will award the A.A., A.S., or A.A.S. degree if the major or field of study is not related to the B.A., B.S., or higher degree.

Transfer of Credit from Other Institutions

When examining transcripts from other colleges, Kirkwood may accept the credit given to a student who has done successful work at another college provided our evaluation determines that the work was from a regionally accredited institution.

Grades of "F" (or any other failing grades) for transfer students will be ignored in the computation of cumulative and transfer grade point averages.

Grades corresponding to "D" or better will be accepted for transfer into Arts and Sciences programs and will be accepted toward fulfilling general educa-
tion requirements for Applied Science programs. Higher grades may be required for some program courses.

Transfer of Military Credit

Kirkwood awards transfer credit for basic training and non-MOS (Military Occupation Specialty) courses completed while in the military provided the course is listed in the ACE (American Council on Education) Guide. To receive credit, students must provide documentation by submitting official military transcripts to the VA certifying official.

Non-MOS transfer credit is awarded as technical elective credit only. No more than 16.0 hours of technical credit will be awarded. This is in accordance with the Liaison Advisory Committee on Transfer Students (LACTS) agreement between Iowa community colleges and public universities.

The Alternative Credit policy allows students to apply for MOS-based credit.

Academic and Enrollment Policies

Adds, Drops and Withdrawal of Registration

You may add a course at any time before it starts, subject to the course load conditions and tuition schedule.

You may drop individual courses prior to the last day to drop shown on EagleNet Search for Sections and available from the One Stop office. Classes may be dropped at eagle.net.kirkwood.edu. A grade of "W" will be assigned.

After the last day to drop a course, you must remain in the scheduled course. You will receive "F" grades if you stop attending classes without officially dropping them. Classes that have ended cannot be dropped.

Students who have not attended a course will be administratively withdrawn and will not be charged for the course.

The grades A, B, C, D and F are included in the computation of grade point average. Credit toward graduation is granted for A, B, C, D, P and T.

One of the requirements for receiving financial aid is that you attend the classes for which you are registered. We will disburse financial aid based on the number of credits you have been reported as attending. If you have late-start classes, some of your prorated awards will not be sent until you are attending those late start classes. Students who are enrolled less than full-time are considered part-time students. For part-time students, a lower cost of attendance will be used to determine eligibility for financial aid awards. If your attendance level changes up to the end of the second week of classes, this may change the amounts of your awards.

Alternative Credit

Alternative credit is defined as college credit earned outside of Kirkwood credit course completion, transfer course completion or credit by examination. Alternative credit requests cannot be made to replace a failing grade for a course previously attempted. The student will be assessed an administrative charge of $25 per application. If the application is approved and the outside work is not articulated Kirkwood Continuing Education coursework, a tuition charge will be assessed equal to one half the current tuition for the credit course on the application.

This policy does not exempt students from complying with all other Kirkwood graduation policies including residency and graduation policies.

A maximum of 18 credits may be awarded for alternative coursework and exam credit of any kind. A student must request alternative credit be awarded. The credit is not awarded automatically.

Alternative credit will not be granted:
1. if it duplicates courses previously passed or failed
2. if it puts the student over 18 credits of exam credit
3. until the student has earned 12 resident credit hours

To obtain credit for articulated Kirkwood Continuing Education coursework, the student must consult with his/her advisor first. If the advisor recommends the student proceed, the student must submit the following:

1. Application for Alternative Credit form
2. Proof of articulated Kirkwood Continuing Education course completion

To obtain credit for an industry recognized, third-party portable certificate, credential or licensure, it must be valid at the time of application. The student must submit the following:

1. Application for Alternative Credit form
2. Copy of valid certificate, credential or license

To obtain credit for work experience or experiential learning, the student must submit the following:

1. Application for Alternative Credit form
2. Portfolio to include but not limited to:
   a. Tangible examples of competencies or a completed Alternative Credit Student Portfolio form
   b. A current resume
   c. A job description that clearly defines duties and a letter from the employer verifying that the student has met the competencies of the course(s) requested

All forms, attachments, documentation and the application fee will be submitted to the Cashier, One Stop office, 2nd floor Kirkwood Hall, for billing, processing and archival.

Alternative credit will be denoted on the student’s transcript as exam credit with a T grade. The credit will not apply to the grade point average calculation. If the student transfers to another institution, credits earned through this policy are subject to the receiving institution’s transfer credit policies and procedures. It is not guaranteed that all post-secondary institutions will recognize these credits.

If the Application for Alternative Credit is denied, the student will be notified in writing by the department coordinator.
Assessments of learning that occur outcomes for students are accountable for the learning attendance in their course syllabi. Students identify expectations for learning and students. Kirkwood faculty members are integral to learning and is expected of all scheduled classes is regarded as integral to learning and is expected of all students. Kirkwood faculty members identify expectations for learning and attendance in their course syllabi. Students are accountable for the learning outcomes for each session, including those sessions that have been missed. Assessments of learning that occur during an absence may or may not be made up, depending on the policies of the instructor and the nature of the absence. Absences that result from participation in college-sponsored activities or short term military service will be accommodated, subject to the guidelines listed below. For all other absences, authorization of an excuse is the province of the individual faculty member and subject to the standard appeal process.

Class Attendance Policy Related to College-sponsored Activities

College-sponsored activities (excluding practices) include athletic competitions, student academic competitions and conferences, musical and drama performances, and class field trips. Questions on whether an activity is a college-sponsored event for purposes of this policy should be directed to the vice president of academic affairs. If anticipated absences for a semester appear to be extraordinarily numerous or difficult to accommodate, a faculty member may appeal the need for the full accommodation to the vice president of academic affairs. Students involved in activities where they are required to represent the college, i.e. college-sponsored activities, must give written notice to the faculty member at least one week in advance of the absence unless last-minute schedule changes make this notice impossible. If regular season athletic schedules have been developed, student participants must present written notice of anticipated absences within the first week of the semester. Failure to provide timely written notice may result in a loss of this opportunity.

The faculty shall accord students the opportunity to independently make up coursework or work of equal value, for the day(s) the event was scheduled and to take a scheduled exam at an alternate time. The faculty member shall determine alternate exam times and due dates for missed course work. These assigned dates may be prior to the end of the semester. Failure to provide timely written communications to the faculty member announcing and verifying the need for student class absences. Written notices should be provided at the beginning of the semester if the schedule is known, or as soon as possible after the need for a student absence is determined.

Class Attendance Policy Related to Required Military Duty or Veteran Status

Questions on whether an activity is a required military service activity for purposes of this policy should be directed to the vice president of academic affairs. If anticipated absences for a semester appear to be extraordinarily numerous or difficult to accommodate, a faculty member may appeal the need for the full accommodation to the vice president of academic affairs.

Absences due to military duty or veteran status must be excused. This includes, but is not limited to, the following:

- Mandatory monthly drill instruction, such as duty completed by national guard members and military reservists (typically this involves a one-day absence in order to extend weekend training).
- Service-related medical appointments where failure to appear might result in a loss of benefits.

Students must give written notice to the faculty member at least one week in advance of the absence unless last-minute schedule changes make this notice impossible. Students are strongly encouraged to inform each faculty member of their known and anticipated absences as far in advance as possible, preferably at the start of the term.

The faculty shall accord students the opportunity to independently make up coursework or work of equal value, for the day(s) the event was scheduled and to take a scheduled exam at an alternate time.

Organizers (coaches, faculty and staff) of college-sponsored activities shall:

1. assist students in planning class schedules to minimize the number of absences;
nate time. The faculty member shall determine alternate exam times and due dates for missed course work. These assigned dates may be prior to the date of the absence.

Students are still responsible for demonstrating achievement of course learning goals, even when absences due to military duty are necessary and reasonable. In situations with many absences or extended periods of military duty (e.g., being called to active duty), it may be most appropriate for the student to withdraw and retake the course in a future semester.

**Course Load**

Those pursuing 12 semester hours or more during any semester (nine hours or more in a summer term) are considered full-time students. To earn an associate degree in four semesters, students should plan to enroll for an average of 16 hours per semester.

There is no limit on the number of credit hours a student may carry in any semester. However, any student wishing to enroll in more than 18 hours in a semester or more than 12 hours in a summer semester will need the department dean’s signature.

Students may not take a course for more or less credit than that assigned in the college catalog or on EagleNet. Part-time coursework may be undertaken in many programs and students with an interest in attending part-time are advised to contact the appropriate program department for details.

**Credit by Examination**

Students may earn credit hours through the College Level Examination Program (CLEP), Advanced Placement tests, the Alternative Credit policy or through a variety of department-approved subject matter examinations. These examinations enable students to earn college credit for their knowledge in various subject areas by allowing them to test out of individual courses.

Credits awarded through the examination process will appear on the transcript as exam credit with a T grade and count toward the number of credit hours needed for the program degree, diploma or certificate. The dean of the respective department will have final approval of credits awarded by examination.

A maximum of 18 credits may be awarded for alternative coursework and exam credit of any kind.

Credit by examination will not be granted:
1. If it duplicates courses previously passed or failed.
2. If it puts the student over 18 credits of exam credit.
3. Until the student has earned 12 resident credit hours.

**Credit Hour Policy**

Kirkwood defines a unit of credit as a semester hour. A semester hour of credit is given for one hour in class each week for a period of 16 weeks. No registration or orientation hours may be included when determining credit hours. The College’s minimum requirements are:

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**The College’s Minimum Requirements**

<table>
<thead>
<tr>
<th>Instructional Delivery</th>
<th>Delivery Definition</th>
<th>Minimum Minutes</th>
<th>Contact Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Classroom Work</td>
<td>Lecture and formalized classroom instruction under the supervision of an instructor</td>
<td>800</td>
<td>16</td>
</tr>
<tr>
<td>Laboratory Work</td>
<td>Experimentation and practice by students under the supervision of an instructor</td>
<td>1600</td>
<td>32</td>
</tr>
<tr>
<td>Clinical Practice</td>
<td>Applied learning experience in a health agency or office under the supervision of an instructor</td>
<td>2400</td>
<td>48</td>
</tr>
<tr>
<td>Work Experience</td>
<td>Employment-related experience planned and coordinated by an institutional representative and employer, with control and supervision of the student on the job</td>
<td>3200</td>
<td>64</td>
</tr>
<tr>
<td>Distance Education</td>
<td>Courses or programs taught over the Internet, Iowa Communications Network (ICN), or other electronic means. (i.e. in-class hybrids)</td>
<td>Same as above with equivalent work required</td>
<td>Same as above with equivalent work required</td>
</tr>
<tr>
<td>Accelerated Courses</td>
<td>Courses or programs of study that allow students to complete them at a faster pace than if offered by conventional methods</td>
<td>Equivalent outcome achievement and verifiable evidence</td>
<td>Equivalent outcome achievement and verifiable evidence</td>
</tr>
</tbody>
</table>
Curricular Graduation Requirements

Students are required to complete the curricular requirements in place during the academic year in which they were accepted into the program of study as long as there were no breaks in enrollment equal in length or longer than concurrent fall/spring semesters or concurrent spring/fall semesters.

If a student is pursuing a program of study that becomes closed to admissions, the academic department responsible for the program will determine a future date by which current students must either finish or change to an open program. Students in this situation should work closely with their advisors.

Students with a break in enrollment equal in length or longer than concurrent fall/spring semesters or concurrent spring/fall semesters will be allowed to finish their program of study as long as it is still open to admissions, but under the curricular requirements in place during the academic year in which they re-enroll.

Students who apply for certificates, diplomas or degrees that are not their program of study are required to complete the curricular requirements in place when the application is submitted.

Earning Multiple Awards

Kirkwood confers certificates, diplomas and degrees. These awards are earned in progression based on the number of credit hours needed to complete the required program of study. A student may earn, and the college will confer, multiple awards per term, as long as the student is enrolled in the term.

Fee Policy

Fee Definition: Fees represent the college’s core charges for instructional offerings. Course related fees are based on a formula applied to the consumable costs associated with a course that are not part of tuition. Others may be a fixed rate and tied to professional organizations or testing.

Lab Fees: These fees recover some or all of the costs for supplies normally used in an individual course to support student learning and development. Depending on the average costs, lab fees are derived through a formula that considers the actual cost per student, on average, with a defined fee maximum ceiling which considers both course and total program cost. Fees are reviewed regularly to insure that the fee range is accurate and consistent with course instructional requirements.

Technology Fees: This is a per student fee intended to provide support for technology infrastructure costs. This fee is applied to all students attending Kirkwood Community College.

Incidental Fees: Some courses or programs of study may impose fees for a variety of purposes. Some programs/courses, for example, may require testing fees or professional credentialing or contributions to support events relevant to the organization or course program of study. Some courses or programs may require students to purchase individual supplies or materials necessary for projects, learning activities, or external assessments.

Non-Credit Fees: Fees are established for various non-credit courses and programs based on the delivery cost of the course or program. These ‘fees’ may be separate or included as the cost for enrolling in the course or program of study.

Refunds: Fees are refundable before the course starts and through the end of its 100% tuition refund period if a refund is applicable.

Fraudulent Academic Credentials

Anyone seeking to become a student at Kirkwood Community College who submits fraudulent or altered academic credentials to the college, or who is found to have fraudulently altered Kirkwood academic credentials or records, will be subject to penalties decided upon by the college ranging from suspension or expulsion and/or legal prosecution.

Independent Study

Independent study is special coursework offered to expand knowledge in a specific discipline area and is beyond the existing curriculum. Students requesting independent study must have previous coursework in the discipline and a positive performance record. Independent study should not be used to meet college requirements that can be satisfied through regular course offerings. Students need to discuss the independent study course contract with faculty and have the appropriate approvals before registering.

National Guard or Reserve Forces of the United States Duty Policy

This policy offers the following options to a student who is a member, or the spouse of a member, if the member has a dependent child, of Iowa National Guard or reserve forces of the United States and who is ordered to start military service or federal service or duty:

- Withdraw from the student’s entire registration and receive a full refund of tuition and mandatory fees.
- Make arrangements with the student’s instructors for course grades, or for incomplete’s that shall be completed by the student at a later date. If such arrangements are made, the stu-
Online Registration Restriction
Qualifying writing and reading placement scores are required in order to enroll in online classes. Students with previously earned credits online are exempt from this restriction.

Students with a grade point average of less than 1.8 for all online classes within the previous three years will have a registration restriction placed on their record. The restriction prevents registration in online classes until the average for online courses reaches 1.8 or better, or a three year period has passed. The average for online courses can be improved by retaking failed or low-scored courses in another format (face-to-face, WebLive or hybrid). Students will receive a warning when their online GPA is lower than 2.0. In cases where extenuating circumstances can be documented a petition for policy waiver may be submitted to Distance Learning for review and decision on enrollment.

Note: This registration restriction does not prevent students from enrolling in face-to-face, WebLive or hybrid format classes, only online classes.

Program/Area of Study Changes
A student who changes his/her program/area of study will be accountable in terms of graduation only for requirements of the new program/area of study. The coursework and grade point average earned in earlier programs/areas of study will continue to affect cumulative GPA and appear on the student’s transcript. A student contemplating a change of program/area of study is encouraged to discuss his/her plans fully with a member of the counseling staff or with his/her academic advisor.

Readmission
Students who have withdrawn from the college in good standing and who desire to be readmitted should apply at www.kirkwood.edu/majorchange. Students who are readmitted after absence from the college and who desire a degree, diploma or certificate will be required to fulfill current graduation requirements.

Refund of Tuition
Tuition refunds are computed as of the date the class is dropped via EagleNet or is withdrawn at the One Stop office or at a Kirkwood center.

- For classes that are 82 days or longer, a student may drop up to the end of the first week and receive a 100 percent refund.
- For classes that are 82 days or longer, a student may drop up to the end of the second week and receive a 50 percent refund.
- For a class that is one to eight days long, a student receives no refund beginning the first day of class.
- For a class that is nine to 33 days long, a student may drop up to the end of the first day of the class and receive a 50 percent refund.
- For a class that is 34 to 81 days long, a student may drop up to the end of the second calendar day of the class and receive a 100 percent refund.
- For a class that is 34 to 81 days long, a student may drop to the end of the fourth calendar day and receive a 50 percent refund.
- For a study abroad course, a student may only drop by submitting a formal withdraw request to the International Programs office. Refunds for tuition and program fees are determined by the payment terms and vary by program.

According to the Higher Education Act (HEA) of 1965 as amended, schools are required to follow the Return of Title IV procedure. Students earn their Title IV federal financial aid by attending class. If they withdraw from all classes and therefore are not enrolled long enough to earn all of their aid, the ‘un-earned’ portion must be returned to the appropriate Title IV program. The Title IV programs include Pell Grant, Supplemental Educational Opportunity Grant (SEOG) and Stafford Loans. Federal Work-Study earnings are not affected by Title IV regulations concerning the return of unearned federal financial aid. The One Stop office will make this calculation and this may result in a balance due for the student. Any student who is considering dropping all classes should speak with a financial aid representative to determine how this will affect the financial aid award.

Resident Credit Requirement
Students completing associate degrees must earn a minimum of 16 credit hours from Kirkwood.

Students completing diplomas must earn a minimum of 8 credit hours from Kirkwood.

Students completing certificates must earn a minimum of 6 credit hours from Kirkwood.

Student Academic Dishonesty
Kirkwood students are responsible for authenticating all work in a course. This includes but is not limited to quizzes, exams, presentations, papers, journals, and projects. If asked, the student must be able to produce proof establishing that the work he or she submits is original and created by the student. For this reason, it is recommended that students engage in a verifiable working process on assignments and conduct themselves during class in a manner that does not lead to the suspicion of academic dishonesty.
Students should keep copies of all drafts of original work, make photocopies of research materials, write summaries of research materials, retain Writing Center receipts, keep logs or journals of work on assignments and papers, and save drafts or versions of assignments under individual file names on personal computer or cloud storage devices.

All writing that is taken from secondary sources (including those on the Internet) must have proper attribution and citation as outlined in course requirements and syllabi.

If the instructor suspects academic dishonesty and asks the student to authenticate his or her work, the inability to authenticate the work is grounds for opening an investigation of academic dishonesty. In the event that an instructor or administrator communicates to the student a suspicion of academic dishonesty, the burden of proof rests on the student to establish that he or she was responsible for the creation of his or her own work.

In addition to requiring that students authenticate their work, Kirkwood faculty or their designees may employ various other means of ascertaining authenticity – such as engaging in Internet searches, creating quizzes based on student work, or requiring students to explain their work or process orally.

This policy applies to all credit and noncredit coursework taken at Kirkwood Community College.

Academic dishonesty may include but is not limited to:

1. Plagiarism and Fabrication
   a. Copying information verbatim from a source without providing proper credit or source attribution.
   b. Paraphrasing a significant portion of another individual’s work without fundamentally changing the main idea and failing to provide proper credit.
   c. Presenting as your own work something that you had no part in creating (this would include obtaining papers or other academic materials by purchasing, borrowing or downloading them from a third party or website).
   d. Creating false data or modifying existing data as part of an assignment or project without the express knowledge and consent of the instructor. This includes false graphs, charts and bibliographic citations.
   e. Communicating with another student (either by sending or receiving information) in a way that shares information and answers on graded activities without the express knowledge and consent of the instructor.
   f. Copying, photographing or in any way duplicating part or all of a quiz or test without the permission of the instructor.

2. Misrepresentation
   a. Allowing another individual to represent him or herself as the student to complete a quiz, test or other assessment.
   b. Allowing one’s own name to be part of a project or group assignment for which the individual played no role or had no significant contribution.
   c. Submitting as original work an assignment from a previous course or class unless such prior submission is noted and the original work has been substantially modified or enhanced. Without these changes, the student is guilty of self-plagiarism.

3. Cheating and Facilitation
   a. Copying from another student’s work during a class on a graded or assessed activity.
   b. Knowingly allowing other students to view or access one’s work during a test or quiz. During in-class assessment, students should ensure that their work is not visible to others and should avoid the appearance of viewing another student’s quiz, exam or other unique work.
   c. Using unauthorized notes (written or electronic) during a quiz or exam. This includes but is not limited to unauthorized notes or formulae on calculators or other devices that are allowed.
   d. Accessing the Internet or other electronic sources during an in-class assessment without the express knowledge and consent of the instructor.

4. Impeding Fair and Equal Access to Education and Research Process
   a. Hiding, removing or in any way restricting access to information and materials that other students may be required to access in the course of completing an assignment or project. This includes creating passwords or other electronic barriers to access on public or shared websites.

Sanctions

The sanctions for confirmed cheating and plagiarism are as follows:

First offense:

The instructor will communicate with the student about the suspected academic misconduct, including plagiarism or cheating. The instructor will have the authority to issue a failing grade on the paper, exam or assignment for which cheating or plagiarism was established. A first offense of academic dishonesty will be treated as a warning and an opportunity for educating students about Kirkwood’s Academic Dishonesty Policy.

The Dean of Students will email the student the following: “This instance of academic dishonesty, while founded, will serve as a warning and shall not be reported to other academic institutions. Your name has been entered into the database of Student Academic Misconduct for a First Offense of Student Academic Misconduct. You may be required to complete the Anti-plagiarism Education and Research Process.”
tioned and reportable to other insti-
tutions and will likely result in failing the
course in which that offense occurs."

Students may appeal final course
grades using the Academic Appeals
process.

**Second Offense:**
When a student has committed a sec-
ond offense of misconduct as recorded
in the Student Academic Misconduct
database, the instructor will have the
authority to issue a failing grade for the
course in which academic misconduct
was established.

The Dean of Students will email the
student the following: "Your name has
been entered into the database of
Student Academic Misconduct with an
indication that you have been sanc-
tioned with a Second Offense of Stu-
dent Academic Misconduct. You may be
required to complete the Anti-
plagiarism Education and submit the
results to your faculty member. The
instructor has the right to issue a failing
grade for this course. The conse-
quences of any additional violation of
the Kirkwood Student Academic Mis-
conduct policy will likely result in a one
semester suspension from Kirkwood
Community College."

Students may appeal final course
grades using the Academic Appeals
process.

**Third Offense and Subsequent Offens-
es:**
When a student has committed a third
offense of misconduct as recorded in
the Student Misconduct Database, the
Dean of Students will email the student
stating: "Your name has been entered into the database of
Academic Student Misconduct with an
indication that you have been sanc-
tioned with a Third Offense of Stu-
dent Academic Misconduct. You may be
required to complete the Anti-
plagiarism Education and submit the
results to your faculty member. The in-
structor has the right to issue a failing
grade for the course in which cheating or plagiarism
was established; and you are now sub-
ject to a one semester suspension from
Kirkwood Community College."

The student may appeal the suspen-
sion under the Student Conduct Code
appeal process.

**Testing and Placement**
All new degree-seeking students regis-
tering for more than six credit hours are
required to demonstrate college level
competency in writing, reading and/or
math prior to registration. Appropriate
course placement in either college or
pre-college courses is determined by a
variety of measures, including place-
ment tests, previous academic experi-
ence, advising, and so on. Exemptions
to this policy must be evaluated prior to
registration. (Please allow at least two
weeks for these exemptions to be
evaluated.)

- Completed similar placement tests
  or the ACT or SAT and sent the offi-
cial record of scores to Kirkwood.
  Math scores are considered valid
  for two years while reading and
  writing scores are valid for three
  years.
- Successfully completed (C or better)
college-level math and writing clas-
ses at a regionally accredited col-
lege.
- Earned a Bachelor's degree from an
  accredited college.

The following criteria is used to deter-
mine whether a course is 'remedial for
the student'.

1. Placement test scores recog-
nized by the appropriate aca-
demic department that
  demonstrate a student is not
  proficient enough to start in
  the entry-level course within
  their designated program.

2. Academic Advisor determines
that a student is not proficient
enough to start in the en-
try-level course within their
designated program based on
one of the following criteria.

   a. A two-year time lapse since
      the subject matter was last
      studied by the student as
documented by a high school
      or college transcript or a
      signed statement by the
      student.
   b. Lack of proficiency in the
      subject matter as demon-
      strated by a high school or
      college transcript.
   c. No proficiency in the subject
      matter as indicated in a
      signed statement by the
      student.

**Title IV Eligibility for Remedial
Courses**
A course will be deemed remedial for
Title IV award purposes if it meets any
of the following criteria.

- Any classes designated remedial by
  Kirkwood’s authorizing author-
  ity. These classes will be iden-
tified by the zero prefix in the
course number.
- All English Language Acquisition
  (ELA) classes.
- Certain classes that are considered
  remedial for a specific student
  because it is determined the
  student needs a course in or-
  der to succeed in the en-
  try-level course required for
  their program.
Career Programs

Administrative Management
Business & Information Technology
203 Nielsen Hall
319-398-5416
www.kirkwood.edu/businessdept

Entry time
Fall

Award
Associate of Applied Science degree
2 years (4 terms)
Office Assistant diploma option
1 year (2 terms)

This program prepares graduates to become members of the executive team in today’s fast-paced business environment. It includes in-depth instruction in computer applications (word processing, desktop publishing, multimedia) and essential workplace "soft skills" (teamwork, project development, problem-solving).

Career Opportunities: executive assistant, administrative assistant, office manager, office administrator, administrative manager.

Degree Requirements

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Term 1-Fall</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ADM-176</td>
<td>Electronic Records System</td>
<td>3</td>
</tr>
<tr>
<td>BCA-136</td>
<td>Advanced Word Processing</td>
<td>3</td>
</tr>
<tr>
<td>ADM-157</td>
<td>Business English</td>
<td>3</td>
</tr>
<tr>
<td>BCA-179</td>
<td>Emerging Technology Trends</td>
<td>3</td>
</tr>
<tr>
<td>BUS-190</td>
<td>Professionalism: BPA¹ OR</td>
<td>1</td>
</tr>
<tr>
<td>ADM-257</td>
<td>Professionalism in the Workplace</td>
<td>3</td>
</tr>
<tr>
<td>MGT-145</td>
<td>Human Relations in Management OR</td>
<td></td>
</tr>
<tr>
<td>PSY-111</td>
<td>Introduction to Psychology</td>
<td>16</td>
</tr>
<tr>
<td><strong>Term 2-Spring</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ADM-133</td>
<td>Business Math and Calculators OR</td>
<td>3</td>
</tr>
<tr>
<td>MAT-102</td>
<td>Intermediate Algebra (or higher)</td>
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</tr>
<tr>
<td>ADM-163</td>
<td>Office Concepts and Procedures²</td>
<td>3</td>
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<tr>
<td>BCA-138</td>
<td>Advanced Word Processing Applications</td>
<td>3</td>
</tr>
<tr>
<td>BUS-190</td>
<td>Professionalism: BPA¹</td>
<td>1</td>
</tr>
<tr>
<td>BCA-167</td>
<td>Comprehensive Databases</td>
<td>3</td>
</tr>
<tr>
<td>BCA-152</td>
<td>Comprehensive Spreadsheets</td>
<td>3</td>
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<tr>
<td><strong>Term 3-Fall</strong></td>
<td></td>
<td>16</td>
</tr>
<tr>
<td>ACC-111</td>
<td>Introduction to Accounting OR</td>
<td>3</td>
</tr>
<tr>
<td>ACC-152</td>
<td>Financial Accounting</td>
<td>3</td>
</tr>
<tr>
<td>** Term 4-Spring**</td>
<td></td>
<td>15</td>
</tr>
<tr>
<td>ADM-187</td>
<td>Administrative Management Capstone</td>
<td>1</td>
</tr>
<tr>
<td>ADM-154</td>
<td>Business Communication OR</td>
<td>3</td>
</tr>
<tr>
<td>ENG-105</td>
<td>Composition I</td>
<td>3</td>
</tr>
<tr>
<td>MGT-158</td>
<td>Office Supervision and Management</td>
<td>3</td>
</tr>
<tr>
<td>BUS-932</td>
<td>Internship</td>
<td>3</td>
</tr>
<tr>
<td>BUS-290</td>
<td>Employment Search/Workplace Success</td>
<td>1</td>
</tr>
<tr>
<td>MGT-161</td>
<td>Business/Computer Electives</td>
<td>4</td>
</tr>
</tbody>
</table>

Total program credit hours 62

Business/Computer Electives

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>ACC-152</td>
<td>Financial Accounting</td>
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</tr>
<tr>
<td>ACC-156</td>
<td>Managerial Accounting</td>
<td>4</td>
</tr>
<tr>
<td>ACC-313</td>
<td>Accounting Applications</td>
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</tr>
<tr>
<td>ACC-362</td>
<td>Accounting Spreadsheets</td>
<td>4</td>
</tr>
<tr>
<td>BUS-102</td>
<td>Introduction to Business</td>
<td>3</td>
</tr>
<tr>
<td>CIS-207</td>
<td>Fundamentals of Web Programming</td>
<td>3</td>
</tr>
<tr>
<td>ECN-120</td>
<td>Principles of Macroeconomics</td>
<td>3</td>
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<tr>
<td>ECN-130</td>
<td>Principles of Microeconomics</td>
<td>3</td>
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<tr>
<td>HSC-115</td>
<td>Medical Terminology</td>
<td>4</td>
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<tr>
<td>HSC-117</td>
<td>Basic Medical Terminology</td>
<td>2.5</td>
</tr>
<tr>
<td>MGT-101</td>
<td>Principles of Management</td>
<td>3</td>
</tr>
<tr>
<td>MGT-121</td>
<td>Project Management Basics</td>
<td>3</td>
</tr>
<tr>
<td>MGT-124</td>
<td>Project Management Tools</td>
<td>3</td>
</tr>
<tr>
<td>MGT-161</td>
<td>Agile Project Management with Scrum</td>
<td>3</td>
</tr>
<tr>
<td>MGT-155</td>
<td>Integrated Project Management</td>
<td>3</td>
</tr>
<tr>
<td>BUS-280</td>
<td>Fundamentals of Lean Process Improvement</td>
<td>3</td>
</tr>
<tr>
<td>MGT-130</td>
<td>Principles of Supervision</td>
<td>3</td>
</tr>
<tr>
<td>MGT-137</td>
<td>Developing Leadership Skills</td>
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</tr>
<tr>
<td>MGT-139</td>
<td>Effective Team Building for Managers</td>
<td>1</td>
</tr>
<tr>
<td>MGT-140</td>
<td>Time Management in the Workplace</td>
<td>1</td>
</tr>
<tr>
<td>MGT-170</td>
<td>Human Resource Management</td>
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<tr>
<td>MGT-171</td>
<td>Human Resource Strategies and Tools</td>
<td>3</td>
</tr>
<tr>
<td>MGT-179</td>
<td>Human Resource Strategies-Total Rewards, Safety and Labor</td>
<td>3</td>
</tr>
<tr>
<td>MGT-305</td>
<td>Business Plans for Entrepreneurs</td>
<td>3</td>
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<tr>
<td>MGT-300</td>
<td>Introduction to Entrepreneurship</td>
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</table>

Career Programs
Office Assistant Diploma Requirements

<table>
<thead>
<tr>
<th>Term 1-Fall</th>
<th>Course Number</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BCA-136</td>
<td>Emerging Technology Trends</td>
<td>3</td>
<td></td>
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<tr>
<td>ADM-176</td>
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<tr>
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<td>Business English</td>
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<td>Human Relations in Management</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>OR</strong></td>
<td></td>
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</tr>
<tr>
<td>PSY-111</td>
<td>Introduction to Psychology</td>
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<table>
<thead>
<tr>
<th>Term 2-Spring</th>
<th>Course Number</th>
<th>Course Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>ADM-133</td>
<td>Business Math and Calculators OR</td>
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<tr>
<td>MAT-102</td>
<td>Intermediate Algebra (or higher math)</td>
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<tr>
<td>ADM-163</td>
<td>Office Concepts and Procedures²</td>
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<tr>
<td>BCA-167</td>
<td>Comprehensive Database</td>
<td>3</td>
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<tr>
<td>BCA-152</td>
<td>Comprehensive Spreadsheets</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>ADM-154</td>
<td>Business Communication OR</td>
<td>3</td>
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<tr>
<td>ENG-105</td>
<td>Composition I</td>
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<tr>
<td>BUS-290</td>
<td>Employment Search/Workplace Success</td>
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</table>

**Total program credit hours: 32**

¹ Students who are primarily part-time or enrolled in courses held at Kirkwood county centers, may wish to register for the Professionalism in the Workplace class rather than the Professionalism: BPA course listed during the first and second semesters. Professionalism in the Workplace (ADM-257) is a Distance Learning course worth two credits. Students must either take both semesters of the on-campus course or the Distance Learning course offered in the spring. See the program coordinator for assistance in making this decision.

² Requires typing speed of 30 wpm (words per minute) or concurrent enrollment in Advanced Word Processing.

Students wishing to transfer to a four-year college or university may substitute the following courses:

| PSY-111   | Intro to Psychology                          |            |
| ENG-105   | Composition I                                |            |
| ACC-152   | Financial Accounting                         |            |
| MGT-145   | Human Relations in Management                 |            |
| ADM-154   | Business Communication                        |            |
| ACC-111   | Introduction to Accounting                    |            |

**Advanced Manufacturing And Robotics Technologies**

**Industrial Technologies**
101 Jones Hall
319-398-4983
www.kirkwood.edu/industrialtech

**Entry time**
Fall

**Award**
Associate of Applied Science degree
2 years (5 terms including summer)
Certificate
3 terms

This multi-skilled degree prepares you for an exciting and rewarding career in the high demand, advanced manufacturing careers of product design, CNC machining/forming, production welding, quality control, and robotic programming and integration. Possessing multiple skill sets in today's workforce positions and prepares you well for career advancements and increased earnings throughout your lifetime.

Graduates of this program can go on to complete a four-year degree at UNI or the University of Iowa.

This program requires the following third-party credentials: OSA 10-General Industry, Adult First Aid with CPR, Forklift Class 1, 3, 5, 7, GMAW AWS Certification and National Career Readiness Certificate.

**Career opportunities:** Laser cutter operator, Water jet cutter operator, CNC punch press operator, CNC press brake operator, CNC mill operator, CNC lathe operator, TIG welder, MIG welder, CAD designer, Quality control inspector, Robotics technician, Robotics engineer.

**Degree Requirements**

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>MFG-393</td>
<td>Introduction to Machine Shop</td>
<td>4</td>
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<tr>
<td>WEL-153</td>
<td>Virtual Reality Welding</td>
<td>1</td>
</tr>
<tr>
<td>WEL-228</td>
<td>Introduction to Welding, Safety &amp; Health of Welders: SENSE 1</td>
<td>1</td>
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<tr>
<td>WEL-244</td>
<td>Gas Metal Arc Welding Short Circuit Transfer: SENSE 1</td>
<td>2</td>
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<tr>
<td>MAT-232</td>
<td>Applied Industrial Math for Technicians</td>
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<tr>
<td>MAT-103</td>
<td>Applied Math Topics for Advanced Manufacturing</td>
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<tr>
<td>IND-156</td>
<td>Microcomputers for the Trades OR</td>
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<tr>
<td>CSC-110</td>
<td>Introduction to Computers</td>
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**Term 2**

<table>
<thead>
<tr>
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<th>Course Title</th>
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<tbody>
<tr>
<td>MFG-394</td>
<td>CNC Machine Tool Operations</td>
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<tr>
<td>ELE-364</td>
<td>Basic Electrical Circuits</td>
<td>4</td>
</tr>
<tr>
<td>EGT-450</td>
<td>PLTW-Computer Integrated Manufacturing</td>
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## Career Programs

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<th>Course Number</th>
<th>Course Title</th>
<th>Credit Hours</th>
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<tr>
<td>ATR-105</td>
<td>Industrial Robotics</td>
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<tr>
<td>MFG-103</td>
<td>Applied Metallurgy</td>
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### Term 3

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<th>Course Title</th>
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<tr>
<td>MFG-339</td>
<td>CNC Press Brake Operator (NIMS)</td>
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<td>ATR-136</td>
<td>Programmable Logic Controllers for Manufacturing</td>
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<td></td>
<td>Communications Course</td>
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<tr>
<td>MGT-145</td>
<td>Human Relations in Management</td>
<td>3</td>
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<td>PSY-111</td>
<td>Introduction to Psychology</td>
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### Term 4

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<tr>
<td>CAD-237</td>
<td>Geometric Dimensioning &amp; Tolerancing</td>
<td>3</td>
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<td>CAD-300</td>
<td>AutoCAD for Applied Engineering</td>
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<td>CAD-140</td>
<td>Parametric Solid Modeling I</td>
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<td>PHY-180</td>
<td>Applied Physics I OR</td>
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<tr>
<td>PHY-190</td>
<td>Physics I</td>
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<tr>
<td>ATR-134</td>
<td>Robot Machine Integration</td>
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<td>ATR-254</td>
<td>PLC Integration</td>
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<td>SDV-135</td>
<td>Job Seeking Skills</td>
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### Term 5

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<th>Course Title</th>
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<tbody>
<tr>
<td>MFG-395</td>
<td>CNC Machine Tool Program and Setup</td>
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<tr>
<td>MFG-396</td>
<td>Alternative Manufacturing Processes</td>
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<tr>
<td>BUS-280</td>
<td>Fundamentals of Lean Process Improvement</td>
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<td>ATR-135</td>
<td>Advanced Manufacturing and Robotics Technologies Capstone</td>
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<tr>
<td></td>
<td>Humanities or History/Culture Course</td>
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### Total program credit hours
80

### Optional

<table>
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<tr>
<th>Course Number</th>
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<td>MFG-924</td>
<td>Honors Project</td>
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## Industrial Robotics Certificate Requirements

<table>
<thead>
<tr>
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<th>Course Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>Term 1</td>
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<tr>
<td>MAT-232</td>
<td>Applied Industrial Math for Technicians</td>
<td>3</td>
</tr>
<tr>
<td>WEL-153</td>
<td>Virtual Reality Welding</td>
<td>1</td>
</tr>
<tr>
<td>WEL-228</td>
<td>Introduction to Welding, Safety &amp; Health of Welders: SENSE 1</td>
<td>1</td>
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<tr>
<td>WEL-244</td>
<td>Gas Metal Arc Welding Short Circuit Transfer: SENSE 1</td>
<td>2</td>
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### Term 2

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>ELE-364</td>
<td>Basic Electrical Circuits</td>
<td>4</td>
</tr>
<tr>
<td>EGT-450</td>
<td>PLTW-Computer Integrated Manufacturing</td>
<td>3</td>
</tr>
<tr>
<td>ATR-105</td>
<td>Industrial Robotics</td>
<td>3</td>
</tr>
</tbody>
</table>

### Advanced Welding Technologies

**Industrial Technologies**
101 Jones Hall
319-398-4983
www.kirkwood.edu/industrialtech

**Entry time**
Fall (daytime and evening classes available)

**Award**
Associate of Applied Science degree
2 years (5 terms including summer)
Diploma
2 terms

**Certification**
Welder certifications to American Welding Society codes is available in several welding processes.

The Advanced Welding Technologies Associate degree program includes Shielded Metal Arc Welding, Gas Metal Arc Welding and Gas Tungsten Arc Welding. Prepares students for a SENSE 1 and SENSE 2 level credential from the American Welding Society. Graduates of this program can transfer to the University of Northern Iowa to pursue a Technology Management Bachelor of Arts degree and the University of Iowa to pursue an Applied Studies Bachelor of Arts degree.

This program requires completion of OSHA 10-General Industry, Adult First Aid with CPR, Forklift 1, 3, 4, 5, 7, 6G pipe carbon steel certifications and 3G vertical up with backing and open-root certifications and the National Career Readiness Certificate.

**Career opportunities:** Trade unions such as Ironworkers, Plumbers and Pipefitters, and Boilermakers; production welder; welding fabrication; weld shop owner; maintenance welder; welding inspection; welding instructor; welding equipment sales.

**Degree Requirements**

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Term 1</td>
<td></td>
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<tr>
<td>IND-101</td>
<td>Technology Integration for Welders</td>
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<tr>
<td>MAT-765</td>
<td>Welding Mathematics I</td>
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<tr>
<td>WEL-153</td>
<td>Virtual Reality Welding</td>
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<tr>
<td>WEL-228</td>
<td>Introduction to Welding, Safety &amp; Health of Welders: SENSE 1</td>
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<tr>
<td>WEL-233</td>
<td>Print Reading and Welding Symbol</td>
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Career Programs

Interpretation: SENSE 1
WEL-244 Gas Metal Arc Welding Short Circuit Transfer: SENSE 1 2
WEL-262 Thermal Cutting Processes 2
WEL-274 Shielded Metal Arc Welding I: SENSE 1 3
WEL-280 Flux Cored Arc Welding * 2 19

Term 2
WEL-245 Gas Metal Arc Welding Spray Transfer: SENSE 1 2
WEL-251 Gas Tungsten Arc Welding for Carbon Steel: SENSE 1 2
WEL-252 Gas Tungsten Arc Welding for Aluminum: SENSE 1 1
WEL-253 Gas Tungsten Arc Welding (GTAW) for Austenitic Stainless Steel: SENSE 1 1
WEL-254 Welding Inspection and Testing Principles: SENSE 1 1
WEL-263 Thermal Cutting Processes II-Plasma and Carbon Steel Arc: SENSE 1 2
WEL-275 Shielded Metal Arc Welding II: SENSE 1 3
WEL-281 Flux Cored Arc Welding (Gas-Shielded): SENSE 1 2

Communications Course 3

Term 3
WEL-286 Advanced Shielded Metal Arc Welding Principles and Practices 6

Communications Course 3

Term 4
MFG-103 Applied Metallurgy 3
MGT-145 Human Relations in Management OR
PSY-111 Introduction to Psychology 3
WEL-287 Layout and Fitup 3
WEL-288 Documents Governing Welding and Welding Inspection 1
WEL-289 Weld Inspection and Testing Principles 2
WEL-290 Advanced Flux Cored Arc Welding Principles and Practices 3
WEL-291 Advanced Gas Metal Arc Welding Pipe Principles and Practices 3

Term 5
ATR-105 Industrial Robotics 3
WEL-293 Advanced Gas Tungsten Arc Welding Principles and Practices 8
WEL-932 Internship OR
WEL-800 Welding Capstone 3

Humanities or History/Culture Course 3

Total program credit hours 80

Optional
WEL-924 Honors Project 1
WEL-928 Independent Study 1

Entry-Level Welder Diploma Requirements

Course Number
Course Title
Credit Hours

Term 1
IND-101 Technology Integration for Welders 2
MAT-765 Welding Mathematics 3
WEL-153 Virtual Reality Welding 1
WEL-228 Introduction to Welding, Safety & Health of Welders: SENSE 1 1
WEL-233 Print Reading and Welding Symbol Interpretation SENSE 1 3
WEL-244 Gas Metal Arc Welding Short Circuit Transfer: SENSE 1 2
WEL-262 Thermal Cutting Processes II-Plasma and Mechanized OxyFuel Cutting: SENSE 1 2
WEL-274 Shielded Metal Arc Welding II: SENSE 1 3
WEL-280 Flux Cored Arc Welding (Self-Shielded): SENSE 1 2

Communications Course 3

Total program credit hours 36

Agricultural Geospatial Technology
Ag Sciences
Washington Hall
319-398-5609
Career Programs

www.kirkwood.edu/agrisciences

Entry time
Fall or Spring

Award
Associate of Applied Science degree
2 years (4 terms, 1 summer)
Certificate (2 term)

Agricultural Geospatial Technology students prepare to work in the emerging geospatial technology industry. Kirkwood’s program is one of only a handful of precision agriculture programs in the nation and provides specialization in dealership/equipment or agronomy careers.

The two-year program includes courses in computers, GPS (Global Positioning Systems), ArcView and data collection, in addition to agronomy and agriculture economics. Students also complete an internship during the summer. This degree can apply to many career areas and can be customized for this program. A strong background in math and science is recommended for this program.

Career opportunities: precision farming specialists, custom applicators, mapping technicians, precision ag coordinators, geospatial technicians.

Degree Requirements

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>Term I</td>
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<tr>
<td>AGC-116</td>
<td>Professionalism in Agriculture</td>
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<tr>
<td>AGP-333</td>
<td>Precision Farming Systems</td>
<td>3</td>
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<tr>
<td>AGP-143</td>
<td>Fundamentals of Electricity for GPS</td>
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<tr>
<td>AGC-103</td>
<td>Ag Computers</td>
<td>3</td>
</tr>
<tr>
<td>AGA-154</td>
<td>Fundamentals of Soil Science</td>
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<tr>
<td>ENG-105</td>
<td>Composition I OR</td>
<td>3</td>
</tr>
<tr>
<td>ENG-101</td>
<td>Elements of Writing OR</td>
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<td>COM-723</td>
<td>Workplace Communication</td>
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<td>MGT-145</td>
<td>Human Relations in Management OR</td>
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<td>SOC-110</td>
<td>Introduction to Sociology</td>
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<tr>
<td>AGP-405</td>
<td>Ag Applications of GIS</td>
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<td>AGA-114</td>
<td>Principles of Agronomy</td>
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<td>MAT-107</td>
<td>Survey of Mathematics</td>
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<td>BIO-104</td>
<td>Introductory Biology with Lab OR</td>
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<td>CHM-110</td>
<td>Introduction to Chemistry OR</td>
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<td>PHY-120</td>
<td>Introductory Physics</td>
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<td>Term 3</td>
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<td>PHI-105</td>
<td>Introduction to Ethics OR</td>
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<td>HUM-105</td>
<td>Working in America OR</td>
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<td>Encounters in Humanities</td>
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<td>Geospatial Data Collection</td>
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<td>SPC-101</td>
<td>Fundamentals of Oral Communication OR</td>
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<td>COM-744</td>
<td>Oral Communication in the Workplace</td>
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<td>BIO-104</td>
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<td>MAT-115</td>
<td>Mathematics and Society</td>
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<td>Agricultural Spatial Analysis</td>
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<td>Agricultural Economics</td>
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Agronomy Specialty

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<th>Course Title</th>
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<td>AGA-165</td>
<td>Agricultural Fertilizer and Chemicals</td>
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<td>AGA-216</td>
<td>Row Crop and Forage Production</td>
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<td>AGA-376</td>
<td>Integrated Pest Management</td>
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<td>AGB-336</td>
<td>Agricultural Selling</td>
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<td>AGB-470</td>
<td>Farm Records, Accounts and Analysis</td>
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Dealership/Equipment Specialty

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<tr>
<td>AGA-217</td>
<td>Field Crop Harvesting and Drying</td>
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<td>AGB-336</td>
<td>Agricultural Sales</td>
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<tr>
<td>AGP-435</td>
<td>Advanced Precision Farming - Software</td>
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<td>AGP-438</td>
<td>Precision Ag Hardware Machinery</td>
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<td>Advanced Ag Electronics</td>
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<td>AGP-440</td>
<td>Ag Applications of Digital Imagery</td>
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Natural Resources Specialty

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<th>Course Title</th>
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<td>AGN-220</td>
<td>Avian Wildlife</td>
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<td>AGN-223</td>
<td>Aquatic Wildlife</td>
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<td>AGN-226</td>
<td>Mammalian Wildlife</td>
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<td>AGN-235</td>
<td>Park and Recreation</td>
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<tr>
<td>AGN-244</td>
<td>Wildlife Management</td>
<td>3</td>
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<tr>
<td>AGN-250</td>
<td>Park Maintenance Programs</td>
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Certificate Requirements

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
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<tbody>
<tr>
<td>Term I</td>
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<td></td>
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<tr>
<td>AGP-333</td>
<td>Precision Farming Systems</td>
<td>3</td>
</tr>
<tr>
<td>AGP-405</td>
<td>Ag Applications of GIS</td>
<td>3</td>
</tr>
<tr>
<td>AGA-114</td>
<td>Principles of Agronomy</td>
<td>3</td>
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<tr>
<td>9</td>
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<tr>
<td>Course Number</td>
<td>Course Title</td>
<td>Credit Hours</td>
</tr>
<tr>
<td>--------------</td>
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</tr>
<tr>
<td>AGA-154</td>
<td>Fundamentals of Soil Science</td>
<td>3</td>
</tr>
<tr>
<td>AGA-165</td>
<td>Agricultural Fertilizer &amp; Chemistry</td>
<td>3</td>
</tr>
<tr>
<td>AGA-209</td>
<td>Row Crop Production</td>
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</tr>
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</table>

**Total program credit hours**  18

### Agriculture Business

**Ag Sciences**  
Washington Hall  
319-398-5609  
www.kirkwood.edu/agrisciences

**Entry time**  
Fall, Spring or Summer

**Award**  
Associate of Applied Science degree  
2 years (5 terms including summer)

Agriculture Business students prepare for careers in the agricultural sales and service industry. Students will study sales, advertising, merchandising, economics, farm management, marketing, agronomy and animal science, and are required to complete an internship.

**Career opportunities:** facility operations technician; farm operations manager; custom applicator; production assistants; territory salesperson.

**Degree Requirements**

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>AGC-116</td>
<td>Professionalism in Agriculture</td>
<td>1</td>
</tr>
<tr>
<td>AGC-120</td>
<td>Applied Agricultural Concepts</td>
<td>2</td>
</tr>
<tr>
<td>COM-723</td>
<td>Workplace Communications</td>
<td>3</td>
</tr>
<tr>
<td>ENG-105</td>
<td>Composition I</td>
<td>3</td>
</tr>
<tr>
<td>AGA-114</td>
<td>Principles of Agronomy</td>
<td>3</td>
</tr>
<tr>
<td>AGS-113</td>
<td>Survey of the Animal Industry</td>
<td>3</td>
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<tr>
<td>AGB-133</td>
<td>Introduction to Ag Business</td>
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</tr>
<tr>
<td>AGC-103</td>
<td>Ag Computers</td>
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**Term 2**

<table>
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<th>Course Title</th>
<th>Credit Hours</th>
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</thead>
<tbody>
<tr>
<td>AGC-130</td>
<td>Mathematics I - Agriculture</td>
<td>3</td>
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<tr>
<td>AGA-165</td>
<td>Agricultural Fertilizers and Chemicals</td>
<td>3</td>
</tr>
<tr>
<td>AGC-932</td>
<td>Internship</td>
<td>3</td>
</tr>
<tr>
<td>AGB-470</td>
<td>Farm Records, Accounts, Analysis</td>
<td>3</td>
</tr>
<tr>
<td>OR</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ACC-152</td>
<td>Financial Accounting</td>
<td>2</td>
</tr>
<tr>
<td>AGB-321</td>
<td>Agricultural Procedures and Safety</td>
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**Term 3-Summer**

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<tr>
<td>AGA-376</td>
<td>Integrated Pest Management</td>
<td>3</td>
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<tr>
<td>AGC-932</td>
<td>Internship</td>
<td>2</td>
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<tr>
<td>AGB-336</td>
<td>Agricultural Selling</td>
<td>3</td>
</tr>
<tr>
<td>MGT-145</td>
<td>Human Relations in Management</td>
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</tbody>
</table>

**Total program credit hours**  76

### Agriculture Production Management

**Ag Sciences**  
Washington Hall  
319-398-5609  
www.kirkwood.edu/agrisciences

**Entry time**  
Fall, Spring or Summer

**Award**  
Associate of Applied Science degree  
2 years (5 terms including summer)

**Diploma**  
1 year (3 terms including summer)

**Certificate**  
1 year (2 terms)

Agriculture Production Management students prepare for employment in the food production chain. Students can pursue specialized studies (options) in general ag production, or beef, swine or crop production. Students who want to take courses from more than one of these areas can customize their studies with the assistance of a faculty member. This program includes and internship.

**Career opportunities:** farm management, swine production facilities, feedlots, cattle ranches, herdsmen positions, crop production and agronomy positions.

**Degree Requirements**

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>AGC-116</td>
<td>Professionalism in Agriculture</td>
<td>1</td>
</tr>
<tr>
<td>AGC-120</td>
<td>Applied Agricultural Concepts</td>
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**Term 4**

<table>
<thead>
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<th>Course Title</th>
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<tbody>
<tr>
<td>AGB-330</td>
<td>Farm Business Management</td>
<td>3</td>
</tr>
<tr>
<td>AGB-466</td>
<td>Agricultural Finance</td>
<td>3</td>
</tr>
<tr>
<td>AGS-319</td>
<td>Animal Nutrition</td>
<td>3</td>
</tr>
<tr>
<td>BIO-208</td>
<td>Agricultural Biology and Chemistry</td>
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<tr>
<td>COM-744</td>
<td>Oral Communication in the Workplace OR</td>
<td>3</td>
</tr>
<tr>
<td>SPC-101</td>
<td>Fundamentals of Oral Communication OR</td>
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<td>ENG-106</td>
<td>Composition II</td>
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**Term 5**

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<th>Course Title</th>
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<tr>
<td>AGB-235</td>
<td>Introduction to Agriculture Markets</td>
<td>3</td>
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<tr>
<td>AGP-333</td>
<td>Precision Farming Systems</td>
<td>3</td>
</tr>
<tr>
<td>AGB-331</td>
<td>Entrepreneurship in Agriculture</td>
<td>3</td>
</tr>
<tr>
<td>AGB-101</td>
<td>Agricultural Economics</td>
<td>3</td>
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<tr>
<td>AGB-252</td>
<td>Agricultural Industry Business Management</td>
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</table>

**Total program credit hours**  15
Career Programs

AGC-103 Ag Computers 3
BIO-208 Agricultural Biology and Chemistry 3
COM-723 Workplace Communications OR 3
ENG-105 Composition I
------ Agricultural Technical Courses 5
---------- 17

Term 2
AGS-319 Animal Nutrition OR 3
AGA-154 Fundamentals of Soil Science 3
AGC-333 Precision Farming Systems OR 3
AGC-420 Issues in Agriculture 3
AGC-130 Mathematics I - Agriculture 3
------ Humanities or History/Culture
Course 3
------ Agricultural Technical Courses 3
---------- 15

Term 3-Summer
AGC-932 Internship 5

Term 4
AGB-470 Farm Records, Accounts, Analysis OR 3
ACC-152 Financial Accounting
AGS-214 Domestic Animal Physiology OR 3
AGA-114 Principles of Agronomy
MGT-145 Human Relations in Management 3
COM-744 Oral Communication in the Workplace OR
ENG-106 Composition II
------ Agricultural Technical Courses 5
---------- 17

Term 5
AGB-235 Introduction to Agriculture 3
AGB-330 Farm Business Management 3
AGB-466 Agriculture Finance 3
------ Agricultural Technical Courses 3
------ Agriculture Electives 3
---------- 15

Total program credit hours 69

Optional
VIN-105 Introduction to Wine Science 3
VIN-106 Introduction to Viticulture 3

Agriculture Technical Courses
AGS-338 Livestock Behavior and Welfare 5
AGC-420 Issues in Agriculture 3
AGS-319 Animal Nutrition 3
AGA-114 Principles of Agronomy 3
AGA-154 Fundamentals of Soil Science 3
AGA-165 Agricultural Fertilizer and Chemicals 3
AGA-376 Integrated Pest Management 3
AGA-170 Fertilizer Management 3
AGA-216 Row Crop and Forage Production 4
AGA-217 Field Crop Harvesting and Drying 3
AGB-331 Entrepreneurship in Agriculture 3
AGB-336 Agricultural Selling 3
AGB-470 Farm Records, Accounts, Analysis 3
AGM-403 Combine Operation & Adjustment 2
AGP-333 Precision Farming Systems 3
AGP-434 Practical Precision Farming for the Producer 3
AGS-113 Survey of the Animal Industry 3
AGS-214 Domestic Animal Physiology 3
AGS-279 Livestock Merchandising 2
AGS-305 Livestock Evaluation 3
AGS-350 Artificial Insemination of Cattle 1
AGS-441 Livestock Housing and Equipment 3
AGS-555 Beef/Cow Calf Production 3
AGS-560 Beef Industry and Feedlot Management 5

Agricultural Production Diploma Requirements

Course Number Course Title Credit Hours

AGC-932 Internship 1

Small Scale Food Production Certificate Requirements

Course Number Course Title Credit Hours

AGA-154 Fundamentals of Soil Science 3
AGA-114 Principles of Agronomy OR 3
AGH-221 Principles of Horticulture
MGT-300 Introduction to Entrepreneurship
---------- Certificate Program Elective 3
---------- 12
### Apparel Merchandising and Design

**Business & Information Technology**  
203 Nielsen Hall  
319-398-5416  
www.kirkwood.edu/businessdept

**Entry time**  
Fall

**Award**  
Associate of Applied Science degree  
2 years (4 terms)

The Apparel Merchandising-Management track (non-transfer plan of study) is designed to provide students with fashion knowledge, sales, managerial and supervisory skills necessary for immediate involvement in the area of retailing. The program incorporates a supervised internship in a retail establishment and annual fashion show to provide opportunities to learn outside the classroom.

Credits earned in the Apparel Merchandising-Managemen Track (transfer plan of study) are fully transferable to Iowa State University. Two additional years of study at ISU will earn a Bachelor of Science degree in Apparel, Merchandising, and Design, which will prepare students for corporate positions.

**Career opportunities:** fashion sales/buyer, specialty and department store management, visual merchandiser, area supervisor.

**Degree Requirements**

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td></td>
<td>Merchandising Track (transfer plan)</td>
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<tr>
<td><strong>Term 1</strong></td>
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<tr>
<td>APP-130</td>
<td>Principles of Fashion Merchandising</td>
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<tr>
<td><strong>Term 2</strong></td>
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<tr>
<td>APP-170</td>
<td>Fashion Trends and Consumer Analysis</td>
<td>3</td>
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<tr>
<td>APP-240</td>
<td>Fashion Design OR</td>
<td>3</td>
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<tr>
<td>MKT-110</td>
<td>Principles of Marketing</td>
<td>3</td>
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<tr>
<td>PSY-111</td>
<td>Introduction to Psychology</td>
<td>3</td>
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<tr>
<td></td>
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<tr>
<td><strong>Term 3</strong></td>
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<tr>
<td>APP-120</td>
<td>Apparel Visual Merchandising</td>
<td>3</td>
</tr>
<tr>
<td>APP-210</td>
<td>Apparel Textiles</td>
<td>3</td>
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<tr>
<td>MAT-157</td>
<td>Statistics OR</td>
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<tr>
<td>MAT-162</td>
<td>Business Statistics</td>
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<td>MKT-140</td>
<td>Principles of Selling</td>
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<td><strong>Term 4</strong></td>
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<tr>
<td>APP-220</td>
<td>Fashion Show Procedures</td>
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<tr>
<td>ECN-130</td>
<td>Principles of Microeconomics</td>
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<td>MKT-160</td>
<td>Principles of Retailing</td>
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<tr>
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<td>Course</td>
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<td><strong>Total program credit hours</strong></td>
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Career Programs

Term 3

<table>
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>APP-120</td>
<td>Apparel Visual Merchandising</td>
<td>3</td>
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<tr>
<td>APP-210</td>
<td>Apparel Textiles</td>
<td>3</td>
</tr>
<tr>
<td>BUS-101</td>
<td>Orientation to Business Professional</td>
<td>1</td>
</tr>
<tr>
<td>CSC-110</td>
<td>Introduction to Computers</td>
<td>3</td>
</tr>
<tr>
<td>MGT-110</td>
<td>Principles of Management</td>
<td>3</td>
</tr>
<tr>
<td>MKT-110</td>
<td>Principles of Marketing</td>
<td>3</td>
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</table>

Appplies advanced techniques through a simulated architectural design office to develop everything from preliminary, schematic design concepts through full sets of construction documents. Design work includes hand sketches through state-of-the-art, 3D CAD and rendering software. Graduates of this certificate program will be well equipped for positions in various architectural and engineering firms.

Career opportunities: CAD technicians for architectural, civil, mechanical, electrical and/or structural services; estimators; designers; drafters for building material suppliers; remodelers; kitchen designers; residential designers.

Degree Requirements

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARC-153</td>
<td>Architecture, Construction and Engineering Professions</td>
<td>3</td>
</tr>
<tr>
<td>EGT-460</td>
<td>PLTW - Civil Engineering and Architecture OR</td>
<td>3</td>
</tr>
<tr>
<td>EGR-460</td>
<td>PLTW-Civil Engineering and Architecture OR</td>
<td>3</td>
</tr>
<tr>
<td>CON-101</td>
<td>Architectural Plans and Specifications</td>
<td>3</td>
</tr>
<tr>
<td>CON-410</td>
<td>Construction Modeling</td>
<td>3</td>
</tr>
<tr>
<td>CON-932</td>
<td>Internship</td>
<td>2</td>
</tr>
<tr>
<td>CON-313</td>
<td>Structures and Mechanical/Electrical/Plumbing Systems</td>
<td>3</td>
</tr>
<tr>
<td>CAD-201</td>
<td>Introduction to Building Information Modeling</td>
<td>3</td>
</tr>
<tr>
<td>CON-190</td>
<td>Construction Lab</td>
<td>3</td>
</tr>
<tr>
<td>CON-322</td>
<td>Estimating for Construction and Architecture</td>
<td>3</td>
</tr>
<tr>
<td>CON-204</td>
<td>Design Studio-Residential</td>
<td>5</td>
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<tr>
<td>ARC-206</td>
<td>Design Studio-Commercial</td>
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<tr>
<td>CON-316</td>
<td>Sustainable Construction Science</td>
<td>3</td>
</tr>
<tr>
<td>CON-328</td>
<td>Construction Documentation</td>
<td>3</td>
</tr>
<tr>
<td>CON-257</td>
<td>Pre-Construction Services</td>
<td>3</td>
</tr>
<tr>
<td>CON-400</td>
<td>Construction Services, Project Close-Out and Commissioning</td>
<td>3</td>
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</tbody>
</table>

Architectural Technology

Industrial Technologies

101 Jones Hall
319-398-4983
www.kirkwood.edu/industrialtech

Entry time

Fall

Award

Associate of Applied Science degree
2 years (5 terms including summer), some required evening classes

Industry endorsements earned

National Career Readiness Certificate

Architectural Technology AAS

Architectural Technology provides quality technical training to be successful in a career related to the architectural profession. The program includes instruction in a variety of CAD software, hand sketching, business and graphic editing computer applications, teamwork/problem-solving skills and liberal arts studies. Practical experience can be enhanced through an optional paid architectural/construction-related internship or an unpaid architectural mentoring program.

Architectural Technology Certificate

<table>
<thead>
<tr>
<th>Term 1-Fall</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARC-153</td>
<td>Architecture, Construction and Engineering Professions</td>
<td>3</td>
</tr>
<tr>
<td>EGT-460</td>
<td>PLTW - Civil Engineering and Architecture OR</td>
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<tr>
<td>EGR-460</td>
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<td>CON-101</td>
<td>Architectural Plans and Specifications</td>
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<tr>
<td>CON-410</td>
<td>Construction Modeling</td>
<td>3</td>
</tr>
<tr>
<td>CON-932</td>
<td>Internship</td>
<td>2</td>
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<tr>
<td>CON-313</td>
<td>Structures and Mechanical/Electrical/Plumbing Systems</td>
<td>3</td>
</tr>
<tr>
<td>CAD-201</td>
<td>Introduction to Building Information Modeling</td>
<td>3</td>
</tr>
<tr>
<td>CON-190</td>
<td>Construction Lab</td>
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<td>Estimating for Construction and Architecture</td>
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<td>Design Studio-Residential</td>
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<td>ARC-206</td>
<td>Design Studio-Commercial</td>
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<tr>
<td>CON-316</td>
<td>Sustainable Construction Science</td>
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</tr>
<tr>
<td>CON-328</td>
<td>Construction Documentation</td>
<td>3</td>
</tr>
<tr>
<td>CON-257</td>
<td>Pre-Construction Services</td>
<td>3</td>
</tr>
<tr>
<td>CON-400</td>
<td>Construction Services, Project Close-Out and Commissioning</td>
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<th>Course Title</th>
<th>Credit Hours</th>
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<tr>
<td>CON-313</td>
<td>Structures and Mechanical/Electrical/Plumbing Systems</td>
<td>3</td>
</tr>
<tr>
<td>CAD-201</td>
<td>Introduction to Building Information Modeling</td>
<td>3</td>
</tr>
<tr>
<td>CON-190</td>
<td>Construction Lab</td>
<td>3</td>
</tr>
<tr>
<td>CON-322</td>
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<tr>
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<td>Structures and Mechanical/Electrical/Plumbing Systems</td>
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<td>CAD-201</td>
<td>Introduction to Building Information Modeling</td>
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<td>CON-190</td>
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<td>CON-257</td>
<td>Pre-Construction Services</td>
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<tr>
<td>CON-400</td>
<td>Construction Services, Project Close-Out and Commissioning</td>
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</table>
Optional Courses
ARC-924 Honors Project 1
ARC-928 Independent Study 1

Architectural Technology Certificate Requirements

<table>
<thead>
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<th>Course Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>CAD-201</td>
<td>Introduction to Building Information Modeling</td>
<td>3</td>
</tr>
<tr>
<td>ARC-204</td>
<td>Design Studio-Residential</td>
<td>5</td>
</tr>
<tr>
<td>ARC-206</td>
<td>Design Studio-Commercial</td>
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</tr>
</tbody>
</table>

Total program credit hours 13

*Students planning to transfer to a four-year college or university may substitute the following courses:

Advanced math class FOR
MAT-716 Industrial Math II
ENG-105 Composition I AND ENG-108 Comp. II: Technical Writing
OR
ENG-106 Composition II FOR
Communication electives

Automation and Instrumentation Technologies

Industrial Technologies
101 Jones Hall
319-398-4983
www.kirkwood.edu/industrialtech

Entry time
Fall

Award
Associate of Applied Science degree
2 years (5 terms including 1 summer),

Certification
OSHA 10-General Industry; 50+ High Voltage Arc Flash;
Residential Voltage Arc Flash; Rigging, Lifting and Cribbing;
JSEA-Job Safety and Environmental Analysis; Adult First Aid with CPR; Forklift Class 1, 3, 4, 5, 7; National Career Readiness Certificate.

The Automation and Instrumentation Technologies program prepares students for a broad range of careers in the industrial automation and process control sector of industry using industry-guided curriculum combined with practical hands-on labs.

Graduates of this program will be exposed to and have experience with a broad, yet industry-specific, range of technologies and processes that will ensure they are well-rounded technically and will have the foundational knowledge and versatile skill set necessary to continue to learn and succeed in industry today.

Career opportunities: Controls technician, electrical and instrumentation (E & I) technician, controls engineer, process technician, automation technician, application engineer, technical salesperson.

Degree Requirements

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ELE-364</td>
<td>Basic Electrical Circuits</td>
<td>4</td>
</tr>
<tr>
<td>MAT-232</td>
<td>Applied Industrial Math for Technicians</td>
<td>3</td>
</tr>
<tr>
<td>MAT-234</td>
<td>Applied Electrical Math for Technicians</td>
<td>1</td>
</tr>
<tr>
<td>IND-156</td>
<td>Microcomputers for the Trades OR</td>
<td>2</td>
</tr>
<tr>
<td>IND-167</td>
<td>Torquing and Tensioning</td>
<td>1</td>
</tr>
<tr>
<td>ATR-300</td>
<td>Mechanical Drive Systems I</td>
<td>2</td>
</tr>
<tr>
<td>PHY-180</td>
<td>Applied Physics I OR</td>
<td>2</td>
</tr>
<tr>
<td>PHY-190</td>
<td>Physics I OR</td>
<td>2</td>
</tr>
<tr>
<td>PHY-120</td>
<td>Introductory Physics</td>
<td>2</td>
</tr>
<tr>
<td>ELT-224</td>
<td>Motors and Transformers</td>
<td>5</td>
</tr>
<tr>
<td>ATR-136</td>
<td>Programmable Logic Controllers for Manufacturing</td>
<td>4</td>
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<tr>
<td>ATR-310</td>
<td>Industrial Controls</td>
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<tr>
<td>PHY-120</td>
<td>Introductory Physics</td>
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<tr>
<td>ATR-316</td>
<td>Instrumentation &amp; Control Devices</td>
<td>2</td>
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<tr>
<td>ATR-319</td>
<td>Process Control I</td>
<td>4</td>
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<tr>
<td>IND-196</td>
<td>Fundamentals of Hydraulic and Pneumatic Systems</td>
<td>5</td>
</tr>
<tr>
<td>ATR-316</td>
<td>Instrumentation &amp; Control Devices</td>
<td>2</td>
</tr>
<tr>
<td>ATR-319</td>
<td>Process Control I</td>
<td>4</td>
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<tr>
<td>ELE-365</td>
<td>Industrial Writing</td>
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<tr>
<td>ATR-254</td>
<td>PLC Integration</td>
<td>4</td>
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<tr>
<td>ATR-327</td>
<td>Process Control II</td>
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<tr>
<td>ATR-201</td>
<td>Automation &amp; Instrumentation</td>
<td>4</td>
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<tr>
<td>MGT-145</td>
<td>Human Relations in Management</td>
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<td>PSY-111</td>
<td>Introduction to Psychology</td>
<td>3</td>
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<tr>
<td>ATR-323</td>
<td>Mechatronics I</td>
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<tr>
<td>ATR-201</td>
<td>Automation &amp; Instrumentation</td>
<td>4</td>
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<tr>
<td>MGT-145</td>
<td>Human Relations in Management</td>
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<tr>
<td>PSY-111</td>
<td>Introduction to Psychology</td>
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</table>

Total program credit hours 69
Automotive Collision Repair

Industry Technologies
101 Jones Hall
319-398-4983
www.kirkwood.edu/industrialtech

Entry time
Fall

Award
Diploma
1 year (3 terms including summer)

Industry endorsements earned
National Career Readiness Certificate.

Automotive Collision Repair teaches students the theory and practices of metal forming and shaping; body fillers, frame straightening and repair, uni-body straightening and repairs; refinishing procedures; paints and paint chemistry; and equipment use and care. Cost estimating and customer relations skills are also emphasized. A majority of class time is devoted to practical laboratory experience in the college's Auto Collision Repair Center. A tool set is required for this program.

Career opportunities: body shop technician; auto garage or repair service technician; auto/truck dealership technician; tool sales company representative; equipment/material sales representative; insurance claims adjuster

For gainful employment information, including graduation rates, the median debt of students who completed the program and other information, visit www.kirkwood.edu/gainfulemployment.

Degree Requirements

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>CRR-121</td>
<td>Intro to Metalworking &amp; Refinishing I</td>
<td>3</td>
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<tr>
<td>CRR-122</td>
<td>Intro to Metalworking &amp; Refinishing II</td>
<td>3</td>
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<tr>
<td>CRR-820</td>
<td>Metalworking and Refinishing Practices</td>
<td>3</td>
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<tr>
<td>CRR-830</td>
<td>Metalworking and Refinishing I</td>
<td>3</td>
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<tr>
<td>MAT-715</td>
<td>Industrial Math I</td>
<td>3</td>
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<tr>
<td>WEL-333</td>
<td>Auto Collision Welding</td>
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Term 2-Spring

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<tr>
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<th>Course Title</th>
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<tbody>
<tr>
<td>AUT-603</td>
<td>Basic Automotive Electricity OR</td>
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<tr>
<td>AUT-611</td>
<td>Automotive Electricity</td>
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<tr>
<td>CRR-342</td>
<td>Metalworking II</td>
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<tr>
<td>CRR-344</td>
<td>Metalworking III</td>
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<tr>
<td>CRR-833</td>
<td>Refinishing II</td>
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<tr>
<td>CRR-837</td>
<td>Refinishing III</td>
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Term 3-Summer

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<th>Course Title</th>
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<tr>
<td>CRR-545</td>
<td>Body Straightening and Painting</td>
<td>7</td>
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<td></td>
<td>Communications Course</td>
<td>3</td>
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</table>

Total program credit hours 44

Automotive Collision Repair tool requirements
Students in the Auto Collision Repair program are required to have a tool set for lab activities. Instructors provide students with a list of minimum requirements. The cost of tools and tool box is approximately $6,900 and payment plans can be arranged directly with the financial aid office.

Automotive Technology

Industry Technologies
101 Jones Hall
319-398-4983
www.kirkwood.edu/industrialtech

Entry time
Fall

Award
Associate of Applied Science degree
2 years (5 terms including 1 summer)

The Automotive Technology program provides entry-level skills and knowledge for students who want to work in the automotive technology field. The curriculum emphasizes automotive electronics and features courses in body electrical, engine electrical and computerized fuel delivery systems. This program is MasterTM-certified by the National Automotive Technicians Education Foundation (NATEF), and the National Institute of Automotive Services Excellence certifies our instructors Master Technicians. Kirkwood is an authorized SnapOn Certified Training Center. After you complete the SnapOn Diagnostic products training and pass the rigorous test, you are considered a power user of SnapOn diagnostic tools, with an efficiency of 90-100 percent. Achieve master status (top 10 percent nationwide) and be one of the most sought after technicians in the field.

This program requires the National Career Readiness Certificate, OSHA 10-General Industry, Residential Voltage Arc Flash, and Adult First Aid with CPR.

A tool set is required for this program.

Career opportunities: auto dealerships; franchised auto centers; independent repair facilities; specialty service shops; auto sales and support; fleet maintenance.

Degree Requirements

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>AUT-104</td>
<td>Introduction to Automotive Technology</td>
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<tr>
<td>MAT-715</td>
<td>Industrial Math I</td>
<td>3</td>
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<tr>
<td>AUT-888</td>
<td>Technical Lab I OR</td>
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</tr>
<tr>
<td>AUT-100</td>
<td>Maintenance &amp; Light Repair</td>
<td>5</td>
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<tr>
<td>AUT-611</td>
<td>Automotive Electricity</td>
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<tr>
<td>AUT-655</td>
<td>Automotive Advanced Electricity</td>
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Term 1-Fall

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<th>Course Title</th>
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<td>Intro to Metalworking &amp; Refinishing I</td>
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<tr>
<td>CRR-122</td>
<td>Intro to Metalworking &amp; Refinishing II</td>
<td>3</td>
</tr>
<tr>
<td>CRR-820</td>
<td>Metalworking and Refinishing Practices</td>
<td>3</td>
</tr>
<tr>
<td>CRR-830</td>
<td>Metalworking and Refinishing I</td>
<td>3</td>
</tr>
<tr>
<td>MAT-715</td>
<td>Industrial Math I</td>
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<td>WEL-333</td>
<td>Auto Collision Welding</td>
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17

Term 3-Summer

<table>
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<th>Course Number</th>
<th>Course Title</th>
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<tr>
<td>CRR-545</td>
<td>Body Straightening and Painting</td>
<td>7</td>
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<tr>
<td></td>
<td>Communications Course</td>
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</table>

20
The Hotel at Kirkwood Center
Hospitality Arts
Baking and Pastry Arts

FOR ENG ENG ENG following courses into the curriculum:
university should consider substituting som
*Students planning to transfer to a four-year college or

$6,700 and payment plans can be arranged with the finan-
structors provide students

Tool Requirements: Students in the Auto Technology pro-
students with a list of minimum require-
The cost of tools and toolbox is approximately

For gainful employment information, including graduation

www.kirkwood.edu/gainfulemployment

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>AUT-821</td>
<td>Computerized Engine Controls I</td>
<td>5</td>
</tr>
<tr>
<td>AUT-889</td>
<td>Technical Lab II</td>
<td>4</td>
</tr>
<tr>
<td>AUT-165</td>
<td>Automotive Engine Repair</td>
<td>5</td>
</tr>
<tr>
<td>IND-155</td>
<td>Microcomputer Applications OR</td>
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<tr>
<td>CSC-110</td>
<td>Introduction to Computers</td>
<td>3</td>
</tr>
<tr>
<td>AUT-704</td>
<td>Automotive Heating &amp; Air</td>
<td>4</td>
</tr>
<tr>
<td>AUT-932</td>
<td>Internship</td>
<td>2</td>
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<tr>
<td></td>
<td>Communications Elective</td>
<td>3</td>
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<tr>
<td>AUT-205</td>
<td>Automotive Automatic</td>
<td>5</td>
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<tr>
<td>AUT-505</td>
<td>Transmissions &amp; Transaxles</td>
<td>4</td>
</tr>
<tr>
<td>AUT-304</td>
<td>Automotive Manual Drive Train</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>and Axles</td>
<td>3</td>
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<tr>
<td></td>
<td>Communications Elective*</td>
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<tr>
<td>AUT-404</td>
<td>Automotive Suspension &amp;</td>
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<tr>
<td>AUT-621</td>
<td>Hybrid Electric Vehicle</td>
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<tr>
<td>AUT-822</td>
<td>Computerized Engine Controls II</td>
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<tr>
<td>MGT-145</td>
<td>Human Relations in Management</td>
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</table>

Total program credit hours 80

<table>
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<tr>
<th>Course Number</th>
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<tbody>
<tr>
<td>AUT-928</td>
<td>Independent Study</td>
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<tr>
<td>AUT-924</td>
<td>Honors Project</td>
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Optional

<table>
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<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>ENG-105</td>
<td>Composition 1 AND</td>
<td>3</td>
</tr>
<tr>
<td>ENG-108 Comp II: Technical Writing or</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>ENG-106</td>
<td>Composition</td>
<td></td>
</tr>
<tr>
<td>FOR</td>
<td>Communications Electives</td>
<td></td>
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</tbody>
</table>

Baking and Pastry Arts
Hospitality Arts
The Hotel at Kirkwood Center
319-848-8770
www.kirkwood.edu/hospitality

Entry time
Fall or Spring

Award
Diploma
1 year (2 terms)

Industry credential earned: National Restaurant Association's Food Protection Manager Certificate

Get creative with a Bakery diploma. It is designed to prepare
preparation of baked goods for The Class Act Restaurant and
are taught in the learning laboratory at The Hotel at Kirk-
then in labs or in the bakery.

Career opportunities: bakery worker; baker; cake decor-
For gainful employment information, including graduation rates, the median debt of students who completed the program and other information, visit www.kirkwood.edu/gainfulemployment.

Required Courses

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>HCM-117</td>
<td>Bakery Basics</td>
<td>3</td>
</tr>
<tr>
<td>HCM-125</td>
<td>Basic Cake Decorating</td>
<td>1</td>
</tr>
<tr>
<td>HCM-100</td>
<td>Sanitation and Safety</td>
<td>2</td>
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<tr>
<td>HCM-126</td>
<td>Science of Baking</td>
<td>2</td>
</tr>
<tr>
<td>HCM-260</td>
<td>Hospitality Math</td>
<td>3</td>
</tr>
<tr>
<td>HCM-122</td>
<td>International Breads</td>
<td>3</td>
</tr>
<tr>
<td>HCM-123</td>
<td>International Pastries</td>
<td>3</td>
</tr>
<tr>
<td>HCM-190</td>
<td>Bakery Essentials</td>
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<tr>
<td>HCM-295</td>
<td>Professional Production</td>
<td>4</td>
</tr>
<tr>
<td>HCM-256</td>
<td>Cost Control and Merchandising</td>
<td>3</td>
</tr>
<tr>
<td>MGT-145</td>
<td>Human Relations in Management</td>
<td>3</td>
</tr>
<tr>
<td>PSY-111</td>
<td>Introduction to Psychology</td>
<td>3</td>
</tr>
<tr>
<td>COM-723</td>
<td>Workplace Communication OR</td>
<td>3</td>
</tr>
<tr>
<td>ENG-105</td>
<td>Composition I</td>
<td>3</td>
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<tr>
<td>HCM-127</td>
<td>Advanced Cake Decorating</td>
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<td></td>
<td>Bakery electives</td>
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</table>

Total program credit hours 36

Bakery Electives

<table>
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<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>HCM-231</td>
<td>Nutrition</td>
<td>2</td>
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<tr>
<td>HCM-268</td>
<td>Baking for Dietary Restrictions</td>
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<tr>
<td>MGT-300</td>
<td>Introduction to Entrepreneurship</td>
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<tr>
<td>BUS-102</td>
<td>Introduction to Business</td>
<td>3</td>
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<tr>
<td>HCM-289</td>
<td>Wedding Cake Decorating</td>
<td>2</td>
</tr>
</tbody>
</table>

Industry credential earned: National Restaurant Association's Food Protection Manager Certificate
Biotechnology

This program is not currently accepting applications for admission.

Math/Science
1184 Linn Hall
319-398-5516
www.kirkwood.edu/mathscience

Entry time
Fall

Award
Associate of Applied Science degree
2 years (4 terms)
Diploma
1 year (3 terms including summer)
Certificate
1 semester

From designing plants that produce better crops to finding cures to disease, biotechnology has made a mark on modern life. Most seldom realize nearly everything in our lives, including the food we eat, the clothes we wear and the various products we use every day, is touched in some way by biotechnology.

Students in Kirkwood’s Biotechnology program first learn to operate and maintain lab equipment and adhere to federal guidelines. Later in the program, students prepare solutions and reagents; explore microbiology, cell biology, immunology, and genetic engineering and molecule biology; isolate and characterize proteins; and perform chemical assays.

Career opportunities: animal technician; lab assistant; lab-based manufacturing/production technician; lab technician; manufacturing technician; quality control operator; research assistant; research technician; science technician.

Degree Requirements

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Term 1-Fall</td>
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<tr>
<td>BIO-190</td>
<td>Introductory Biotechnology</td>
<td>3</td>
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<tr>
<td>EGT-440</td>
<td>PLTW - Biotechnical Engineering <strong>OR</strong></td>
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<tr>
<td>EGR-440</td>
<td>PLTW - Biotechnical Engineering <strong>OR</strong></td>
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<tr>
<td>BIO-400</td>
<td>Lab Methodology</td>
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<tr>
<td>CHM-110</td>
<td>Introduction to Chemistry</td>
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<td>Introduction to Chemistry Lab</td>
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<td>ENG-105</td>
<td>Composition I</td>
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<tr>
<td>MAT-120</td>
<td>College Algebra <strong>OR</strong></td>
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<td>MAT-138</td>
<td>College Algebra with Limits</td>
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<tr>
<td>BIO-186</td>
<td>Microbiology</td>
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<td>BIO-410</td>
<td>Molecular Biology Techniques I</td>
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<td>BIO-430</td>
<td>Molecular Genetics</td>
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<td>MAT-157</td>
<td>Statistics</td>
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<td>Term 4-Spring</td>
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<td>BIO-420</td>
<td>Molecular Biology Techniques II</td>
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<td>BIO-450</td>
<td>Basic Bioinformatics</td>
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<td>MGT-145</td>
<td>Human Relations in Management</td>
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<tr>
<td>PHI-105</td>
<td>Introduction to Ethics</td>
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<td>SPC-101</td>
<td>Fundamentals of Oral Communication</td>
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<td>Term 5-Summer</td>
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<td>BIO-249</td>
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<td>EGT-440</td>
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<td>PLTW - Biotechnical Engineering <strong>OR</strong></td>
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<td>General Biology I</td>
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<td>BIO-410</td>
<td>Molecular Biology Techniques I</td>
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<td>BIO-410</td>
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<tr>
<td>ENG-108</td>
<td>Composition II: Technical Writing</td>
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72
Term 1
BIO-400 Lab Methodology 3
BIO-410 Molecular Biology Techniques I 4
BIO-420 Molecular Biology Techniques II 4
BIO-450 Basic Bioinformatics 3

Total program credit hours 14

NOTE: If you have already taken science courses at Kirkwood or another institution, you may be able to substitute or waive some of the required courses in the curriculum. Please check with your advisor.

Business Administration
Transfer track
Business & Information Technology
203 Nielsen Hall
319-398-5416
www.kirkwood.edu/businessdept

Entry time
Fall, Spring, Summer

Award
Associate of Applied Science degree
2 years (4 terms)

The Business Administration program prepares students for careers in diverse areas of business and is based on a strong foundation of business and general education courses. Upon completion of the program, students may choose to transfer to the Henry B. Tippie College of Business at the University of Iowa, the Mount Mercy University College of Business, or go directly into the workforce with a marketable credential.

Degree Requirements

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
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<tr>
<td>BUS-101</td>
<td>Orientation to Business Professionalism</td>
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<td>Introduction to Business</td>
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<td>Composition I</td>
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Term 2
MGT-101 Principles of Management 3
ENG-108 Composition II: Technical Writing OR
ENG-106 Composition II 3
MAT-165 Business Calculus 3
SPC-101 Fundamentals of Oral Communication OR
SPC-112 Public Speaking 3
PHI-105 Introduction to Ethics 3
BUS-192 Professionalism: Business Competition 1

Total program credit hours 16

*Select a course from the approved list for your transfer institution. See your advisor for additional guidance.
Career Programs

Degree Requirements

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<td>BUS-101</td>
<td>Orientation to Business</td>
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<td>BUS-102</td>
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<td>CSC-110</td>
<td>Introduction to Computers</td>
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<tr>
<td>ENG-105</td>
<td>Composition I</td>
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<td>ACC-156</td>
<td>Managerial Accounting</td>
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<td>ACC-313</td>
<td>Accounting Applications**</td>
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<td>ENG-108</td>
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<td>Composition II</td>
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<td>SPC-112</td>
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<td>Intermediate Accounting I*</td>
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<td>Income Tax Accounting*</td>
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<td>PHI-105</td>
<td>Introduction to Ethics</td>
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<td>Accounting Spreadsheets**</td>
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<td>Accounting Capstone**</td>
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Total program credit hours: 65

Business Electives

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<td>ECN-120</td>
<td>Principles of Macroeconomics</td>
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<td>ECN-130</td>
<td>Principles of Microeconomics</td>
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<tr>
<td>MAT-162</td>
<td>Business Statistics</td>
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<td>MGT-103</td>
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<td>MKT-110</td>
<td>Principles of Marketing</td>
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<td>PSY-111</td>
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Technical Accounting Certificate Requirements

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<td>CSC-110 Introduction to Computers</td>
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<tr>
<td>Term 2</td>
<td>ACC-156 Managerial Accounting</td>
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<tr>
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<td>ACC-265 Income Tax Accounting*</td>
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<td>Term 3</td>
<td>ACC-313 Accounting Applications**</td>
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<td>ACC-362 Accounting Spreadsheets**</td>
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</table>

Total program credit hours: 23

*Courses are offered only in the fall semester.

**Courses are offered only in the spring semester.

Graduation Requirements

In order to graduate from the Accounting program, students must have a cumulative GPA of 2.0 or higher in all accounting courses as well as a cumulative program GPA of 2.0 or higher.

Business Administration: Financial Services

Business & Information Technology
203 Nielsen Hall
319-398-5416
www.kirkwood.edu/businessdept

Entry time
Fall, Spring, Summer

Award
Associate of Applied Science degree
2 years (5 terms)

Financial Services is one of the fastest growing areas of business today. It encompasses a broad range of functions and institutions involved in managing money: including credit unions, banks, credit card companies, insurance companies, accountancy companies, consumer-finance companies, stock brokerages, investment funds and government enterprises.

The Financial Services program is designed for students seeking careers or advancement within this broad, growing field. It also provides an internship opportunity to give students real-world experience. Employment opportunities in financial services are abundant and encompasses a wide variety of career options.

Career opportunities: personal banker; management trainee; credit analyst; customer service representative; financial advisor; trust representative; loan officer; financial analyst; insurance representative.
### Degree Requirements

<table>
<thead>
<tr>
<th>Term 1</th>
<th>Course Number</th>
<th>Course Title</th>
<th>Credit Hours</th>
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<tr>
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<td>Orientation to Business</td>
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<tr>
<td>MGT-145</td>
<td>Human Relations in Management</td>
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<td>Introduction to Psychology</td>
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<td>Approved Math Course</td>
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<td>Term 2</td>
<td>BUS-192</td>
<td>Professionalism Business Competition</td>
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<tr>
<td>CSC-110</td>
<td>Introduction to Computers</td>
<td>OR</td>
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<td>MGT-101</td>
<td>Principles of Management</td>
<td>ENG-108</td>
<td>Composition II: Technical Writing</td>
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<td>ACC-152</td>
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<tr>
<td>ECN-120</td>
<td>Principles of Macroeconomics</td>
<td>OR</td>
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<td>FIN-110</td>
<td>Money and Banking*</td>
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<td>Personal Finance</td>
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<td>Internship</td>
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<td>FIN-130</td>
<td>Principles of Finance**</td>
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<td>FIN-180</td>
<td>Customer Service Strategies</td>
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**Total program credit hours**: 65

### Program Electives:

- ACC-313: Accounting Applications | 4
- ACC-362: Accounting Spreadsheets | 4
- BUS-192: Professionalism: Business Competition | 1
- MGT-130: Principles of Supervision | 3
- MGT-139: Effective Team Building for Managers | 1
- MGT-140: Time Management in the Workplace | 1
- MGT-205: Introduction to Global Trade | 3
- MGT-206: Global Business Skills | 3
- MGT-300: Introduction to Entrepreneurship | 3
- MKT-110: Principles of Marketing | 3
- MKT-130: Social Media in Business | 3

*Courses are offered only in the fall semester.

**Courses are offered only in the spring semester.

### Business Administration: Management

**Business & Information Technology**

203 Nielsen Hall
319-398-5416
www.kirkwood.edu/businessdept

**Entry time**
Fall, Spring, Summer

**Award**
Associate of Applied Science degree
2 years (5 terms)
Certificate options (see advisor)

The Management program provides an extensive selection of management courses. It is designed for someone who would like to develop management skills for career advancement.

This program offers many management and general electives from which to choose to provide students the opportunity to take courses that fit their specific needs. Certificate options are available for students who want to specialize in human resources, project management, entrepreneurship, and global perspectives.

Courses in the program are available online or on WebLive at all of Kirkwood’s seven-county areas. Students should work with their advisor to develop a solid plan that best meets their education goals.

**Career opportunities**: front-line to middle-level management; advancement into supervisory capacity; small business owner.

### Degree Requirements

<table>
<thead>
<tr>
<th>Term 1</th>
<th>Course Number</th>
<th>Course Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
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<tr>
<td>MGT-145</td>
<td>Human Relations in Management</td>
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</tbody>
</table>

**Total program credit hours**: 65

### Program Electives:

- BUS-192: Professionalism: Business Competition | 1
- CSC-110: Introduction to Computers | 3
Career Programs

MGT-101 Principles of Management 3
ENG-108 Composition II: Technical Writing 3
OR
ENG-106 Composition II 3
SPC-101 Fundamentals of Oral Communication OR
SPC-112 Public Speaking OR
MKT-140 Principles of Selling

Management Electives

See your advisor for online availability.

ACC-156 Managerial Accounting* 4
ACC-313 Accounting Applications* 4
ACC-362 Accounting Spreadsheets* 4
BCA-152 Comprehensive Spreadsheets* 3
BCA-167 Comprehensive Databases* 3
BCA-290 Web Design Principles 3
BUS-185 Business Law I 3
BUS-280 Fundamentals of Lean Process Improvement 3
BUS-932 Internship 1-6
CIS-207 Fundamentals of Web Programming 3
ECN-120 Principles of Macroeconomics 3
ECN-130 Principles of Microeconomics 3
FIN-211 Personal Finance 3
MGT-124 Project Management Tools* 3
MGT-137 Developing Leadership Skills 1
MGT-139 Effective Team Building for Managers 1
MGT-140 Time Management in the Workplace 1
MGT-155 Integrated Project Management* 3

MGT-171 Human Resource Strategies-Talent Management and Employee Relations* 3
MGT-179 Human Resource Strategies-Total Rewards, Safety and Labor* 3
MGT-161 Agile Project Management with Scrum 3
MGT-205 Introduction to Global Trade 3
MGT-305 Business Plans for Entrepreneurs* 3
MKT-130 Social Media in Business* 3
MKT-135 Content Marketing* 3
MKT-140 Principles of Selling 3
MKT-180 Customer Service Strategies 1
MKT-190 International Marketing 3

Optional Courses

BUS-924 Honors Project 1
BUS-928 Independent Study 1
BUS-949 Special Topics 1
MGT-112 Business Innovation 3
MGT-924 Honors Project 1
MGT-928 Independent Study 1

Human Resources Certificate Requirements

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<td>MGT-101</td>
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<td>MGT-179</td>
<td>Strategies-Talent Management and Employee Relations*</td>
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<td>MGT-190</td>
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Management Electives

See your advisor for online availability.

MGT-101 Principles of Management 3
ENG-108 Composition II: Technical Writing 3
OR
ENG-106 Composition II 3
SPC-101 Fundamentals of Oral Communication OR
SPC-112 Public Speaking OR
MKT-140 Principles of Selling

Management Electives

See your advisor for online availability.

ACC-156 Managerial Accounting* 4
ACC-313 Accounting Applications* 4
ACC-362 Accounting Spreadsheets* 4
BCA-152 Comprehensive Spreadsheets* 3
BCA-167 Comprehensive Databases* 3
BCA-290 Web Design Principles 3
BUS-185 Business Law I 3
BUS-280 Fundamentals of Lean Process Improvement 3
BUS-932 Internship 1-6
CIS-207 Fundamentals of Web Programming 3
ECN-120 Principles of Macroeconomics 3
ECN-130 Principles of Microeconomics 3
FIN-211 Personal Finance 3
MGT-124 Project Management Tools* 3
MGT-137 Developing Leadership Skills 1
MGT-139 Effective Team Building for Managers 1
MGT-140 Time Management in the Workplace 1
MGT-155 Integrated Project Management* 3

Entrepreneurship Certificate Requirements

<table>
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<th>Course Title</th>
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<tr>
<td>MGT-100</td>
<td>Introduction to Entrepreneurship</td>
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<tr>
<td>MGT-170</td>
<td>Human Resource Management</td>
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<td>MGT-130</td>
<td>Principles of Supervision</td>
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<td>MGT-110</td>
<td>Principles of Marketing</td>
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<td>MGT-135</td>
<td>Social Media for Business*</td>
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<tr>
<td>MGT-305</td>
<td>Business Plans for Entrepreneurs*</td>
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Entrepreneurship Electives

See your advisor for online availability.

MGT-100 Principles of Management 3
ENG-108 Composition II: Technical Writing 3
OR
ENG-106 Composition II 3
SPC-101 Fundamentals of Oral Communication OR
SPC-112 Public Speaking OR
MKT-140 Principles of Selling

Entrepreneurship Electives

See your advisor for online availability.

MGT-100 Principles of Management 3
ENG-108 Composition II: Technical Writing 3
OR
ENG-106 Composition II 3
SPC-101 Fundamentals of Oral Communication OR
SPC-112 Public Speaking OR
MKT-140 Principles of Selling
### Project Management Certificate Requirements

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<td>MGT-124</td>
<td>Project Management Tools*</td>
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<td>MGT-130</td>
<td>Principles of Supervision</td>
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<td>MGT-155</td>
<td>Integrated Project Management*</td>
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<tr>
<td>MGT-161</td>
<td>Agile Project Management with Scrum</td>
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<tr>
<td>BUS-280</td>
<td>Fundamentals of Lean Process Improvement</td>
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Total program credit hours: 18

### Global Perspectives in Business Certificate Requirements

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<td>Global Perspectives Elective</td>
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Total program credit hours: 15

### Degree Requirements

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<td>BUS-102</td>
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### Award

Associate of Applied Science degree
2 years (5 terms)

Marketing and Management are two of the most popular majors in colleges today, due to the vast employment opportunities available. Marketing Management is a hybrid program offering both marketing and management in one degree. Marketing promotes profitable exchanges in goods and services across all sectors—from solo entrepreneurs to small businesses, from global corporations to non-profits. Effective marketing allows every kind of organization to grow and prosper allowing vast employment opportunities. It is the marketing professional's job to create, manage, and enhance brands. To some this is a scary time to be in marketing, as the very foundation of how we communicate with customers is being disrupted by the Internet and social media. Today they're just a few clicks away on your Facebook page, Twitter profile, Snapchat or Instagram feed. Marketing can even lead to better communities, locally and across the globe. These fields need professionals with a strong initiative and spirit of competition. Successful students also exhibit strong entrepreneurial, problem solving and interpersonal skills.

Through this program, students have the opportunity to earn certificates in Retail, Sales, and Social Media Marketing.

**Career opportunities:** buyer; sales; retail; wholesaling; advertising; marketing; public relations; media planning; sales strategy; marketing research; real estate; social media manager, and more.

### Business Administration: Marketing Management

**Business & Information Technology**

203 Nielsen Hall
319-398-5416
www.kirkwood.edu/businessdept

**Entry time**

Fall, Spring, Summer
Career Programs

Term 3
MGT-130 Principles of Supervision OR 3
MKT-135 Content Marketing 3
BUS-932 Internship 3
—— Humanities or History/Culture Course 3

Term 4
MKT-110 Principles of Marketing 3
MKT-150 Principles of Advertising 3
MKT-180 Customer Service Strategies 3
ACC-111 Introduction to Accounting OR 3
ACC-152 Financial Accounting 3
—— Marketing Elective 3

Total program credit hours 13

Term 5
MKT-195 Marketing Management* 3
MKT-130 Social Media in Business 3
MKT-160 Principles of Retailing* 3
ECN-120 Principles of Macroeconomics OR 3
ECN-130 Principles of Microeconomics 1
BUS-290 Employment Search and Workplace Success OR 1
BUS-192 Professionalism: Business Competition 3
—— Marketing Elective 3

Total program credit hours 16

Marketing Electives
BUS-932 Internship 3
MKT-135 Content Marketing 3
MGT-170 Human Resource Management 3
MGT-300 Introduction to Entrepreneurship 3
FIN-121 Personal Finance 3
CIS-207 Fundamentals of Web Programming 3
BCA-290 Web Design Principles 3
GLS-120 Education Experience Abroad 3
MKT-190 International Marketing 3

Optional Courses
MKT-924 Honors Project 1
MKT-928 Independent Study 1

Retail Marketing Certificate Requirements
Course Number Course Title Credit Hours

Total program credit hours 64

Sales Certificate Requirements
Course Number Course Title Credit Hours

Term 1
BCA-152 Comprehensive Spreadsheets 3
MKT-110 Principles of Marketing 3
MKT-140 Principles of Selling 3
MKT-180 Customer Service Strategies 1
MKT-140 Time Management in the Workplace 1

Total program credit hours 11

Term 2
MKT-130 Social Media in Business 3

Total program credit hours 3

Social Media Marketing Certificate
Course Number Course Title Credit Hours

Term 1
MKT-110 Principles of Marketing 3
CIS-207 Fundamentals of Web Programming 3

Total program credit hours 6

Term 2
MKT-130 Social Media in Business 3
MKT-135 Content Marketing 3
BCA-290 Web Design Principles 3

Total program credit hours 9

*only offered in the Spring term

CAD/Mechanical Engineering Technology
Industrial Technologies
101 Jones Hall
319-398-4983
www.kirkwood.edu/industrialtech

Entry time
Fall

Award
Associate of Applied Science degree
2 years (5 terms including summer)
Diploma
1 year (3 terms including summer)
Industry endorsement earned
National Career Readiness Certificate

The CAD/Mechanical Engineering Technology curriculum prepares students for entry-level positions as mechanical engineering technicians and provides skills for those already in the field to gain advancement to designer status. Students focus on engineering fundamentals and the means of conveying design intent from drawing layouts and symbols through geometric dimensioning and tolerancing. Industry-standard CAD software is taught during all four semesters of the program to enhance employment opportunities. Competency in engineering fundamentals is built through courses in statics, strength of materials, kinematics, hydraulics, dynamics and machine design. A student can transfer credits from this program to UNI or William Penn University and work toward a B.S. in manufacturing, applied studies or industrial technology.

Career opportunities: engineering technician; test lab technician; CAD operator/designer; technical writer; mechanical engineering assistant.

Degree Requirements

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credit Hours</th>
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<tr>
<td><strong>Term 1-Fall</strong></td>
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<tr>
<td>CAD-300</td>
<td>AutoCAD for Applied Engineering</td>
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<td>CSC-110</td>
<td>Introduction to Computers</td>
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<tr>
<td>DRF-141</td>
<td>Engineering Drawings</td>
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<tr>
<td>DRF-142</td>
<td>Engineering Design I OR</td>
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<td>EGT-400</td>
<td>PLTW - Introduction to Engineering Design</td>
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<td>MAT-745</td>
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<td>CAD-237</td>
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<td>Hydraulics and Basic Circuits</td>
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<td>MFG-202</td>
<td>Manufacturing Processes</td>
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**Term 5-Spring**

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<td>EGT-188</td>
<td>Design Project</td>
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<td>EGT-194</td>
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**Total program credit hours**

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<th>Optional Courses</th>
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**Diploma Requirements**

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<td><strong>Term 1-Fall</strong></td>
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<td>CAD-300</td>
<td>AutoCAD for Applied Engineering</td>
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<td>CSC-110</td>
<td>Introduction to Computers</td>
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<td>DRF-141</td>
<td>Engineering Drawings</td>
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<td>Human Relations in Management OR</td>
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<td>PSY-111</td>
<td>Introduction to Psychology</td>
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</table>

*Students planning to transfer to a four-year college or university should consider substituting some or all of the following courses into the CAD/MET curriculum: ENG-105 Composition I AND ENG-108 Comp II: Technical Writing OR ENG-106 Composition FOR Communications Electives

**Carpentry**

**Industrial Technologies**

101 Jones Hall
319-398-4983

79
The Carpentry program prepares students to enter the skilled building trades. Students are given a hands-on intensive introduction to the skills used by carpenters. The classroom experience combines lecture and lab activities that cover all aspects of a carpenter’s job. Students may choose to pursue an Associate of Applied Science degree in the Construction Management program upon completion of the Carpentry program.

Career opportunities: residential carpenter; commercial carpenter; gateway to apprenticeship program.

Tool requirements: Students in the Carpentry program are required to have a tool set for lab activities. Estimated cost of these tools is $250.

Carpentry students are required to complete hands-on coursework at a job site out of town certain days of the week. Please see the instructor for more information.

**CNC Machining Technology**

**Industrial Technologies**

101 Jones Hall  
319-398-4983  
www.kirkwood.edu/industrialtech

**Entry time**  
Fall

**Award**  
Associate of Applied Science degree

2 years (5 terms including summer)  
Diploma  
1 year (3 terms including summer)

Computer Numerical Control (CNC) Machining provides instruction in the manufacturing of precision parts and products. The traditional production machinist role has changed to the type of production machining that requires many set-ups for short runs to meet just-in-time delivery demands of customers.

People who enter this field must be flexible in performing operations and must have a basic knowledge of the computer numerical control of machine tools. Program graduates will be able to program, edit, set up, and operate CNC lathes and mills. CNC students study quality control methods known as statistical process control. Special quality control equipment, such as coordinate measuring machines, are taught in this program. An introduction to advanced automated production methods is also included. Students can transfer credits from this program to UNI and work toward a B.A. in Technology Management.

Students are required to attain the following third party credentials as a part of the two year A.A.S degree program: OSHA 10-General Industry, Adult First Aid with CPR, Forklift 1,3,4,5,7, NIMS Level 1 Certifications and National Career Readiness Certificate.

Career opportunities: machinist; mold builder; salesperson; job shop technician; CNC programmer/operator; quality control technician; tool and die maker.

**Degree Requirements**

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<th>Course Title</th>
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<td>MAT-735</td>
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<td>MFG-120</td>
<td>Machinist Trade Printreading I</td>
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<tr>
<td>MFG-286</td>
<td>Job Planning, Benchwork &amp; Layout (NIMS)</td>
<td>3</td>
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<tr>
<td>MFG-259</td>
<td>Measurement, Materials &amp; Safety (NIMS)</td>
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<tr>
<td>MFG-299</td>
<td>Turning Operations (Turning Between Centers - NIMS)</td>
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<tr>
<td>MFG-324</td>
<td>Turning Operations (Turning in a Chuck - NIMS)</td>
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<tr>
<td>MFG-297</td>
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Total program credit hours: 35
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<th>Course Title</th>
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<td>Machine Trade Printreading II</td>
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<td>MFG-291</td>
<td>CNC Mill Operator (NIMS)</td>
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<td>MFG-292</td>
<td>CNC Lathe Operator (NIMS)</td>
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<td>MFG-298</td>
<td>Surface Grinding Operations (NIMS)</td>
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<td>MFG-332</td>
<td>CNC Mill Program and Setup (NIMS)</td>
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<td>MFG-334</td>
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<td>CNC Lathe Operator (NIMS)</td>
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<tr>
<td>MFG-298</td>
<td>Turning Operations (Turning Between Centers - NIMS)</td>
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<td>MFG-324</td>
<td>Turning Operations (Turning in a Chuck - NIMS)</td>
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<tr>
<td>MFG-297</td>
<td>Milling Machine Operations (NIMS)</td>
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<td>MFG-287</td>
<td>Manual Press Brake Operator (NIMS)</td>
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<td>MFG-339</td>
<td>CNC Press Brake Operator (NIMS)</td>
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<td>MFG-420</td>
<td>Jig and Fixture Design</td>
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<td>Manual Press Brake Operator (NIMS)</td>
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<td>CNC Press Brake Operator (NIMS)</td>
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<td>Geometric Dimensioning and Tolerancing</td>
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<td>AutoCAD for Applied Engineering</td>
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<td>CAD-301</td>
<td>Inventor for Applied Engineering</td>
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<td>MAT-137</td>
<td>Applications of Geometry</td>
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<td>Water Jet Operations</td>
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<td>Automated Production Methods</td>
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<td>EDM Wire Operations (NIMS)</td>
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<td>Introduction to Psychology</td>
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| Total program credit hours | 81 |

Optional Courses

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Diploma Requirements

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<tr>
<td>Term 1-Fall</td>
<td>Machinist Mathematics I</td>
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<td>MFG-120</td>
<td>Machine Trade Printreading I</td>
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<td>MFG-286</td>
<td>Job Planning, Benchwork &amp; Layout (NIMS)</td>
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<tr>
<td>MFG-259</td>
<td>Measurement, Materials &amp; Safety</td>
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</table>

CNC Machining Technology tool requirements

Students in the CNC Machining Technology program are required to have a tool set for lab activities. During the first or second week of classes, a tool vendor will offer products to students at a considerable discount off the list prices. Instructors provide students with a list of minimum tool requirements. The cost of tools is estimated to be around $2,500 and payment plans are arranged directly with manufacturers.

Computer Software Development

Business & Information Technology
203 Nielsen Hall
319-398-5416
www.kirkwood.edu/businessdept

Entry time
Fall

Award
Associate of Applied Science degree
2 years (5 terms including summer)

Certificates in Java Programming, .NET Programming, Mobile App Development and Database Technologies are available.
Those who can be both creative and logical, who enjoy working with computers, and especially those who would like to learn how to produce their own solutions for business and other computing needs, should consider a career in Computer Software Development.

This degree helps graduates enter the growing and well-paid field of computer programming. Students learn various phases of software development including how to design, write, test and document computer programs with a variety of tools, using in-demand languages such as Java, C# and SQL. In addition to learning to program for desktop computers and other devices, students also explore Internet programming with technologies such as ASP, JSP, HTML, CSS and JavaScript.

Career opportunities: computer programmer; software developer; systems analyst; web designer; software tester; client/server application developer; internet programmer.

Degree Requirements

Course Number | Course Title | Credit Hours
---|---|---

**Term 1**
CSC-110 | Introduction to Computers | 3
CIS-121 | Introduction to Programming | 3
CIS-207 | Fundamentals of Web Programming* | 3
ENG-105 | Composition I | 3

**Term 2**
CIS-335 | Relational Database Technologies &SQL* | 3
CIS-171 | Java* OR | 3
CSC-142 | Computer Science* | 3
CIS-622 | .NET Development I | 3
ENG-106 | Composition II OR | 3

**Term 3-Summer**
SPC-101 | Fundamentals of Oral Communications OR | 3
COM-744 | Oral Communication in the Workplace OR | 3
ENG-106 | Composition II OR | 3
SPC-112 | Public Speaking OR | 3
ENG-108 | Composition II: Technical Writing | 3

**Term 4**
CIS-175 | Java II* | 3
CIS-624 | .NET Development II* | 3
CIS-504 | Structured Systems Analysis* | 3
CIS-280 | Client Side Scripting | 3
BUS-290 | Employment Search and Workplace Success | 1

**Technical/Business Electives**
BAA-167 | Comprehensive Databases | 3
BAA-290 | Web Principles | 3
CIS-135 | Microcomputer Operating Systems | 3
CIS-342 | PHP/Apache/MySQL II | 3
CIS-249 | Web Languages | 3
CIS-353 | Database Models and Design Strategies | 3
CIS-370 | Fundamentals of 2D Visualizations and Games | 3
CIS-371 | Developing 3D Simulations and Games | 3
MDT-240 | Objective-C Development | 3
MAT-136 | Trigonometry and Analytic Geometry | 5
MAT-140 | Finite Math | 3
MAT-150 | Discrete Math | 3
MAT-157 | Statistics | 4
MAT-162 | Business Statistics | 4
MAT-165 | Business Calculus | 3
MGT-121 | Project Management Basics | 3
BUS-932 | Internship | 3

Java Programming Certificate Requirements

Course Number | Course Title | Credit Hours
---|---|---

**Term 1**
CIS-121 | Introduction to Programming Logic* | 3

**Term 2**
CIS-171 | Java* OR | 3
CSC-142 | Computer Science* | 3
CIS-335 | Relational Database Technologies | 3

Total program credit hours | 65
Career Programs

Mobile App Development Certificate Requirements

<table>
<thead>
<tr>
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<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Term 1</td>
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<td></td>
</tr>
<tr>
<td>CIS-121</td>
<td>Introduction to Programming Logic*</td>
<td>3</td>
</tr>
<tr>
<td>Term 2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CIS-171</td>
<td>Java* OR</td>
<td>3</td>
</tr>
<tr>
<td>CSC-142</td>
<td>Computer Science*</td>
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</tr>
<tr>
<td>Term 3</td>
<td></td>
<td></td>
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<tr>
<td>MDT-340</td>
<td>IOS App Development*</td>
<td>3</td>
</tr>
<tr>
<td>MDT-350</td>
<td>Android App Development*</td>
<td>3</td>
</tr>
</tbody>
</table>

Total program credit hours 21

*Minimum grade requirement of C- for graduation

+MAT-120 is recommended. Students planning to transfer to a 4-year institution should take MAT-138

Computer Support Specialist

Business & Information Technology
203 Nielsen Hall
319-398-5416
www.kirkwood.edu/businessdept

Entry time
Fall, Spring or Summer

Award
Associate of Applied Science degree
2 years (5 terms including summer)
Diploma options
1 year (2 terms or 2 terms and 1 summer)

Computer support specialists provide technical assistance to users as well as maintain, upgrade, and repair computer systems and networks. Students interested in this field should have an interest in working with people. Specialists constantly interact with customers and fellow employees as they answer questions and give valuable advice. They should also enjoy learning about new technology and be willing to work on both hardware and software systems. Good writing and communications skills are also required.

This degree focuses on a variety of IT skills that include hardware, software, networking and programming, as well as problem-solving and analytical skills.

Students completing the curriculum related to customer service roles can apply to graduate with the Desktop Customer Service diploma.

Students completing the curriculum related to IT in clinical and public health settings can apply to graduate with the Healthcare IT Technician certificate.
Career Programs

Career opportunities: computer support specialists; technical support specialists; help desk technicians.

Degree Requirements

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
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<tr>
<td><strong>Term 1</strong></td>
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<tr>
<td>CSC-110</td>
<td>Introduction to Computers*</td>
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<td>Computer Hardware Basics*</td>
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<td>NET-165</td>
<td>Network Plus*</td>
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<td>Workplace Communications OR</td>
<td>3</td>
</tr>
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<td>ENG-101</td>
<td>Elements of Writing OR</td>
<td>3</td>
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<td>ENG-105</td>
<td>Composition I</td>
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<td>Term 2</td>
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<td>NET-137</td>
<td>Advanced PC Concepts*</td>
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<td>NET-235</td>
<td>CCNA Cisco 1*</td>
<td>3</td>
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<td>NET-321</td>
<td>Windows Networking*</td>
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<td>NET-850</td>
<td>Special Topics in Technology*</td>
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<td>MGT-145</td>
<td>Human Relations in Management OR</td>
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<td>PSY-111</td>
<td>Introduction to Psychology</td>
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<td>NET-174</td>
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<td>MAT-772</td>
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<td>Algebra Mastery 1</td>
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<td>CIS-128</td>
<td>Programming Concepts*</td>
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<td>NET-252</td>
<td>Healthcare IT Technician*</td>
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<td>NET-600</td>
<td>Network Security Basics*</td>
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<tr>
<td>CIS-207</td>
<td>Fundamentals of Web Programming</td>
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<td>CIS-335</td>
<td>Relational Database Technologies &amp; SQL</td>
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PC Technician Diploma Requirements

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<tr>
<td><strong>Term 1</strong></td>
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<tr>
<td>NET-122</td>
<td>Computer Hardware Basics*</td>
<td>3</td>
</tr>
<tr>
<td>NET-165</td>
<td>Network Plus*</td>
<td>3</td>
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<tr>
<td>NET-321</td>
<td>Windows Networking*</td>
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Desktop Customer Service Diploma Requirements

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<tr>
<td><strong>Term 1</strong></td>
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<tr>
<td>CIS-135</td>
<td>Microcomputer Operating Systems*</td>
<td>3</td>
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<td>COM-723</td>
<td>Workplace Communications OR</td>
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<tr>
<td>ENG-101</td>
<td>Elements of Writing OR</td>
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<td>ENG-105</td>
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<td>BCA-213</td>
<td>Intermediate Computer Business Applications*</td>
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<tr>
<td>COM-744</td>
<td>Oral Communication in the Workplace OR</td>
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<td>Fundamentals of Oral Communication OR</td>
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Healthcare IT Technician Certificate Requirements

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<tr>
<td>NET-165</td>
<td>Network Plus*</td>
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</tr>
<tr>
<td>NET-321</td>
<td>Windows Networking*</td>
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</tbody>
</table>
The A.A.S. degree, and provides entry

The Construction Supervision certificate is an alternative to the A.A.S. degree, and provides entry-level skills and knowledge for students who want to pursue a career as a construction site supervisor or project manager.

**Construction Estimator certificate**

The Construction Estimator certificate is an alternative to the A.A.S. degree, and provides entry-level skills and knowledge for students who want to pursue a career as a construction estimator.

**Construction Management certificate**

The Construction Management certificate provides thorough, up-to-date preparation for effective entry-level leadership within the broader industry. Specialized training in project planning, budgeting, scheduling, quality control, contracts and stakeholder relations is provided. Graduates of this certificate program will be well equipped for positions such as project engineers, estimators, construction schedulers and small business owners.

**Project Management (Design/Build) certificate**

The Construction Project Management Certificate builds skills and knowledge to successfully coordinate the design and construction process from the conceptual development state through the project close-out phase. It includes foundational courses including construction documentation, sustainability, pre-construction, construction services, project close-out and commissioning. Graduates of this certificate program will receive knowledge and practice for entry level project management positions that include assistant project manager, project engineer and sustainable building technologist.

**Career opportunities:** Construction managers and supervisors; building inspectors; project managers; sustainability specialists; material suppliers and cost estimators.

### Degree Requirements

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credit Hours</th>
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<td>Architecture, Construction, and Engineering Professions</td>
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<td>CON-101</td>
<td>Architectural Plans and Specifications</td>
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<td>CON-932</td>
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<td>CON-313</td>
<td>Structures and Mechanical/Electrical/Plumbing Systems</td>
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<td>CAD-201</td>
<td>Introduction to Building Information Modeling</td>
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<td>CON-190</td>
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<td>CON-322</td>
<td>Estimating for Construction and</td>
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### Career Programs

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<td>CON-324</td>
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<td>MGT-101</td>
<td>Principles of Management</td>
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<td>MGT-130</td>
<td>Principles of Supervision</td>
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<td>CON-330</td>
<td>Construction Capstone</td>
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<td><strong>Total Term 3</strong></td>
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<tr>
<td>4</td>
<td>CON-316</td>
<td>Sustainable Construction Science</td>
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<td>CON-328</td>
<td>Construction Documentation</td>
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<tr>
<td></td>
<td>CON-257</td>
<td>Pre-Construction Services</td>
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<tr>
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<td>CON-400</td>
<td>Construction Services, Project and Commissioning</td>
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<td>Behavioral/Social Science Course</td>
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<td>Honors Project</td>
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<td><strong>Construction Supervision Certificate Requirements</strong></td>
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<td><strong>Course Number</strong></td>
<td><strong>Course Title</strong></td>
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<tr>
<td></td>
<td>Term 1</td>
<td>CON-101</td>
<td>Architectural Plans and Specifications</td>
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<td>CON-400</td>
<td>Construction Services, Project Close-Out and Commissioning</td>
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<td></td>
<td></td>
<td>IND-155</td>
<td>Microcomputer Applications OR</td>
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<td>CSC-110</td>
<td>Introduction to Computers</td>
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<td>Term 2</td>
<td>CON-257</td>
<td>Pre-Construction Services</td>
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<td><strong>Project Management (Design/Build) Certificate Requirements</strong></td>
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<td>Term 1</td>
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<td>Pre-Construction Services</td>
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Career Programs

Criminal Justice
Social Sciences
1008 Cedar Hall
319-398-1241
www.kirkwood.edu/socialsciences

Entry time
Fall, Spring, Summer

Award
Associate of Applied Science (4 terms)
Associate of Arts Liberal Arts (transfer degree)

This degree opens doors to a possible career in criminal justice including positions in law enforcement and corrections. Students enrolled in criminal justice may obtain a two-year Associate of Applied Science in Criminal Justice degree that will include both general education and criminal justice courses.

Career opportunities: sheriff; police officer; highway patrol officer; corrections officer; probation officer

Degree Requirements

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>CRJ-100</td>
<td>Introduction to Criminal Justice</td>
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<td>SOC-110</td>
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<td>SOC-115</td>
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<td>College Writing OR</td>
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</tr>
<tr>
<td>ENG-105</td>
<td>Composition I AND</td>
<td></td>
</tr>
<tr>
<td>ENG-106</td>
<td>Composition II OR</td>
<td></td>
</tr>
<tr>
<td>ENG-108</td>
<td>Composition II: Technical Writing</td>
<td></td>
</tr>
<tr>
<td>SPC-101</td>
<td>Fundamentals of Oral Communication OR</td>
<td>3</td>
</tr>
<tr>
<td>SPC-112</td>
<td>Public Speaking</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Math Course (from approved list)</td>
<td>3</td>
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<tr>
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</table>

Total program credit hours 12

Culinary Arts
Hospitality Arts
The Hotel at Kirkwood Center
319-848-8770
www.kirkwood.edu/hospitality

Entry time
Fall or Spring

Award
Associate of Applied Science degree
2 years (4 terms)

Accreditation
This program is fully accredited by the American Culinary Federation Education Foundation Accrediting Commission. This provides graduates with an opportunity for nationally-recognized certification upon completion of the program.

Students in Kirkwood's food service programs prepare for their careers through practical experience in management, food preparation and service.

Students assist in the daily operation of The Class Act, a full-service restaurant at The Hotel at Kirkwood Center. The restaurant features fine dining for hotel and conference center guests, Kirkwood staff and the public. Students take a leadership role in planning, preparing and servicing catered events on campus during their last semester. Students are required to purchase professional uniforms and tools to use when in labs and kitchens.

Career opportunities: chefs; cooks; catering managers; kitchen managers; other food service professionals.

Degree Requirements

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>HCM-109</td>
<td>Kitchen Essentials</td>
<td>1.5</td>
</tr>
<tr>
<td>HCM-147</td>
<td>Culinary Techniques</td>
<td>1.5</td>
</tr>
<tr>
<td>HCM-138</td>
<td>Food Fundamentals</td>
<td>3</td>
</tr>
<tr>
<td>HCM-100</td>
<td>Sanitation and Safety</td>
<td>2</td>
</tr>
<tr>
<td>HCM-260</td>
<td>Hospitality Math OR</td>
<td>3</td>
</tr>
<tr>
<td>MAT-140</td>
<td>Finite Math*</td>
<td></td>
</tr>
<tr>
<td>CSC-110</td>
<td>Introduction to Computers OR</td>
<td>3</td>
</tr>
<tr>
<td>COM-723</td>
<td>Workplace Communications OR</td>
<td></td>
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<tr>
<td></td>
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<tr>
<td>ENG-105</td>
<td>Composition I*</td>
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<tr>
<td>HCM-321</td>
<td>Introduction to Hospitality Industry</td>
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</tbody>
</table>

Total program credit hours 62
Career Programs

**Diploma**

**Award**

**Fall or Spring**

www.kirkwood.edu/alliedhealth

**Entry time**

Fall or Spring

**Award**

Diploma

---

**Term 2**

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>HCM-140</td>
<td>Fabrication</td>
<td>3</td>
</tr>
<tr>
<td>HCM-269</td>
<td>Garde Manger</td>
<td>1.5</td>
</tr>
<tr>
<td>HCM-161</td>
<td>Stocks and Sauces</td>
<td>1.5</td>
</tr>
<tr>
<td>HCM-315</td>
<td>Wine, Beer and Spirits Basics</td>
<td>3.5</td>
</tr>
<tr>
<td>HCM-117</td>
<td>Bakery Basics</td>
<td>3</td>
</tr>
<tr>
<td>HCM-181</td>
<td>International Cuisine</td>
<td>4</td>
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<tr>
<td>HCM-288</td>
<td>Introduction to Hospitality II</td>
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**Term 3**

<table>
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<th>Course Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>HCM-166</td>
<td>Culinary Arts</td>
<td>4</td>
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<tr>
<td>HCM-204</td>
<td>Service Techniques</td>
<td>3</td>
</tr>
<tr>
<td>HCM-207</td>
<td>Menu Planning</td>
<td>1.5</td>
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<tr>
<td>HCM-231</td>
<td>Nutrition</td>
<td>2</td>
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<tr>
<td>HCM-279</td>
<td>Hospitality Accounting OR</td>
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<tr>
<td>ACC-152</td>
<td>Financial Accounting</td>
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<tr>
<td>HCM-273</td>
<td>Advanced Garde Manger</td>
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**Term 4**

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<th>Course Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>HCM-342</td>
<td>Hospitality Events and Catering (BOH)</td>
<td>3</td>
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<tr>
<td>HCM-330</td>
<td>Hospitality Personnel Management</td>
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</tr>
<tr>
<td>HCM-251</td>
<td>Purchasing, Receiving and Inventory</td>
<td>2</td>
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<tr>
<td>COM-744</td>
<td>Oral Communication in the Workplace OR</td>
<td>3</td>
</tr>
<tr>
<td>ENG-106</td>
<td>Composition II*</td>
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<tr>
<td>FLS-118</td>
<td>Spanish for Professionals: Hospitality</td>
<td>3</td>
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<tr>
<td>MGT-145</td>
<td>Human Relations in Management* OR</td>
<td>3</td>
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<tr>
<td>PSY-111</td>
<td>Introduction to Psychology</td>
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<tr>
<td>HCM-530</td>
<td>Culinary Capstone</td>
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**Total program credit hours**

70

**Optional Courses**

<table>
<thead>
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<tr>
<td>HCM-405</td>
<td>Culinary Competition</td>
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<tr>
<td>HCM-924</td>
<td>Honors Project</td>
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<tr>
<td>HCM-928</td>
<td>Independent Study</td>
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</table>

When transferring to a four-year school, see your advisor for course requirements.

*Those transferring to a four-year college or university may want to select this course.

**Dental Assisting**

**Allied Health**

2164 Linn Hall
319-398-5566
www.kirkwood.edu/alliedhealth

**Entry time**

Fall or Spring

**Award**

Diploma

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1 year (3 terms)

1 year program, you will gain classroom, laboratory and hands-on experience by working with patients at the College of Dentistry at the University of Iowa and in private dental offices.

**Career opportunities:** private dental office; clinics; research/teaching; consulting; hospitals; sales and insurance claims; specialty practices such as orthodontics or children’s dentistry.

**Degree Requirements**

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>HSC-107</td>
<td>Professionals in Health*</td>
<td>2</td>
</tr>
<tr>
<td>HSC-210</td>
<td>Health Skills I*</td>
<td>1</td>
</tr>
<tr>
<td>DEN-110</td>
<td>Dental Terminology*</td>
<td>2</td>
</tr>
<tr>
<td>DEN-120</td>
<td>Dental Anatomy*</td>
<td>3</td>
</tr>
<tr>
<td>DEN-100</td>
<td>Fundamentals of Dentistry</td>
<td>3.5</td>
</tr>
<tr>
<td>DEA-403</td>
<td>Dental Materials</td>
<td>3</td>
</tr>
<tr>
<td>DEA-517</td>
<td>Dental Assisting I</td>
<td>3.5</td>
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<tr>
<td>DEA-518</td>
<td>Dental Assisting II</td>
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<tr>
<td>DEA-300</td>
<td>Dental Radiography</td>
<td>3</td>
</tr>
<tr>
<td>DEA-285</td>
<td>Oral Pathology for Dental Assisting*</td>
<td>1</td>
</tr>
<tr>
<td>DEN-200</td>
<td>Preventative Dentistry</td>
<td>2</td>
</tr>
<tr>
<td>DEA-610</td>
<td>Specialty Dentistry</td>
<td>4.5</td>
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<tr>
<td>DEN-130</td>
<td>Head and Neck Anatomy*</td>
<td>1.5</td>
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**Term 3**

<table>
<thead>
<tr>
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<th>Course Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>DEA-519</td>
<td>Dental Assisting III</td>
<td>1.5</td>
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<tr>
<td>DEA-581</td>
<td>Dental Assisting Clinic II</td>
<td>4.5</td>
</tr>
<tr>
<td>DEN-220</td>
<td>Dental Nutrition*</td>
<td>1</td>
</tr>
<tr>
<td>COM-744</td>
<td>Oral Communication in the Workplace OR</td>
<td>3</td>
</tr>
</tbody>
</table>

**Accreditation**

The Dental Assisting program is accredited by the Commission on Dental Accreditation and has been granted the accreditation status of compliance without reporting requirements. The Commission is a specialized accrediting body recognized by the United States Department of Education. Successful completion of the program entitles graduates to take the National Dental Assistant Certification Examination. The Commission on Dental Accreditation: 211 East Chicago Avenue, Chicago, IL 60611-2678; 312-440-4653.

Dental Assistants help the dentist at chair side and also perform functions such as polishing teeth, taking X-rays, mixing materials and sterilizing instruments. Some assistants also manage the office and patient accounts, schedule appointments and purchase supplies. During this one-year program, you will gain classroom, laboratory and hands-on experience by working with patients at the College of Dentistry at the University of Iowa and in private dental offices.

**Course Title**

- Dental Assisting Clinic I
- Dental Assisting II
- Dental Radiography
- Oral Pathology for Dental Assisting*
- Preventative Dentistry
- Specialty Dentistry
- Head and Neck Anatomy*
- Dental Assisting III
- Dental Assisting Clinic II
- Dental Nutrition*
- Oral Communication in the Workplace* OR

---

88
COM-222  Communication for Health Care Professionals OR
SPC-101  Fundamentals of Oral Communication OR
SPC-112  Public Speaking
DEA-701  Dental Office Procedures 11

Total diploma program hours 46.5

Associate of Applied Science Degree Courses

Term 4
ENG-105  Composition I* 3
PSY-111  Introduction to Psychology* 3
MAT-772  Applied Math* 3
-----  Humanities Elective* 3
-----  Electives* 6 18

Total Associate of Applied Science degree program credit hours 64.5

Optional
DEA-924  Honors Project 1

This curriculum is for fall start. Curriculum for spring start is slightly different. Contact Allied Health for information.

*Courses may be taken before beginning the program.

NOTE: Minimum C- required in all technical Dental Assisting courses and DEN-100, DEN-120 and DEN-130.

Dental Hygiene

Allied Health
2164 Linn Hall
319-398-5566
www.kirkwood.edu/alliedhealth

Entry time
Fall

Award
Associate of Applied Science degree
2 years (5 terms, including summer)

Accreditation
The Dental Hygiene program is accredited by the Commission on Dental Accreditation and has been granted the accreditation status of compliance without reporting requirements. The Commission is a specialized accrediting body recognized by the United States Department of Education. Dental Hygiene graduates are eligible to take the National Board Dental Hygiene Examination and the regional board examinations of their choice. Successful completion of both board examinations is required to receive a license to practice dental hygiene. Commission on Dental Accreditation: 211 East Chicago Avenue, Chicago, IL 60611-2678; 312-440-4653.

Dental hygienists help prevent, detect and treat diseases of the mouth, playing a key role in the pursuit of optimal patient health via education and treatment planning. Hygienists work independently with patients.

Dental hygienists remove calculus deposits and stains from teeth, polish teeth, apply sealants and fluoride, take X-rays, record medical and dental histories, and educate patients on how proper brushing, flossing and eating habits can help maintain a healthy mouth.

Career opportunities: dental offices/clinics/hospitals; government agencies; public health; insurance claims processing; specialty dental practices; sales; teaching.

Degree Requirements

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIO-168</td>
<td>Human Anatomy and Physiology I**</td>
<td>4</td>
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<tr>
<td>BCA-189</td>
<td>Microcomputer Literacy** OR</td>
<td>1</td>
</tr>
<tr>
<td>CSC-110</td>
<td>Introduction to Computers**</td>
<td>3</td>
</tr>
<tr>
<td>CHM-110</td>
<td>Introduction to Chemistry**</td>
<td>3</td>
</tr>
<tr>
<td>CHM-111</td>
<td>Introduction to Chemistry Lab**</td>
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<tr>
<td>MAT-772</td>
<td>Applied Math**</td>
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Term 1-Fall

<table>
<thead>
<tr>
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<th>Course Title</th>
<th>Credit Hours</th>
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</thead>
<tbody>
<tr>
<td>DEN-120</td>
<td>Dental Anatomy*</td>
<td>3</td>
</tr>
<tr>
<td>HSC-107</td>
<td>Professionals in Health*</td>
<td>2</td>
</tr>
<tr>
<td>DEN-100</td>
<td>Fundamentals of Dentistry</td>
<td>3.5</td>
</tr>
<tr>
<td>DHY-173</td>
<td>Dental Hygiene I</td>
<td>4</td>
</tr>
<tr>
<td>DMY-200</td>
<td>Preventive Dentistry</td>
<td>2</td>
</tr>
<tr>
<td>DMY-130</td>
<td>Head and Neck Anatomy*</td>
<td>1.5</td>
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Term 2-Spring

<table>
<thead>
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<th>Course Number</th>
<th>Course Title</th>
<th>Credit Hours</th>
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</thead>
<tbody>
<tr>
<td>BIO-173</td>
<td>Human Anatomy and Physiology*</td>
<td>4</td>
</tr>
<tr>
<td>CHM-132</td>
<td>Introduction to Organic and Biochemistry*</td>
<td>4</td>
</tr>
<tr>
<td>DMY-300</td>
<td>Dental Radiography</td>
<td>3</td>
</tr>
<tr>
<td>DMY-140</td>
<td>General and Oral Pathology</td>
<td>2</td>
</tr>
<tr>
<td>DMY-186</td>
<td>Dental Hygiene II</td>
<td>4</td>
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Term 3-Summer

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>DMY-220</td>
<td>Dental Nutrition*</td>
<td>1</td>
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<tr>
<td>DMY-220</td>
<td>Dental Materials</td>
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<tr>
<td>DMY-274</td>
<td>Local Anesthesia for the Dental Hygienist</td>
<td>1.5</td>
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<tr>
<td>DMY-285</td>
<td>Dental Hygiene III</td>
<td>3</td>
</tr>
<tr>
<td>SPC-101</td>
<td>Fundamentals of Oral Communication* OR</td>
<td>3</td>
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<tr>
<td>COM-222</td>
<td>Communication for Health Care Professionals* OR</td>
<td>9.5</td>
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<td>SPC-112</td>
<td>Public Speaking*</td>
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</table>

Term 4-Fall

<table>
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<th>Course Title</th>
<th>Credit Hours</th>
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<tr>
<td>DMY-250</td>
<td>Community Dental Health</td>
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<tr>
<td>DMY-211</td>
<td>Periodontology</td>
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<tr>
<td>DMY-134</td>
<td>Therapeutics and Pain Control</td>
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<tr>
<td>DMY-296</td>
<td>Dental Hygiene IV</td>
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</tbody>
</table>
Career Programs

Bio-186 Microbiology* 4

**Total program credit hours 86**

*Courses may be taken before beginning the clinical portion of the program.

**Completion of courses with a minimum grade of C- required before admission to the program.

Note: Minimum C is required in all technical Dental Hygiene courses. Dental Hygiene graduates are eligible to take the National Board of Hygiene Examination and the regional board examinations of their choice. Successful completion of both board examinations is required to receive a license to practice dental hygiene.

Dental Technology

Allied Health
2164 Linn Hall
319-398-5566
www.kirkwood.edu/alliedhealth

Entry time
Fall

Award
Associate of Applied Science degree
2 years (5 terms including summer)

Accreditation
The Dental Technology program is accredited by the Commission on Dental Accreditation and has been granted the accreditation status of compliance with reporting requirements. The Commission is a specialized accrediting body recognized by the United States Department of Education. Graduates are eligible to take the Recognized Graduate examination, which is one of the first steps leading to certification as a certified dental technician (CDT). This examination is administered by the National Board of Certification in Dental Laboratory Technology. Commission on Dental Accreditation can be contacted at 312-440-4653 or 211 East Chicago Avenue, Chicago, IL 60611.

Artistic and creative abilities are valuable assets for a dental technologist. By using various processes, a dental technologist improves patients’ quality of life, appearance and health. Technologists play a significant role in the delivery of dental health care.

Dental Technology is a flexible career offering several opportunities for advancement. Experienced technologists can find well-paid positions in commercial laboratories based on their technical and communication skills, become department heads in larger laboratories where they would have supervisory responsibilities, or potentially own their own laboratory. Dental technologists also may teach courses in educational programs and apply their knowledge to research, sales and/or marketing of prosthetic materials, instruments and equipment.

Career opportunities: With advancements in technology and materials, there is an increased demand for restorative and cosmetic dentistry. As a result, there currently is a great demand for dental technologist. Employment opportunities will be excellent well into the next century (statement from the American Dental Association).

Degree Requirements

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Term 1-Fall</td>
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</tr>
<tr>
<td>HSC-107</td>
<td>Professionals in Health*</td>
<td>2</td>
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<tr>
<td>DEN-120</td>
<td>Dental Anatomy*</td>
<td>3</td>
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<tr>
<td>DLT-156</td>
<td>Dental Anatomy Lab</td>
<td>2</td>
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<td>DLT-152</td>
<td>DLT Oral Anatomy</td>
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<td>DLT-251</td>
<td>Introduction to Dentures</td>
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<td>DLT-250</td>
<td>Foundation of Dental Technology</td>
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<tr>
<td>BCA-189</td>
<td>Microcomputer Literacy* OR</td>
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<td>CSC-110</td>
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<tr>
<td>Term 2-Spring</td>
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<tr>
<td>SPC-101</td>
<td>Fundamentals of Oral Communication* OR</td>
<td>3</td>
</tr>
<tr>
<td>SPC-112</td>
<td>Public Speaking* OR</td>
<td>3</td>
</tr>
<tr>
<td>COM-222</td>
<td>Communication for Health Care Professionals*</td>
<td>3</td>
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<tr>
<td>DLT-565</td>
<td>Occlusion</td>
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<td>DLT-445</td>
<td>Orthodontics</td>
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<td>DLT-253</td>
<td>Introduction to Partial Dentures</td>
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<td>DLT-254</td>
<td>Introduction to Crown and Bridge</td>
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<tr>
<td>Term 3-Summer</td>
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<tr>
<td>DLT-353</td>
<td>Dental Technology Industry</td>
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<td>DLT-355</td>
<td>Digital Dentistry</td>
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<tr>
<td>DLT-456</td>
<td>Introduction to Ceramics</td>
<td>5</td>
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<tr>
<td></td>
<td>Humanities Elective*</td>
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<td>Term 4-Fall</td>
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<tr>
<td>ENG-105</td>
<td>Composition I*</td>
<td>3</td>
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<tr>
<td>DLT-350</td>
<td>Fixed Dental Prosthodontics</td>
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</tr>
<tr>
<td>DLT-351</td>
<td>Removable Dental Prosthodontics</td>
<td>5</td>
</tr>
<tr>
<td>DLT-851</td>
<td>DLT Clinic I</td>
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</tr>
<tr>
<td>PSY-111</td>
<td>Introduction to Psychology* OR</td>
<td>3</td>
</tr>
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<td>SOC-110</td>
<td>Introduction to Sociology*</td>
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<td>Term 5-Spring</td>
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<td>DLT-451</td>
<td>Advanced Fixed Dental Prosthodontics OR</td>
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<tr>
<td>DLT-452</td>
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Diagnostic Assistant (Radiologic Technology)

Allied Health
2164 Linn Hall
319-398-5566
www.kirkwood.edu/alliedhealth

Entry time
Summer

Award
Associate of Applied Science degree

The Diagnostic Assistant degree is designed for Radiologic Technology students in partnership with the Mercy/St. Luke’s School of Radiologic Technology or Covenant School of Radiographic Technology in Waterloo. The two-year radiologic technology technical program is taught through Mercy/St. Luke’s School of Radiologic Technology or Covenant Medical Center. The programs begin each summer and have a separate application process.

Students can complete prerequisite courses at Kirkwood to become eligible to apply for the Mercy/St. Luke’s School of Radiologic Technology or Covenant Medical Center program. After they complete a portion of the program, students can transfer those credits back to Kirkwood and receive a Diagnostic Assistant associate of applied science degree if the prerequisite courses were taken at Kirkwood.

Career opportunities: hospitals; outpatient clinics; physicians’ offices.

Degree Requirements

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
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<tbody>
<tr>
<td>BCA-189</td>
<td>Microcomputer Literacy</td>
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<tr>
<td>BIO-168</td>
<td>Human Anatomy &amp; Physiology I</td>
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<tr>
<td>ENG-105</td>
<td>Composition I</td>
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<td>HSC-115</td>
<td>Medical Terminology</td>
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<td>BIO-173</td>
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<td>PSY-111</td>
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</table>

Upon completion of Mercy/St. Luke’s School of Radiologic Technology program or the Covenant School of Radiography, 29 technical credits can be transferred to Kirkwood Community College toward an Associate of Applied Science (A.A.S.) degree.

Diesel Agriculture Technology

Ag Sciences
Washington Hall
319-398-5609
www.kirkwood.edu/agrisciences

Entry time
Fall

Award
Associate of Applied Science degree
2 years (5 terms, including 1 summer)

The Diesel Agriculture Technology program offers a two-year A.A.S. degree for students entering the workforce in agriculture equipment or heavy equipment maintenance and repair. Today’s technicians not only diagnose and fix mechanical problems, they also must understand and troubleshoot the computer-controlled systems found in diesel engines, power trains and hydraulic systems. The program also provides industry training and professional development for graduates. Currently, more than 30 local businesses employ one or more former students who participated in our program.

Career opportunities: general service technician; specialized service technician; parts manager; warranty administrator;
shop coordinator; owner/operator, teacher/trainer; safety inspector.

Degree Requirements

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credit Hours</th>
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</thead>
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<tr>
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<td>AGM-405</td>
<td>Ag Engines</td>
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<td>Industrial Math I</td>
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<tr>
<td>DSL-355</td>
<td>Fundamentals of Internal Combustion Engines</td>
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<td>Communications Course</td>
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<td></td>
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<td>18</td>
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<td>Term 2-Spring</td>
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<td>DSL-143</td>
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<td>Machinery Servicing</td>
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<td>AGM-334</td>
<td>Advanced Ag Electronics</td>
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<td>IND-155</td>
<td>Microcomputer Applications</td>
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<td>Welding Fundamentals</td>
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<td>AGM-404</td>
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<td>Combine Operation and Adjustment</td>
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<td>Power Shift Transmissions</td>
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</table>

Additional Information

It is possible upon graduation of Diesel Agriculture Technology to take the required Diesel Truck Technology classes Kirkwood offers and attain a second degree in a minimal amount of time. See an advisor for further details.

A commercial driver’s license (CDL) is recommended for Kirkwood’s Diesel programs. Students can take Kirkwood’s Continuing Education CDL driving program offered at the end of the fall semester.

Diesel Truck Technology

Ag Sciences

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credit Hours</th>
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<tr>
<td>DSL-355</td>
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<td>AGM-124</td>
<td>Technical Procedures for Power Mechanics Technicians</td>
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<td>AGM-113</td>
<td>Hydraulics I</td>
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<td>18</td>
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<tr>
<td>Term 2-Spring</td>
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<tr>
<td>DSL-143</td>
<td>Fundamentals of Electricity</td>
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<td>Term 4-Fall</td>
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<td>AGM-422</td>
<td>Diesel Fuel Systems</td>
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<td>Total program credit hours</td>
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</table>

Entry time

Fall

Award

Associate of Applied Science degree

ACE program – 17 months in length.

The Diesel Truck Technology program gives graduates training in diesel truck and diesel-powered equipment maintenance and repair. Courses include engine repair, welding, electricity and electronics, air conditioning, power-trains, mechanical and electronic fuel systems, air brakes, truck and trailer suspensions, and trailer service and repair.

Career opportunities: shop technicians; shop foremen; sales associates and sales managers; service managers; parts technicians and parts managers.

Washington Hall
319-398-5609
www.kirkwood.edu/agrisciences

Entry time

Fall

Award

Associate of Applied Science degree

ACE program – 17 months in length.

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Diesel Truck Technology

Ag Sciences

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<td>Communications Course</td>
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<td>Term 4-Fall</td>
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<td>Total program credit hours</td>
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<td>64</td>
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</tbody>
</table>
Additional Information
A commercial driver's license (CDL) is recommended for Kirkwood's Diesel programs. Students can take Kirkwood's Continuing Education CDL driving program offered at the end of the fall semester.

It is possible upon graduation of Diesel Truck Technology to take the required Diesel Agriculture Technology classes Kirkwood offers and attain a second degree in a minimal amount of time. See an advisor for further details.

Early Childhood Education
Social Sciences
1008 Cedar Hall
319-398-1241
www.kirkwood.edu/socialsciences

Entry time
Fall, Spring, Summer

Award
Associate of Applied Science (4 terms)
Associate of Arts Liberal Arts (transfer degree)

The Early Childhood Education program provides several options for students interested in the care and education of young children. Students in the program have opportunities to participate in a variety of community early childhood programs, including Head Start centers, kindergarten classrooms, voluntary four-year-old programs and child care centers. Whenever possible, experience in inclusive and diverse settings will be encouraged.

Students planning to pursue an Early Childhood Education degree at a four-year institution follow the Liberal Arts program requirements while at Kirkwood, completing general education and elective courses that prepare them for transfer. Students hoping to start their careers without transferring should work with the Early Childhood Education advisor to choose from the Associate of Applied Science degree, diploma and certificate options.

Kirkwood has articulation agreements with a number of institutions offering degrees in early childhood. By working with your advisor in Early Childhood Education, you can select courses that will meet the requirements of your transfer institution such as foreign language, laboratory science, diversity and grade point average.

Early Childhood Education (Diploma)
Students in the Early Childhood Education A.A.S. program may elect to receive this diploma after completing the courses below. Please consult with the Social Sciences Department for more information regarding this option.

Early Childhood Paraeducator (Certificate)
Students in the Early Childhood Education Associate of Applied Science program may elect to receive an Early Childhood Paraeducator certificate after completing the A.A.S. degree requirements. This certificate complements the Early Childhood Education program by offering additional classes for those students pursuing a career as an early childhood teacher or provider. The Early Childhood Paraeducator certificate also fulfills the educational requirement for those working toward an infant/toddler or preschool Child Development Associate (CDA) administrated by the Council for Professional recognition in Washington D.C. and meets the requirements for clock hours of formal child care education required for the CDA credential. Please consult with the Social Sciences department for more information regarding this option.

Career opportunities: lead teachers; assistant teachers; paraeducators; early childhood program directors and child care providers in a variety of early childhood programs including child care centers; child development homes; preschools and Head Start programs.

Required Courses

<table>
<thead>
<tr>
<th>A.A.S. Degree Requirements</th>
<th>Course Title</th>
<th>Credit Hours</th>
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<td>ECE-103</td>
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<td>ECE-105</td>
<td>Technology in Early Childhood</td>
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<td>ECE-158</td>
<td>Early Childhood Curriculum I</td>
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<td>ECE-170</td>
<td>Child Growth &amp; Development</td>
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<td>ENG-105</td>
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<td>EDU-248</td>
<td>Exceptional Persons</td>
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<td>Early Childhood Program Administration</td>
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<td>ECE-221</td>
<td>Infant/Toddler Care &amp; Education</td>
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<td>ECE-243</td>
<td>Early Childhood Guidance</td>
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<td>ECE-262</td>
<td>Early Childhood Field Experience</td>
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Optional

| ECE-924 | Honors Project | 1 |
Total program credit hours 64

Early Childhood Recommended Program Electives

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<td>EDU-119</td>
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<td>FLS-142</td>
<td>Elementary Spanish II</td>
<td>4</td>
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<tr>
<td>LIT-105</td>
<td>Children's Literature</td>
<td>3</td>
</tr>
<tr>
<td>HSV-109</td>
<td>Introduction to Human Services</td>
<td>3</td>
</tr>
<tr>
<td>SOC-110</td>
<td>Introduction to Sociology</td>
<td>3</td>
</tr>
<tr>
<td>SOC-120</td>
<td>Marriage and Family</td>
<td>3</td>
</tr>
</tbody>
</table>

Diploma Requirements

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Term 1</td>
<td>ECE-103 Introduction to Early Childhood Education</td>
<td>3</td>
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<tr>
<td></td>
<td>ECE-105 Technology in Early Childhood</td>
<td>1</td>
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<tr>
<td></td>
<td>ECE-158 Early Childhood Curriculum I</td>
<td>3</td>
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<tr>
<td></td>
<td>ECE-133 Child Health, Safety &amp; Nutrition</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>ENG-105 Composition I*</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>ECE-170 Child Growth &amp; Development</td>
<td>3</td>
</tr>
</tbody>
</table>

| Term 2        | ECE-159 Early Childhood Curriculum II        | 3            |
|               | ECE-221 Infant/Toddler Care & Education      | 3            |
|               | ECE-243 Early Childhood Guidance             | 3            |
|               | ECE-262 Early Childhood Field Experience     | 3            |

| Term 3        | PSY-111 Introduction to Psychology           | 3            |
|               | SPC-101 Fundamentals of Oral Communication OR| 3            |
|               | SPC-112 Public Speaking                      | 3            |

Optional Courses

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>EDU-110</td>
<td>Exploring Teaching</td>
<td>3</td>
</tr>
<tr>
<td>EDU-119</td>
<td>Behavior Management</td>
<td>3</td>
</tr>
</tbody>
</table>

Total program credit hours 18

*Your writing placement score may require prerequisite courses.
+Leads to certification as a paraeducator.

Electroneurodiagnostic Technology

Allied Health
2164 Linn Hall
319-398-5566
www.kirkwood.edu/alliedhealth

Entry time
Fall

Award
Associate of Applied Science degree
2 years (5 terms including summer)

Accreditation
The Electroneurodiagnostic Technology program is accredited by the Commission on Accreditation of Allied Health Education Programs (CAAHEP). Graduates are prepared for the Registry Exam of American Board of Registration of Electroneurodiagnostic Technologists.

Commission on Accreditation of Allied Health Education Programs 25400 US Highway 19 North, Suite 158, Clearwater, FL 33763, 727-210-2350.

Electroneurodiagnostics is the study and recording of electrical activity in the brain and nervous system. An Electroneurodiagnostic (END) Technologist uses an electroencephalograph (EEG) instrument to record electrical impulses transmitted by the brain and nervous system. These recordings assist physicians in the diagnosis of a variety of neurological problems—from headaches and dizziness to seizure disorders, strokes, degenerative brain diseases and sleep disorders.

This is a cooperative program between Kirkwood and the Department of Neurology at the University of Iowa Hospitals and Clinics. All technical course work for the program is through the Department of Neurology at the University of Iowa Hospitals and Clinics. The clinical experiences are at area hospitals and the Department of Neurology at the University of Iowa Hospitals and Clinics.

Career opportunities: hospitals; outpatient clinics; sleep labs.
### Degree Requirements

<table>
<thead>
<tr>
<th>Term 1-Fall</th>
<th>Course Number</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>HSC-107</td>
<td>Professionals in Health*</td>
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<tr>
<td>HSC-210</td>
<td>Health Skills I*</td>
<td>1</td>
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<tr>
<td>BCA-189</td>
<td>Microcomputer Literacy* OR</td>
<td>1</td>
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<tr>
<td>CSC-110</td>
<td>Introduction to Computers*</td>
<td></td>
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<tr>
<td>BIO-168</td>
<td>Human Anatomy &amp; Physiology I*</td>
<td>4</td>
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<tr>
<td>END-100</td>
<td>Introduction to Electroneurodiagnostics</td>
<td>2.5</td>
<td></td>
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<tr>
<td>HSC-117</td>
<td>Basic Medical Terminology* OR</td>
<td>2.5</td>
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<tr>
<td>HSC-115</td>
<td>Medical Terminology*</td>
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<tr>
<td>MAT-772</td>
<td>Applied Math*</td>
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**Term 2-Spring**

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<tr>
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<th>Course Title</th>
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<tbody>
<tr>
<td>END-310</td>
<td>Electroneurodiagnostic Technical Science</td>
<td>7</td>
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<tr>
<td>END-330</td>
<td>Electroneurodiagnostic Technical Clinical Science</td>
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<tr>
<td>BIO-173</td>
<td>Human Anatomy &amp; Physiology II*</td>
<td>4</td>
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<td></td>
<td>Humanities Elective*</td>
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**Term 3-Summer**

<table>
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<tr>
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<th>Course Title</th>
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<tbody>
<tr>
<td>END-810</td>
<td>Electroneurodiagnostic Clinic I</td>
<td>6</td>
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<tr>
<td>SPC-101</td>
<td>Fundamentals of Oral Communication* OR</td>
<td>3</td>
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<tr>
<td>COM-222</td>
<td>Communication for Health Care Professionals* OR</td>
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<td>SPC-112</td>
<td>Public Speaking*</td>
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**Term 4-Fall**

<table>
<thead>
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<th>Course Title</th>
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<tr>
<td>PSY-111</td>
<td>Introduction to Psychology*</td>
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<tr>
<td>END-420</td>
<td>Evoked Potentials II</td>
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<td>END-830</td>
<td>Electroneurodiagnostic Clinic II</td>
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<td>ENG-105</td>
<td>Composition I*</td>
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**Term 5-Spring**

<table>
<thead>
<tr>
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<th>Course Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>END-870</td>
<td>Sleep Technology</td>
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<tr>
<td>END-850</td>
<td>Electroneurodiagnostic Clinic III</td>
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**Total program credit hours**

| 68.5 |

**Optional**

<table>
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<tr>
<th>Course Number</th>
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<tr>
<td>END-924</td>
<td>Honors Project</td>
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<tr>
<td>HSC-103</td>
<td>Studies in Health Sciences</td>
<td>1</td>
</tr>
</tbody>
</table>

*Courses may be taken before beginning the program.

### Electronics Engineering Technology

**Industrial Technologies**

101 Jones Hall
319-398-4983
www.kirkwood.edu/industrialtech

**Entry time**

Fall

### Award

**Associate of Applied Science degree**

2 years (5 terms including summer)

Diploma

3 terms

### Industry endorsement earned

National Career Readiness Certificate

The Electronics Engineering Technology program balances theory and practical applications to help students design, test, analyze, operate and troubleshoot complex electronic systems. The program integrates LabVIEW®, a graphic-based programming language used by many of the major technology-based employers for data acquisition, process control and automated test instrumentation. Students can transfer more than 40 EET credit hours to UNI toward a B.S. in Electrical and Information Engineering Technology. The curriculum may also be modified to maximize credits transferable to BSEE and BSEET degree programs. EET graduates may also seek certification by the Electronics Technicians Association, International.

**Career opportunities:** field-service technician; electronics design technician; electronics test technician; biomedical electronics technician; avionics technician; technical writer; computer-integrated manufacturing technician; advanced industrial manufacturing technician; electronic systems repair technician; computer repair technician; controls technician; security systems technician; radio communications technician; component test technician.

### Degree Requirements

<table>
<thead>
<tr>
<th>Term 1-Fall</th>
<th>Course Number</th>
<th>Course Title</th>
<th>Credit Hours</th>
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<tr>
<td></td>
<td>ELT-277</td>
<td>Electronic Practices</td>
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<tr>
<td></td>
<td>ELT-345</td>
<td>Electric Circuits I</td>
<td>5</td>
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<tr>
<td></td>
<td>MAT-745</td>
<td>Technical Mathematics I</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Communications Course*</td>
<td>3</td>
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**Term 2-Spring**

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>MAT-746</td>
<td>Technical Mathematics II</td>
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<tr>
<td>ELT-341</td>
<td>Electric Circuits II</td>
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<tr>
<td>ELT-517</td>
<td>Active Devices I: Transistor Amplifiers</td>
<td>6</td>
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<td>Communications Course*</td>
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**Term 3-Summer**

<table>
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<tr>
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<th>Course Title</th>
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<tbody>
<tr>
<td>ELT-309</td>
<td>Digital Circuits OR</td>
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<tr>
<td>EGT-420</td>
<td>PLTW - Digital Electronics</td>
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</tr>
<tr>
<td>ELT-518</td>
<td>Active Devices II: Operational Amplifiers</td>
<td>3</td>
</tr>
<tr>
<td>ELT-299</td>
<td>Introduction to LabView</td>
<td>3</td>
</tr>
<tr>
<td>MGT-145</td>
<td>Human Relations in Management OR</td>
<td>3</td>
</tr>
<tr>
<td>PSY-111</td>
<td>Introduction to Psychology Humanities or History/Cultures</td>
<td>3</td>
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</tbody>
</table>

**Course**

15
Career Programs

Energy Production and Distribution Technologies
Industrial Technologies
101 Jones Hall
319-398-4983
www.kirkwood.edu/industrialtech

Entry time
Fall

Award
Associate of Applied Science degree
2 years (5 terms including summer)

Students in the Energy Production and Distribution Technologies program study the technical fundamentals necessary for a career in the energy industry, with particular attention focused on utility-scale wind turbine repair and maintenance. Required coursework includes the study of mechanical drive systems, schematic reading, maintenance fundamentals, programmable logic controllers, and electrical theory and troubleshooting. Students are able to apply these concepts by regularly climbing, and participating in learning activities on the 2.5 MW wind turbine located on the Kirkwood Community College Campus.

Graduates of this program can go on to complete a four-year degree at UNI or the U of I.

The Energy Production and Distribution Technologies program requires completion of the following third-party credentials: OSHA 10-hour General Industry, 50+ High Voltage Arc Flash, Residential Voltage Arc Flash, Rigging, Lifting and Cribbing, JSEF Job Safety & Environmental Analysis, Adult First Aid with CPR, Forklift class 1,3,4,5,7, Electrostatic Discharge, Tower and Climb Rescue, and the National Career Readiness Certificate.

Career opportunities: Wind Turbine Service Technicians; Wind Energy Project Managers; Wind Energy Operations Managers; Electrical and Electronic Repairers; Maintenance and Repair Workers; Electro-Mechanical Technician.

Degree Requirements

Course Number | Course Title | Credit Hours
--- | --- | ---

**Course Title**

**Credit Hours**

**Term 1-Fall**

ELT-396 | Communications Electronics | 4
ELT-398 | Communications Systems I | 3
ELT-616 | Microprocessors I | 4
PHY-230 | Technical Physics I | 3

Total program credit hours | 14

**Term 5-Spring**

ELT-399 | Communications Systems II | 4
ELT-621 | Microprocessors II | 4
ELT-845 | Design Projects | 4
PHY-232 | Technical Physics II | 3

Total program credit hours | 15

Optional Courses

EGT-410 | PLTW-Principles of Engineering | 3
ELT-924 | Honors Project | 1
ELT-928 | Independent Study | 1

**Diploma Requirements**

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
</table>

**Course Number**

**Course Title**

**Credit Hours**

**Term 1-Fall**

ELT-277 | Electronic Practices | 3
ELT-345 | Electric Circuits I | 5
MAT-745 | Technical Mathematics I | 4

Total program credit hours | 12

**Term 2-Spring**

MAT-746 | Technical Mathematics II | 4
ELT-341 | Electric Circuits II | 5
ELT-517 | Active Devices I: Transistor Amplifiers | 6

Total program credit hours | 15

**Term 3-Fall**

ELT-309 | Digital Circuits OR | 3
EGT-420 | PLTW-Digital Electronics | 3
ELT-518 | Active Devices II: Operational Amplifiers | 3

Total program credit hours | 6

*Students planning to transfer to a four-year college or university should consider substituting some or all of the following courses into the EET curriculum:

ENG-105 | Composition I AND | 1
ENG-108 | Comp. II: Technical Writing OR | 1
ENG-106 | Composition II FOR | 1

Communication electives

**Energy Production and Distribution Technologies**
## Career Programs

### Term 3-Summer
- **WTT-101**: Wind Turbine Orientation 1
- **WTT-932**: Wind Energy Internship **OR** 4
- **IND-196**: Fundamentals of Hydraulic and Pneumatic Systems 5

### Term 4-Fall
- **WTT-102**: Introduction to Wind Energy 2
- **WTT-111**: Wind Turbine Technical Foundations I 4
- **WTT-112**: Wind Turbine Technical Foundations II 4
- **MGT-145**: Human Relations in Management **OR** 3
- **-------**: Communications Course 3

### Term 5-Spring
- **SER-138**: Electrical Power Distribution Systems 2
- **WTT-502**: Wind Turbine Troubleshooting 4
- **WTT-450**: Wind Turbine Maintenance 4
- **-------**: Humanities or History/Cultures Course 3
- **-------**: Communications Course 3

### Total program credit hours 68

**Optional Courses**
- **EGT-415**: PLTW-Environmental Sustainability 3

**Career opportunities:** firefighter; emergency medical technician.

### Degree Requirements

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Term 1-Fall</strong></td>
<td></td>
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</tr>
<tr>
<td>FIR-213</td>
<td>Principles of Emergency Services</td>
<td>3</td>
</tr>
<tr>
<td>FIR-127</td>
<td>Fire Behavior and Combustion</td>
<td>3</td>
</tr>
<tr>
<td>FIR-150</td>
<td>Fire Detection and Suppression System</td>
<td>3</td>
</tr>
<tr>
<td>ENG-101</td>
<td>Elements of Writing <strong>OR</strong></td>
<td>3</td>
</tr>
<tr>
<td>COM-723</td>
<td>Workplace Communications</td>
<td>3</td>
</tr>
<tr>
<td>SPC-101</td>
<td>Fundamentals of Oral Communication <strong>OR</strong></td>
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<tr>
<td>COM-744</td>
<td>Oral Communication in the Workplace</td>
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<td><strong>Term 2-Spring</strong></td>
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<tr>
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<td>Approved Math Course</td>
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<tr>
<td>BCA-189</td>
<td>Microcomputer Literacy</td>
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<tr>
<td>FIR-124</td>
<td>Building Construction</td>
<td>3</td>
</tr>
<tr>
<td>FIR-400</td>
<td>Emergency Safety and Survival</td>
<td>3</td>
</tr>
<tr>
<td>FIR-130</td>
<td>Fire Prevention</td>
<td>3</td>
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<tr>
<td>FIR-110</td>
<td>History and Philosophy of the Fire Service</td>
<td>2</td>
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<tr>
<td><strong>Term 3-Summer</strong></td>
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<tr>
<td>FIR-199</td>
<td>Firefighter I</td>
<td>8</td>
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<td><strong>Term 4-Fall</strong></td>
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<td>FIR-201</td>
<td>Firefighter II</td>
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<tr>
<td>-----</td>
<td>One Fire Science Management Technical Course</td>
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<tr>
<td>EMS-255</td>
<td>Emergency Medical Technician I</td>
<td>4</td>
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<td>EMS-350</td>
<td>Emergency Medical Technician II</td>
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<tr>
<td>EMS-365</td>
<td>Emergency Medical Technician II Clinical</td>
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<td><strong>Term 5-Spring</strong></td>
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<tr>
<td>-----</td>
<td>Social Science Course</td>
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<td>Humanities or History/Culture Course</td>
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<td>FIR-180</td>
<td>Chemistry of Hazardous Materials</td>
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<td>Two Fire Science Management Technical Courses</td>
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<tr>
<td><strong>Degree Total program credit hours</strong></td>
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<td>67.5</td>
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</tbody>
</table>

### Optional Courses
- **FIR-924**: Honors Project 1
- **FIR-928**: Independent Study 1

### Fire Science Technical Courses
- **FIR-146**: Firefighting Tactics and Strategy 3
- **FIR-183**: Hazardous Materials Management 3

---

**Entry-level Firefighter**

**Industrial Technologies**
101 Jones Hall
319-398-4983
www.kirkwood.edu/industrialtech

**Entry time**
Fall or Spring

**Award**
Associate of Applied Science degree
Diploma
1 year (3 terms including summer)
Certificate options (See advisor for information)

**Industry endorsements and certifications earned**
Firefighter I; Firefighter II; EMT (State and National); National Career Readiness Certificate

This curriculum provides the skills sought by entry-level firefighters. Recent high school graduates or volunteers may use this program to improve their employment prospects in this competitive profession. This program features some evening and online classes.
Career Programs

FIR-280 Instructional Techniques for Fire Science Training 3
FIR-330 Fire Service Company Officer 3

Diploma Requirements

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Term 1-Fall</td>
<td></td>
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<tr>
<td>FIR-213</td>
<td>Principles of Emergency Services</td>
<td>3</td>
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<td>FIR-127</td>
<td>Fire Behavior and Combustion</td>
<td>3</td>
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<tr>
<td>FIR-150</td>
<td>Fire Detection and Suppression System</td>
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</tr>
<tr>
<td>BCA-189</td>
<td>Microcomputer Literacy</td>
<td>1</td>
</tr>
<tr>
<td>ENG-101</td>
<td>Elements of Writing OR</td>
<td>3</td>
</tr>
<tr>
<td>COM-723</td>
<td>Workplace Communications</td>
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<td>FIR-180</td>
<td>Chemistry of Hazardous Materials</td>
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<td>EMS-350</td>
<td>Emergency Medical Technician II Clinical</td>
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<td>FIR-199</td>
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Certificate Requirements

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<tr>
<td>FIR-199</td>
<td>Firefighter I</td>
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<tr>
<td>Term 2-Spring</td>
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<tr>
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<td>EMS-365</td>
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Fire Science Certificate

Any 6 of the Following Courses

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>FIR-124</td>
<td>Building Construction</td>
<td>3</td>
</tr>
<tr>
<td>FIR-127</td>
<td>Fire Behavior and Combustion</td>
<td>3</td>
</tr>
<tr>
<td>FIR-130</td>
<td>Fire Prevention</td>
<td>3</td>
</tr>
<tr>
<td>FIR-146</td>
<td>Firefighting Tactics &amp; Strategy</td>
<td>3</td>
</tr>
<tr>
<td>FIR-150</td>
<td>Fire Detection and Suppression Systems</td>
<td>3</td>
</tr>
<tr>
<td>FIR-180</td>
<td>Chemistry of Hazardous Materials</td>
<td>3</td>
</tr>
<tr>
<td>FIR-183</td>
<td>Hazardous Materials</td>
<td>3</td>
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</tr>
<tr>
<td>FIR-280</td>
<td>Instructional Techniques for Fire Science Training</td>
<td>3</td>
</tr>
<tr>
<td>FIR-330</td>
<td>Fire Service Company Officer</td>
<td>3</td>
</tr>
<tr>
<td>FIR-400</td>
<td>Emergency Safety and Survival</td>
<td>3</td>
</tr>
<tr>
<td>FIR-213</td>
<td>Principles of Emergency Services</td>
<td>3</td>
</tr>
</tbody>
</table>

Total program credit hours 18

Exercise Science and Wellness

Math/Science

1184 Linn Hall
319-398-5516
www.kirkwood.edu/exercisescience

Entry time

Fall

Award

Associate of Applied Science degree
2 years (4 terms)

Kirkwood Community College's Exercise Science program will provide the training necessary to become a nationally recognized fitness professional and/or to continue to an institution offering bachelor's degrees, or to further individual knowledge in order to serve the local community. Students within the exercise science program will attain skills in assessment and identification of health risks and fitness program design for general and special populations. Students would also gain knowledge and understanding of physical and physiological adaptations to the environment and exercise and be able to utilize that knowledge to educate others regarding proper exercise form, anatomy, physiology, and the nutrition required to meet health goals.

Graduates from the Exercise Science and Wellness program are eligible to take the Certified Personal Trainer examination offered by various organizations including the National Academy of Sports Medicine, the American Council on Exercise, and the National Strength and Conditioning Association.

Degree Requirements

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>Term 1</td>
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<tr>
<td>BIO-151</td>
<td>Nutrition</td>
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<tr>
<td>ENG-105</td>
<td>Composition I OR</td>
<td>3</td>
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<td>ENG-120</td>
<td>College Writing</td>
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<tr>
<td>EXS-120</td>
<td>Human Anatomy &amp; Physiology for Exercise Science OR</td>
<td>3</td>
</tr>
<tr>
<td>BIO-168</td>
<td>Human Anatomy &amp; Physiology I AND</td>
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<tr>
<td>BIO-173</td>
<td>Human Anatomy &amp; Physiology II</td>
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<tr>
<td>MAT-707</td>
<td>Algebra Mastery I</td>
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<td></td>
<td>Program Elective</td>
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<tr>
<td></td>
<td>Activity Course</td>
<td>1</td>
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<tr>
<td></td>
<td></td>
<td>16</td>
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</table>
**Term 2**
- ENG-106  Composition II  3
- EXS-180  Fitness Programming and Design  3
- PEH-170  Principles of Weight Training  3
- PSY-111  Introduction to Psychology  3
- Humanities or History/Culture  3

**Term 3**
- EXS-280  Exercise Physiology  4
- PSY-121  Developmental Psychology  3
- SPC-101  Fundamentals of Oral Communication OR
- SPC-112  Public Speaking
- MAT-115  Mathematics & Society OR  3
- MAT-120  College Algebra
- Program Elective  3
- Humanities or History/Culture Course
- Program Elective  3

**Term 4**
- EXS-285  Personal Trainer Capstone  3
- EXS-932  Internship  2
- Humanities or History/Culture Course
- Program Elective  6
- Activities Course  1

**Total program credit hours**  62

**Program Electives**
- PEH-111  Personal Wellness  3
- PEC-111  Techniques and Theory of Coaching  2
- PEC-126  Athletic Injury Prevention  2
- PEC-148  Theory of Coaching Basketball  2
- PEC-160  Sports Officiating  2
- PEH-155  Exercise Psychology  3
- PEH-160  Fundamentals of Health Coaching  3
- PEH-162  Introduction to Physical Education  3
- PEH-165  Introduction to Complementary and Alternative Medicine  3
- PEH-255  Principles of Sport Management  3
- PEH-270  Exercise Prescription for Special Populations  3
- PEH-924  Honors Project  1
- PEH-928  Independent Study  1

**Activities Courses**
- PEA-102  Aerobic Fitness I  1
- PEA-162  Speed and Conditioning I  1
- PEA-187  Weight Training I  1
- PEA-287  Weight Training II  1

**Food Service Assistant**
**Hospitality Arts**
The Hotel at Kirkwood Center
319-848-8770

**Entry time**
Fall or Spring

**Award**
Diploma
1 year (2 terms)

The Food Service Assistant program provides students with the technical knowledge and skills required to enter the quality food preparation and service industry. Students prepare for their careers through practical experience in food preparation. Students are required to purchase uniforms and tools to use when in labs and kitchens.

Students assist in the operation of The Café on Kirkwood’s main campus.

Food service workers assist cooks and chefs with the daily operations of kitchen and dining facilities. They perform a variety of tasks involved in preparing hot and cold food.

**Career opportunities:** food preparation worker; cooking assistant; cafeteria attendant.

**Required Courses**

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credit Hours</th>
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<tr>
<td>HCM-109</td>
<td>Kitchen Essentials</td>
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<tr>
<td>HCM-147</td>
<td>Culinary Techniques</td>
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</tr>
<tr>
<td>HCM-138</td>
<td>Food Fundamentals</td>
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<tr>
<td>HCM-100</td>
<td>Sanitation and Safety</td>
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<td>HCM-260</td>
<td>Hospitality Math</td>
<td>3</td>
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<tr>
<td>HCM-321</td>
<td>Introduction to Hospitality Industry</td>
<td>1</td>
</tr>
<tr>
<td>COM-723</td>
<td>Workplace Communications</td>
<td>3</td>
</tr>
<tr>
<td>MGT-145</td>
<td>Human Relations in Management</td>
<td>3</td>
</tr>
<tr>
<td>HCM-269</td>
<td>Garde Manger</td>
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<tr>
<td>HCM-117</td>
<td>Bakery Basics</td>
<td>3</td>
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<tr>
<td>HCM-231</td>
<td>Nutrition</td>
<td>2</td>
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<tr>
<td>CSC-110</td>
<td>Introduction to Computers</td>
<td>3</td>
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<tr>
<td>HCM-161</td>
<td>Stocks and Sauces</td>
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<tr>
<td>HCM-932</td>
<td>Internship</td>
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</table>

**Total program credit hours**  30

**Golf Course and Athletic Turfgrass**
**Ag Sciences**
Horticulture/Floral Careers
319-398-5441
www.kirkwood.edu/agrisciences

**Entry time**
Summer or Fall
Career Programs

Award
Associate of Applied Science degree
2 years (4 terms, 1 summer)
Diploma (See advisor for information)
3 terms

Through the classroom and extensive lab experiences, you’ll learn design, installation and maintenance of turfgrass systems; understand cultural and chemical turf controls; install, design and repair irrigation systems; and operate and maintain turf equipment. You’ll also focus on computer literacy, team building, club activities and leadership responsibilities. You’ll have the best hands-on opportunities turfgrass education has to offer at our lab facilities.

Career opportunities: golf course assistant superintendent; athletic field manager; grounds director; lawn care company foreman; sales representative for an equipment, fertilizer, chemical, seed, sod or spray company.

Degree Requirements

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credit Hours</th>
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</thead>
<tbody>
<tr>
<td><strong>Term I</strong></td>
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<tr>
<td>AGH-112</td>
<td>Introduction to Turfgrass Management</td>
<td>3</td>
</tr>
<tr>
<td>AGH-220</td>
<td>Plant Identification I</td>
<td>3</td>
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<td>AGH-236</td>
<td>Plant Material Maintenance</td>
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<tr>
<td>AGH-162</td>
<td>Landscape Construction Lecture</td>
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</tr>
<tr>
<td>AGH-164</td>
<td>Landscape Construction Lab</td>
<td>1</td>
</tr>
<tr>
<td>AGH-110</td>
<td>Success in Horticulture</td>
<td>1</td>
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<tr>
<td></td>
<td>Humanities or History/Culture</td>
<td>3</td>
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<tr>
<td></td>
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<td><strong>16</strong></td>
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<tr>
<td><strong>Term 2</strong></td>
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<tr>
<td>AGH-211</td>
<td>Advanced Turfgrass Management</td>
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<tr>
<td>AGH-221</td>
<td>Principles of Horticulture</td>
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<tr>
<td>AGH-157</td>
<td>Equipment Operations</td>
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<td>AGH-150</td>
<td>Equipment Operations Lab</td>
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<tr>
<td>AGC-313</td>
<td>Leadership in Agriculture**</td>
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<tr>
<td>AGH-102</td>
<td>Horticulture Math</td>
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<tr>
<td>COM-723</td>
<td>Workplace Communications OR</td>
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</tr>
<tr>
<td>ENG-105</td>
<td>Composition I</td>
<td>1</td>
</tr>
<tr>
<td></td>
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<td><strong>15</strong></td>
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<tr>
<td><strong>Term 3</strong></td>
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<tr>
<td>AGH-166</td>
<td>Turfgrass and Landscape Irrigation</td>
<td>3</td>
</tr>
<tr>
<td>AGH-425</td>
<td>Grounds Maintenance</td>
<td>3</td>
</tr>
<tr>
<td>AGH-211</td>
<td>Advanced Turfgrass Management</td>
<td>3</td>
</tr>
<tr>
<td>MGT-145</td>
<td>Human Relations in Management</td>
<td>3</td>
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<tr>
<td><strong>Total program credit hours</strong></td>
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</table>

*Internship: Coordinator approval or 24 credit hours
**Leadership in Agriculture can be taken in either spring or fall.

Graphic Communication Technology

Business & Information Technology

203 Nielsen Hall
319-398-5416
www.kirkwood.edu/businessdept

Entry time
Fall

Award
Associate of Applied Science degree
2 years (5 terms including summer)
Those interested in our program should have a strong interest in managing, manipulating and merging text and graphic components used to communicate information that sells a product or idea. Skills in art, photography, marketing and interactive design interest, will increase enjoyment and overall design opportunities within the program. Students should be able to work under tight deadlines both individually and as part of a team. Students need to be open to the fact that not all graphic solutions are computer-based.

The Graphic Communication Technology program prepares students for employment in the technical design and production area of the graphic communication industry. Following an introduction to the graphics industry, the core program develops students' practical knowledge and provides hands-on experience with current standards in graphic communication. Students learn design, layout, image manipulation and illustration principles to applying final graphics used in 2D design, print, web and motion graphics, plus receive extensive experience working on Apple computers using industry standard software from Adobe.

Career opportunities: printing and publishing companies; advertising agencies; Web design; in-house graphics; design and marketing departments.

### Degree Requirements

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Term 1-Fall</strong></td>
<td></td>
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</tr>
<tr>
<td>GRA-101</td>
<td>Survey of Graphic Communications*</td>
<td>3</td>
</tr>
<tr>
<td>ART-301</td>
<td>Design Fundamentals</td>
<td>3</td>
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<tr>
<td>ART-133</td>
<td>Drawing</td>
<td>3</td>
</tr>
<tr>
<td>CSC-110</td>
<td>Introduction to Computers</td>
<td>3</td>
</tr>
<tr>
<td>MKT-150</td>
<td>Principles of Advertising OR</td>
<td>3</td>
</tr>
<tr>
<td>MKT-110</td>
<td>Principles of Marketing</td>
<td>3</td>
</tr>
<tr>
<td><strong>Term 2-Spring</strong></td>
<td></td>
<td>15</td>
</tr>
<tr>
<td>GRA-127</td>
<td>Illustrator I</td>
<td>3</td>
</tr>
<tr>
<td>GRA-131</td>
<td>Digital Layout</td>
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</tr>
<tr>
<td>GRA-140</td>
<td>Digital Imaging</td>
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<tr>
<td>CIS-207</td>
<td>Fundamentals of Web Programming</td>
<td>3</td>
</tr>
<tr>
<td>ENG-101</td>
<td>Elements of Writing OR</td>
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</tr>
<tr>
<td>ENG-105</td>
<td>Composition I OR</td>
<td>3</td>
</tr>
<tr>
<td><strong>Term 3-Summer</strong></td>
<td></td>
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<tr>
<td>GRA-132</td>
<td>Digital Layout II</td>
<td>3</td>
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<tr>
<td>GRA-141</td>
<td>Digital Imaging II</td>
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<td><strong>Term 4-Fall</strong></td>
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<tr>
<td>ENG-105</td>
<td>Composition I OR</td>
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<tr>
<td>ENG-106</td>
<td>Composition II</td>
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<tr>
<td>GRA-128</td>
<td>Illustrator II</td>
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<tr>
<td>GRA-151</td>
<td>Web Design</td>
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<tr>
<td>GRA-195</td>
<td>Introduction to Web Media</td>
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<tr>
<td>ADM-133</td>
<td>Business Math and Calculators OR</td>
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**Term 5-Spring**

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<tbody>
<tr>
<td>GRA-152</td>
<td>Web Design II</td>
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<tr>
<td>GRA-153</td>
<td>Web Media II</td>
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<tr>
<td>GRA-192</td>
<td>Production Techniques</td>
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<td>GRA-199</td>
<td>Graphic Communication Job Shadow</td>
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<tr>
<td>MGT-145</td>
<td>Human Relations in Management OR</td>
<td>3</td>
</tr>
<tr>
<td>PSY-111</td>
<td>Introduction to Psychology</td>
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</tbody>
</table>

Total program credit hours 67

*GRA-101 Survey of Graphic Communication must be completed in the first semester.

Note: Students planning to transfer to a four-year college or university should verify transfer credits before proceeding with this program. See your advisor to discuss appropriate course selection.

### Health Information Technology

**Allied Health**

2164 Linn Hall  
319-398-5566  
www.kirkwood.edu/alliedhealth

**Entry time**
Fall

**Award**
Associate of Applied Science degree  
2 years (5 terms, including summer)  
Medical Coding Diploma  
1 year (3 terms including summer)

**Accreditation**

The Health Information Technology A.A.S. program is accredited by the Commission on Accreditation for Health Informatics and Information Management Education (CAHIIM). The Commission on Accreditation for Health Informatics and Information Management Education (CAHIIM) can be contacted at: 233 N. Michigan Ave, Chicago, IL 60601-5800; 312-233-1100; www.cahiim.org Graduates are eligible to take the national certification exam offered by the American Health Information Management Association (AHIMA) to become a registered health information technician (RHIT).

Kirkwood's HIT program has a 100 percent pass rate on the AHIMA-RHIT National Certificate Examination.

Health information technology (HIT) professionals collect, analyze and manage patient health information, then communicate with patients, physicians, nurses, administrators, lawyers and insurance companies about the information in these records.
Health information technicians assemble patient health information and make sure medical records are complete. HITs code each diagnosis and procedure and may communicate with physicians to clarify diagnoses or obtain additional information. HITs provide reliable and valid information that drives the health care industry.

Kirkwood's HIT program focuses on medical coding as well as the management of health information. In addition to taking courses on campus, students also complete practicums at health facilities throughout the state.

**Career opportunities:** hospitals; long-term care facilities; physicians’ offices; correctional facilities; home health agencies; mental health agencies; insurance companies; computer software companies.

### Degree Requirements

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Prerequisites</strong></td>
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<tr>
<td>BIO-168</td>
<td>Human Anatomy &amp; Physiology I**+</td>
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<tr>
<td>HSC-115</td>
<td>Medical Terminology***+</td>
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<td>CSC-110</td>
<td>Introduction to Computers***+</td>
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<tr>
<td>HIT-361</td>
<td>Introduction to HIT+</td>
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<tr>
<td>HIT-220</td>
<td>Introduction to Medical Coding+</td>
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<tr>
<td>HSC-107</td>
<td>Professionals in Health*.</td>
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<tr>
<td>BIO-173</td>
<td>Human Anatomy &amp; Physiology II*-.</td>
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<tr>
<td>MAT-772</td>
<td>Applied Math*.</td>
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<tr>
<td>BCA-213</td>
<td>Intermediate Computer Business Applications*+</td>
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<tr>
<td>HIT-550</td>
<td>Professional Practice Experience I-</td>
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<tr>
<td>HIT-495</td>
<td>Medical Office Management-</td>
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<tr>
<td>HIT-240</td>
<td>Advanced Coding &amp; Classification+</td>
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<tr>
<td>HSC-142</td>
<td>Elements of Pharmacology**+</td>
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<tr>
<td>HIT-449</td>
<td>Information Governance</td>
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<tr>
<td><strong>Term 3-Summer</strong></td>
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<tr>
<td>HIT-280</td>
<td>CPT-4 Coding+</td>
<td>3</td>
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<tr>
<td>HIT-291</td>
<td>Reimbursement Methods+</td>
<td>2.5</td>
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<tr>
<td>HIT-551</td>
<td>Professional Practice Experience II-</td>
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<tr>
<td>HSC-217</td>
<td>Introduction to Pathology**+</td>
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<td><strong>Term 4-Fall</strong></td>
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<tr>
<td>HIT-420</td>
<td>Legal Aspects of Health Information+</td>
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</tr>
<tr>
<td>HIT-431</td>
<td>Quality Improvement+</td>
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<td>HIT-552</td>
<td>Professional Practice Experience III-</td>
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<td>HIT-350</td>
<td>Health Information Systems+</td>
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<td>ENG-105</td>
<td>Composition I*+</td>
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### Term 5-Spring

<table>
<thead>
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<th>Course Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>HIT-490</td>
<td>Health Management &amp; Supervision+</td>
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<tr>
<td>HIT-450</td>
<td>Health Statistics+</td>
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<tr>
<td>HIT-554</td>
<td>HIT Capstone</td>
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<tr>
<td>PSY-111</td>
<td>Introduction to Psychology**+</td>
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<tr>
<td>SPC-101</td>
<td>Fundamentals of Oral Communication**+ OR</td>
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</tr>
<tr>
<td>COM-222</td>
<td>Communication for Health Care Professionals* OR</td>
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</tr>
<tr>
<td>SPC-112</td>
<td>Public Speaking*</td>
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### Total program credit hours

**81**

### Medical Coding Diploma-First 3 terms of HIT

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<td><strong>Prerequisite Courses</strong></td>
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<tr>
<td>BIO-168</td>
<td>Human Anatomy and Physiology I**+</td>
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<tr>
<td>HSC-115</td>
<td>Medical Terminology***+</td>
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<tr>
<td>HIT-361</td>
<td>Introduction to HIT+</td>
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<td>HIT-220</td>
<td>Introduction to Medical Coding+</td>
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<td>HSC-107</td>
<td>Professionals in Health*.</td>
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<td>HIT-550</td>
<td>Professional Practice Experience I-</td>
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<td>HIT-495</td>
<td>Medical Office Management-</td>
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<td>HIT-240</td>
<td>Advanced Coding &amp; Classification+</td>
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<td>HSC-142</td>
<td>Elements of Pharmacology**+</td>
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<td>BCA-213</td>
<td>Intermediate Computer Business Applications++</td>
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<td>HIT-449</td>
<td>Information Governance</td>
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<tr>
<td>HIT-280</td>
<td>CPT-4 Coding+</td>
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<td>HIT-291</td>
<td>Reimbursement Methods+</td>
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<td>HIT-551</td>
<td>Professional Practice Experience II-</td>
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<td>HSC-217</td>
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### Total program credit hours

**47**

### Optional Courses

<table>
<thead>
<tr>
<th>Course Number</th>
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<tbody>
<tr>
<td>HSC-103</td>
<td>Studies in Health Sciences</td>
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</tbody>
</table>
**Courses may be taken before beginning the program.**

**Courses must be completed with a C- or better prior to admission into the program.**

+Courses are available online.

-Courses not available online at this time.

**Hospitality Management**

Hospitality Arts
The Hotel at Kirkwood Center
319-848-8770
www.kirkwood.edu/hospitality

**Entry time**
Fall

**Award**
Associate of Applied Science degree
2 years (5 terms including summer)
Diploma
1 year (3 terms including summer)

**Hospitality Management AAS**
The goal of this program is to prepare students to work in entry-level leadership positions (e.g., supervisor and assistant managers) in various departments of full-service hotel or food and beverage operations. There continues to be strong industry demand for college-educated individuals who have practical work experience in hospitality operations.

Students in this program will participate in the day-to-day operations of a successful full-service facility by gaining practical training experience at The Hotel at Kirkwood Center. Management-related coursework includes food and beverage, front office and guest services, engineering and risk, housekeeping/laundry operations, legal responsibilities of the industry, the business functions of marketing and accounting, and other hospitality-related business management areas including revenue management.

In addition to on-the-job training at The Hotel at Kirkwood Center, a separate industry internship allows students to apply their program learning within various other segments of the hospitality industry.

Students in this program earn the following third-party credential: National Restaurant Association's Food Protection Management Certificate.

**Hospitality Operations Diploma**

Students in the Hospitality Management program may elect to receive a Hospitality Operations Diploma after completing the courses listed under the Diploma option. Please consult with the Hospitality Department for more information regarding this options.

**Career opportunities:** meeting/event planner; reservations supervisor; front office manager; sales manager; banquet captain; concierge; housekeeping supervisor; convention services manager; room service manager.

<table>
<thead>
<tr>
<th>Degree Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Course Number</td>
</tr>
<tr>
<td><strong>Term 1</strong></td>
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<tr>
<td>HCM-100</td>
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<td>MAT-140</td>
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<td>HCM-321</td>
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<td>HCM-600</td>
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<td>HCM-601</td>
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<td>CSC-110</td>
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<tr>
<td>COM-723</td>
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<tr>
<td>ENG-105</td>
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</tbody>
</table>

| **Term 2** | | |
| HCM-330 | Hospitality Personnel Management | 3 |
| HCM-204 | Service Techniques | 3 |
| HCM-618 | Food and Beverage Operations Management | 4 |
| HCM-597 | Front Office and Revenue Management | 4 |
| HCM-279 | Hospitality Accounting OR | 3 |
| ACC-152 | Financial Accounting | 3 |
| HCM-616 | Hospitality Professionalism | 3 |

| **Term 3** | | |
| HCM-930 | Internship Seminar | 3 |
| HCM-933 | Internship | 1 |

| **Term 4** | | |
| HCM-310 | Hospitality Law | 3 |
| HCM-615 | Hospitality Marketing | 3 |
| HCM-599 | Engineering and Risk Management | 1 |
| HCM-213 | Service Management (Lab) | 4 |
| HCM-934 | Internship Seminar II | 2 |
| HCM-935 | Internship II | 1 |
| HCM-616 | Hospitality Professionalism | 1 |
| PSY-111 | Introduction to Psychology | 3 |

| **Term 5** | | |
| ENG-105 | Composition I OR | 3 |
| ENG-106 | Composition II | 3 |
| FLS-118 | Spanish for Professionals: Hospitality | 3 |
| HCM-614 | Leadership in Hospitality | 3 |
| HCM-251 | Purchasing, Receiving and Inventory | 2 |
| HCM-603 | Hotel Sales, Catering and Event Management | 3 |

**Total program credit hours** 70

**Optional Course**
HCM-924 | Honors Project | 1
The Human Services program has a strong focus on human behaviors, social policy, social programs, communication, record keeping, interviewing, observing, group processes and problem solving. An important aspect of this program is student involvement with community agencies, including observations and hands-on experiences.

The Behavioral Health Paraprofessional Diploma has a strong focus on community mental health and substance abuse issues. The students in the diploma program will engage with community providers, organizations and institutions to provide support and resources to individuals dealing with the above listed issues/concerns. The credits taken in this diploma program along with the completion of the Associate’s degree in Human Services will allow the individual student to apply and sit for the national exam to become a certified alcohol and drug counselor.

**Career opportunities:** adolescent residential centers; advocacy groups; centers for drug and alcohol abuse; community action programs; community education and prevention programs; community mental health centers; correctional centers; crisis centers; facilities for people with mental illness; group homes/supervised apartment living; nursing homes; program for seniors; social/recreational programs; supported employment services.

**Required Courses**

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>Term 1</td>
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<tr>
<td>HSV-109</td>
<td>Introduction to Human Services</td>
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<tr>
<td>ENG-105</td>
<td>Composition I</td>
<td>3</td>
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<tr>
<td>SOC-110</td>
<td>Introduction to Sociology</td>
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<tr>
<td>PSY-111</td>
<td>Introduction to Psychology</td>
<td>3</td>
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<tr>
<td>HSV-110</td>
<td>Human Service Policy and Programs</td>
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</tr>
<tr>
<td>HCM-279</td>
<td>Financial Accounting</td>
<td>3</td>
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<tr>
<td>HSV-120</td>
<td>Observation Skills</td>
<td>3</td>
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<tr>
<td>HSV-131</td>
<td>Basic Problem Solving Skills</td>
<td>3</td>
</tr>
<tr>
<td>HSV-282</td>
<td>Health and Psychosocial Rehabilitation</td>
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</tr>
<tr>
<td>ENG-106</td>
<td>Composition II OR</td>
<td>3</td>
</tr>
<tr>
<td>ENG-108</td>
<td>Composition II: Technical Writing</td>
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<tr>
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<tr>
<td>HSV-201</td>
<td>Loss, Trauma and Resilience</td>
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<td>HSV-801</td>
<td>Human Services Field Experience</td>
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<tr>
<td>HSV-200</td>
<td>Adaptation Strategies</td>
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<td>PSY-121</td>
<td>Developmental Psychology</td>
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<td>SPC-101</td>
<td>Fundamentals of Oral Communication</td>
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<tr>
<td>SOC-120</td>
<td>Marriage and Family</td>
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<tr>
<td>SOC-265</td>
<td>Introduction to Lesbian, Gay,</td>
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</table>
**Career Programs**

**Bisexual and Transgender Studies**

**Term 5**
- SOC-220 Sociology of Aging 3
- HSV-287 Counseling Theories and Techniques 3
- HSV-292 Substance Abuse and Treatment 3
- HSV-801 Human Service Field Experience 3

**Total program credit hours** 63

**Optional Courses**
- HSV-813 Alcohol and Drug Counselor Field Experience and Seminar I 6
- HSV-814 Alcohol and Drug Counselor Field Experience and Seminar II 6
- HSV-924 Honors Project 1
- HSV-928 Independent Study 1

**Behavioral Health Paraprofessional Diploma Requirements**

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td><strong>Term 1</strong></td>
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<tr>
<td>HSV-109</td>
<td>Introduction to Human Services</td>
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<tr>
<td>HSV-200</td>
<td>Adaptation Strategies</td>
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<tr>
<td>HSV-282</td>
<td>Health and Psychosocial Rehabilitation</td>
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<td>HSV-120</td>
<td>Observation Skills</td>
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<td><strong>Term 2</strong></td>
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<tr>
<td>HSV-131</td>
<td>Basic Problem Solving Skills</td>
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<td>HSV-201</td>
<td>Loss, Trauma and Resilience</td>
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<tr>
<td>HSV-287</td>
<td>Counseling Theories and Techniques</td>
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<td>HSV-292</td>
<td>Substance Abuse and Treatment</td>
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<td>HSV-800</td>
<td>Human Service Field Experience/ Seminar OR</td>
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<td>HSV-813</td>
<td>Alcohol and Drug Counselor Field Experience and Seminar I</td>
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<td><strong>Total program credit hours</strong></td>
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**Humane Officer Training**

**Animal Health Technology**
Washington Hall
319-398-5609
www.kirkwood.edu/agrisciences

**Entry time**
- Fall

**Award**
- Associate of Applied Science degree
- 2 years (5 terms)

Communities across the nation are recognizing the need for well-trained humane law enforcement officers. Until recently, many animal care and control workers entered the field with little or no specialized training. Increased interaction with the public, public demand for humane animal care, limited euthanasia and adoption of shelter animals has put new demands for knowledgeable and professional shelter employees.

From humane investigation to interviewing witnesses, collecting evidence and report writing, the professional humane officer understands public safety and the law, possesses excellent communication skills, and demonstrates a high level of integrity, dependability, stress tolerance and self-control.

**Career opportunities:** municipal animal control agencies; non-profit humane societies; animal welfare inspector.

**Required Courses**

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credit Hours</th>
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<tr>
<td>AGV-103</td>
<td>Introduction to Veterinary Science</td>
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<tr>
<td>AGV-155</td>
<td>Shelter Administration and Computer Applications</td>
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<td>CRJ-100</td>
<td>Introduction to Criminal Justice</td>
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<td>ENG-105</td>
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<td>AGV-190</td>
<td>Animal Welfare and Shelter Management</td>
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<td>AGV-191</td>
<td>Animal Behavior and Restraint</td>
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<td>AGV-192</td>
<td>Shelter Medicine</td>
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<td>AGV-193</td>
<td>Vehicle Safety and Operations</td>
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<td>AGV-194</td>
<td>Disaster Animal Response Training</td>
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<td>AGC-932</td>
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<tr>
<td>AGV-158</td>
<td>Veterinary Law and Ethics</td>
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<td>AGV-195</td>
<td>Large Animal Welfare</td>
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<td>AGV-196</td>
<td>Euthanasia Technician</td>
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<td>ENG-108</td>
<td>Composition II: Technical Writing</td>
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<td>AGC-210</td>
<td>Employment Seminar</td>
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<td>CRJ-133</td>
<td>Constitutional Criminal Procedure</td>
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<tr>
<td>AGV-197</td>
<td>Basic Animal Investigation Techniques</td>
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**Entry time**
- Fall
Career Programs

AGV-198 Wildlife ID and Management 2
CRJ-141 Criminal Investigation 3
CRJ-202 Cultural Awareness for Criminal Justice Practitioners 3
AGV-199 Veterinary Forensics 3
----- Program Elective 3

Total program credit hours 17

Program Electives
AGV-143 Canine and Feline Nutrition 3
AGN-220 Avian Wildlife 3
AGN-223 Aquatic Wildlife 3
AGS-319 Animal Nutrition 3
AGV-120 Veterinary Medical Terminology 1
AGV-107 Pharmacy Skills 3
AGV-120 Veterinary Medical Terminology 1
AGV-199 Veterinary Forensics 3
----- Program Elective 3

Animal Control Assistant Diploma Requirements
Course Number Course Title Credit Hours

Term 1
AGV-155 Shelter Administration and Computer Applications 3
AGV-158 Veterinary Law and Ethics 3
MGT-145 Human Relations in Management 3
SPC-101 Fundamentals of Oral Communication 3
AGV-201 Pet Grooming I 3
AGV-202 Pet Grooming II 3

18

Term 2
AGV-190 Animal Welfare and Shelter Management 4
AGV-191 Animal Behavior and Restraint 3
AGV-198 Wildlife ID and Management 2
COM-723 Workplace Communications 3
AGV-194 Disaster Animal Response Training 1
AGV-192 Shelter Medicine 3
AGC-115 Ag Career Orientation 1

17

Term 3
AGC-932 Internship 3

3

Total Diploma program credit hours 38

HVAC Installer
Industrial Technologies
101 Jones Hall
319-398-4983

www.kirkwood.edu/industrialtech

Entry time
Fall

Award
Diploma
1 year (2 terms)

Industry endorsements earned
OSHA 10-General Construction; Adult First Aid with CPR.

The HVAC Installer program prepares students to enter the skilled trade of heating, ventilation and air conditioning installation. The program focuses primarily on residential and light commercial equipment and covers installation procedures, code requirements, electrical applications and refrigerant handling procedures. The one-year, hands-on program also includes system design and HVAC component operation.

The Plumbing-Heating-Cooling Contractors Association assisted the college in developing the curriculum to meet the needs of these challenging and rewarding careers.

Career opportunities: HVAC installer; HVAC repair; technician; sheet metal worker.

For gainful employment information, including graduation rates, the median debt of students who completed the program and other information, visit www.kirkwood.edu/gainfulemployment.

Degree Requirements
Course Number Course Title Credit Hours

Term 1-Fall
HCR-410 Electrical Applications I 3
HCR-605 HVAC Installation I 5
HCR-710 Fundamentals of Plan and Print Reading 2
HCR-932 Internship 1
MAT-719 Applied HVAC Math 3
----- Communications Course 3

17

Term 2-Spring
HCR-450 Electrical Applications for HVAC II 3
HCR-600 Pipe Joining Methods 3
HCR-610 HVAC Installation II 7
HCR-932 Internship 1.5
----- Social Science Course 3

17.5

Total program credit hours 34.5

Optional
HCR-924 Honors Project 1
HCR-928 Independent Study 1

HVAC Installer tool requirements
The tool requirement for the program includes a hand-held toolbox with basic hand tools. Also required are a few HVAC specialty tools and an electrical testing meter.
Industrial Maintenance Technology

Industrial Technologies
101 Jones Hall
319-398-4983
www.kirkwood.edu/industrialtech

Entry time
Fall

Award
Associate of Applied Science degree

2 years (5 terms including summer)
Diploma
1 year (2 terms)

Industry endorsement earned
Forklift Class 1, 3, 4, 5, 7; OSHA 10-General Industry; 50+ High Voltage Arc Flash; Residential Voltage Arc Flash; Rigging, Lifting and Cribbing; JSEA-Job Safety & Environmental Analysis; Adult First Aid with CPR; National Career Readiness Certificate.

The Industrial Maintenance Technology program prepares students for a broad range of industrial maintenance related careers using industry guided curriculum combined with practical hands-on labs. First year studies focus on concepts and technologies that include, but are not limited to, basic electrical theory, motors and transformers, industrial controls and wiring, electrical print design and reading, industrial maintenance concepts (mechanical and electrical), applied physics and mathematics.

During the second year, students are introduced to a broad range of industrial technologies and processes that are commonplace in today’s industrial environments. While in this program, students gain experience and skills in a wide variety of disciplines, such as basic construction and framing, plumbing, print reading, welding, fabrication and light machining.

Career opportunities: commercial electrician; plant maintenance technician; maintenance mechanic; maintenance electrician; millwright.

Degree Requirements

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>ELE-364</td>
<td>Basic Electrical Circuits</td>
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<tr>
<td>IND-156</td>
<td>Microcomputers for the Trades OR</td>
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<tr>
<td>CSC-110</td>
<td>Introduction to Computers</td>
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<tr>
<td>IND-167</td>
<td>Torqueing and Tensioning</td>
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<tr>
<td>ATR-300</td>
<td>Mechanical Drive Systems I</td>
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<tr>
<td>ATR-302</td>
<td>Mechanical Drive Systems II</td>
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<tr>
<td>MAT-232</td>
<td>Applied Industrial Math for Technicians</td>
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<tr>
<td>MAT-234</td>
<td>Applied Electrical Mathematics for Technicians OR</td>
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<td>MAT-745</td>
<td>Technical Mathematics I OR</td>
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<td>MAT-707</td>
<td>Algebra Mastery I OR</td>
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<tr>
<td>MAT-103</td>
<td>Applied Mathematics Topics for Advanced Manufacturing</td>
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<tr>
<td>PHY-180</td>
<td>Applied Physics I OR</td>
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<td>Introductory Physics OR</td>
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<td>PHY-190</td>
<td>Physics I</td>
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<tr>
<td>ELT-224</td>
<td>Motors and Transformers</td>
</tr>
<tr>
<td>ATR-310</td>
<td>Industrial Controls</td>
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<tr>
<td>ATR-136</td>
<td>Programmable Logic Controllers for Manufacturing</td>
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<td>Light Machining For Maintenance Trades</td>
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<td>WEL-267</td>
<td>Welding for Maintenance Trades</td>
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<tr>
<td>ATR-316</td>
<td>Instrumentation &amp; Control Devices</td>
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<td>Process Control I</td>
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<td>Pipefitting for Maintenance Trades</td>
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<td>Process Controls II</td>
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<td>ATR-309</td>
<td>Controls Capstone</td>
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<td>Humanities or History/Cultures Course</td>
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<td>Communication Course</td>
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<tr>
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<td>Advanced Maintenance Technologies</td>
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<tr>
<td>IND-196</td>
<td>Fundamentals of Hydraulics and Pneumatic Systems</td>
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<td>MGT-145</td>
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<td>PSY-111</td>
<td>Introduction to Psychology Communication Course</td>
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<td>IND-156</td>
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<td>IND-167</td>
<td>Torqueing and Tensioning</td>
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<td>ATR-300</td>
<td>Mechanical Drive Systems I</td>
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<td>ATR-302</td>
<td>Mechanical Drive Systems II</td>
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<td>MAT-232</td>
<td>Applied Industrial Math for Technicians</td>
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<td>MAT-234</td>
<td>Applied Electrical Mathematics for Technicians OR</td>
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<td>MAT-745</td>
<td>Technical Mathematics I OR</td>
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<td>MAT-707</td>
<td>Algebra Mastery I OR</td>
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<td>MAT-103</td>
<td>Applied Mathematics Topics for Advanced Manufacturing</td>
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Career Programs

Interior Design
Business & Information Technology
203 Nielsen Hall
319-398-5416
www.kirkwood.edu/businessdept

Entry time
Fall

Award
Associate of Applied Science degree
2 years (6 terms)

Interior Designers are creative business professionals who have the ability to innovatively solve design problems functionally and aesthetically while also improving the overall health, safety and welfare of users through design.

The Interior Design program prepares and equips students to practice and serve the community by providing education and training in residential design, commercial design, sustainability, and other areas of specialization in the field of interior design.

This highly interactive program is taught with a student-centered approach within a positive and respectful learning environment. Students are provided with a combination of classroom projects, hands-on training, and classroom instruction that emphasizes ethical, creative, technical, and responsible problem solving design.

Students study all areas of interior design including, but not limited to: Residential Design, Commercial Design, Hospitality Design, Product Design, Sustainable Design, Historical Design, and software including Photoshop, SketchUp, and Revit. Students also learn professional practice concepts and are able to apply those concepts toward assembling a portfolio and resume which are then used to obtain an internship in the field of interior design. Additionally, students have the option of attending numerous field trips to major urban cities such as Chicago, Minneapolis, Kansas City and more. Other national and international trips are open to students at various times throughout the year.

For individuals interested in entering the Interior Design Program at Kirkwood Community College, existing knowledge of basic computer applications is highly recommended. If you are currently a high school student, any additional training or classes you can take relating to art, design or drafting will assist in building your knowledge of design as you prepare to enter the Interior Design Program at Kirkwood.

A laptop is required for this program.

Career opportunities: interior design and architecture firms; manufacturer’s representative; furniture design; kitchen design and dealerships; residential design; residential staging; commercial design firms; contract furniture dealerships; historic preservation or restoration; interior design photography; professional rendering (manual or digital); model building; upholstery workrooms; professional organizations; sustainability consultant; design journalist; lighting design; sales and retail

Degree Requirements

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credit Hours</th>
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<td>INT-126</td>
<td>Introduction to Interior Design</td>
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<td>INT-128</td>
<td>Historical Interiors and Architecture</td>
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<td>INT-129</td>
<td>SketchUp for Interior Design</td>
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<td>INT-311</td>
<td>Global Perspectives in Interior Design</td>
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<td>CON-101</td>
<td>Architectural Plans and Specifications</td>
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<td>INT-132</td>
<td>Theories and Visual Application</td>
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<tr>
<td>INT-300</td>
<td>Textiles for Interior Design</td>
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<tr>
<td>ARC-185</td>
<td>Architectural Photoshop</td>
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<td>ART-133</td>
<td>Drawing</td>
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<td>INT-201</td>
<td>CAD REVIT for Interior Design I</td>
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<td>Composition I</td>
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<tr>
<td>MGT-145</td>
<td>Human Relations in Management</td>
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<td>SOC-110</td>
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<td>INT-200</td>
<td>Interior Design Studio</td>
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<td>ENG-106</td>
<td>Composition II OR</td>
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<td>ENG-108</td>
<td>Composition II: Technical Writing</td>
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<td>INT-206</td>
<td>Residential Design I</td>
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<td>INT-207</td>
<td>Commercial Design I</td>
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<td>INT-211</td>
<td>CAD REVIT for Interior Design II</td>
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<td>CON-316</td>
<td>Sustainable Construction Science</td>
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<td>ADM-133</td>
<td>Business Math and Calculators</td>
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### Career Programs

#### Term 5

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<td>INT-217</td>
<td>Commercial Design II</td>
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<td>INT-218</td>
<td>Professional Practice and Development</td>
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<tr>
<td>INT-262</td>
<td>Interior Codes and Building Structures OR</td>
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<td>INT-312</td>
<td>Interior Design Topics OR</td>
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<td>Costing and Estimating Interior Materials and Finishes</td>
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#### Term 6

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**Total program credit hours**: 77

#### Optional Courses

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<td>INT-928</td>
<td>Independent Study</td>
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### Landscape Horticulture Studies

**Ag Sciences**

Horticulture/Floral Careers  
319-398-5441  
www.kirkwood.edu/agrisciences

**Entry time**  
Summer or Fall

**Award**  
Associate of Applied Science degree  
2 years (4 terms, 1 summer)

**Landscape Horticulture Studies AAS**

Lanscaping is so much more than just plants and patios! In our Landscape and Horticulture Studies program, students who like to be outside or work with their hands can explore new trends in design, hardscape installation and maintenance. In addition to traditional landscape classes, the science of plants, alternative food crop production, and sustainable site management are emphasized in this program. Students can elect to take classes that relate to greenhouse or nursery production, growing fruits & vegetables, and hydroponics.

The entire Kirkwood campus is an outdoor learning laboratory for our classes. Students will work on real world projects that require problem solving, communication with clients, and time management skills. Using computer, operating large equipment and learning to identify native and ornamental plants are just a few of the opportunities students will have while taking classes in our curriculum.

### Landscape Horticulture Studies Diploma

Students in the Landscape Horticulture Studies program may elect to receive this Diploma after completing the courses below. Please consult with the Ag Sciences Department for more information regarding this option.

**Plant Science Certificate**

The Plant Science Certificate gives students the opportunity to specialize in newer trends within Horticulture production and focuses on alternative food crop production and sustainable practices. Emphasis will be placed on greenhouse, fruit & vegetable, and alternative production methods.

**Landscape Design Certificate**

Emphasis is on the design, installation and maintenance of landscaped spaces. Students learn how to work, how to identify plants, the principles of good design and how to install plant material. Students in the design track will develop problem solving and communication skills as well as work with computer design software.

**Landscape Construction Certificate**

Students in the construction track learn site layout, lighting and hardscape installation techniques. Students learn how to work, how to install plant material and the construction of hardscape features that complement the overall design.

**Career opportunities:** landscape designer for private homes or corporate campuses; garden center or greenhouse manager; salesperson; commercial grounds foreman; nursery production.

### Degree Requirements

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>AGH-112</td>
<td>Introduction to Turfgrass Management</td>
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<td>AGH-236</td>
<td>Plant Material Maintenance</td>
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<tr>
<td>AGH-220</td>
<td>Plant Identification I</td>
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<tr>
<td>AGC-313</td>
<td>Leadership in Agriculture</td>
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<td>AGH-110</td>
<td>Success in Horticulture</td>
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<tr>
<td>CON-134</td>
<td>Surveying and Site Layout</td>
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<tr>
<td>AGH-152</td>
<td>Landscape Design Techniques</td>
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<tr>
<td>AGH-162</td>
<td>Landscape Construction Lecture</td>
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<tr>
<td>AGH-164</td>
<td>Landscape Construction Lab</td>
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**Term 2**

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<tr>
<td>AGH-221</td>
<td>Principles of Horticulture</td>
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<tr>
<td>AGH-102</td>
<td>Horticulture Math</td>
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<td>COM-723</td>
<td>Workplace Communications OR</td>
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<td>ENG-105</td>
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<td>CSC-110</td>
<td>Introduction to Computers</td>
<td>3</td>
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<tr>
<td>AGH-156</td>
<td>Landscape Design II* OR</td>
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</tr>
<tr>
<td>AGH-158</td>
<td>Computer Applications for the Landscape Industry* OR</td>
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</tr>
<tr>
<td>AGH-157</td>
<td>Equipment Operations* OR</td>
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<tr>
<td>AGH-150</td>
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**Term 3-Summer**

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Career Programs

### Plant Science Certificate Requirements

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<tr>
<td>AGH-233</td>
<td>Plant Propagation I</td>
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<td>AGH-275</td>
<td>Commercial Plant Production</td>
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<tr>
<td>AGH-331</td>
<td>Entrepreneurship in Agriculture</td>
<td>3</td>
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<tr>
<td>AGH-221</td>
<td>Principles of Horticulture</td>
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<tr>
<td>AGH-253</td>
<td>Insects and Diseases</td>
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### Program Electives

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<td>AGH-301</td>
<td>Sustainable Site Management</td>
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<td>AGH-262</td>
<td>Fruit and Vegetable Science</td>
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<td>VIN-106</td>
<td>Introduction to Viticulture</td>
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<td>AGN-140</td>
<td>Native Plants</td>
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<td>AGH-220</td>
<td>Plant Identification I</td>
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<td>AGH-240</td>
<td>Plant Identification II</td>
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<td>AGH-264</td>
<td>Hydroponic Production</td>
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<td>AGC-932</td>
<td>Internship</td>
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<td>AGN-280</td>
<td>Introduction to Forestry</td>
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<td>AGH-236</td>
<td>Plant Material Maintenance</td>
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<tr>
<td>AGH-157</td>
<td>Equipment Operations</td>
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<td>AGH-150</td>
<td>Equipment Operations Lab</td>
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<tr>
<td>AGP-333</td>
<td>Precision Farming Systems</td>
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<td>AGA-114</td>
<td>Principles of Agronomy</td>
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### Landscape Design Certificate Requirements

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<td>AGH-220</td>
<td>Plant Identification I</td>
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<tr>
<td>AGH-156</td>
<td>Landscape Design II</td>
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<tr>
<td>AGH-158</td>
<td>Computer Applications for the Landscape Industry</td>
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<td>AGH-302</td>
<td>Advanced Landscape Design</td>
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<td>AGH-460</td>
<td>Design Capstone</td>
<td>2</td>
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<td>Plant Identification II</td>
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### Landscape Construction Certificate Requirements

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<td>AGH-152</td>
<td>Landscape Design Techniques</td>
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<td>AGH-127</td>
<td>Ornamental Plant Materials</td>
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<td>AGH-236</td>
<td>Plant Material Maintenance</td>
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Kirkwood’s one-year Medical Assisting diploma program includes classroom, laboratory, computer experience as well as a practicum in an ambulatory care clinic. This program may be taken on a part-time basis.

**Career opportunities:** physician/specialty clinics; hospital clinics, public health, laboratories and insurance companies. The graduate may work as an administrative medical assistant, clinical medical assistant, patient service representative, phlebotomist, scribe, unit secretary or any combination of these positions.

**Medical Assisting Diploma Requirements**

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<tbody>
<tr>
<td>BIO-161</td>
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<td>OR</td>
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<tr>
<td>BIO-168</td>
<td>Human Anatomy and Physiology I* AND</td>
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<td>BIO-173</td>
<td>Human Anatomy and Physiology II*</td>
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**Degree Requirements (Optional)**

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<tr>
<td>BIO-168</td>
<td>Human Anatomy and Physiology</td>
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### Career Programs

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<thead>
<tr>
<th>Term 1</th>
<th>Course</th>
<th>Credit</th>
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<tbody>
<tr>
<td>MAP-123</td>
<td>Administrative Medical Office Procedures</td>
<td>3</td>
</tr>
<tr>
<td>HSC-107</td>
<td>Professionals in Health*</td>
<td>2</td>
</tr>
<tr>
<td>ADM-105</td>
<td>Medical Terminology*</td>
<td>4</td>
</tr>
<tr>
<td>BCA-189</td>
<td>Microcomputer Literacy*</td>
<td>1</td>
</tr>
<tr>
<td>MAP-402</td>
<td>Medical Law and Ethics</td>
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<tr>
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<table>
<thead>
<tr>
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<tr>
<td>MAP-501</td>
<td>Math for Medications</td>
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<td>MAP-210</td>
<td>Medical Lab</td>
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<tr>
<td>MAP-312</td>
<td>Medical Assisting Clinical Procedures</td>
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<tr>
<td>MAP-513</td>
<td>Medical Assisting Pharmacology</td>
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<tr>
<td>MAP-403</td>
<td>Basic Medical Office Insurance</td>
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<tr>
<td>MAP-260</td>
<td>Basic Electrocardiography</td>
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<tr>
<td>SPC-101</td>
<td>Fundamentals of Oral Communication* OR</td>
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</tr>
<tr>
<td>COM-222</td>
<td>Communication for Health Care Professionals* OR</td>
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<tr>
<td>SPC-112</td>
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<td>PSY-111</td>
<td>Introduction to Psychology*</td>
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<tr>
<td>ENG-105</td>
<td>Composition I*</td>
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<tr>
<td>----</td>
<td>Electives*</td>
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<td>Humanities Elective*</td>
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<td>Social Science Elective*</td>
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</table>

**Total Associate of Applied Science degree program credit hours:** 62.5

*Courses may be taken before beginning the program.

++No program (MAP) courses may be taken with externship. Proof of compliance completion must be done prior to registration for externship.

Note: Minimum C- is required in all MAP courses, in addition to BIO-161, HSC-107, HSC-115 and HSC-210.

### Medical Laboratory Technology

Healthcare Simulation Center
2006 Linn Hall
319-398-7660
www.kirkwood.edu/medicallaboratory

**Entry time:** Fall

**Award:**
- Medical Laboratory Technology AAS (6 terms)
- Clinical Laboratory Assistant Certificate (1 term)

### Medical Laboratory Technology AAS

Medical Laboratory Technicians (MLTs) are members of the healthcare and quality teams who perform, evaluate, assure the accuracy and validity of laboratory test information and collaborate in the diagnosis, treatment and therapy of patients. MLTs are trained to work in multiple settings such as hospitals, physician’s offices, private reference laboratories, research, biotechnology, public health, non-clinical industrial laboratories and sales or technical services.

Various diverse functions of sample collection, test analysis, principle application, quality control monitoring, use and maintenance of automated and electronic instruments, trouble shooting and problem solving techniques are performed under the supervision of a Medical Laboratory Scientist or Pathologist in compliance with safety and governmental regulations. The individual will develop competencies in areas such as chemistry, hematology, blood bank, microbiology, immunology, molecular diagnostics and quality assurance.

Upon successful completion of the program the student is eligible to take the national certification exam from the American Society for Clinical Pathology (ASCP)

The Kirkwood Community College Medical Laboratory Technology Program is currently seeking accreditation by the National Accrediting Agency for Clinical Laboratory Sciences (NAACLS).

### Clinical Laboratory Assistant certificate

The Clinical Laboratory Assistant (CLA) Certificate is designed to provide exposure to clinical laboratory techniques and procedures needed in entry-level laboratory jobs. This certificate can be completed within one semester and can be applied toward an Associate of Applied Science degree in Medical Laboratory Technology.

A Clinical Laboratory Assistant plays a supporting role in collecting and processing specimens in a medical laboratory. Their responsibilities can include tasks such as drawing blood samples (phlebotomy) and running laboratory tests for disease detection using manual methods or automated instruments. CLAs are also trained in infection control, biosafety practices and quality assurance. A CLA works directly under a Medical Laboratory Scientist or Pathologist. In non-hospital laboratories, they may also help with administrative and clerical tasks.

It is important that CLAs possess an interest in the sciences in addition to being professional and detail-oriented.

Upon successful completion students are eligible to take the National Healthcareer Association Certified Phlebotomy Technician (CPT) exam.
Degree Requirements

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credit Hours</th>
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</thead>
<tbody>
<tr>
<td>Term 1</td>
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<tr>
<td>MLT-105</td>
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<td>MLT-106</td>
<td>Introduction to Biosafety*</td>
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<tr>
<td>MLT-109</td>
<td>Principles of Phlebotomy*</td>
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</tr>
<tr>
<td>MLT-115</td>
<td>Clinical Lab Fundamentals*</td>
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<td>COM-222</td>
<td>Communication for Health Care Professionals**</td>
<td>3</td>
</tr>
<tr>
<td>BIO-161</td>
<td>Basic Anatomy and Physiology</td>
<td>3</td>
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<tr>
<td></td>
<td></td>
<td>16</td>
</tr>
</tbody>
</table>

Total program credit hours 16

* Minimum C grade in all MLT courses to graduate

**Recommended course, other options available, see advisor

Medical Transcription

Allied Health
2164 Linn Hall
319-398-5566
www.kirkwood.edu/alliedhealth

Entry time
Fall

Award
Diploma/Certificate
1 year (2 terms)

Personal characteristics
Explore medical transcription if you enjoy word processing, have keen hearing, an interest in health care, and excellent grammar, punctuation and spelling skills. A high level of concentration for extended periods of time is also important.

Increasing requirements for patient care documentation provide numerous opportunities for medical transcriptionists. Physicians and other health care providers use state-of-the-art electronic technology to dictate and transmit highly technical and confidential information for their patients. These medical professionals rely on skilled medical transcriptionists to transform the spoken word into comprehensive records that accurately communicate medical information.

Medical transcriptionists are specialists in medical language and health care documentation. They interpret and transcribe dictation by physicians and other health care professionals regarding patient assessment, therapeutic procedures, clinical courses, diagnoses and prognoses.

Career opportunities: physician’s offices; laboratories; medical transcription businesses; rehabilitation centers; hospitals; legal offices; insurance companies; medical libraries.

For gainful employment information, including graduation rates, the median debt of students who completed the program and other information, visit www.kirkwood.edu/gainfulemployment.

Degree Requirements

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>Term 1</td>
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<tr>
<td>MLT-105</td>
<td>Pathophysiology for the Laboratorian*</td>
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<td>MLT-106</td>
<td>Introduction to Biosafety*</td>
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<tr>
<td>MLT-109</td>
<td>Principles of Phlebotomy*</td>
<td>3</td>
</tr>
<tr>
<td>BIO-161</td>
<td>Basic Anatomy &amp; Physiology*</td>
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</table>

Career Programs

Clinical Laboratory Assistant Certificate Requirements

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<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>Term 1</td>
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<tr>
<td>MLT-105</td>
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<td>MLT-106</td>
<td>Introduction to Biosafety*</td>
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<td>MLT-109</td>
<td>Principles of Phlebotomy*</td>
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<td>BIO-161</td>
<td>Basic Anatomy &amp; Physiology*</td>
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</table>

Total program credit hours 78

Entry time
Fall

Award
Diploma/Certificate
1 year (2 terms)

Personal characteristics
Explore medical transcription if you enjoy word processing, have keen hearing, an interest in health care, and excellent grammar, punctuation and spelling skills. A high level of concentration for extended periods of time is also important.

Increasing requirements for patient care documentation provide numerous opportunities for medical transcriptionists. Physicians and other health care providers use state-of-the-art electronic technology to dictate and transmit highly technical and confidential information for their patients. These medical professionals rely on skilled medical transcriptionists to transform the spoken word into comprehensive records that accurately communicate medical information.

Medical transcriptionists are specialists in medical language and health care documentation. They interpret and transcribe dictation by physicians and other health care professionals regarding patient assessment, therapeutic procedures, clinical courses, diagnoses and prognoses.

Career opportunities: physician’s offices; laboratories; medical transcription businesses; rehabilitation centers; hospitals; legal offices; insurance companies; medical libraries.

For gainful employment information, including graduation rates, the median debt of students who completed the program and other information, visit www.kirkwood.edu/gainfulemployment.
Career Programs

HSC-115 Medical Terminology*+ 4
MTR-102 Professionalism in Medical 2
    Transcription+
MTR-113 Medical Transcription+ 2.5
HIT-420 Legal Aspects of Health 2
    Information+
HIT-361 Introduction to HIT+ 3

16.5

Term 2-Spring
HSC-107 Professionals in Health*+ 2
HSC-217 Introduction to Pathology*+ 3
HSC-142 Elements of Pharmacology++ 1
MTR-150 Career Medical Transcription 6.5
SPC-101 Fundamentals of Oral Communications* OR
COM-222 Communication for Health Care Professionals* OR
SPC-112 Public Speaking* 3
MAT-772 Applied Math* 3

18.5

Total program credit hours 35

Medical Transcription Certificate Requirements

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credit Hours</th>
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<tbody>
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<tr>
<td>HSC-115</td>
<td>Medical Terminology*+</td>
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<td>Professionalism in Medical</td>
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<td>Transcription+</td>
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<td>HIT-420</td>
<td>Legal Aspects of Health</td>
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<tr>
<td>Information+</td>
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<td>MTR-113</td>
<td>Medical Transcription</td>
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<td></td>
<td></td>
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<tr>
<td>Term 2-Spring</td>
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<tr>
<td>MTR-150</td>
<td>Career Medical Transcription</td>
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<td></td>
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<td></td>
<td>Total program credit hours</td>
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*Courses may be taken before beginning the program.
+Courses are available online.

Network and System Administration

Business & Information Technology
203 Nielsen Hall
319-398-5416
www.kirkwood.edu/businessdept

Entry time
Fall

Award
Associate of Applied Science degree
2 years (5 terms)
Certificate options

Network and system administrators work in a fast-paced and challenging area of technology that designs, builds, integrates, maintains and secures local area networks. They design and support server systems and related software, as well as provide end-user support for all LAN-based applications. After completing a common course of study for the first three semesters, Network and System Administration majors will choose from among three specialty areas to match individual interests and employment availability.

These areas of specialization are Network Administration, System Administration, and Security / Virtualization.

Network Administration students will specialize in LAN and WAN infrastructure including wireless, desktop systems and protocol suites.

System Administration students will specialize in server hardware and software, directory services, scripting and storage management.

Security and virtualization students will specialize in system firewalls, secure group policy, access control lists, information management with disaster recovery, virtual network design and implementation, and virtual switching and routing.

In addition to training for the specialization, this program also focuses on communication skills, professionalism, critical thinking and problem solving, teamwork and life-long learning that are essential for success in the workplace and in life.

The program strives to be vendor neutral to give the graduate the greatest breadth of preparation. In addition to the degree and with additional study, coursework should prepare the student for some of the following industry credentials depending upon the area of specialization: CompTIA A+; CompTIA Network+; Microsoft Certified Solution Associate-Windows 7 and 8; Internet and Computing Core Certification; CompTIA Linux+; Cisco Certified Entry Networking Technician; EMC’s Information Storage Associate; Cisco Certified Network Associate; Microsoft Certified Professional; Microsoft Certified Solutions Associate, and Microsoft Certified Solutions Expert-Server 2012-2016; VMware Certified Professional-Datacenter Virtualization.

Career opportunities: network field technician; network engineer; network support technician; network control operator; assistant network administrator; assistant systems administrator.

Degree Requirements

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>Term 1-Fall</td>
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</tr>
<tr>
<td>CSC-110</td>
<td>Introduction to Computers*</td>
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</tr>
<tr>
<td>NET-122</td>
<td>Computer Hardware Basics*</td>
<td>3</td>
</tr>
<tr>
<td>NET-165</td>
<td>Network Plus*</td>
<td>3</td>
</tr>
<tr>
<td>NET-321</td>
<td>Windows Networking*</td>
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</tr>
<tr>
<td></td>
<td>Math Course</td>
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<tr>
<td></td>
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## Career Programs

### Term 2-Spring
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<th>Course Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>NET-137</td>
<td>Advanced PC Concepts*</td>
<td>3</td>
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<tr>
<td>NET-235</td>
<td>CCNA Cisco 1*</td>
<td>3</td>
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<tr>
<td>NET-174</td>
<td>LAN Administration*</td>
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<tr>
<td>NET-338</td>
<td>Directory Concepts*</td>
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<tr>
<td>NET-630</td>
<td>Cyber Law and Ethics*</td>
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<td>ENG-105</td>
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<tr>
<td>NET-236</td>
<td>CCNA Cisco 2*</td>
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<td>NET-400</td>
<td>Linux Networking*</td>
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<tr>
<td>NET-561</td>
<td>Directory Administration*</td>
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### Network Administration Track

#### Term 4-Fall
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<th>Course Number</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>NET-599</td>
<td>Information and Storage Management*</td>
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<td>NET-600</td>
<td>Network Security Basics*</td>
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</tr>
<tr>
<td>NET-237</td>
<td>CCNA Cisco 3*</td>
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</tr>
<tr>
<td>NET-192</td>
<td>Network Cabling*</td>
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<tr>
<td>MGT-145</td>
<td>Human Relations in Management OR</td>
<td>3</td>
</tr>
<tr>
<td>PSY-111</td>
<td>Introduction to Psychology</td>
<td>3</td>
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<td>Communication Course</td>
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#### Term 5-Fall
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<th>Course Title</th>
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<tbody>
<tr>
<td>NET-680</td>
<td>TCP-IP for Networking*</td>
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<td>NET-238</td>
<td>CCNA Cisco 4*</td>
<td>3</td>
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<tr>
<td>NET-184</td>
<td>Wide Area Network (WAN) Basics*</td>
<td>2</td>
</tr>
<tr>
<td>NET-348</td>
<td>System Automation and Scripting*</td>
<td>3</td>
</tr>
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<td>BUS-290</td>
<td>Employment Search and Workplace Success</td>
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<tr>
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<td>Humanities or History/Culture Course</td>
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### Security/Virtualization Track

#### Term 4-Fall
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<th>Course Title</th>
<th>Credit Hours</th>
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</thead>
<tbody>
<tr>
<td>NET-571</td>
<td>Server Configuration*</td>
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</tr>
<tr>
<td>NET-599</td>
<td>Information and Storage Management*</td>
<td>3</td>
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<tr>
<td>NET-600</td>
<td>Network Security Basics*</td>
<td>3</td>
</tr>
<tr>
<td>NET-616</td>
<td>VMware VCP*</td>
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</tr>
<tr>
<td>NET-618</td>
<td>Network Defense &amp; Remote Access Configuration*</td>
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<td>Communication Course</td>
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#### Term 5-Spring
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<th>Course Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>NET-650</td>
<td>Cloud Infrastructure* OR</td>
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</tr>
<tr>
<td>NET-620</td>
<td>VMware Optimize and Scale* OR</td>
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</tr>
<tr>
<td>NET-572</td>
<td>VMware Certified Advanced Professional (VCAP)*</td>
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<tr>
<td>NET-619</td>
<td>Network Attacks: Detection, Analysis &amp; Countermeasures*</td>
<td>3</td>
</tr>
<tr>
<td>NET-184</td>
<td>Wide Area Network (WAN) Basics*</td>
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</tr>
<tr>
<td>MGT-145</td>
<td>Human Relations in Management OR</td>
<td>3</td>
</tr>
<tr>
<td>PSY-111</td>
<td>Introduction to Psychology</td>
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<tr>
<td>BUS-290</td>
<td>Employment Search and Workplace Success</td>
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<td>Humanities Elective</td>
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### System Administration Track

#### Term 4-Fall
<table>
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<th>Course Title</th>
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</thead>
<tbody>
<tr>
<td>NET-571</td>
<td>Server Configuration*</td>
<td>3</td>
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<tr>
<td>NET-599</td>
<td>Information Storage Management</td>
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<tr>
<td>NET-600</td>
<td>Network Security Basics*</td>
<td>3</td>
</tr>
<tr>
<td>NET-616</td>
<td>VMware VCP*</td>
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<tr>
<td>MGT-145</td>
<td>Human Relations in Management OR</td>
<td>3</td>
</tr>
<tr>
<td>PSY-111</td>
<td>Introduction to Psychology</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Communication Course</td>
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#### Term 5-Spring
<table>
<thead>
<tr>
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<tbody>
<tr>
<td>NET-680</td>
<td>TCP-IP for Networking*</td>
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</tr>
<tr>
<td>NET-184</td>
<td>Wide Area Network (WAN) Basics*</td>
<td>2</td>
</tr>
<tr>
<td>NET-323</td>
<td>Windows Network Management*</td>
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<tr>
<td>NET-348</td>
<td>System Automation and Scripting*</td>
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</tr>
<tr>
<td>BUS-290</td>
<td>Employment Search and Workplace Success</td>
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</tbody>
</table>

### Network and System Administration Certificate Requirements

#### Course Number | Course Title                              | Credit Hours |
|------------------|-------------------------------------------|--------------|

#### Term 1
<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>NET-122</td>
<td>Computer Hardware Basics*</td>
<td>3</td>
</tr>
<tr>
<td>NET-321</td>
<td>Windows Networking*</td>
<td>3</td>
</tr>
<tr>
<td>NET-165</td>
<td>Network Plus*</td>
<td>3</td>
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#### Term 2
<table>
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<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>NET-174</td>
<td>LAN Administration*</td>
<td>3</td>
</tr>
<tr>
<td>NET-235</td>
<td>CCNA Cisco 1*</td>
<td>3</td>
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</table>

#### Term 3
<table>
<thead>
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<tbody>
<tr>
<td>NET-400</td>
<td>Linux Networking*</td>
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### Network Security Certificate Requirements

#### Course Number | Course Title                              | Credit Hours |
|------------------|-------------------------------------------|--------------|

#### Total program credit hours

<table>
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<th>Term 2-Spring</th>
<th>Credit Hours</th>
<th>Term 3-Summer</th>
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<th>Network Administration Track</th>
<th>Credit Hours</th>
<th>Security/Virtualization Track</th>
<th>Credit Hours</th>
<th>System Administration Track</th>
<th>Credit Hours</th>
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## Career Programs

### Term 1

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<th>Course Code</th>
<th>Course Title</th>
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<tr>
<td>NET-165</td>
<td>Network Plus*</td>
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<tr>
<td>NET-630</td>
<td>Cyber Law and Ethics*</td>
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</tr>
<tr>
<td>NET-321</td>
<td>Windows Networking*</td>
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### Term 2

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<thead>
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<th>Course Code</th>
<th>Course Title</th>
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</thead>
<tbody>
<tr>
<td>NET-235</td>
<td>CCNA Cisco 1*</td>
<td>3</td>
</tr>
<tr>
<td>NET-174</td>
<td>LAN Administration*</td>
<td>3</td>
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### Term 3

<table>
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<th>Course Title</th>
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<tr>
<td>NET-600</td>
<td>Network Security Basics*</td>
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<tr>
<td>NET-618</td>
<td>Network Defense &amp; Remote Access Configuration*</td>
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### Term 4

<table>
<thead>
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<tbody>
<tr>
<td>NET-619</td>
<td>Network Attacks: Detection, Analysis &amp; Countermeasures*</td>
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</table>

**Total program credit hours**: 24

*Minimum grade of C for graduation*

### Nursing - LPN/RN

**Nursing**

2172 Linn Hall  
319-398-5563  
319-398-4989  
www.kirkwood.edu/nursing

**Entry time**

Fall, Spring, Summer  
(Evening/weekend program begins each fall) NOTE: The Nursing Program's evening/week-end program is being phased out. Last program entry is Fall 2018.

**Award**

Associate of Applied Science degree  
2 years (4 terms plus prerequisites)  
Diploma  
1 year (2 terms plus prerequisites)

**Accreditation**

The Nursing program is approved by the Iowa Board of Nursing, River Point Business Park, 400 S.W. 8th Street, Suite B, Des Moines, IA 50309-4685; 515-281-3255; http://www.iowa.gov/nursing.

**Program Description**: The first two semesters of the Practical Nursing (PN) and Associate Degree Nursing (ADN) programs are identical and provide a core of knowledge and skills that are common to both nursing roles. Kirkwood nursing classes cover medical, surgical, geriatric, maternal-child, mental health and home health nursing over the five-semester program. Patient care skills are learned in a supervised lab setting. Clinical experience begins in the first semester. Students receive clinical experience in all of the major areas of nursing and complete their clinicals in area hospitals, nursing homes, clinics, mental health facilities, home health agencies and a variety of specialty clinics.

**Additional requirements**

- GPA of 2.5 in pre-requisites with Minimum C in each course EXCEPT: minimum B- in Introduction to Nursing and Anatomy & Physiology I and II
- May take each pre-requisite course only twice
- Anatomy & Physiology I and II courses must be taken within 5 years of entry into the nursing program and must be 3 credits didactic course with a 1 credit lab
- Introduction to Nursing must be taken within 2 semesters of entry into the nursing program
- TOEFL IBT or TOEFL of 84 with a minimum Speaking score of 26 for those who have not graduated from a high school or college in the United States
- Meet the program Math requirement listed below by achieving one of the requirements below:
  - COMPASS algebra score of ≥ 50
  - ACT math score of ≥ 19
  - ALEKS algebra score of 30 (effective October 1, 2016)
  - College level Math course equivalency
  - Earned AA or Bachelor’s Degree
  - Please Note: Test scores expire after 2 years
- Personal laptop is required for all computer based testing. Specifications of laptop requirements are available on the the Kirkwood Nursing website or at the Department of Nursing office; 2172 Linn Hall.
- Certified Nursing Assistant OR Health Support Professional
  - Certified Nursing Assistant demonstrated by the following:
    - Certificate of completion of an Iowa CNA course (with completion of the clinical component of the course)
    - Listing in the Iowa Department of Inspections and Appeals Direct Care Worker Registry as eligible
  - NOTE: Students may obtain CNA training through Kirkwood’s Continuing Education
- OR
  - Health Support Professional demonstrated by the following:
    - Certificate of completion of all Health Support Professional (HSP) modules in the Iowa Prepare to Care Direct Care Professional Career Pathway.
    - Listing in the Care Book as an HSP
- **Compliance Requirements**:
  - Criminal and Dependent Adult Abuse and Child Abuse Background Checks
  - Immunizations
  - Current certification for American Heart Association Health Care Provider in CPR
  - Administrative requirements
• **NOTE:** Students must provide immunization paperwork for specified immunizations and pass a Criminal and Dependent Adult Abuse and Child Abuse Background Check prior to admission to the program. Failure to pass these background checks, complete the immunizations or administrative requirements will prevent admission to the Nursing Program.

• **NOTE:** Nursing courses with a clinical component may **NOT** be taken by a person:
  - Who has been denied licensure by the Iowa Board of Nursing.
  - Whose license is currently suspended, surrendered or revoked in any United States jurisdiction.
  - Whose license/registration is currently suspended, surrendered or revoked in another country due to disciplinary action.

**Career opportunities:** hospitals; long-term care facilities; home health care; Hospice; nurse educator; public health; clinics; school nursing; military; correctional nursing; wellness centers; occupational-industry.

### Nursing Degree Requirements

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIO-168</td>
<td>Human Anatomy &amp; Physiology I***</td>
<td>4</td>
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<tr>
<td>BIO-151</td>
<td>Nutrition**</td>
<td>3</td>
</tr>
<tr>
<td>ENG-105</td>
<td>Composition I** OR</td>
<td>3</td>
</tr>
<tr>
<td>ENG-120</td>
<td>College Writing**</td>
<td>3</td>
</tr>
<tr>
<td>PSY-111</td>
<td>Introduction to Psychology**</td>
<td>3</td>
</tr>
<tr>
<td>SOC-110</td>
<td>Introduction to Sociology**</td>
<td>3</td>
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<td>Couse**</td>
<td>Humanities or History/Culture Choice**</td>
<td>3</td>
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<tr>
<td><strong>Term 1</strong></td>
<td></td>
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<tr>
<td>BIO-173</td>
<td>Human Anatomy &amp; Physiology II***</td>
<td>4</td>
</tr>
<tr>
<td>HSC-189</td>
<td>Introduction to Nursing***</td>
<td>4</td>
</tr>
<tr>
<td>PSY-121</td>
<td>Developmental Psychology**</td>
<td>3</td>
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<tr>
<td>BIO-186</td>
<td>Microbiology**</td>
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<td>SPC-101</td>
<td>Fundamentals of Oral Communication OR</td>
<td>3</td>
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<td>SPC-112</td>
<td>Public Speaking**</td>
<td>3</td>
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<td><strong>Term 2</strong></td>
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<tr>
<td>PNN-228</td>
<td>Foundations of Nursing I***</td>
<td>6</td>
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<tr>
<td>PNN-280</td>
<td>Pharmacology I***</td>
<td>2</td>
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<td>PNN-721</td>
<td>Foundations of Nursing Clinical I</td>
<td>2</td>
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<tr>
<td>PNN-293</td>
<td>Health Assessment Across the Lifespan***</td>
<td>3</td>
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<tr>
<td><strong>Term 3</strong></td>
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<tr>
<td>PNN-229</td>
<td>Foundations of Nursing II***</td>
<td>4</td>
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<tr>
<td>PNN-282</td>
<td>Pharmacology II***</td>
<td>2</td>
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<tr>
<td>PNN-446</td>
<td>Nursing Care of the Growing Family***</td>
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<td><strong>Total Associate Degree Nursing credit hours</strong></td>
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### Nursing Diploma Requirements

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<td>4</td>
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<tr>
<td>BIO-151</td>
<td>Nutrition**</td>
<td>3</td>
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<td>PSY-111</td>
<td>Introduction to Psychology**</td>
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<td><strong>Term 1</strong></td>
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<tr>
<td>BIO-173</td>
<td>Human Anatomy &amp; Physiology II***</td>
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<td>HSC-189</td>
<td>Introduction to Nursing***</td>
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<td>PSY-121</td>
<td>Developmental Psychology**</td>
<td>3</td>
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<tr>
<td><strong>Term 2</strong></td>
<td></td>
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<tr>
<td>PNN-228</td>
<td>Foundations of Nursing I***</td>
<td>6</td>
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<td>PNN-280</td>
<td>Pharmacology I***</td>
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<td>PNN-293</td>
<td>Health Assessment Across the Lifespan***</td>
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<td><strong>Term 3</strong></td>
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<td>PNN-229</td>
<td>Foundations of Nursing II***</td>
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<tr>
<td>PNN-282</td>
<td>Pharmacology II***</td>
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<td>PNN-446</td>
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<td><strong>Total Practical Nurse credit hours</strong></td>
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### Optional

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<td>ADN-924</td>
<td>Honors Project</td>
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<td>PNN-924</td>
<td>Honors Project</td>
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</table>
Career Programs

*Courses may be taken before beginning the Nursing technical and clinical portion of the program. They should be completed prior to or during the semester they are listed in.

**Completion of courses with a minimum of a C required prior to acceptance.

***Completion of courses with a B- minimum required.

Occupational Therapy Assistant

Allied Health
2164 Linn Hall
319-398-5566
www.kirkwood.edu/alliedhealth

Entry time
Fall

Award
Associate of Applied Science degree
2 years (5 terms, including summer)

Accreditation
The Occupational Therapy Assistant program is accredited by the Accreditation Council for Occupational Therapy Education (ACOTE). OTA graduates can take the national OTA certification exam administered by the National Board for Certification in Occupational Therapy (NBCOT). Successful completion of the exam leads to the Certified Occupational Therapy Assistant (COTA) designation. Most states, including Iowa, require a license to practice. A felony conviction may affect a graduate’s ability to sit for the NBCOT certification exam or obtain state licensure. The Accreditation Council for Occupational Therapy Education (ACOTE) of the American Occupational Therapy Association (AOTA) 4720 Montgomery Lane, Suite 200, Bethesda, MD 20814-3449, (301) 652-AOTA, www.acoteonline.org.

Occupational therapy assistants (OTAs) work with patients of all ages and help them learn skills to lead independent lives. OTAs work under the supervision of an occupational therapist (OT) to provide hands-on services to clients who are learning new ways to succeed in the occupation of life. This program starts each year in the fall.

Career opportunities: school systems; assisted living facilities; hospitals; outpatient clinics; long-term care facilities; private practice.

The primary location for Occupational Therapy Assistant students will be the Linn County Regional Center in Hiawatha.

Degree Requirements

<table>
<thead>
<tr>
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<tr>
<td>BIO-161</td>
<td>Basic Anatomy &amp; Physiology*</td>
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<td>HSC-107</td>
<td>Professionals in Health*</td>
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<tr>
<td>OTA-100</td>
<td>Foundations of Occupational Therapy</td>
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<tr>
<td>OTA-207</td>
<td>OT Methods I</td>
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<td>OTA-208</td>
<td>Occupational Development</td>
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<td>PSY-111</td>
<td>Introduction to Psychology*</td>
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<td>OTA-150</td>
<td>Occupational Therapy Assistant</td>
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<td>HSC-115</td>
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<td>HSC-117</td>
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<td>Basic Medical Terminology*</td>
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<tr>
<td>OTA-211</td>
<td>Pathophysiology for the OTA</td>
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<td>OTA-212</td>
<td>Functional Kinesiology</td>
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<td>OTA-306</td>
<td>OT Methods II</td>
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<td>OTA-405</td>
<td>Psychosocial Dysfunction</td>
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<td>OTA-850</td>
<td>OTA Field Work I-A</td>
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<td>SPC-101</td>
<td>Fundamentals of Oral Comm* OR</td>
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<td>COM-222</td>
<td>Communication for Health Care Professionals*</td>
<td>OR</td>
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<td>Term 3-Summer</td>
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<tr>
<td>ENG-105</td>
<td>Composition I*</td>
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<td>OTA-308</td>
<td>Physical Dysfunction I</td>
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<td>Physical Dysfunction II</td>
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<td>OTA-851</td>
<td>OTA Fieldwork I-B**</td>
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<td>OTA-205</td>
<td>OTA Management</td>
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<td>OTA-206</td>
<td>Community Health &amp; Special Populations</td>
<td>3</td>
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<td>OTA-406</td>
<td>OT Methods III</td>
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<td>OTA-411</td>
<td>Geriatric Interventions for the OTA</td>
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<td>Pediatric Interventions for the OTA</td>
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<td>OTA-409</td>
<td>Professional Development</td>
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<td>OTA Fieldwork II-B**</td>
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| Total program credit hours |                           | 80

Optional

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<tr>
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<tbody>
<tr>
<td>HSC-103</td>
<td>Studies in Health Sciences</td>
<td>1</td>
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</table>

*Courses may be taken before beginning the technical portion of the program.

**Indicates a course which involves off-campus clinical experience.

Note: Minimum grade of C is required in all technical OTA courses.

Paralegal Studies

Social Sciences
1008 Cedar Hall
319-398-1241
Paralegals are legal professionals who assist attorneys in all areas of the law. An attorney may delegate any legal work to a paralegal except tasks that involve giving legal advice or representing a client in court (although paralegals may assist at trial). Iowa prohibits the practice of law by non-attorneys.

Kirkwood Community College is a longstanding member of the American Association of Paralegal Education. Kirkwood’s Paralegal Studies helps prepare students for entry level positions in the paralegal profession. The plan of study also provides career-enhancing credentials for people already employed in law related work. Graduates work in law firms, corporate legal departments and other business and government offices such as prosecutors’ offices, banks, title companies and insurance companies. The program coordinator shall have discretion to evaluate and approve the transfer of all legal specialty courses. A maximum transfer of eight credits of legal specialty course work is allowed. Students planning to pursue a degree at a four-year institution follow the Liberal Arts program requirements while at Kirkwood, completing general education and Paralegal elective courses that prepare them to transfer.

Graduates who have gone on to law school after completing their bachelor’s degree have found their paralegal education at Kirkwood served as an excellent pre-law experience. In addition, any student wishing to explore a legal career will find program courses useful. Introduction to Law, the first law class, satisfies three credit hours of social science requirement toward an A.A. (Associate of Arts) or A.A.S. (Associate of Applied Science) degree. It is recommended that you work closely with your paralegal advisor.

**Career Programs**

**Paramedic**

Healthcare Simulation Center
2006 Linn Hall
319-398-1269
www.kirkwood.edu/paramedic

**Entry time**

Spring

**Award**

Associate of Applied Science degree

2 years (5 terms)

Paramedics provide the highest level of pre-hospital emergency care. The paramedic is an allied health professional whose primary focus is to provide advanced emergency medical care for critical and emergent patients who access the emergency medical system. This individual possesses the complex knowledge and skills necessary to provide patient care and transportation. Paramedics function as part of the emergency medical team, working closely with emergency medical technicians and emergency physicians.

**Program Electives:**

- PRL-121 Investigation for Paralegals 3
- PRL-138 Bankruptcy Law 3
- PRL-143 Business Organization Law 3
- PRL-146 Secured Transactions 3
- PRL-151 Real Estate Law 3
- PRL-161 Family Law 3
- PRL-166 Estate Planning/Administration 3
- PRL-186 Employment Law Topics 3
- PRL-187 Workers' Compensation 3
- PRL-192 Criminal Law and Procedure for the Paralegal 3
- PRL-932 Internship 3

**Program Requirements**

**Term 1**

<table>
<thead>
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<td>PRL-103</td>
<td>Introduction to Law</td>
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<tr>
<td>ENG-120</td>
<td>College Writing OR</td>
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<tr>
<td>ENG-105</td>
<td>Composition I AND</td>
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<td>ENG-106</td>
<td>Composition II OR</td>
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<td>ENG-108</td>
<td>Composition II: Technical Writing</td>
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<tr>
<td>SPC-101</td>
<td>Fundamentals of Oral Communication OR</td>
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<td>SPC-112</td>
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<td>BCA-189</td>
<td>Microcomputer Literacy OR</td>
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<td>CSC-110</td>
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<td>Math Course</td>
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**Term 2**

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<td>PRL-116</td>
<td>Fundamentals of Legal Research</td>
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<td>PRL-176</td>
<td>Civil Litigation</td>
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**Term 3**

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<tr>
<td>PRL-117</td>
<td>Advanced Legal Research &amp; Writing</td>
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<td>PRL-174</td>
<td>Contracts</td>
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**Term 4**

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**Total program credit hours**

63
of a comprehensive EMS response, under physician oversight. They perform interventions with the basic and advanced equipment typically found on an ambulance. The paramedic is a link between the scene into the health care system.

Paramedics provide advanced care in a variety of settings. Utilizing critical thinking skills, paramedics rapidly assess, treat and stabilize injured or ill patients and provide transport to or between hospitals. Settings may include ground and air ambulances, emergency departments, critical care units or cardiac cath labs. Along with advanced assessment techniques, paramedics utilize medications, cardiac monitoring and interpreting, defibrillation and advanced invasive skills as guided by state and local protocols, as well as the medical direction of each service.

The Paramedic program follows the current National Emergency Medical Services Education Standards from the National Highway Traffic Safety Administration. The standards prepare the EMT and AEMT for the more advanced scope of practice of the paramedic. This allied health program has a mandatory background check for clinical purposes.

**Career opportunities:** ambulance services; fire departments; hospitals; law enforcement agencies; other health care facilities.

**Degree Requirements**

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credit Hours</th>
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<tr>
<td><strong>Term 1</strong> - Prerequisites**</td>
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<tr>
<td>BIO-168</td>
<td>Human Anatomy &amp; Physiology I</td>
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<td>OR</td>
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<tr>
<td>BIO-161</td>
<td>Basic Anatomy &amp; Physiology*</td>
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<td>Basic Medical Terminology*</td>
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<tr>
<td>EMS-300</td>
<td>Advanced Emergency Medical Technician*** OR</td>
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<td>EMS-350</td>
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<td>EMS-365</td>
<td>Emergency Medical Technician II Clinical</td>
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<td>MAT-707</td>
<td>Algebra Mastery I OR other college level math course</td>
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<td>SPC-101</td>
<td>Fundamentals of Oral Communication*</td>
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<td>PSY-111</td>
<td>Introduction to Psychology*</td>
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<td>BIO-173</td>
<td>Human Anatomy &amp; Physiology II</td>
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<td>EMS-641</td>
<td>Introduction to Paramedicine</td>
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<td>EMS-642</td>
<td>Pharmacology for Paramedicine</td>
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<td>EMS-643</td>
<td>Cardiorespiratory Paramedicine</td>
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<td>ENG-105</td>
<td>Composition I*</td>
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<td>EMS-645</td>
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**Term 4**

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<td>EMS-646</td>
<td>Paramedic Clinical II</td>
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<td>EMS-647</td>
<td>Paramedic II</td>
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<td>EMS-648</td>
<td>Special Patient Populations in Emergency Medical Services</td>
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<td>EMS-649</td>
<td>Trauma &amp; Environmental Emergencies</td>
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**Term 5**

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<td>EMS-650</td>
<td>Medical and Psychological Emergencies</td>
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<td>EMS-651</td>
<td>Paramedic Fieldwork</td>
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<td>EMS-652</td>
<td>Paramedic Clinical III</td>
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<td>EMS-653</td>
<td>Paramedic III</td>
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**Total program credit hours**

<p>| <strong>Emergency Medical Technician (EMT) Certificate Requirements</strong> | | |</p>
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<tr>
<td><strong>Term 1</strong></td>
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<tr>
<td>BIO-168</td>
<td>Human Anatomy &amp; Physiology I OR</td>
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<td>BIO-161</td>
<td>Basic Anatomy &amp; Physiology*</td>
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<td>MAT-731</td>
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<td>HSC-117</td>
<td>Basic Medical Terminology*</td>
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<tr>
<td>EMS-300</td>
<td>Advanced Emergency Medical Technician*** OR</td>
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</table>

**Total program credit hours**

| | | |
| **Parks and Natural Resources** | | |
| Ag Sciences | Horticulture/Floral Careers | 319-398-5441 |
| | | www.kirkwood.edu/agriciences |

*Courses may be taken before beginning the paramedic core curriculum portion of the program, with program directors permission.
**Prerequisite courses must be taken before acceptance into the program.
***Students are recommended to take EMS-255, EMS-350 and EMS-365. EMS-300 may be taken instead. Current paramedics may also complete the degree requirements, with credit awarded for previous EMS course work, if successfully completed prior to Summer 2016.
Career Programs

Entry time
Summer or Fall

Award
Associate of Applied Science degree
2 years (4 terms)
Diploma
3 terms

If you enjoy the outdoors and have a deep concern for preserving and managing our natural resources, take a look at our Parks and Natural Resources program. As a student in this program, you'll learn to maintain and build campgrounds and lake areas; identify and manage fish, amphibians, reptiles, mammals, and nesting and game birds; operate and maintain equipment; manage plant material and land; and maintain park facilities.

Career opportunities: Graduates work in beautiful outdoor surroundings. Most jobs are in government parks and entail park maintenance, security, public relations and management. You may need to relocate to work year-round. Job opportunities include working in a city, county or state park as an attendant or naturalist; working in conservation, lake, trail or prairie management; environmental education, or making land improvements in a soil conservation district. A bachelor's degree will help in getting desired jobs in county, state and national parks and wildlife areas.

Degree Requirements

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credit Hours</th>
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<td>AGH-236</td>
<td>Plant Material Maintenance</td>
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<td>AGH-220</td>
<td>Plant Identification I</td>
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<td>AGH-110</td>
<td>Success in Horticulture</td>
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<td>AGN-105</td>
<td>Applications of Natural Resources</td>
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<td>COM-744</td>
<td>Oral Communication in the Workplace</td>
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<td>AGH-282</td>
<td>Pesticide Application Certification</td>
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<td>Term 2</td>
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<tr>
<td>COM-723</td>
<td>Workplace Communication</td>
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<tr>
<td>AGC-313</td>
<td>Leadership in Agriculture</td>
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<td>AGN-250</td>
<td>Park Maintenance Programs</td>
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<tr>
<td>AGH-157</td>
<td>Equipment Operations</td>
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<tr>
<td>AGH-150</td>
<td>Equipment Operations Lab</td>
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<td>AGH-102</td>
<td>Horticulture Math</td>
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<td>AGH-162</td>
<td>Landscape Construction Lecture</td>
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<td>AGH-164</td>
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<td>AGN-248</td>
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<td>AGN-244</td>
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Pet Grooming
Animal Health Technology
Washington Hall
319-398-5609
www.kirkwood.edu/agrisciences

Entry time
Fall

Total program credit hours 69

Optional Courses

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<td>AGN-270</td>
<td>Watershed Assessment and Management</td>
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<td>AGN-300</td>
<td>Rain Gardens and Bioretention Cells</td>
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<td>AGN-260</td>
<td>Wildland Firefighter Training</td>
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<td>ENV-115</td>
<td>Environmental Science</td>
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Diploma Requirements

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<td>AGH-220</td>
<td>Plant Identification I</td>
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<td>CRJ-100</td>
<td>Introduction to Criminal Justice</td>
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<td>COM-723</td>
<td>Workplace Communications</td>
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<td>AGH-102</td>
<td>Horticulture Math</td>
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<td>Term 2</td>
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<td>AGN-250</td>
<td>Park Maintenance Programs</td>
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<td>AGH-157</td>
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<tr>
<td>AGH-150</td>
<td>Equipment Operations Lab</td>
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<td>AGH-162</td>
<td>Landscape Construction Lecture</td>
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<td>Landscape Construction Lab</td>
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<td>AGH-238</td>
<td>Soil and Water Conservation</td>
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<td>Term 3</td>
<td>AGN-248</td>
<td>Natural Resources Appreciation</td>
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<td>AGN-223</td>
<td>Aquatic Wildlife</td>
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<td>AGN-220</td>
<td>Avian Wildlife</td>
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<td>AGN-226</td>
<td>Mammalian Wildlife</td>
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<td>AGN-140</td>
<td>Native Plants</td>
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Total program credit hours 39
Award
Diploma
1 year (2 terms including summer)

As a pet grooming student, you’ll learn to groom and maintain the appearance of pets, usually dogs. Grooming includes brushing and cutting the pet’s hair, trimming toenails, bathing the pet and cleaning its ears. After successfully completing the one-year program, you’ll receive a diploma in Pet Grooming and Pet Shop Management.

Career opportunities: veterinary clinics; pet stores; pet salons; kennels.

For gainful employment information, including graduation rates, the median debt of students who completed the program and other information, visit www.kirkwood.edu/gainfulemployment.

Degree Requirements

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<td>AGV-201</td>
<td>Pet Grooming I</td>
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<td>AGV-202</td>
<td>Pet Grooming II</td>
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<td>AGV-400</td>
<td>Grooming Shop Management I</td>
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<td>MGT-145</td>
<td>Human Relations in Management</td>
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<td>COM-723</td>
<td>Workplace Communications</td>
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<td>AGV-143</td>
<td>Canine &amp; Feline Nutrition</td>
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<td>AGV-203</td>
<td>Pet Grooming III</td>
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<td>AGV-204</td>
<td>Pet Grooming IV</td>
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<td>AGV-401</td>
<td>Grooming Shop Management II</td>
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<td>BUS-149</td>
<td>Small Business Financial Management</td>
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<td>COM-744</td>
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<td>Total program credit hours</td>
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Physical Therapist Assistant

Allied Health
2164 Linn Hall
319-398-5566
www.kirkwood.edu/alliedhealth

Entry time
Fall

Award
Associate of Applied Science degree
2 years (5 terms including summer)

Accreditation
The Physical Therapist Assistant program at Kirkwood Community College is accredited by the Commission on Accreditation in Physical Therapy Education (CAPTE). PTA graduates qualify to take the licensure exam given by the Federation of State Boards in Physical Therapy. Licensure is granted by the Iowa Board of Physical Therapy and Occupational Therapy Examiners. Most states, including Iowa, require a license to practice as a PTA. Annual continuing education hours are required to maintain a license.

Commission on Accreditation in Physical Therapy Education, 1111 North Fairfax Street, Alexandria, VA 22314, (703) 706-3245, website: www.capteonline.org, Email: accreditation@apta.org

Personal Characteristics
Physical therapist assistants (PTAs) work closely with physical therapists (PTs) to provide services to people with physical disabilities. Patient treatments may include strengthening, flexibility, aerobic conditioning, exercise, balance activities, functional training, gait training, modalities and other therapeutic interventions. Patient and caregiver education is provided by the PTs or PTAs.

The PT performs an initial patient evaluation and identifies patient problems and goals, then outlines a plan of care. The PTA assists the PT by carrying out all or part of the plan of care, monitoring the patient’s progress and documenting the care.

Students have two short-term and two long-term clinical experiences that allow them to gain hands-on experience with a variety of patients. Clinic sites are located across Iowa and in neighboring states. This program has mandatory background checks and other compliance items that need to be completed for clinic participation.

Career opportunities: outpatient clinics - orthopedics, sports medicine, pediatrics, etc.; hospitals; home health; industry; nursing homes; rehabilitation centers; school systems.

The primary location for Physical Therapist Assistant students will be the Linn County Regional Center in Hiawatha.

Degree Requirements

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>PTA-101</td>
<td>Introduction to PTA**</td>
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<tr>
<td>BIO-168</td>
<td>Human Anatomy &amp; Physiology I*</td>
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<td>COM-222</td>
<td>Communication for Health Care Professional** OR</td>
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<tr>
<td>SPC-101</td>
<td>Fundamentals of Oral Communication** OR</td>
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</tr>
<tr>
<td>SPC-112</td>
<td>Public Speaking OR</td>
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<td>COM-744</td>
<td>Oral Communication in the Workplace</td>
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<td>PTA-120</td>
<td>Kinesiology</td>
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<td>PTA-192</td>
<td>PTA Modalities I</td>
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<td>Functional Motor Development</td>
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<td>BIO-173</td>
<td>Human Anatomy &amp; Physiology II**</td>
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<td>HSC-107</td>
<td>Professionals in Health**</td>
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<td>PTA-103</td>
<td>PTA Patient Assessment</td>
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<td>PTA-110</td>
<td>Fundamentals for PTA***</td>
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<td>PTA-150</td>
<td>Pathophysiology</td>
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<td>PTA Modalities II</td>
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<td>PSY-111</td>
<td>Introduction to Psychology</td>
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<tr>
<td></td>
<td>Humanities or History/Culture Course**</td>
<td>3</td>
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<tr>
<td>ENG-105</td>
<td>Composition I**</td>
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<tr>
<td>PTA-160</td>
<td>PTA Procedures I</td>
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</tr>
<tr>
<td>PTA-301</td>
<td>PTA Clinic I***</td>
<td>2</td>
</tr>
<tr>
<td>PTA-161</td>
<td>PTA Procedures II</td>
<td>3</td>
</tr>
<tr>
<td>PTA-302</td>
<td>PTA Clinic II***</td>
<td>2</td>
</tr>
<tr>
<td>PTA-215</td>
<td>Orthopedic Issues</td>
<td>4</td>
</tr>
<tr>
<td>PTA-232</td>
<td>Rehab for Medical Conditions</td>
<td>4</td>
</tr>
<tr>
<td>PTA-241</td>
<td>Neurology for PTA</td>
<td>4</td>
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<tr>
<td>PTA-250</td>
<td>PTA Career Essentials</td>
<td>2</td>
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<tr>
<td>PTA-432</td>
<td>PTA Clinic III***</td>
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<tr>
<td>PTA-433</td>
<td>PTA Clinic IV***</td>
<td>6</td>
</tr>
</tbody>
</table>

Total program credit hours 79

*Must complete either BIO-161 or both BIO-168 and BIO-173

**Courses may be taken before beginning the technical portion of the program.
Career Programs

***Indicates a course which involves off-campus clinical experience.

Note: Minimum C required in the prerequisite courses, BIO-168, BIO-173 and all technical PTA courses.

Plumbing Pre-Apprenticeship
Industrial Technologies
101 Jones Hall
319-398-4983
www.kirkwood.edu/industrialtech

Entry time
Fall

Award
Diploma
1 year (2 terms)

The Plumbing Technology program provides entry-level skills and knowledge for students preparing to enter the plumbing industry. Classes in the first semester focus on safety, hand and power tools, materials, pipe joining methods, code book layout, plan and print reading and trade calculation. Hands-on classes concentrate on pipe joining, pipe materials and basic pipe fitting practices.

The second semester covers plumbing code requirements, installation requirements for drain, waste and vent systems, water pipe systems, gas pipe systems, gas venting systems, cross connection and backflow prevention. The hands-on class includes design and construction of a three-fixure washroom group and testing and troubleshooting backflow prevention devices.

This program requires OSHA-10 Construction and Adult First Aid with CPR, as well as the National Career Readiness Certificate.

Career opportunities: plumbing installation technician; plumbing maintenance technician; plumbing service technician; plumbing apprenticeship program.

For gainful employment information, including graduation rates, the median debt of students who completed the program and other information, visit www.kirkwood.edu/gainfulemployment.

Degree Requirements

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>PLU-142</td>
<td>Plumbing Practices II</td>
<td>4</td>
</tr>
<tr>
<td>PLU-150</td>
<td>Plumbing Plan &amp; Print Reading II</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Communications Course</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>18</strong></td>
</tr>
</tbody>
</table>

Respiratory Therapist
Allied Health
2164 Linn Hall
319-398-5566
www.kirkwood.edu/alliedhealth

Entry time
Fall

Award
Associate of Applied Science degree
2 years (5 terms including summer)

Accreditation
The Respiratory Therapy program is accredited by the Commission on Accreditation for Respiratory Care (CoARC). To prepare graduates with demonstrated competence in the cognitive (knowledge), psychomotor (skills), and affective (behavior) learning domains of respiratory care practices as performed by Registered Respiratory Therapists (RRT). Upon completion of the Respiratory Therapy program you should have the skills and knowledge needed for board exams; TMC (Therapist Multiple Choice) exam (entry level), WRRT and/or CSE exam (s) (Registered Respiratory Therapist). Exams are administered by the National Board of Respiratory Care (NBRC). Listed exams are required for employment, along with licensure to practice respiratory therapy. The Commission on Accreditation for Respiratory Care can be contacted at: 1248 Harwood Rd, Bedford, TX 76021-4244, 817-283-2835 or www.coarc.com.

Personal Characteristics
Respiratory therapy may be for you if you are naturally curious and would enjoy learning about and applying your knowledge of respiratory technology directly to patient care. Your ability to assess technical problems and make independent decisions is important. You should also have good eye-hand coordination, possess basic competence in science and math, have good communication skills and an ability to convey technical knowledge.

Respiratory therapists, also known as respiratory care practitioners, provide treatment, evaluation, monitoring and management of patients with breathing disorders or cardiovascular problems. Respiratory therapists administer oxygen, perform cardiopulmonary resuscitation, manage mechanical ventilators, administer medications, monitor cardiopulmonary systems and measure lung function. Respiratory therapists treat all types of patients: premature infants whose lungs are not fully developed, elderly patients with chronic asthma or emphysema, as well as emergency care for heart attack, stroke, drowning or shock.
Respiratory therapists work closely with physicians, nurses and other health care professionals to provide direct care to children and adults, including delivery of oxygen, administration of aerosolized drugs, endotracheal intubation, suctioning, management of life support, weaning of ventilation of life support, insertion of arterial lines, management of tracheotomies, drawing and interpretation of arterial blood gas samples. Advanced skills include intravenous, chest tube and central line insertions, as well as bronchoscopy procedures.

The Respiratory Therapist curriculum consists of classroom, laboratory and hospital-based clinical experiences at area hospitals and in-home health. This program begins each fall semester.

**Career opportunities:** hospitals; training centers; hospital outreach programs; pharmaceutical sales; sleep labs; outpatient clinics; home health agencies; health education; medical research; physician offices.

### Degree Requirements

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Prerequisites</strong></td>
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</tr>
<tr>
<td>BIO-161</td>
<td>Basic Anatomy &amp; Physiology** OR</td>
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<tr>
<td>BIO-168</td>
<td>Human Anatomy &amp; Physiology I AND</td>
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</tr>
<tr>
<td>BIO-173</td>
<td>Human Anatomy &amp; Physiology II</td>
<td>4</td>
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<tr>
<td>BIO-186</td>
<td>Microbiology**</td>
<td></td>
</tr>
<tr>
<td>CHM-110</td>
<td>Introduction to Chemistry** OR</td>
<td>3</td>
</tr>
<tr>
<td>CHM-165</td>
<td>General Chemistry I</td>
<td></td>
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<tr>
<td></td>
<td><strong>Term 1 (Fall)</strong></td>
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<tr>
<td>RCP-120</td>
<td>Cardiopulmonary Assessment</td>
<td>1</td>
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<tr>
<td>RCP-210</td>
<td>Introduction to Respiratory Care</td>
<td>2.5</td>
</tr>
<tr>
<td>HSC-107</td>
<td>Professionals in Health*</td>
<td>2</td>
</tr>
<tr>
<td>HSC-115</td>
<td>Medical Terminology*</td>
<td>4</td>
</tr>
<tr>
<td>ENG-105</td>
<td>Composition I*</td>
<td>3</td>
</tr>
<tr>
<td>MAT-102</td>
<td>Intermediate Algebra*</td>
<td>4</td>
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<tr>
<td></td>
<td><strong>Term 2 (Spring)</strong></td>
<td><strong>16.5</strong></td>
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<tr>
<td>RCP-220</td>
<td>Respiratory Care I</td>
<td>3</td>
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<tr>
<td>RCP-730</td>
<td>Respiratory Care Clinic I</td>
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<tr>
<td>RCP-300</td>
<td>Respiratory Physiology</td>
<td>4</td>
</tr>
<tr>
<td>PSY-111</td>
<td>Introduction to Psychology*</td>
<td>3</td>
</tr>
<tr>
<td>SPC-101</td>
<td>Fundamentals of Oral Communication* OR</td>
<td>3</td>
</tr>
<tr>
<td>SPC-112</td>
<td>Public Speaking* OR</td>
<td></td>
</tr>
<tr>
<td>COM-222</td>
<td>Communication for Health Care Professionals</td>
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<td></td>
<td><strong>Term 3 (Summer)</strong></td>
<td><strong>15.5</strong></td>
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<tr>
<td>RCP-510</td>
<td>Respiratory Care II</td>
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<tr>
<td>RCP-370</td>
<td>Respiratory Pathology I</td>
<td>2</td>
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<tr>
<td>RCP-420</td>
<td>Pulmonary Function Testing</td>
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<td></td>
<td><strong>Term 4 (Fall)</strong></td>
<td><strong>10</strong></td>
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<tr>
<td>RCP-470</td>
<td>Cardiac Monitoring</td>
<td>1.5</td>
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</table>

**Total program credit hours** 81

*Courses may be taken before beginning the program.

**Courses must be completed with a C- or better before admissions into the program.

Respiratory Therapist graduates take the Therapist Multiple Choice Exam administered by the National Board for Respiratory Care to become a certified respiratory therapist (CRT) and be eligible for their Registered Respiratory Therapy licensure upon passing the CRT exam.

### Skilled Trades

**Industrial Technologies**

101 Jones Hall
319-398-4983
www.kirkwood.edu/industrialtech

**Entry time**

Fall, Spring or Summer

**Award**

Associate of Applied Science degree

1 year

**Industry endorsement earned**

National Career Readiness Certificate

Students who complete a skilled-trade four- or five-year apprenticeship program approved by the U.S. Department of Labor, Office of Apprenticeship (OA), can automatically articulating 46 college credits toward completion of this associate of applied science (A.A.S.) degree. This leaves only 18 credit hours of prescribed general education courses needed to earn the A.A.S. degree. Completion of this A.A.S. degree also enables students with the option of transferring the credits from this program to the University of Northern Iowa to pursue a Bachelor of Arts in Technology Management.

This program is designed for those who do not have college degrees and are interested in pursuing further opportunities in supervisory and management positions in the trades.

**Career opportunities:** advancement opportunities in supervisory and management-level positions.

(*U.S. Department of Labor Bureau of Apprenticeship & Training)*
Career Programs

Degree Requirements

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSC-110</td>
<td>Introduction to Computers</td>
<td>3</td>
</tr>
<tr>
<td>ENG-101</td>
<td>Elements of Writing*</td>
<td>3</td>
</tr>
<tr>
<td>ENG-105</td>
<td>Composition I</td>
<td>3</td>
</tr>
<tr>
<td>HUM-116</td>
<td>Encounters in Humanities</td>
<td>3</td>
</tr>
<tr>
<td>MAT-115</td>
<td>Mathematics &amp; Society*</td>
<td>3</td>
</tr>
<tr>
<td>PSY-111</td>
<td>Introduction to Psychology</td>
<td>3</td>
</tr>
</tbody>
</table>

Total program credit hours 18

*Requires placement score.

All courses can be completed online. Monitored exams may be required.

Surgical Technology

Allied Health
2164 Linn Hall
319-398-5566
www.kirkwood.edu/alliedhealth

Entry time
Spring (Cedar Rapids site)
Fall (Distance Education)

Award
Diploma
1 year (3 terms including summer)
Associate of Applied Science degree after completion of additional required courses.
2 years (4 terms including summer)

Accreditation
The Surgical Technology program is accredited by the Commission on Accreditation of Allied Health Education Programs (CAAHEP) in collaboration with the American College of Surgeons (ACS) and the Association of Surgical Technologies (AST) based on the recommendations of the Accreditation Review Council on Education in Surgical Technology and Surgical Assisting (ARC/STSA). Students will apply to take the Certified Surgical Technologist test. The Accreditation Review Committee on Education in Surgical Technology and Surgical Assisting (ARC/STSA) can be contacted at: 6 West Dry Creek Circle, Suite #110, Littleton, CO 80120, 303-694-9262, http://www.arcstsa.org, CAAHEP | 25400 U.S. Highway 19 North, Suite 158, Clearwater, FL 33763, 727-210-2350, www.caahep.org.

Surgical technologists are allied health professionals who are an integral part of the team of medical practitioners providing surgical care to patients in a variety of settings. They work under the supervision of a surgeon to ensure that the operating room or environment is safe, that equipment functions properly, and that the operative procedure is conducted under conditions that maximize safety. This degree program is designed for the surgical technology diploma graduate who wants to continue his or her education and receive an associate of applied science degree. With the escalating rate of change and increasing complexity of surgical procedures, the associate of applied science degree option will provide the student with a broader education basis, which may assist in career advancement.

Career opportunities: hospital operating rooms; sales representative; ambulatory surgery centers; teaching, hospital labor and delivery; hospital central supply; advancement to management positions possible with experience and education.

This curriculum is for the Cedar Rapids-based program or the spring start. Curriculum for the Distance Education program, or fall start, is slightly different. Contact Allied Health for information.

AAS Degree Requirements

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>BIO-168</td>
<td>Human Anatomy &amp; Physiology I*</td>
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<td>HSC-115</td>
<td>Medical Terminology*</td>
<td>4</td>
</tr>
<tr>
<td>ENG-105</td>
<td>Composition I</td>
<td>3</td>
</tr>
<tr>
<td>PSY-111</td>
<td>Introduction to Psychology OR</td>
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<tr>
<td>SOC-110</td>
<td>Introduction to Sociology*</td>
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</tr>
<tr>
<td>MGT-101</td>
<td>Principles of Management* OR</td>
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</tr>
<tr>
<td>MGT-130</td>
<td>Principles of Supervision* OR</td>
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</tr>
<tr>
<td>MGT-145</td>
<td>Human Relations in Management*</td>
<td>3</td>
</tr>
<tr>
<td>BIO-176</td>
<td>Microbiology*</td>
<td>13.5</td>
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<tr>
<td>SPC-101</td>
<td>Fundamentals of Oral Communication* OR</td>
<td>3</td>
</tr>
<tr>
<td>COM-222</td>
<td>Communication for Health Care Professionals* OR</td>
<td>3</td>
</tr>
<tr>
<td>SPC-112</td>
<td>Public Speaking* OR</td>
<td>3</td>
</tr>
<tr>
<td>COM-723</td>
<td>Workplace Communications*</td>
<td>3</td>
</tr>
<tr>
<td>SUR-322</td>
<td>Surgical Technology II</td>
<td>3</td>
</tr>
<tr>
<td>SUR-323</td>
<td>Surgical Technology II Lab</td>
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<tr>
<td>SUR-340</td>
<td>Surgical Specialties I</td>
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</tr>
<tr>
<td>SUR-420</td>
<td>Pharmacology for the Surgical Technologist</td>
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</tr>
<tr>
<td>SUR-440</td>
<td>Biomedical Sciences for Surgical Technology</td>
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</tr>
</tbody>
</table>

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126
As a Veterinary Assistant student, you'll prepare for a career working with animals in a variety of settings such as veterinary clinics, boarding kennels and grooming salons. You'll study animal diseases and disease prevention, small animal pharmacology, pet grooming, kennel management, animal behavior, nutrition, legal principles, human relations, communication and computer science.

Career opportunities: veterinary assistants; veterinary receptionists; animal control officers; animal health product sales; retail pet supply sales.

For gainful employment information, including graduation rates, the median debt of students who completed the program and other information, visit www.kirkwood.edu/gainfulemployment.

**Entrance Requirements:** Prospective students for the Veterinary Assistant program are required to take an entrance exam. There are minimum cut scores that must be achieved for admission into the program. For more information about the entrance exam, visit http://www.kirkwood.edu/veterinaryassistant. You can also contact the Kirkwood Ag Sciences Department at 319-398-5609.

### Degree Requirements

**Term 1-Fall**

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>AGV-105</td>
<td>Animal Behavior/Kennel Management</td>
<td>5</td>
</tr>
<tr>
<td>AGV-158</td>
<td>Veterinary Law and Ethics</td>
<td>3</td>
</tr>
<tr>
<td>AGV-153</td>
<td>Veterinary Reception and Administration Skills</td>
<td>3</td>
</tr>
<tr>
<td>AGC-314</td>
<td>Leadership in Agriculture</td>
<td>2</td>
</tr>
<tr>
<td>AGV-152</td>
<td>Veterinary Computer Applications</td>
<td>2</td>
</tr>
<tr>
<td>MGT-145</td>
<td>Human Relations in Management</td>
<td>3</td>
</tr>
<tr>
<td>SUM-600</td>
<td>Internship (coordinator approval)</td>
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**Term 2-Spring**

<table>
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<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credit Hours</th>
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<tr>
<td>AGV-107</td>
<td>Pharmacy Skills</td>
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<tr>
<td>AGV-101</td>
<td>Veterinary Assisting</td>
<td>3</td>
</tr>
<tr>
<td>COM-723</td>
<td>Workplace Communications</td>
<td>3</td>
</tr>
<tr>
<td>AGV-120</td>
<td>Veterinary Medical Terminology</td>
<td>1</td>
</tr>
<tr>
<td>AGV-143</td>
<td>Canine and Feline Nutrition</td>
<td>3</td>
</tr>
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<td>AGV-201</td>
<td>Pet Grooming I</td>
<td>3</td>
</tr>
<tr>
<td>AGC-314</td>
<td>Leadership in Agriculture</td>
<td>2</td>
</tr>
<tr>
<td>AGV-300</td>
<td>Clinical Veterinary Experience</td>
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<tr>
<td>AGC-210</td>
<td>Employment Seminar</td>
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**Term 3-Summer**

<table>
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<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credit Hours</th>
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</thead>
<tbody>
<tr>
<td>AGC-932</td>
<td>Internship (coordinator approval)</td>
<td>6</td>
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</tbody>
</table>

*Courses may be taken before beginning the program.

**Surgical Technology** students will apply and take the National Certified Surgical Technologist exam.

Students must receive a C in all technical courses in the Surgical Technology program and a C- in BIO-168 and BIO-173.

### Veterinary Assistant

**Animal Health Technology**

Washington Hall

319-398-5609
Veterinary Technician
Animal Health Technology
Washington Hall
319-398-5609
www.kirkwood.edu/agrisciences

Entry time
Summer

Award
Associate of Applied Science degree
2 years (6 terms including summers)

Accreditation
This program is accredited by the AVMA (American Veterinary Medical Association) Committee on Veterinary Technician Education and Activities (CVTEA). For more information, go to www.avma.org.

Veterinary technicians provide professional technical support to veterinarians, biomedical researchers and other scientists. They also care for hospitalized patients; assist the doctor in surgery; perform physical exams, lab work and technical procedures (blood draws, IV placement); take health histories and X-rays; give and monitor anesthesia; provide client education; and perform reception duties.

At Kirkwood, veterinary technician students work with a variety of animals including dogs, cats, horses, cows, pigs, birds, snakes, guinea pigs, hamsters and rats. A strong background in biological sciences is needed for this program.

Career opportunities: small, mixed or large animal practices; humane societies; animal shelters; zoos; specialty veterinary practices; pet shops; biological research labs; animal control agencies; veterinary teaching hospitals; state and federal agencies.

Entrance Requirements: Prospective students for the Veterinary Technician program are required to take an entrance exam. There are minimum cut scores that must be achieved for admission into the program. For more information about the entrance exam, visit: http://www.kirkwood.edu/veterinarytechnician. You can also contact the Kirkwood Ag Sciences Department at 319-398-5609.

Degree Requirements

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credit Hours</th>
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</thead>
<tbody>
<tr>
<td>AGV-126</td>
<td>Animal Anatomy &amp; Physiology I</td>
<td>3</td>
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<tr>
<td>AGV-142</td>
<td>Mathematics for Veterinary</td>
<td>3</td>
</tr>
<tr>
<td>AGV-105</td>
<td>Animal Behavior/Kennel</td>
<td>5</td>
</tr>
<tr>
<td>AGC-313</td>
<td>Leadership in Agriculture</td>
<td>1</td>
</tr>
<tr>
<td>CHM-110</td>
<td>Introduction to Chemistry</td>
<td>3</td>
</tr>
<tr>
<td>CHM-111</td>
<td>Introduction to Chemistry Lab</td>
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</tbody>
</table>

Total program credit hours 83

Water Environmental Technology
Industrial Technologies
319-398-5678
www.kirkwood.edu/industrialtech

Entry time
Fall, Spring or Summer

Award
Associate of Applied Science degree
2 years (5 terms including summer)
Diploma
1 year (3 terms including summer)

This innovative program provides students with real-world experience with either a one-year or two-year program for preparation in the water and wastewater fields. The two-year degree includes technical study in water/wastewater procedures, complemented by math, science, social science, humanities classes as well as an internship. The Water Environmental Technology program comes to you via Environmental Technology Online. The classes were developed by the Kirkwood Community College, Environmental Training Center. Students may transfer credits from this program to the University of Northern Iowa toward a bachelor’s degree in technology management.

Graduates of this program work in municipal water and wastewater treatment plants and the collection systems and distribution systems that serve them. All operators are required by law to be certified. This program provides training and educational experiences that will prepare you for certification examinations. Work experience requirements must be met before you are eligible to take an examination for certification. Be sure to refer to the certifying body in your state to determine eligibility.

Career opportunities: municipal water utilities; municipal wastewater treatment plants; rural water systems; industrial waste treatment facilities; engineering firms; privately owned water/wastewater plants.

### Degree Requirements

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
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<tbody>
<tr>
<td>Term 1-Fall</td>
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<tr>
<td>WAT-308</td>
<td>Wastewater Analysis</td>
<td>3</td>
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<tr>
<td>WAT-307</td>
<td>Wastewater Treatment I</td>
<td>4</td>
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<tr>
<td>WAT-306</td>
<td>Wastewater Collection Systems</td>
<td>4</td>
</tr>
<tr>
<td>CHM-110</td>
<td>Introduction to Chemistry</td>
<td>3</td>
</tr>
<tr>
<td>MAT-102</td>
<td>Intermediate Algebra*</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>18</strong></td>
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<tr>
<td>Term 2-Spring</td>
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<td></td>
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<tr>
<td>WAT-304</td>
<td>Water Treatment I</td>
<td>4</td>
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<tr>
<td>WAT-305</td>
<td>Water Distribution Systems</td>
<td>4</td>
</tr>
<tr>
<td>WAT-300</td>
<td>Water Analysis</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Communications Elective*</td>
<td>3</td>
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<tr>
<td></td>
<td></td>
<td><strong>14</strong></td>
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<td>Term 3-Summer</td>
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Total diploma program credit hours

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<td>WAT-210</td>
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<td>SOC-110</td>
<td>Introduction to Sociology*</td>
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<td>ENV-115</td>
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### Water Environmental Technology Diploma Requirements

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<td>WAT-305</td>
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<td>Communications Elective*</td>
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<tr>
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<tr>
<td>WAT-308</td>
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<td>WAT-307</td>
<td>Wastewater Treatment I</td>
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<td>WAT-306</td>
<td>Wastewater Collection Systems</td>
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<td>Introduction to Chemistry</td>
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<tr>
<td>MGT-101</td>
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<td>ENV-115</td>
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<tr>
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<td>Principles of Supervision* OR</td>
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<td>Principles of Management*</td>
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Total diploma program credit hours 31

Wastewater Specialist Diploma Requirements

<table>
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<td>WAT-307</td>
<td>Wastewater Treatment I</td>
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<td>WAT-306</td>
<td>Wastewater Collection Systems</td>
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<tr>
<td>WAT-301</td>
<td>Basic Mechanical Maintenance &amp; Pumps</td>
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<td>Communications Elective*</td>
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Second Semester

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<td>Wastewater Analysis</td>
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<td>WAT-210</td>
<td>Wastewater Treatment: Industrial</td>
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<td>ENV-115</td>
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Third Semester

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</table>

Total diploma program credit hours 35

*Courses may be taken before beginning the program.

Web Technologies

Business & Information Technology
203 Nielsen Hall
319-398-5416
www.kirkwood.edu/businessdept

Entry time
Fall, Spring, Summer

Award
Associate of Applied Science degree
2 years (5 terms including summer)

Certificates options
Web Technologies provides students with the opportunity to pursue an associate degree built on a strong base of Web-related course work, tailored to the student's individual interest with one of three elective emphasis areas. For those who do not presently need or have time to complete a degree, there are also two shorter certificate options available.

This degree appeals to students with a range of interests connected with the Web. Students begin with a set of basic courses covering HTML and CSS, Web media, and introductory computer and programming skills. As the program progresses, students learn various aspects of Web design and development through courses emphasizing the workflow associated with the planning process, site design and the use of standard technologies, such as content management systems, to provide client solutions. Students also consider the business side of the Web development through courses in marketing and e-commerce, learning about current topics such as Web analytics and search engine optimization along with payments, catalogs and shopping carts. The use of scripting, PHP and databases is also included.

Web Development emphasis options: For students wishing to go further with programming, two elective concentrations are offered. The first emphasizes the Java programming language and culminates in a course in creating dynamic interactions with Java Server Pages. The second, based on Microsoft technology, emphasizes the Visual Basic language and culminates in the use of ASP.NET for providing dynamic pages and Web services. Both options include a course in client-side scripting.

Web Graphic Design emphasis option: For students wishing to focus on design, there is an elective concentration in Web graphic design, which includes an additional course in digital layout, alongside courses covering several professional graphics tools, including Adobe Photoshop, Illustrator and Flash.

Career opportunities: digital developer; Web editor; eBusiness Web designer; Web graphics designer; information technology designer; Web marketing specialist; interactive marketer; website content manager; multimedia/Web specialist; Web software developer; Web application developer; Web systems manager.

Degree Requirements

<table>
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<tr>
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<td>Introduction to Computers</td>
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<tr>
<td>CIS-207</td>
<td>Fundamentals of Web Programming*</td>
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<tr>
<td>MAT-102</td>
<td>Intermediate Algebra</td>
<td>4</td>
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<tr>
<td>CIS-121</td>
<td>Introduction to Programming Logic*</td>
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<tr>
<td>GRA-131</td>
<td>Digital Layout</td>
<td>3</td>
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<td><strong>Term 2</strong></td>
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<td>BCA-290</td>
<td>Web Design Principles</td>
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<tr>
<td>CIS-335</td>
<td>Relational Database Technologies &amp; SQL*</td>
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<td>MKT-110</td>
<td>Principles of Marketing</td>
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<td>MGT-161</td>
<td>Agile Project Management with Scrum</td>
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<td><strong>Term 3</strong></td>
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<td>ENG-105</td>
<td>Composition I</td>
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<td>PSY-111</td>
<td>Introduction to Psychology OR</td>
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<td>MGT-145</td>
<td>Human Relations in Management</td>
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<td><strong>Term 4</strong></td>
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<td>CIS-334</td>
<td>PHP/Apache/MySQL*</td>
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<td>CIS-249</td>
<td>Web Languages</td>
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<td>CIS-290</td>
<td>Web Content and E-Commerce Systems</td>
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<td>CIS-280</td>
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<td>ENG-106</td>
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<td>SPC-101</td>
<td>Fundamentals of Oral Communication</td>
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<td>BUS-290</td>
<td>Employment Search &amp; Workplace Success</td>
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<td>Emphasis area course*</td>
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<td><strong>Total program credit hours</strong></td>
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**Emphasis Area Courses**

**Graphic Design**
- GRA-127 Illustrator I
- GRA-140 Digital Imaging
- GRA-195 Introduction to Web Media

**Open Source Programming**
- CIS-171 Java*
- CIS-175 Java II*
- CIS-181 Java III

**Microsoft Programming**
- CIS-622 .NET Development I *
- CIS-624 .NET Development II*
- CIS-626 .NET Development III

**Web Development Certificate Requirements**

<table>
<thead>
<tr>
<th>Term 1</th>
<th>Course Number</th>
<th>Course Title</th>
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<tr>
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<td>CIS-121</td>
<td>Introduction to Programming Logic*</td>
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<td>CIS-207</td>
<td>Fundamentals of Web Programming*</td>
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<td>BCA-290</td>
<td>Web Design Principles</td>
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**Web Design Certificate Requirements**

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<tr>
<td></td>
<td>GRA-131</td>
<td>Digital Layout</td>
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<tr>
<td></td>
<td>CIS-207</td>
<td>Fundamentals of Web Programming*</td>
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</tbody>
</table>
Arts and Sciences Core Courses

Applicable to A.A. and A.S. degree requirements. One diversity course is required for the A.A. degree. Courses with (D) before the course number satisfy the diversity requirement.

Communication - Speech
SPC-101 Fundamentals of Oral Communication 3
or
SPC-112 Public Speaking 3

Communication - Writing
ENG-120 College Writing (Composition I-II equivalent) 5
or
ENG-105 Composition I 3
and
ENG-106 Composition II 3
or
ENG-108 Composition II: Technical Writing 3

History - Cultures
Students seeking an A.A. degree complete two History-Cultures courses. Students seeking an A.S. degree complete any three History - Cultures or Humanities courses.

(D) ANT-105 Cultural Anthropology 3
(D) ASL-171 American Sign Language II 4
(D) ASL-245 American Sign Language III 4
(D) ASL-281 American Sign Language IV 4
(D) CLS-140 Understanding Cultures: The Mideast 3
(D) CLS-151 Understanding Cultures: Latin America 3
(D) CLS-159 Understanding Cultures: Indigenous Central America 3
(D) CLS-165 Understanding Cultures: Modern Japan 3
(D) CLS-167 Understanding Cultures: Modern China 3
(D) CLS-171 Understanding Cultures: Sub-Saharan Africa 3
FLC-241 Intermediate Chinese I 4
FLC-242 Intermediate Chinese II 4
(D) FLF-142 Elementary French II 4
(D) FLF-241 Intermediate French I 4
(D) FLF-242 Intermediate French II 4
(D) FLG-142 Elementary German II 4
(D) FLG-241 Intermediate German I 4
(D) FLG-242 Intermediate German II 4
(D) FLS-142 Elementary Spanish II 4
(D) FLS-241 Intermediate Spanish I 4
(D) FLS-242 Intermediate Spanish II 4
HIS-121 Ancient Mediterranean World 3
HIS-122 Europe-Age of Monarchy 3
HIS-123 Europe-Age of Revolution 3
HIS-124 Europe-Age of Nationalism 3
HIS-135 Modern World Military History 3
HIS-151 U.S. History to 1877 3
HIS-152 U.S. History Since 1877 3
(D) HIS-221 Holocaust/Genocide: Memory & Literature 3
(D) HIS-254 American Indian History 3
HIS-291 History of Science 3
(D) REL-101 Survey of World Religions 3
(D) REL-120 Judaism, Christianity & Islam 3
(D) REL-125 Introduction to Islam 3
(D) REL-130 Intro to Religions of the East 3
(D) REL-140 Religion in the United States 3
REL-145 Intro to Christianity 3
REL-160 Religions of China 3

Humanities
Students seeking an A.A. degree complete one course from group 1, one course from group 2 and one course from group 1, 2 or 3.

Group 1 – Introductory Art & Humanities
ART-101 Art Appreciation 3
ART-143 Painting 3
ART-163 Sculpture 3
ART-173 Ceramics 3
ART-184 Photography 3
ART-186 Digital Photography 3
ART-203 Art History I 3
ART-204 Art History II 3
ART-420 Introduction to Glass 3
DRA-101 Introduction to Theatre 3
DRA-116 Film Analysis 3
DRA-125 Introduction to Play Analysis 3
HUM-105 Working in America 3
HUM-116 Encounters in Humanities 3
HUM-123 U.S. Film History 3
HUM-124 World Film History 3
HUM-190 Culture and Technology 3
MUS-100 Music Appreciation 3
MUS-127 Great Composers 3
PHI-101 Introduction to Philosophy 3
PHI-105 Introduction to Ethics 3
PHI-111 Basic Reasoning 3
PHI-130 Philosophy of Human Nature 3

Group 2 – Literature
(Prereq: ENG-105 or ENG-120)
(D) LIT-180 Mythology 3
LIT-203 Forms of Literature: Story Cycle 3
LIT-204 Forms of Literature: Nonfiction 3
LIT-205  Forms of Literature: Drama  3
LIT-206  Forms of Literature: Fiction  3
LIT-207  Forms of Literature: Poetry  3
LIT-208  Forms of Literature: New Media  3
LIT-209  Forms of Literature: Film  3

(D) LIT-222  Literature & Culture: American Adaptation  3
(D) LIT-224  Literature & Culture: Women and Work  3
LIT-225  Literature Themes: Beyond Bartleby  3
LIT-226  Literature Themes: Search for Identity  3
(D) LIT-227  Literature & Culture: World Poetry  3

**Group 3 – Topics in Arts & Humanities**

(D) CLS-180  American Pluralism  3
DRA-117  Film Topics  3
HUM-142  Popular Culture  3
HUM-200  International Study in Humanities  3
MUS-207  Introduction to Film Music  3
MUS-208  American Popular Music and Jazz  3
MUS-209  Topics in Western Music History  3
(D) PHI-125  Native American Philosophies  3
(D) PHI-126  Chinese Philosophies  3
PHI-132  Philosophy of Education  3
PHI-135  Multicultural Ethics  3
PHI-150  Social and Political Philosophy  3
PHI-160  Environmental Ethics  3

**Mathematics**

*Students seeking an A.A. degree complete one college-level math course. Students seeking an A.S. degree complete 20 credit hours of Mathematics/Science including at least one college-level math course.*

CSC-142  Computer Science  4
MAT-115  Mathematics and Society  3
MAT-117  Math for Elementary Teachers  3
MAT-120  College Algebra  3
MAT-136  Trigonometry & Analytic Geometry  5
MAT-138  College Algebra with Limits  4
MAT-140  Finite Math  3
MAT-149  Linear Algebra  3
MAT-150  Discrete Math  3
MAT-155  Statistical Ideas  3
MAT-157  Statistics  4
MAT-162  Business Statistics  4
MAT-165  Business Calculus  3
MAT-210  Calculus I  4
MAT-216  Calculus II  4
MAT-219  Calculus III  4
MAT-227  Differential Equation with Laplace  4

**Science**

*Students seeking an A.A. degree complete six credit hours from Group A below. See an adviser for requirements specific to your degree.*

**Group A**

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<td>BIO-112</td>
<td>General Biology I</td>
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<td>BIO-113</td>
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<td>Nutrition</td>
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<td>BIO-154</td>
<td>Human Biology</td>
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<td>BIO-168</td>
<td>Human Anatomy &amp; Physiology I</td>
<td>4</td>
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<tr>
<td>BIO-186</td>
<td>Microbiology</td>
<td>4</td>
</tr>
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<td>BIO-190</td>
<td>Introductory Biotechnology</td>
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<tr>
<td>BIO-195</td>
<td>Human Evolution</td>
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<td>CHM-110</td>
<td>Intro to Chemistry</td>
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<td>CHM-111</td>
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<td>CHM-132</td>
<td>Intro Organic &amp; Biochemistry</td>
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<td>CHM-165</td>
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<td>CHM-175</td>
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<td>ENV-115</td>
<td>Environmental Science</td>
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<tr>
<td>PHS-151</td>
<td>Intro to Astronomy</td>
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<td>PHS-170</td>
<td>Physical Geology*</td>
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<td>PHS-175</td>
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<td>PHS-181</td>
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<td>PHY-120</td>
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<tr>
<td>PHY-162</td>
<td>College Physics I</td>
<td>4</td>
</tr>
<tr>
<td>PHY-172</td>
<td>College Physics II</td>
<td>4</td>
</tr>
<tr>
<td>PHY-212</td>
<td>Classical Physics I</td>
<td>5</td>
</tr>
<tr>
<td>PHY-222</td>
<td>Classical Physics II</td>
<td>5</td>
</tr>
<tr>
<td>SCI-120</td>
<td>Forensic Science</td>
<td>3</td>
</tr>
<tr>
<td>SCI-122</td>
<td>Forensic Science Lab</td>
<td>1</td>
</tr>
</tbody>
</table>

**Group B**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIO-168</td>
<td>Human Anatomy &amp; Physiology I w/ Lab</td>
<td>4</td>
</tr>
<tr>
<td>BIO-173</td>
<td>Human Anatomy &amp; Physiology II w/ Lab</td>
<td>4</td>
</tr>
<tr>
<td>BIO-186</td>
<td>Microbiology</td>
<td>4</td>
</tr>
<tr>
<td>CHM-262</td>
<td>Organic Chemistry I</td>
<td>4.5</td>
</tr>
<tr>
<td>CHM-272</td>
<td>Organic Chemistry II</td>
<td>4.5</td>
</tr>
</tbody>
</table>

*Only one Geology course can count as Science credit.*

**Social Science**

*Students seeking an A.A. degree complete 3 courses. Students seeking an A.S. degree complete 2 courses.*

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CRJ-100</td>
<td>Introduction to Criminal Justice</td>
<td>3</td>
</tr>
<tr>
<td>CRJ-200</td>
<td>Criminology</td>
<td>3</td>
</tr>
<tr>
<td>CRJ-201</td>
<td>Juvenile Delinquency</td>
<td>3</td>
</tr>
<tr>
<td>ECE-170</td>
<td>Child Growth and Development</td>
<td>3</td>
</tr>
<tr>
<td>ECN-120</td>
<td>Principles of Macroeconomics</td>
<td>3</td>
</tr>
<tr>
<td>ECN-130</td>
<td>Principles of Microeconomics</td>
<td>3</td>
</tr>
<tr>
<td>EDU-110</td>
<td>Exploring Teaching</td>
<td>3</td>
</tr>
<tr>
<td>EDU-240</td>
<td>Educational Psychology</td>
<td>3</td>
</tr>
<tr>
<td>HSV-109</td>
<td>Introduction to Human Services</td>
<td>3</td>
</tr>
</tbody>
</table>
## Arts and Sciences Core Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HSV-201</td>
<td>Loss, Trauma and Resilience</td>
<td>3</td>
</tr>
<tr>
<td>HSV-292</td>
<td>Substance Abuse and Treatment</td>
<td>3</td>
</tr>
<tr>
<td>MMS-101</td>
<td>Mass Media</td>
<td>3</td>
</tr>
<tr>
<td>POL-110</td>
<td>Introduction to Political Science</td>
<td>3</td>
</tr>
<tr>
<td>POL-111</td>
<td>American National Government</td>
<td>3</td>
</tr>
<tr>
<td>POL-121</td>
<td>International Relations</td>
<td>3</td>
</tr>
<tr>
<td>(D) POL-125</td>
<td>Comparative Government &amp; Politics</td>
<td>3</td>
</tr>
<tr>
<td>POL-150</td>
<td>Introduction to U.S. Foreign Policy</td>
<td>3</td>
</tr>
<tr>
<td>PRL-103</td>
<td>Introduction to Law</td>
<td>3</td>
</tr>
<tr>
<td>PSY-111</td>
<td>Introduction to Psychology</td>
<td>3</td>
</tr>
<tr>
<td>PSY-121</td>
<td>Developmental Psychology</td>
<td>3</td>
</tr>
<tr>
<td>PSY-241</td>
<td>Abnormal Psychology</td>
<td>3</td>
</tr>
<tr>
<td>PSY-251</td>
<td>Social Psychology</td>
<td>3</td>
</tr>
<tr>
<td>PSY-261</td>
<td>Human Sexuality</td>
<td>3</td>
</tr>
<tr>
<td>SOC-110</td>
<td>Intro to Sociology</td>
<td>3</td>
</tr>
<tr>
<td>SOC-115</td>
<td>Social Problems</td>
<td>3</td>
</tr>
<tr>
<td>SOC-120</td>
<td>Marriage and Family</td>
<td>3</td>
</tr>
<tr>
<td>(D) SOC-220</td>
<td>Sociology of Aging</td>
<td>3</td>
</tr>
<tr>
<td>(D) SOC-265</td>
<td>Introduction to Lesbian, Gay, Bisexual &amp; Transgender Studies</td>
<td>3</td>
</tr>
<tr>
<td>SOC-284</td>
<td>Sociology of the Environment</td>
<td>3</td>
</tr>
<tr>
<td>(D) SOC-200</td>
<td>Minority Group Relations</td>
<td>3</td>
</tr>
</tbody>
</table>

### Additional Diversity

*Students seeking an A.A. degree may take one of these courses to satisfy the diversity requirement. They count as electives, not as core.*

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CLS-125</td>
<td>Language and Society</td>
<td>3</td>
</tr>
<tr>
<td>CRJ-202</td>
<td>Cultural Awareness for Criminal Justice Practitioners</td>
<td>3</td>
</tr>
<tr>
<td>FLC-142</td>
<td>Elementary Chinese II</td>
<td>3</td>
</tr>
<tr>
<td>GLS-120</td>
<td>Education Experience Abroad</td>
<td>3</td>
</tr>
<tr>
<td>LIT-158</td>
<td>Literature of African Peoples</td>
<td>3</td>
</tr>
</tbody>
</table>
### Course Descriptions

#### How to Read Course Descriptions

ENG-105 Composition I (3)
Develops expository writing with emphasis on organization, supporting details, style, vocabulary and library research skills. (3/0/0/0), Prereq: ENG-101 or qualifying placement score; Arts & Sciences Elective Code: A

Three-letter prefix (ENG) stands for the subject or department of study. (See list below.)

Credit value (3) of the course is indicated in semester hours.

(3/0/0/0) Indicates hours per week spent in lecture, lab, clinic and internships respectively.

#### Arts & Sciences Elective Code:

A = Transfer courses
B = Applied Science and Technology program courses
D = Developmental courses

#### Course Key

Course descriptions are listed according to the following prefixes:

<table>
<thead>
<tr>
<th>ACC</th>
<th>Accounting</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADM</td>
<td>Administrative Assistant</td>
</tr>
<tr>
<td>ADN</td>
<td>Associate Degree Nursing</td>
</tr>
<tr>
<td>AGA</td>
<td>Ag - Agronomy</td>
</tr>
<tr>
<td>AGB</td>
<td>Ag - Farm Management</td>
</tr>
<tr>
<td>AGC</td>
<td>Ag - Comprehensive</td>
</tr>
<tr>
<td>AGE</td>
<td>Ag - Equine</td>
</tr>
<tr>
<td>AGF</td>
<td>Ag - Floral</td>
</tr>
<tr>
<td>AGH</td>
<td>Ag - Horticulture</td>
</tr>
<tr>
<td>AGM</td>
<td>Ag - Mechanics</td>
</tr>
<tr>
<td>AGN</td>
<td>Ag - Natural Resources/Forestry</td>
</tr>
<tr>
<td>AGP</td>
<td>Ag - Precision Ag</td>
</tr>
<tr>
<td>AGS</td>
<td>Ag - Animal Science</td>
</tr>
<tr>
<td>AGV</td>
<td>Ag - Vet Tech</td>
</tr>
<tr>
<td>ANT</td>
<td>Anthropology</td>
</tr>
<tr>
<td>APP</td>
<td>Apparel Merchandising</td>
</tr>
<tr>
<td>ARC</td>
<td>Architectural</td>
</tr>
<tr>
<td>ART</td>
<td>Art</td>
</tr>
<tr>
<td>ASL</td>
<td>American Sign Language</td>
</tr>
<tr>
<td>ATR</td>
<td>Automation Tech &amp; Robotics</td>
</tr>
<tr>
<td>AUT</td>
<td>Automotive Technology</td>
</tr>
<tr>
<td>BCA</td>
<td>Business Computer Applications</td>
</tr>
<tr>
<td>BIO</td>
<td>Biology</td>
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<tr>
<td>BUS</td>
<td>Business</td>
</tr>
<tr>
<td>CAP</td>
<td>Computer Aided Drafting</td>
</tr>
<tr>
<td>CHM</td>
<td>Chemistry</td>
</tr>
<tr>
<td>CIS</td>
<td>Computer Information Systems</td>
</tr>
<tr>
<td>CLS</td>
<td>Cultural Studies</td>
</tr>
<tr>
<td>COM</td>
<td>Communication</td>
</tr>
<tr>
<td>CON</td>
<td>Construction</td>
</tr>
<tr>
<td>CRJ</td>
<td>Criminal Justice</td>
</tr>
</tbody>
</table>

| CRR | Collision Repair/Refinishing |
| CSC | Computer Science |
| DEA | Dental Assistant |
| DEN | Dental |
| DHY | Dental Hygiene |
| DLT | Dental Lab Technology |
| DRA | Film and Theatre |
| DRF | Drafting |
| DSL | Diesel |
| ECE | Early Childhood Education |
| ECON | Economics |
| EDU | Education |
| EGR | Engineering |
| EGT | Engineering Technology |
| ELE | Electrical Technology |
| ELT | Electronics |
| EMS | Emergency Medical Services |
| END | Electroneurodiagnostic |
| ENG | English Composition |
| ENV | Environmental Science |
| ESI | Intensive English Second Lang. |
| EXS | Exercise Science |
| FIN | Finance |
| FIR | Fire Science |
| FLA | Foreign Language-Chinese |
| FLF | Foreign Language-French |
| FLEC | Foreign Language-German |
| FLS | Foreign Language-Spanish |
| GEO | Geography |
| GLS | Global Studies |
| GRA | Graphic Communications |
| HCM | Hospitality, Culinary, Management |
| HCR | Heating & Air Conditioning |
| HIS | History |
| HIT | Health Information Technology |
| HSC | Health Sciences |
| HSV | Human Services |
| HUM | Humanities |
| IND | Industrial Technology |
| INT | Interior Design |
| ITP | Interpreting |
| LIT | Literature |
| MAP | Medical Assistant |
| MAS | Masonry |
| MAT | Mathematics |
| MDT | Mobile Development Technology |
| MFG | Manufacturing |
| MGT | Management |
| MIL | Military |
| MKT | Marketing |
| MMS | Mass Media Studies |
| MTR | Medical Transcription |
| MUA | Music - Applied |
| MUS | Music - General |
| NET | Computer Networking |
| OTA | Occupational Therapy Assistant |
| PEA | Physical Education Activity |
| PEC | Coaching Officiating |
| PEH | General Physical Ed. & Health |
| PEV | Intercollegiate Physical Ed. |
| PHI | Philosophy |
| PHR | Pharmacy Tech |
| PHS | Physical Science |
| PHY | Physics |
| PLU | Plumbing |
| PPL | Practical Nursing |
| POL | Political Science |
| PRL | Paralegal |
| PSY | Psychology |
| PTA | Physical Therapist Assistant |
| PWL | Powerline |
| RCP | Respiratory Therapist |
| RDG | Reading |
| REL | Religion |
| SCI | Science |
| SDV | Student Development |
| SOC | Sociology |
| SPC | Speech |
| SUR | Surgical Technology |
| UTL | Utilities |
| VIN | Viticulture |
| WAT | Water Environmental Tech |
| WEL | Welding |
| WTT | Wind Energy & Turbine Tech |

#### ACC: Accounting

ACC-111 Introduction to Accounting (3.00)
Introduces accounting principles for non-accounting majors. Includes analyzing, classifying and recording business transactions. Emphasizes understanding the complete accounting cycle and preparing financial statements, bank reconciliations and payroll. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: B

ACC-152 Financial Accounting (4.00)
Introduces the basic concepts and procedures of accounting including the accounting cycle, merchandising accounting, internal control, long-term and contingent liabilities, corporate accounting and the collection of data for external reporting. Includes the preparation and analysis of financial statements. Credits: 4, Hours: (4/0/0/0), Arts & Sciences Elective Code: A

ACC-156 Managerial Accounting (4.00)
Surveys the basic concepts and procedures of accounting to include managerial, manufacturing and cost accounting for decision making. Credits: 4, Hours: (4/0/0/0), Prereq: ACC-152; Arts & Sciences Elective Code: A

ACC-222 Cost Accounting (4.00)
Relates the principles and methods of analyzing accounting data for planning and control, product costing and decision-making. Emphasizes job order, process and standard cost accounting systems, budgeting and cost-volume-profit analysis. Credits: 4, Hours: (4/0/0/0), Prereq: MAT-138 or MAT-140 or MAT-157, minimum grade C- in ACC-152 and in ACC-156; Arts & Sciences Elective Code: A

ACC-231 Intermediate Accounting I (4.00)
Includes a review of accounting procedures and the reporting process. Provides an in-depth analysis of the asset and liability sections of the balance sheet. Credits: 4, Hours: (4/0/0/0), Prereq: MAT-138 or MAT-140 or MAT-157, minimum grade C- in both ACC-152 and ACC-156; Arts & Sciences Elective Code: A

ACC-232 Intermediate Accounting II (4.00)
Emphasizes corporate accounting, incomplete records, price level accounting, the funds state-
ment, pension accounting, leases and financial statement analysis. Credits: 4; Hours: (4/0/0/0), Prereq: MAT-138 or MAT-140 or MAT-157; minimum grade C- in ACC-231; Arts & Sciences Elective Code: A

ACC-265 Income Tax Accounting (4.00)
Introduces the federal income tax law, its purpose and development, and its significance for tax planning. Emphasizes individual and business tax law with an introduction to corporations. Credits: 4; Hours: (4/0/0/0), Prereq: MAT-076, minimum grade C- in ACC-152; Arts & Sciences Elective Code: A

ACC-313 Accounting Applications (4.00)
Compares the manual accounting cycle system to professional accounting software. Introduces concepts and procedures used in determining payroll taxes, and laws and regulations affecting payroll. Emphasizes accounting cycles and the management of accounting data through student projects. Integrates use of a commercial accounting package. Credits: 4; Hours: (4/0/0/0), Prereq: CSC-110, minimum C- in ACC-152; Arts & Sciences Elective Code: B

ACC-362 Accounting Spreadsheets (4.00)
Addresses the use of spreadsheet software as a problem-solving tool for the accountant to develop models for data analysis, creation of what-if scenarios, automated computations, sorting and grouping data, and graphically viewing data. Includes planning, building, testing, documenting worksheets, functions, charts, solver, data management, multiple worksheets, data tables through integration with applications and macros. Credits: 4; Hours: (4/0/0/0), Prereq: MAT-076, CSC-110, minimum C- in ACC-152 and ACC-156; Arts & Sciences Elective Code: B

ACC-491 Accounting Capstone (3.00)
Covers accounting concepts introduced in earlier coursework. Demonstrates how the various components of an accounting system work together. Emphasizes project-based evaluation and analysis of accounting reports. Credits: 3; Hours: (3/0/0/0), Prereq: minimum C- in ACC-222, ACC-231 and ACC-265; Coreq: ACC-232, ACC-362; Arts & Sciences Elective Code: B

ACC-928 Independent Study (1.00-3.00)
Provides readings, training and basic research under the guidance of a faculty member. Frequently includes an extensive community service component. Credits: 1-3, Hours: (0/2-6/0/0), Arts & Sciences Elective Code: B; Comments: Permission of sponsoring faculty member

ACC-949 Special Topics (1.00-3.00)
Offers a learning experience using readings, case studies, group projects and basic research. Instruction related to current relevant topics in the accounting and business environment. Credits: 1-3, Hours: (0/2-6/0/0), Prereq: minimum grade C- in ACC-152; Arts & Sciences Elective Code: B

ADM: Administrative Assistant

ADM-105 Introduction to Keyboarding (1.00)
Provides instruction in alphabetic and numeric keyboarding and includes exercises designed to increase speed to 30 words per minute with five or fewer errors on five-minute timed writings. Includes instruction in the use of proofreaders' marks and how to create a business letter in block format using Microsoft Word. Credits: 1; Hours: (0/2/0/0), Arts & Sciences Elective Code: B

ADM-133 Business Math and Calculators (3.00)
Provides for the integration of business math concepts and formulas. Emphasizes current business math practices built on the foundation of mathematical problem solving. Credits: 3; Hours: (3/0/0/0), Prereq: MAT-052; Arts & Sciences Elective Code: B

ADM-142 Desktop Publishing (3.00)
Teaches creation of professional-quality documents, such as one-page bulletins or short newsletters, using desktop publishing software. Integrates text, graphic and image files previously created with a variety of application software. Credits: 3; Hours: (2/2/0/0), Arts & Sciences Elective Code: B

ADM-154 Business Communication (3.00)
Develops skills and knowledge needed for effective verbal and written communication in the workplace environment. Focuses on creating business-related correspondence including emails, memos, letters and reports, preparing and giving oral presentations, and learning important practices in doing business with other cultures. Credits: 3; Hours: (3/0/0/0), Prereq: ADM-157 or ENG-105; Arts & Sciences Elective Code: B

ADM-157 Business English (3.00)
Provides improvement for English language skills. Studies the principles of English grammar, punctuation and style. Emphasizes correct grammar usage, spelling, vocabulary and proofreading/editing skills for the office professional. Credits: 3; Hours: (3/0/0/0), Arts & Sciences Elective Code: B

ADM-163 Office Concepts and Procedures (3.00)
Provides an understanding of the concepts, terminology, skills and procedures needed for employment in an office. Covers topics including telephone and teleconference procedures and techniques, travel arrangements, scheduling meetings, mail and shipping services, ethics and professionalism, office supplies and other basic office information. Credits: 3; Hours: (3/0/0/0), Coreq: BCA-138, BCA-152, BCA-167; Arts & Sciences Elective Code: B

ADM-164 Administrative Office Applications (3.00)
Integrates the skills, knowledge and personal qualities necessary for an administrative assistant to perform the operational and supervisory functions for today's computerized office. Provides simulated office activities in a team environment using integrated software, problem-solving techniques and decision-making experiences with special emphasis on creativity, computer applications and professionalism. Credits: 3; Hours: (3/0/0/0), Prereq: ADM-163; Arts & Sciences Elective Code: B

ADM-176 Electronic Records System (3.00)
Addresses creation, collection, processing, maintenance, retrieval, usage, storage, dissemination and disposal of records using an electronic records system. Utilizes the Windows environment to store records according to ARMA (Association of Records Managers and Administrators, Inc.) alphabetic rules. Explores numeric, geographic and subject filing rules. Incorporates research and up-to-date material on retention, retrieval and transfer of records. Credits: 3; Hours: (3/0/0/0), Arts & Sciences Elective Code: B; Comments: Offered only in the fall semester as an online course

ADM-187 Administrative Management Capstone (1.00)
Focuses on assembling artifacts highlighting individual learning while attending college. Creates electronic and paper portfolios showcasing competency levels for each program outcome. Builds employment conversation skills. Incorporates learned skills and e-portfolio into the final exam presentation. Credits: 1; Hours: (1/0/0/0), Prereq: ADM-164, BCA-138; Coreq: BUS-290; Arts & Sciences Elective Code: B

ADM-257 Professionalism in the Workplace (2.00)
This course covers the various aspects of professionalism. Students complete five units of course work that focus on professional growth, professional organizations, success, professional image and research. Students create a professional growth plan, determine the value of professional organizations, develop success attributes, hone a professional image and research various career options. Credits: 2; Hours: (2/0/0/0), Arts & Sciences Elective Code: B

ADM-928 Independent Study (1.00-3.00)
Provides readings, papers and basic research or other projects under the individual guidance of a staff member. Credits: 1; Hours: (1/0/0/0), Arts & Sciences Elective Code: A; Comments: Permission of instructor, dean

ADN: Associate Degree Nursing

ADN-171 Concepts of Nursing I (5.00)
Focuses on the care of adult patients with health alterations that require medical and/or surgical intervention. Integrates patient centered care, cultural sensitivity, pharmacology, health promotion and education, safety, evidence based practice, interdisciplinary collaboration and professionalism throughout the course. Credits: 5; Hours: (4.6/.8/0/0), Prereq: PNN-229, PNN-282, PNN-446, PNN-723; Arts & Sciences Elective Code: B

ADN-176 Advanced Concepts in Mental Health Across the Continuum (4.00)
Builds on the concepts of previous nursing courses, with an emphasis on the care of high risk mental health patients. Focuses on the provision of ethical/legal, safe, quality, evidence-based patient centered care of the patient with alterations in mental health. Emphasizes health promotion, prevention and condition management of common alterations seen in mental health patients. Provides students the
opportunity to apply concepts and demonstrate skills and care for patients in a supervised laboratory, simulation, and/or clinical setting. Emphasizes patient safety, application of the nursing process, and development of physical and communication skills. Credits: 4; Hours: (3/1.5/0); Prereq: PNN-229, PNN-282, PNN-446, PNN-723; Arts & Sciences Elective Code: B

ADN-180 Advanced Concepts of Nursing (4.00)
Introduces nursing students to advanced principles of patient care, building on acquired knowledge and development of critical thinking skills from previous course work. Focuses on patient care associated with acute and chronic multi-system disease dysfunction and the physical and psychosocial adaptation of adult patients. Discusses professional nursing roles in the community, leadership and management, as well as nursing trends. Integrates the nursing process and evidence-based practice throughout the course. Emphasizes acquiring knowledge to facilitate clinical decision-making skills needed to provide safe patient care. This course is taught concurrently with Advance Concepts of Nursing Clinic. Credits: 4; Hours: (4/0/0); Prereq: ADN-171, ADN-740; Coreq: ADN-760; Arts & Sciences Elective Code: B

ADN-183 Advanced Concepts in Obstetric and Pediatric Nursing (4.00)
Builds on the concepts of previous nursing courses, with an emphasis on the care of high risk obstetric and pediatric patients. Focuses on the provision of ethical/legal, safe, quality, evidence-based patient and family-centered care of the patient with alterations in women and children's health. Emphasizes health promotion, prevention and condition management of common alterations seen in high risk pediatric and obstetric patients. Provides students with the opportunity to apply concepts and demonstrate skills in a supervised laboratory, simulation, and/or clinical setting. Emphasizes patient safety and application of the nursing process. Credits: 4; Hours: (3/1/0); Prereq: PNN-229, PNN-723, PNN-446; Arts & Sciences Elective Code: B

ADN-740 Concepts of Nursing Clinic (3.00)
Provides clinical experiences in which students have an opportunity to apply theoretical concepts and implement safe patient care to adult patients and families with health alterations that require medical and/or surgical intervention in a variety of settings. Incorporates application of the nursing process, advanced assessment skills, family-centered care, interdisciplinary collaboration, professionalism, cultural sensitivity, use of informatics and evidence based practice to promote clinical decision-making practice. The student is required to successfully complete the lab portion of this course before progressing to clinical. Credits: 3; Hours: (0/0/9); Prereq: PNN-229, PNN-723; Coreq: ADN-170; Arts & Sciences Elective Code: B

ADN-760 Advanced Concepts of Nursing Clinical (4.00)
Focuses on the advanced nursing care of patient, families and communities with complex multi-system health problems in the acute and community settings. Provides students an opportunity to apply theoretical concepts and implement safe patient care to adult patients, families and communities with complex health alterations that require medical and/or surgical intervention in a variety of settings. Emphasizes leadership, time management and organizational skills, while managing the care of multiple patients and collaborating with the interdisciplinary team in the acute and community settings. Focuses on effective care, assessment and evaluation of patients, families and populations using evidence-based best practices, informatics, safety and clinical reasoning. Credits: 4; Hours: (0/0/12); Prereq: ADN-171; ADN-740; Arts & Sciences Elective Code: B

ADN-924 Honors Project (1.00)
Allows a qualified honors student to pursue a specific concentration of study under the guidance of a faculty member. Requires completion of an honors project contract. Requires approval of supervising professor and dean. May be taken more than once. Credits: 1; Hours: (1/0/0); Arts & Sciences Elective Code: A

AGA: AG-Agronomy

AGA-114 Principles of Agronomy (3.00)
Presents instruction in crop plant classification, use and identification. Also covers cropping systems, tillage management methods, planting and harvesting methods, and crop growth patterns. A balance of theoretical and practical crop science. Credits: 3; Hours: (3/0/0); Arts & Sciences Elective Code: B

AGA-154 Fundamentals of Soil Science (3.00)
Studies physical and chemical properties of soil, soil formation and classification. Also studies the essential plant nutrients and their availability in soil. Balances theoretical and practical aspects of soil fertility and includes soil testing and fertilizer products. Credits: 3; Hours: (2/2/0); Arts & Sciences Elective Code: B

AGA-165 Agricultural Fertilizers and Chemicals (3.00)
Reviews fertility concepts and relates them to fertilizers and fertilizer application methods. Includes soil sampling methods, analyzing a soil test report, choosing application methods and calculating fertilizer costs. Studies herbicides and insecticides used on Midwestern farms. Topics include chemical safety, selection and application methods. Credits: 3; Hours: (2/2/0); Arts & Sciences Elective Code: B

AGA-170 Fertilizer Management (3.00)
Covers principles of nutrient management as they relate to soil, plants, fertilizer practices, management systems and the environment. Discusses manure management plans, handling laws and how they impact farming operations. Credits: 3; Hours: (2/2/0); Arts & Sciences Elective Code: B

AGA-209 Row Crop Production (3)
Studies and compares different types of tillage methods, seed varieties, fertilizer programs, diseases and chemical application, as well as weed control and new harvest methods used in modern row crop production. Credits: 3; Hours: (2/2/0); Arts & Sciences Elective Code: B

AGA-216 Row Crop and Forage Production (4.00)
Studies and compares different types of tillage methods, seed varieties, fertilizer program, dis-
AGB-235 Introduction to Agriculture Markets (3.00)
Studies the concepts, methods and principles involved in marketing agricultural products. Presents an overview of agriculture's role in the general economy. Addresses market structure, price behavior, food quality and food marketing channels. Covers various risk management opportunities available to farms and agribusinesses. Teaches cash marketing, futures marketing and options marketing. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: B

AGB-252 Ag Industry Business Management (3.00)
Focuses on the agricultural industry and providing inputs to farm producers and processing farm commodities. Covers how agribusinesses, such as cooperatives, and the agribusiness industry are structured. Issues unique to managers in the agribusiness sector are emphasized. Looks at budgeting, financing, facilities management, logistics, teamwork and how to be successful as a manager. Credits: 3, Hours: (3/0/0/0), Prerequisite: AGB-466 and either AGB-470, ACC-152 or ACC-156; Arts & Sciences Elective Code: B

AGB-321 Agricultural Procedures and Safety (2.00)
Focuses on the development, implementation and assessment of appropriate actions in a variety of agricultural settings. Covers the theory and application of the modern agricultural safety movement in the United States. Emphasizes the reduction of unnecessary risks in agriculture. Credits: 2, Hours: (2/0/0/0), Arts & Sciences Elective Code: B

AGB-325 Agricultural Construction and Repair (3.00)
Deals with knowledge and skill development in general repair and construction with regard to a general stable, farm or livestock production system. Deals with practical aspects of concrete, carpentry, plumbing and electricity. When possible, real laboratory situations are used to present of this information. Credits: 3, Hours: (1/4/0/0), Arts & Sciences Elective Code: B

AGB-330 Farm Business Management (3.00)
Applies farm accounting, economic principles and budgeting to the organization and management of a farm business. Includes risk and uncertainty, precautions and adjustments, size of business, capital acquisition and control, as well as crop, livestock, machinery and labor management considerations. Credits: 3, Hours: (2/2/0/0), Arts & Sciences Elective Code: B

AGB-331 Entrepreneurship in Agriculture (3.00)
Covers the organization, research and planning necessary to be a successful entrepreneur in the agriculture and food sectors. Focuses on opportunity recognition and assessment, and business plan development, which includes research, organization, location, competition, production of the product or service, marketing, finance, staffing, monitoring and measuring for both private and social enterprises. Emphasizes financial needs and projection. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: B

AGB-336 Agricultural Selling (3.00)
Covers the fundamentals and techniques of successful selling, developing sales personality and the selling cycle. Practical application through sales presentation of the principles of selling using videotape as a self-evaluation device. Credits: 3, Hours: (2/2/0/0), Arts & Sciences Elective Code: B

AGB-466 Agricultural Finance (3.00)
Emphasizes general principles associated with the evaluation of management and the use of capital in agricultural business. Application of effective use of credit and credit instruments, and description and analysis of agricultural credit institutions and agencies will be taught. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: B

AGB-470 Farm Records, Accounts, Analysis (3.00)
Provides methods of maintaining farm records and accounts for farm and tax management purposes. Integrates a recordkeeping project and preparation of a cash flow budget, income statement and farm financial analysis sheet. Credits: 3, Hours: (2/2/0/0), Arts & Sciences Elective Code: B

AGC: AG-Comprehensive

AGC-103 Ag Computers (3.00)
Studies the use of personal microcomputers for processing farm and financial records. Emphasizes word processing, database management, spreadsheets, PowerPoint presentations and Internet use. Credits: 3, Hours: (2/2/0/0), Arts & Sciences Elective Code: B

AGC-115 Ag Career Orientation (1.00)
Provides students with an overview of their chosen career field. Students identify areas of interest within the industry and make an educational plan to attain their career goals. Includes activities to assist students in adjusting to college life and exploring Kirkwood opportunities. Credits: 1, Hours: (1/0/0/0), Arts & Sciences Elective Code: B

AGC-116 Professionalism in Agriculture (1.00)
Develops academic and professional skill sets in preparation for a career in agriculture. Credits: 1, Hours: (1/0/0/0), Arts & Sciences Elective Code: B

AGC-120 Applied Agricultural Concepts (2.00)
Provides students with the background and fundamental skills to be employed in the Ag Industry. Credits: 2, Hours: (1/2/0/0), Arts & Sciences Elective Code: B

AGC-130 Mathematics I - Agriculture (3.00)
Provides the student with math skills relating to agricultural economics, animal science, agronomy and agricultural mechanics. Applies the basic math functions and basic algebra to practical agricultural situations. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: B

AGC-160 Introduction to Technical Chemistry (4.00)
Provides a background in general chemistry that enables students to succeed in clinical chemistry. The hands-on laboratory exercises allow students to learn physical chemical properties and work more efficiently in an industry laboratory. Credits: 4, Hours: (3/2/0/0), Arts & Sciences Elective Code: B

AGC-210 Employment Seminar (1.00)
Assists the student in planning and knowing the rules in employment internship. Includes current topics on resume writing, interviewing techniques and other job-hunting skills. Credits: 1, Hours: (1/0/0/0), Arts & Sciences Elective Code: B

AGC-313 Leadership in Agriculture (1.00)
Develops skills in using parliamentary procedure, business meeting agendas, techniques of delegation, applied communication skills, organization structure and job-seeking skills. Includes determining cooperative activities, organization funding, committee functions and leading discussion groups. Credits: 1, Hours: (1/0/0/0), Arts & Sciences Elective Code: B

AGC-314 Leadership in Agriculture (2.00)
Develops skills in using parliamentary procedure, business meeting agendas, techniques of delegation, applied communication skills, organization structure and job-seeking skills. Includes determining cooperative activities, organization funding, committee functions and leading discussion groups. Credits: 2, Hours: (1/2/0/0), Arts & Sciences Elective Code: B

AGC-420 Issues in Agriculture (3.00)
Studies the policies and issues that affect American agriculture and rural society. Explores the methods of accessing those who form agricultural policy and economic/social systems. Focuses on agricultural/environmental laws, regulations and technologies driving current policymaking, and how they impact stakeholders in a rapidly changing agricultural economy. Prepares students to think critically within today's global economy and changing workforce. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: B

AGC-924 Honors Project (1.00)
Allows a qualified honors student to pursue a special concentration of study under the guidance of an honors faculty member. Requires completion of an honors project learning contract. Requires approval of supervising professor and dean. May be taken more than once. Credits: 1, Hours: (1/0/0/0), Arts & Sciences Elective Code: B

AGC-932 Internship (2.00-6.00)
Provides on-the-job training in an approved business establishment. Valuable learning experiences are structured by the program coordinator and the training sponsor. Credits: 2-6, Hours: (0/0/0/8-24), Arts & Sciences Elective Code: B; Comments: Program coordinator approval

AGE: AG-Equine

AGE-104 Total Fitness for the Rider (1.00)
Students learn basic principles and techniques in strength training and conditioning to help performance and communication with the horse. Critical elements of equestrian fitness to be covered include basic fitness program design, nutrition, various lifting techniques or modalities, flexibility, and cardiovascular fitness. Credits: 1, Hours: (0/2/0/0), Arts & Sciences Elective Code: B
AGE-107 Trail Riding (1.00-2.00)
Introduces factors that affect a horse on the trail such as laws, ride preparation, equipment, trail etiquette, application of reins, seat and anticipa-
tion. Credits: 1-2, Hours: (0.5-1/2-0/0), Prereq: Age-109 or Age-110; Arts & Sciences Elective Code: B; Comments: Permission of instructor and dean.

AGE-108 Horsemanship I (3.00)
Introduction to the principles of horsemanship stressing horse care before and after riding, the initial seat position, elements of the seat, posting trot, coordination of the aids, turns and leads of the canter, as well as anatomical, physiological and psychological aspects. The student is involved in riding. Credits: 3, Hours: (1/4/0/0), Arts & Sciences Elective Code: B

AGE-109 Horsemanship II (3.00)
Further development of the balanced seat, good hands and correct form at the natural gait of the horse. Involves application of the principles of basic ground work. Credits: 3, Hours: (1/4/0/0), Arts & Sciences Elective Code: B

AGE-110 Introduction to Basic Riding (2.00)
Provides applied instruction in developing the western rider and horse. Balanced-seat approach is stressed; covers horse handling, grooming, haltering, leading, saddling, bridling and fundamen-
tals of walk, jog and beginning lope. Credits: 2, Hours: (1/2/0/0), Arts & Sciences Elective Code: B

AGE-111 Advanced Western Horsemanship (3.00)
Instruction in developing western rider and horse. Balanced-seat approach is stressed; covers horse handling, grooming, haltering, leading, saddling, bridling and fundamen-
tals of walk, jog and beginning lope. Credits: 3, Hours: (1/4/0/0), Prereq: Age-110; Arts & Sciences Elective Code: B

AGE-112 Advanced Horsemanship Techniques (2.00)
Provides basic fundamental points of riding by the execution of a horse of complex maneuvers in response to barely perceptible movements of a rider's hands, legs and weight. Credits: 2, Hours: (1/2/0/0), Arts & Sciences Elective Code: B; Comments: Previous riding class or permission of instructor.

AGE-121 Horse Evaluation (3.00)
Provides information on horse conformation. Students can apply knowledge and develop their potential in judging horses by comparatively analy-
ing a class of horses. Students will cover anatomy and skeletal structure. Credits: 3, Hours: (2/2/0/0), Arts & Sciences Elective Code: B

AGE-130 Horse Nutrition (3.00)
Discusses essential nutrients and their role in an animal's metabolism. Covers unique digestive physiology and anatomy, nutrient excess and deficiency symptoms, and includes lab exercises. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: B

AGE-161 Instructing Horsemanship (3.00)
Students learn an understanding of running a riding lesson program, what considerations need to be taken, horse selection and riding ability levels. Credits: 3, Hours: (2/2/0/0), Prereq:

AGE-168 Horse Breeds Selection (2.00)
Recognizes the major and minor horse breeds and their uses. Students identify the different breeds as to their breed characteristics, origin, capabilities, type, conformation and history of the breed from the beginning to the present. Credits: 2, Hours: (1/2/0/0), Arts & Sciences Elective Code: B

AGE-169 Equine Fitting and Grooming (3.00)
Applies actual feeding and care of the college's horses under a practical management situation. Certain competency tests must be performed related to an efficient stable management schedule and the implementation of a schedule and the tasks related to such. Credits: 3, Hours: (2/2/0/0), Arts & Sciences Elective Code: B

AGE-170 Health and Performance Management of the Horse (3.00)
Discusses and identifies the conformation of the horse, the respiratory, digestive, nervous and circulatory systems, plus skeletal and muscle structure. Relates causes and prevention of eco-

nomic and important horse diseases. Current state and federal regulations are also described. This course is generally taught by a veterinarian. Cred-

its: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: B

AGE-172 Equine Ground Work (2.00)
Applies actual care and feeding of the college's horses under a practical management situation. Competency tests in both working with horses on the ground and presentation of halter classes are performed. Credits: 2, Hours: (1/2/0/0), Arts & Sciences Elective Code: B

AGE-185 Equine Facilities Maintenance and Mechanics (3.00)
Establishes basic understanding and manipula-
tive skills related to facility maintenance. Deals with the fundamentals of farm carpentry, fences, concrete, buildings, stables, plumbing, electricity and general upkeep. Competency base is stressed. Credits: 3, Hours: (2/2/0/0), Arts & Sciences Elective Code: B

AGE-202 Equine Genetics and Breeding Management (3.00)
Covers the principles and anatomy of the mare and stallion. Includes breeding management of both mare and stallion. Reviews common fertility problems in both. Discusses and identifies caus-

es of absorption and abortion in the mare. Identifi-

es common techniques used in equine repro-
duction, including artificial insemination. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: B

AGE-205 Fundamentals of Training (3.00)
Introduces advanced reproductive techniques using state-of-the-art equipment. Discusses di-
agnosis testing. Students gain experience ex-
tending, cooling, freezing semen and evaluating semen. Students learn to understand and read human biochemistry results, including how to prepare specimens for human cytology and microbiology. Credits: 2, Hours: (1/2/0/0), Prereq: Age-205; Arts & Sciences Elective Code: B

AGE-206 Advanced Breeding Management (2.00)
Introduces advanced reproductive techniques using state-of-the-art equipment. Discusses di-
agnosis testing. Students gain experience ex-
tending, cooling, freezing semen and evaluating semen. Students learn to understand and read human biochemistry results, including how to prepare specimens for human cytology and microbiology. Credits: 2, Hours: (1/2/0/0), Prereq: Age-205; Arts & Sciences Elective Code: B
AGE-241 Colt Starting (3.00)
Designed to teach students the fundamental principles of training the young horse through practical application. Credits: 3; Hours: (1/4/0/0), Prereq: AGE-230 or AGE-231 or AGE-232; Arts & Sciences Elective Code: B

AGE-246 Long Lining and Driving Techniques (3.00)
Improves the basic techniques of long reining and driving. Includes tack familiarization, rein use, long-lining, preliminaries to harnessing and driving. Credits: 3; Hours: (2/2/0/0), Arts & Sciences Elective Code: B

AGE-253 Horse Shows (2.00)
Identifies and applies necessary requirements to prepare and show a horse, and includes instruction and participation in setting up and conducting a horse show. Provides the opportunity to show in available horse shows. Credits: 2; Hours: (.5/3/0/0), Arts & Sciences Elective Code: B

AGE-260 Introduction to Farrier Science (1.00)
Presents basic hoof preparation and trimming concepts. Students study current hoof status (before and after), foot and leg problems, and methods of correction by proper trimming and shoeing. Includes the examination of stance, gaits, un-soundness, breed requirements, methods of restraint, and types of corrective shoes and how they function. Credits: 3; Hours: (3/0/0/0), Arts & Sciences Elective Code: B

AGE-261 Legs and Hoof (3.00)
Provides instruction on the care and condition of horses’ legs and feet, and covers basic concepts of correct preparation and shoeing of a horse, foot unsoundness, leg problems, and methods of correction by proper trimming and shoeing. Includes the examination of stance, gaits, un-soundness, breed requirements, methods of restraint, and types of corrective shoes and how they function. Credits: 3; Hours: (3/0/0/0), Arts & Sciences Elective Code: B

AGE-270 Equestrian Drill Team (2.00)
Riders and horses are developed into a working unit of two or more drill teams. Western balance seat is stressed with work on maneuvers, routine and patterns. Horsemanship is taught to improve communication between horse and rider. Historical study of where and how the maneuvers were used in cavalry units of Iowa is included. Credits: 2; Hours: (1/2/0/0), Arts & Sciences Elective Code: B

AGE-290 Horse Projects (1.00-3.00)
A preplanned schedule for discussion, observation and evaluation of the horse project is developed. Covers athletic performance of the horse, training and environmental effects, and use of records. Management of facilities and other horse projects are stressed. Includes an agreed to development plan for an applied problem solution. Credits: 1; Hours: (1/0/0/0), Prereq: AGE-230; Arts & Sciences Elective Code: B

AGE-295 Western Style Training Project (3.00)
Introduces Western pleasure training fundamen-tals, techniques, equipment (bits, reins and training aids) and horse conformation, Empha-sizes correct movement of horse and rider, as well as learning the meaning of “forward motion,” Riders develop individual goals for themselves and their horses. Credits: 3; Hours: (2/2/0/0), Arts & Sciences Elective Code: B

AGF: AG-Floral

AGF-120 Floral Plant Identification and Care I (2.00)
Studies identification, care and handling require-ments of cut flowers and foliage and green and blooming plants commonly sold in retail flower shops. Credits: 2; Hours: (1/2/0/0), Arts & Sciences Elective Code: B

AGF-122 Floral Plant Identification and Care II (2.00)
Studies the common and botanical names and growth requirements of green, blooming and bedding plants commonly sold in retail flower shops. Credits: 2; Hours: (2/0/0/0), Arts & Sciences Elective Code: B

AGF-130 Floral Careers Computer Literacy (2.00)
Introduces students to applications for comput-ers in the floral industry and computer use for assignments in the Floral Careers program. Top-ics include operating systems, MS Word, hard-ware and software, terminology, functions, appli-cations, Windows, spreadsheets and Internet. Designed for the student with little or no comput-er experience. Self-paced. Credits: 2; Hours: (1/2/0/0), Arts & Sciences Elective Code: B

AGF-135 Floral Careers Plant Propagation (2.00)
Studies environmental factors needed to produce optimum growth requirements of green and bed-ding plants in lecture and laboratory settings. Introduces techniques used in reproducing plants through sexual and asexual methods. Credits: 2; Hours: (1/2/0/0), Arts & Sciences Elective Code: B

AGF-142 Floral Design II (3.00)
Studies advanced floral design of fresh flowers, funeral, memorial and wedding arrangements. Credits: 3; Hours: (1/4/0/0), Prereq: AGF-145; Coreq: AGF-162; Arts & Sciences Elective Code: B

AGF-143 Floral Design III (3.00)
Involves advanced all-occasion and wedding designing, including table setting and copy work. Credits: 3; Hours: (1/4/0/0), Prereq: AGF-142; Coreq: AGF-164; Arts & Sciences Elective Code: B

AGF-145 Floral Design I (4.00)
Introduces basic geometric shapes and design mechanics for fresh flower arrangements, body flowers, holiday arrangements, specialty designs, potted plants and green plants. Includes the use of tools and supplies, and basic pricing structures for Floral Designs. Credits: 4; Hours: (2/4/0/0), Arts & Sciences Elective Code: B

AGF-150 Retail Flower Shop Operation I (3.00)
Introduces the floral business, floral product sales, general selling and efficient shop layout. Studies the processing of floral orders, terminol-ogy and telephone procedures. Credits: 3; Hours: (3/0/0/0), Arts & Sciences Elective Code: B

AGF-152 Retail Flower Shop Operation II (4.00)
Studies the aspects of the floral business involving funeral and wedding arrangements. Sales and etiquette of these floral products is included. Credits: 4; Hours: (4/0/0/0), Prereq: AGF-150; Arts & Sciences Elective Code: B

AGF-154 Retail Flower Shop Operation III (2.00)
Analyzes the floral business as a center of em-ployment, personnel policies, shop management and operations. Credits: 2; Hours: (2/0/0/0), Prereq: AGF-150; AGF-152; Arts & Sciences Elective Code: B

AGF-160 Event Planning I (1.00)
Introduces the career of an event planner. In-cludes characteristics of an event planner, or-ganizing the business, marketing and networking. Students plan, produce and successfully execute special events. Credits: 1; Hours: (.5/1/0/0), Coreq: AGF-145; Arts & Sciences Elective Code: B

AGF-162 Event Planning II (1.00)
Emphasizes instruction and practical experience in many areas of event planning, with major em-phasis on wedding planning and corporate events. Students plan, produce and successfully execute special events. Credits: 1; Hours: (.5/1/0/0), Prereq: AGF-160; Coreq: AGF-142; Arts & Sciences Elective Code: B

AGF-164 Event Planning III (3.00)
Emphasizes instruction and practical experience in event planning, including event planning manage-ment, contract negotiation, visual presenta-tion, and marketing and advertising special events. Students plan, produce and successfully execute special events. Credits: 3; Hours: (2/2/0/0), Prereq: AGF-162; Coreq: AGF-144; Arts & Sciences Elective Code: B

AGF-165 Event Planning III (2.00)
Provides instruction and practical experience in event planning. Includes event planning manage-ment, contract negotiation, visual presenta-tion, and marketing and advertising special events. Integrates hands-on execution of special events. Credits: 2; Hours: (1/2/0/0), Prereq: AGF-162; Coreq: AGF-144; Arts & Sciences Elective Code: B

AGH: AG-Horticulture

AGH-102 Horticulture Math (3.00)
Reviews basic math calculations including math operations, fractions, decimals, introductory algebra and geometry. Relates math problems to horticulture applications. Credits: 3; Hours: (3/0/0/0), Arts & Sciences Elective Code: B

AGH-110 Success in Horticulture (1.00)
Acquaints students with critical issues relevant to horticulture, and provides information, skills and opportunities to be successful in the program, as well as their chosen career. Encourages students to stay engaged in their educational experience, both in and outside the classroom. This class is a source for both personal and academic growth, where students can develop lasting relationships and acquire skills to help them in making difficult choices. Credits: 1; Hours: (1/0/0/0), Arts & Sciences Elective Code: B

AGH-112 Introduction to Turfgrass Management (3.00)
Examines the culture of turf with an emphasis placed on establishments, turf varieties, and pest identification and control. Credits: 3; Hours: (2/2/0/0), Arts & Sciences Elective Code: B
AGH-120 Herbaceous Plant Materials (3.00)
Studies the identification and cultural requirements of approximately 40 annual and 40 herbaceous perennials. Includes bed establishment and care. Credits: 3, Hours: (2/2/0/0), Arts & Sciences Elective Code: B

AGH-123 Woody Plant Materials (3.00)
Develops skills in the identification, landscape use and cultural requirements of 80 varieties of deciduous trees and shrubs native to Iowa, as well as conifers used in windbreak and wildlife plantings. Credits: 3, Hours: (2/2/0/0), Arts & Sciences Elective Code: B

AGH-127 Ornamental Plant Materials (3.00)
Studies the identification, landscape use and cultural requirements of 80 ornamental trees, shrubs and vines. Credits: 3, Hours: (2/2/0/0), Prereq: AGH-123; Arts & Sciences Elective Code: B; Comments: Second-year student

AGH-131 Greenhouse Management (3.00)
Studies growing techniques used in commercial greenhouse plant production. Involves the design of greenhouses, their environmental control systems and cultural practices. Credits: 3, Hours: (2/2/0/0), Arts & Sciences Elective Code: B; Comments: Second-year student.

AGH-144 Landscape Construction (3.00)
Involves the construction of segmental paving systems, segmental retaining walls, basic wood construction for landscape use, landscape lighting and water feature construction. Covers calculations necessary to order materials and bid procedures. Credits: 3, Hours: (2/2/0/0), Arts & Sciences Elective Code: B

AGH-150 Equipment Operations Lab (1.00)
This is the lab component associated with Equipment Operations (AGH-157). Credits: 1, Hours: (0/2/0/0), Coreq: AGH-157; Arts & Sciences Elective Code: B

AGH-152 Landscape Design Techniques (3.00)
Provides information and practice in basic graphic communication and introductory landscape design. Topics covered include use of scales, basic drafting, landscape symbols, design processes, master planning, design with plant material and cost estimating. Credits: 3, Hours: (2/2/0/0), Arts & Sciences Elective Code: B

AGH-156 Landscape Design II (3.00)
Expands graphic communication and landscape design skills. Topics include freehand plan graphics, quick sketching, perspective and color drawing, landscape master planning, advanced plant design, amenity design, commercial layout. Credits: 3, Hours: (2/2/0/0), Prereq: AGH-152; Arts & Sciences Elective Code: B; Comments: Second-year student.

AGH-157 Equipment Operations (2.00)
Introduces basic equipment maintenance, operation and troubleshooting. Provides a working knowledge of equipment used in the horticulture industry. Credits: 2, Hours: (2/0/0/0), Coreq: AGH-150; Arts & Sciences Elective Code: B

AGH-158 Computer Applications for the Landscape Industry (2.00)
Introduces students to software used in the landscape, nursery, garden center fields. Students will learn new applications of Microsoft Office programs with an emphasis on marketing, inventory control, and customer relations. Some design software is also used including both two-dimensional (plan view) designing and photo imagery. Credits: 2, Hours: (1/2/0/0), Prereq: AGH-152; Arts & Sciences Elective Code: B; Comments: Demonstrated computer competence

AGH-162 Landscape Construction Lecture (2.00)
Introduces students to the construction of segmental paving systems, segmental retaining walls, basic wood construction for landscape use, landscape lighting and water feature construction. Covers bid procedures and the calculations necessary to order materials per specifications. Offers a hybrid format. Provides face-to-face lectures, online lectures and face-to-face labs. Requires access to Kirkwood's online course content via the E-Learning platform on a regular basis. Credits: 2, Hours: (2/0/0/0), Coreq: AGH-164; Arts & Sciences Elective Code: B

AGH-164 Landscape Construction Lab (1.00)
Integrates the lab component with the Landscape Construction lectures. Demonstrates construction of interlocking concrete paving systems, segmental retaining walls, wood construction for landscape use, landscape lighting and water feature construction. Credits: 1, Hours: (2/0/0/0), Coreq: AGH-162; Arts & Sciences Elective Code: B

AGH-166 Turfgrass and Landscape Irrigation (3.00)
Introduces irrigation systems and their principles, which are critical to turf and landscape environments. Includes design, installation, equipment, management, and trouble shooting of irrigation systems for golf, athletic fields, residential lawns and landscapes. Requires participation in practice exercises, lab projects and local field trips to irrigation sites. Credits: 3, Hours: (2/2/0/0), Arts & Sciences Elective Code: B

AGH-200 Landscape Estimating and Bidding (2.00)
Focuses on the fundamentals of creating a landscape project estimate. Includes material take-offs, plant pricing, labor rates, measuring, reading landscape plans and math calculations. Credits: 2, Hours: (2/0/0/0), Prereq: AGH-102; Arts & Sciences Elective Code: B

AGH-211 Advanced Turfgrass Management (3.00)
Presents management techniques used in high-maintenance turf areas. Students receive advanced instruction in fertilization, pesticides, etc. Credits: 3, Hours: (3/0/0/0), Prereq: AGH-112; Arts & Sciences Elective Code: B; Comments: Second-year student

AGH-220 Plant Identification I (3.00)
Studies the identification and use of a set of annual, herbaceous perennial and woody ornamental shrubs and trees currently used in Midwestern landscape horticulture. Includes plant identification using botanical nomenclature, specific cultural requirements and how each is used in landscape design. Credits: 3, Hours: (2/2/0/0), Arts & Sciences Elective Code: B

AGH-221 Principles of Horticulture (3.00)
Introduces students to the field of horticulture. Students learn how to apply scientific principles to commercial horticultural practices and the improvement of those practices. Credits: 3, Hours: (2/2/0/0), Arts & Sciences Elective Code: B

AGH-233 Plant Propagation I (3.00)
Introduces students to techniques used in reproducing plants through sexual and asexual methods. Seedlings, vegetative cuttings, grafts and budtings are practiced in the laboratory. Credits: 3, Hours: (2/2/0/0), Arts & Sciences Elective Code: B; Comments: Second-year student

AGH-236 Plant Material Maintenance (3.00)
Studies pruning, fertilizing, staking and other maintenance practices utilized in tree and shrub care. Emphasizes proper planting and transplanting procedures. Credits: 3, Hours: (2/2/0/0), Arts & Sciences Elective Code: B

AGH-238 Soil and Water Conservation (3.00)
Studies the different components of soil, soil forming factors, soil erosion and soil conservation. Introduces the student to surveying techniques and use of soil survey reports. Credits: 3, Hours: (2/2/0/0), Arts & Sciences Elective Code: B

AGH-240 Plant Identification II (3.00)
Studies the identification and use of a set of annual, herbaceous perennial, and woody ornamental shrubs and trees currently used in Midwestern landscape horticulture. Includes the identification of plants using botanical nomenclature, the specific cultural requirements of each plant and how the plant can be used in landscape design. Second of a two-course sequence. Credits: 3, Hours: (2/2/0/0), Prereq: AGH-220; Arts & Sciences Elective Code: B

AGH-253 Insects and Diseases (3.00)
Identifies common insects and diseases of horticulture crops and plant material. Control measures are discussed including chemical controls and integrated pest management. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: B

AGH-262 Fruit and Vegetable Science (3.00)
Introduces the student to the production of Midwestern fruit and vegetables with an emphasis on cultural practices, variety selections and storage. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: B

AGH-264 Hydroponic Production (3.00)
Examines the urban horticulture practices of hydroponics and aquaponics in a controlled environment. Focuses on the establishment of correct growing environments, plant selection and nutrition, growing techniques, common pests and diseases, harvesting, and marketing crops. Credits: 3, Hours: (2/2/0/0), Arts & Sciences Elective Code: B

AGH-275 Commercial Plant Production (3.00)
Covers production of greenhouse plants, nursery plants and nursery operations. Involves design, management, and harvesting for field and container growing operations. Also surveys related growing operations. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: B; Comments: Second-year student.
AGM: AG-Mechanics

AGM-103 Agricultural Electrical (3.00)
Builds on electrical skills learned in Fundamentals of Electricity with emphasis on electrical circuits and subassemblies found in most tractors, skid loaders and combines. Concentrates on the circuits in interior and exterior lights, dash, wiper motors, temperature controls, electric hydraulic controls, electric transmission controls, and on-board computers. Credits: 3 Hours: (2/2/0/0), Prereq: DSL-143; DSL-355; Coreq: AGM-114; Arts & Sciences Elective Code: B

AGM-113 Hydraulics I (3.00)
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. Credits: 3 Hours: (2/2/0/0), Arts & Sciences Elective Code: B

AGM-124 Technical Procedures for Power Mechanics Technicians (3.00)
Identifies the general knowledge and procedures used by power technicians. Covers tool selection, general shop safety, fire safety and forklift opera-

AGH-282 Pesticide Application Certification-Horticulture (1.00)
Reviews materials and testing procedures used to certify pesticide applicators. Concentration is provided on core testing. Credits: 1, Hours: (1/0/0/0), Arts & Sciences Elective Code: B

AGH-293 Landscape Business Operations (2.00)
Introduces marketing, merchandising, advertising and business analysis as it relates to landscape business. Specialty management techniques and systematic business approaches are explored. Credits: 2, Hours: (2/2/0/0), Arts & Sciences Elective Code: B; Comments: Second-year student

AGH-300 Hardscape Installation Techniques (3.00)
Elevates students beyond basic hardscape installation. Studies contemporary design and installation trends. Provides hands-on experience with the latest construction materials. Includes opportunities for professional certifications in product installation. Credits: 3, Hours: (2/2/0/0), Prereq: AGH-144, CON-134; Arts & Sciences Elective Code: B

AGH-301 Sustainable Site Management (2.00)
Covers the latest topics in environmentally-sound landscape practices. Introduces green building, on-site water management strategies and habitat preservation. Credits: 2, Hours: (2/0/0), Arts & Sciences Elective Code: B

AGH-302 Advanced Landscape Design (3.00)
Builds on the fundamentals of landscape design. Includes large scale commercial and recreational projects, as well as detailed hardscape designs. Studies the industry's latest design trends. Includes opportunities for professional certification. Credits: 3, Hours: (2/2/0/0), Prereq: AGH-152, AGH-156; Arts & Sciences Elective Code: B

AGH-400 Athletic Field Maintenance (3.00)
Involves the design, preparation, and maintenance of athletic fields for various sports. Includes the study of various playing surfaces, drainage systems and specialized equipment used on athletic fields. Course includes field trips to local athletic complexes. Credits: 3, Hours: (2/2/0/0), Prereq: AGH-112; Arts & Sciences Elective Code: B

AGH-405 Golf Course Maintenance (3.00)
Involves the theory of design, installation and maintenance of specialized turf and other areas commonly found on golf courses. Student is provided with experience maintaining an on-campus golf green, fairway and tee. Course includes field trips to local golf courses. Credits: 3, Hours: (2/2/0/0), Prereq: AGH-112; Arts & Sciences Elective Code: B; Comments: Second-year student

AGH-411 Grounds Computer Applications (3.00)
Covers uses of computers in the grounds and golf course fields. Emphasis is on introductory irrigation design/management, business management and grounds course management software. Credits: 3, Hours: (2/2/0/0), Arts & Sciences Elective Code: B; Comments: Second-year student
Course Descriptions

AGN-422 Diesel Fuel Systems (3.00)
Covers diesel fuel systems in relation to the engine itself. Diagnosis and testing or troubleshooting take place using special testing tools. Particular fundamentals are covered in compression testing, pump timing, engine component testing, and injector removal testing and repair. Credits: 4, Hours: (2/4/0/0), Prereq: DSL-355; Arts & Sciences Elective Code: B

AGN-440 Power Shift Transmissions (3.00)
Covers the operation, theory, diagnosis and overhaul of fluid-driven equipment. Includes power shift, hydrostatic- and hydraulic-assist transmissions. Also includes torque converters. Credits: 3, Hours: (1.5/3/0/0), Prereq: AGN-406; Arts & Sciences Elective Code: B

AGN-932 Internship (1.00-5.00)
Involves employment allowing the student practical, on-the-job training with a business related to the student’s instructional program. Student is required to prepare a training plan and other reports. Credits: 1-5, Hours: (0/0/0/4), Arts & Sciences Elective Code: B

AGN: AG-Natural Resources/Forestry

AGN-105 Applications of Natural Resources (3.00)
Explores software, hardware and applications used in the natural resource field. Emphasizes desktop publishing, GPS/GIS and interpretive applications. Credits: 3, Hours: (2/2/0/0), Arts & Sciences Elective Code: B

AGN-132 Plant Management for Parks (3.00)
Emphasizes the establishment and maintenance of plant materials typically encountered in state, county and city park systems. Covers establishment procedures and proper maintenance practices for basic turf species, trees, shrubs and groundcovers utilized in park systems. Focuses on maintenance practices including mowing, pruning, fertilization, pest control and proper plant placement. Credits: 3, Hours: (2/2/0/0), Arts & Sciences Elective Code: B

AGN-140 Native Plants (3.00)
Identifies plant materials existing in natural woodlands, roadsides and prairies. Special emphasis is placed on prairie forbs. Credits: 3, Hours: (2/2/0/0), Arts & Sciences Elective Code: B

AGN-220 Avian Wildlife (3.00)
Includes training in identification and management of nesting and game birds of the upper Midwest. Environmental requirements and relationships are provided. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: B; Comments: Second-year student

AGN-223 Aquatic Wildlife (3.00)
Studies the identification of fish, amphibians and reptiles native to Iowa. Emphasis is placed on habitat requirements and management concerns. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: B; Comments: Second-year student

AGN-226 Mammalian Wildlife (3.00)
Provides training in identification and management of upper Midwest mammals. Environmental requirements and relationships are stressed. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: B; Comments: Second-year student

AGN-235 Park and Recreation Administration (3.00)
Examines the organization and administration of park systems and recreational programs. Current issues in park management are covered. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: B; Comments: Must be a second-year student

AGN-240 Natural Resources Interpretation (3.00)
This course develops skills in all facets of interpretation. Nature walks, public presentations, displays, news releases and photography are incorporated into interpretive exercises. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: B; Comments: Second-year student

AGN-244 Wildlife Management (3.00)
Students learn proper wildlife management through carefully planned and maintained reserves, preserves and refuges. Management techniques presented include those for game, non-game and aquatic animals. Credits: 3, Hours: (2/2/0/0), Arts & Sciences Elective Code: B; Comments: Second-year student

AGN-248 Natural Resources Appreciation (3.00)
Surveys the nonliving natural resources of Iowa. Examines how park and recreation agencies integrate these resources into their overall programs. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: B; Comments: Second-year student

AGN-250 Park Maintenance Programs (3.00)
Includes development and analysis of maintenance programs for buildings, campgrounds, lake areas and related recreational facilities. Credits: 3, Hours: (2/2/0/0), Arts & Sciences Elective Code: B; Comments: Second-year student

AGN-260 Wildland Firefighter Training (3.00)
Covers the four training segments required for wildland firefighter certification. S-130 reviews basic wildland firefighting skills, S-190 studies fire behavior and the environmental factors that affect fire behavior, L-180 addresses human factors on the fireline, and I-100 studies the wildland firefighting management system. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: B

AGN-270 Watershed Assessment and Management (3.00)
Focuses on the basic concepts of watershed processes, including how water, sediment and nutrients are transported downstream in the drainage network. Discusses the primary components of streams and how stream hydrology and water quality can be altered by human activities. Discusses strategies for watershed assessment and implementing best management practices. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: B

AGN-280 Introduction to Forestry (3.00)
Examines the application of silvicultural practices to the management of rural and urban forest resources in Iowa. Includes basic tree structure and function, forest communities in Iowa, the identification of forest pests, forest mensuration, and the development of a management plan. Credits: 3, Hours: (3/0/0/0), Prereq: AGH-220; Arts & Sciences Elective Code: B

AGN-300 Rain Gardens and Bioretention Cells (3.00)
Addresses the use of rain gardens and bioretention cells for stormwater quality management and landscape beautification. Covers function, design, landscape positioning, installation, and maintenance of rain gardens and bioretention cells. Focuses on integrating rain gardens and bioretention cells into site planning and design, as well as installing and maintaining them on Iowa landscapes. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: B

AGN-310 Rainwater Harvesting Systems (3.00)
Demonstrates use of rainwater collection systems for irrigation, and household, commercial and industrial use. Covers the history, current trends, geographic potential, benefits, design, installation and maintenance of both simple and complex rainwater capture systems. Examines how to integrate rainwater harvesting systems into site planning and design, as well as how to install, maintain and maximize the potential benefits of the sustainable practice. Credits: 3, Hours: (2/2/0/0), Arts & Sciences Elective Code: B

AGP: AG-Precision AG

AGP-143 Fundamentals of Electricity for GPS (1.00)
Introduces basic electricity fundamentals, such as voltage, amperage and resistance, with an emphasis on Ohm’s Law and its practical application. Covers operation and understanding of a digital volt/ohm meter, and series and parallel circuits. Credits: 1, Hours: (0/2/0/0), Arts & Sciences Elective Code: B

AGP-329 Introduction to GPS (3.00)
Studies fundamental processes of Global Positioning Systems with an emphasis on agriculture applications. General technical aspects of GPS satellites, differential correction and hardware will be covered. Agricultural mapping, navigation, VRT and yield monitoring will be discussed. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: B

AGP-333 Precision Farming Systems (3.00)
Provides a background in the tools of precision farming, GPS, GIS and VRT. Introduces use of these tools within a precision farming system and their application on the farm. Offers hands-on activities with local data to provide a practical experience in the use of these tools. Credits: 3, Hours: (1/4/0/0), Arts & Sciences Elective Code: B

AGP-405 Ag Applications of GIS (3.00)
Provides an overview of the various applications of geographic information systems (GIS). Covers basic interface, views, themes, tables and layouts using ARCGis software. Previews basic functions
such as query and editing layers. Provides practical experience with hands-on computer exercises in several disciplines, including agriculture, city/government planning or transportation. Credits: 3, Hours: (2/2/0/0), Arts & Sciences Elective Code: B

AGP-420 Geospatial Data Collection (3.00) Provides detailed instruction and hands-on use of GPS receivers and dataloggers to collect field data. The process for creating spatial data structure, maintenance of equipment and use of datalogging software is the main focus. Data management and evaluation are also covered. Credits: 3, Hours: (2/2/0/0), Prereq: AGP-333; Arts & Sciences Elective Code: B

AGP-425 Agricultural Spatial Analysis (3.00) Provides a background in the analysis of spatial data. Specific topics include transformation and retrieval of data, analytical techniques and spatial modeling. Concepts of multivariate and multitemporal analysis are also discussed. Credits: 3, Hours: (2/2/0/0), Prereq: AGP-405; Arts & Sciences Elective Code: B

AGP-434 Practical Precision Farming for the Producer (3.00) Provides an overview of GPS and GIS technology, their uses on modern U.S. crop farms, and how they impact management decisions and activities. Credits: 3, Hours: (2/2/0/0), Prereq: AGP-333; Arts & Sciences Elective Code: B

AGP-435 Advanced Precision Farming: Software Software (3.00) Introduces various precision farming software in real-world applications. Focuses on initial setup, creating management and production lists, saving and unloading data cards, processing field data, and compiling reports and prescription/application maps. Credits: 3, Hours: (2/2/0/0), Prereq: AGP-333; Arts & Sciences Elective Code: B

AGP-437 Precision Ag Hardware (Machinery Servicing & Retrofitting) (1.00) Prepares the student to use various precision farming hardware components. Requires students to read and understand technical manuals for the updating and retrofitting of agricultural machinery with new technology and monitoring systems. Focuses on preparing a planter assembly for field operation in the spring by installing necessary technology upgrades, and control and guidance systems. Credits: 1, Hours: (0/2/0/0), Prereq: AGP-333; Arts & Sciences Elective Code: B

AGP-438 Precision Ag Hardware MacHinery Servicing (2.00) Emphasizes various precision farming hardware components. Incorporates technical manuals for the updating and retrofitting of agricultural machinery with new technology and monitoring systems. Offers hands-on planter assembly and updating for planting season field operation, and tractor preparation upgrades for the control and guidance systems. Credits: 2, Hours: (1/2/0/0), Prereq: AGP-333; Arts & Sciences Elective Code: B

AGP-440 Ag Applications of Digital Imagery (3.00) Provides background in the use of remotely sensed digital imagery for agricultural decision making. Specific topics include types of images, methods of collecting imagery, verification, interpretation and analysis of data. Use of data for decision making is also discussed. Credits: 3, Hours: (2/2/0/0), Arts & Sciences Elective Code: B

AGS: AG-AI Animal Science

AGS-113 Survey of the Animal Industry (3.00) Breeds, basic management and marketing of farm animals. Composition, evaluation and marketing of animal products. Includes live animal demonstrations with cattle for meat and milk, horses, poultry, sheep and swine. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: B

AGS-214 Domestic Animal Physiology (3.00) Studies the comparative anatomy and physiology of the major body systems of cattle, sheep, swine and horses. Includes laboratory exercises involving physiology and anatomy of animals in healthy and diseased states. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: B

AGS-220 Domestic Animal Physiology Lab (1.00) Uses laboratory exercises to compare the anatomy and physiology of animals in healthy and diseased states. Credits: 1, Hours: (0/2/0/0), Coreq: AGS-214; Arts & Sciences Elective Code: B

AGS-279 Livestock Merchandising (2.00) Covers the fundamentals of preparing for successful livestock sales, including advertising, photography, livestock preparation, sale guidelines and customer support. Students participate in one to three livestock sales. Credits: 2, Hours: (1/2/0/0), Arts & Sciences Elective Code: B

AGS-305 Livestock Evaluation (3.00) Examines the selection of breeding and meat animals based upon performance and visual appraisal. Students will use Kirkwood farm laboratory livestock and may include off-campus assignments. Credits: 3, Hours: (2/2/0/0), Arts & Sciences Elective Code: B

AGS-307 Professional Horse Judging (1.00) Examines the selection of breeding and show horses based on conformation and performance. Field trips and off-campus evaluation provide judging experiences for students. Oral reasons and judge certification process are covered. Students compete at intercollegiate contests. Credits: 1, Hours: (0/2/0/0), Arts & Sciences Elective Code: B

AGS-319 Animal Nutrition (3.00) This course covers nutritional principles, digestive systems, composition and nutritional characteristics of common feedstuffs, ration formulation, and recommended feeding programs for farm animals. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: B

AGS-338 Livestock Behavior and Welfare (5.00) Studies applications of basic animal behavior principles to ensure optimum performance and well-being. The course examines the effects of environment, stress, disease and nutrition on animal physiology and performance. Credits: 5, Hours: (2/6/0/0), Prereq: AGS-113, AGS-214; Arts & Sciences Elective Code: B

AGS-350 Artificial Insemination of Cattle (1.00) Develops skills of artificial insemination, heat detection and supportive background knowledge of beef and dairy herds, and discusses recommended nutrition, management and genetics. Credits: 1, Hours: (0.5/1/0/0), Arts & Sciences Elective Code: B

AGS-425 Swine Systems Management (3.00) Identifies records needed in swine production and record keeping techniques. Students prepare budgets and cash flows as they relate to swine production. Also, various marketing opportunities and practices are examined and analyzed. Credits: 3, Hours: (2/2/0/0), Arts & Sciences Elective Code: B

AGS-441 Livestock Housing and Equipment (3.00) Studies the design and management of livestock facilities to limit stress and optimize performance. Students learn methods to minimize the environmental impact of livestock operations. Credits: 3, Hours: (2/2/0/0), Prereq: AGS-214, AGC-130; Arts & Sciences Elective Code: B

AGS-530 Swine Reproduction and Management (5.00) Recognizes swine reproductive characteristics and reproductive functions of swine breeding stock, and identifies type and certification necessary for economic production. Also deals with breeds, breeding programs, breeding systems, including AI, and appropriate management techniques. Credits: 5, Hours: (2/6/0/0), Arts & Sciences Elective Code: B

AGS-550 Beef Breeding/Reproduction/Nutrition (5.00) Studies the anatomy and physiology of the female and male reproductive systems. Develops an understanding of proper use of heat synchronization, AI, super ovulation, embryo transfers and new developments in biotechnology. Also deals with health, heritability and nutritional problems. Credits: 5, Hours: (3/4/0/0), Arts & Sciences Elective Code: B

AGS-551 Beef Science Management (3.00) Works with evaluation management by identifying, measuring and selecting commercially important traits of beef cattle. Provides the basic information needed to understand terminology and predict performance through the use of sire summaries. Allows students to improve average performance of offspring by matching genetic potential to feed resources through multiple trait selection. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: B

AGS-555 Beef/Cow Calf Production (3.00) Includes participation in calving of the Kirkwood Community College herd. Deals with proper nutrition, health, solving O.B. problems and preparation of cow’s return to estrus. Also includes records, identification and pasture management. Credits: 3, Hours: (1.5/3/0/0), Arts & Sciences Elective Code: B
AGS-560 Beef Industry and Feedlot Management (5.00)
Provides an overview and introduction to the entire beef industry. Relates and applies methods of starting cattle on feed and fall management of weaned calves. Deals with feedlot budgeting, determination of 205-day weights, ratios and fall management of the beef cow herd. Credits: 5, Hours: (3/4/0/0), Arts & Sciences Elective Code: B

AGS-948 Special Projects (1.00-3.00)
Includes an agreed-to development plan for an applied problem solution. Allows student to pursue exploration and fact gathering of special-interest projects. Student and instructor meet weekly for discussion, observation and evaluation of the project development. Credits: 1, Hours: (1/0/0/0), Arts & Sciences Elective Code: B

AGV: AG-Vet-Tech

AGV-101 Veterinary Assisting (3.00)
Teaches basic clinical skills expected of a veterinary assistant. Includes basic restraint techniques, bandaging, basic laboratory procedures, basic radiology including safety and animal anatomy as related to patient positioning recognition, aseptic surgical recovery, and client communication. Credits: 3, Hours: (1/4/0/0), Prereq: AGV-105, AGV-153, AGV-158; Arts & Sciences Elective Code: B

AGV-103 Introduction to Veterinary Science (3.00)
Studies the comparative anatomy and physiology of the major body systems of domestic animals and how anatomy and physiology are altered in disease states. Examines the effects of environment, stress, disease and nutrition on animal physiology and well-being. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: B

AGV-105 Animal Behavior/Kennel Management (5.00)
Studies basic animal behavior and the influences that modify behavior and kennel management including laws, records and daily operation of kennels. Practical experience is included. Credits: 5, Hours: (3/4/0/0), Arts & Sciences Elective Code: B

AGV-107 Pharmacy Skills (3.00)
An introductory course in small animal health products. Special emphasis on safe handling, storage, dispensing and use of common veterinary drugs and products. Credits: 3, Hours: (2/2/0/0), Arts & Sciences Elective Code: B; Comments: Will not meet Veterinary Technician Pharmacology requirement

AGV-120 Veterinary Medical Terminology (1.00)
Focuses on reading and interpreting medical charts and records, and conversing with veterinary professionals. Designed for students to develop a working understanding of the language of veterinary medicine. Credits: 1, Hours: (1/0/0/0), Arts & Sciences Elective Code: B

AGV-126 Animal Anatomy and Physiology I (3.00)
Beginning anatomy and physiology with veterinary clinical emphasis. Provides the basis for study of conformation, production and pathological processes of diseases of dogs, cats, horses, sheep, goats, cattle, swine and laboratory animals. Credits: 3, Hours: (2/2/0/0), Arts & Sciences Elective Code: B

AGV-127 Animal Anatomy and Physiology II (4.00)
Studies anatomy and physiologic principles of domestic animals. Continuation of physiological principles in Animal Anatomy and Physiology I. Credits: 4, Hours: (4/0/0/0), Prereq: AGV-126; Arts & Sciences Elective Code: B

AGV-140 Veterinary Pharmacology (3.00)
Studies medications and products commonly used in veterinary medicine. Credits: 3, Hours: (3/0/0/0), Prereq: AGV-127, AGV-142; Arts & Sciences Elective Code: B

AGV-142 Mathematics for Veterinary Technicians (3.00)
Covers pharmaceutical mathematics with an emphasis on dosage calculations and fluid therapy as related to veterinary medicine. Course is open to Vet Tech students only. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: B

AGV-143 Canine and Feline Nutrition (3.00)
Studies the nutritional requirements of dogs and cats with an emphasis on client education and customer service. Students analyze pet foods, identify strengths and weaknesses of commercial diets and gain the basics of therapeutic nutrition. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: B

AGV-144 Fundamentals of Small Animal Nutrition (3.00)
Covers essential nutrients and the roles of each in an animal's metabolism, with an emphasis on the nutritional management of dogs and cats. Basic clinical and therapeutic nutrition are covered in depth. Includes analysis of many commercial pet foods. Credits: 3, Hours: (3/0/0/0), Prereq: AGV-126, AGV-127; Arts & Sciences Elective Code: B

AGV-146 Large Animal Care (3.00)
Provides general livestock husbandry, handling and restraint involving horses, cattle, sheep and swine. Includes identification, characteristics, behavior traits, and handling techniques and physical restraint. Credits: 3, Hours: (1/4/0/0), Prereq: AGV-126; Arts & Sciences Elective Code: B

AGV-152 Veterinary Computer Applications (2.00)
Introduces the student to computer software commonly used in veterinary practice. Students will become proficient in the use of Microsoft Office software and software used in the routine management of veterinary records. Credits: 2, Hours: (2/0/0/0), Arts & Sciences Elective Code: B

AGV-153 Veterinary Reception and Administration Skills (3.00)
Gives the student the skills necessary to function as a receptionist in a veterinary hospital. Focuses on telephone techniques, medical records, legal aspects of veterinary medical records, vaccination protocols, client communication, dealing with death and euthanasia, the admittance and discharge of patients, financial aspects of veterinary practice and basic management principles. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: B

AGV-155 Shelter Administration and Computer Applications (3.00)
Introduces computer software commonly used in animal-related businesses. Highlights Microsoft Office software and software packages used in the routine management of animal shelter and animal control recordkeeping. Stresses front office procedures, and reception and client relations skills. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: B

AGV-158 Veterinary Law and Ethics (3.00)
Discusses moral, ethical and legal principles applicable to veterinarians and their employees, breeders, kennel operators, pet groomers and others allied to the small animal industry. Considers state, local and federal regulations relating to the industry. Effective client relations and telephone courtesy skills are also stressed. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: B

AGV-161 Animal Nursing I (3.00)
Introduces the fundamentals of animal nursing. Includes animal handling and restraint, patient admission and history, preparation and administration of vaccines and medications, care of hospitalized patients, introduction to radiology, practice management, client relations and sanitation. Limited to Veterinary Technician students. Credits: 3, Hours: (1/4/0/0), Prereq: AGV-105, AGV-126, AGV-142; Arts & Sciences Elective Code: B

AGV-162 Animal Nursing II (3.00)
Continuation of Animal Nursing I. Covers foundation material in pre- and post-surgical care, surgical assisting, fluid therapy, dental prophylaxis, anesthesiology, clinical pharmacy and basic nursing skills. Clinic and hospital record keeping are covered with an introduction to practical radiology. Credits: 3, Hours: (0/6/0/0), Prereq: AGV-140, AGV-161, AGC-932; Arts & Sciences Elective Code: B

AGV-163 Animal Nursing III (3.00)
Continuation of Animal Nursing II. Emphasis is on radiology, record keeping, pharmacy associated with emergency care, inventory control, anesthesiology, dentistry, surgical assistance, and raptor care skills. Credits: 3, Hours: (0/6/0/0), Prereq: AGC-932, AGV-162; Arts & Sciences Elective Code: B

AGV-167 Veterinary Clinic Pathology I (3.00)
Introduction to veterinary clinical pathology with an emphasis on laboratory procedures commonly performed in private practice. Fecal analysis, basic urinalysis and basic hematology are covered. Proper care and maintenance of laboratory equipment is stressed. Credits: 3, Hours: (2/2/0/0), Prereq: AGV-127; Arts & Sciences Elective Code: B

AGV-168 Veterinary Clinic Pathology II (3.00)
Basic clinical pathology laboratory procedures including specimen collection and preservation, hematology, and fecal examination. Hematology will include preparation and performance of PCV, Hb, WBC, RBC counts, preparation and staining blood smears, and performance of differential cell counts. Limited to Veterinary Technician students. Credits: 3, Hours: (2/2/0/0),
AGV-189 Veterinary Clinical Pathology III (3.00)
Refinement of hematology and other skills acquired in Veterinary Clinical Pathology II. Additional units include urinalysis, electrocardiography, necropsy, cytology and specialized clinical procedures. Credits: 3; Hours: (2/2/0/0), Prereq: AGV-932, AGV-168; Arts & Sciences Elective Code: B

AGV-171 Large Animal and Poultry Medicine (4.00)
Common and significant diseases and health problems of livestock and poultry. Emphasis on herd/flock health, etiology, clinical symptoms, treatment and prevention. Credits: 4; Hours: (3/2/0/0), Prereq: AGV-140; Arts & Sciences Elective Code: B

AGV-175 Small Animal and Cage Bird Medicine (4.00)
Common and significant diseases of companion and laboratory animals. Diseases affecting birds and small animals with emphasis on etiology, clinical symptoms, treatment and prevention. Credits: 4; Hours: (3/2/0/0), Prereq: AGV-140; Arts & Sciences Elective Code: B

AGV-179 Lab Animal Medicine (1.00)
Introduces students to laboratory animals used in research. Practical care with selected animals. Credits: 1; Hours: (0/2/0/0), Prereq: AGV-162, AGV-168; Arts & Sciences Elective Code: B

AGV-190 Animal Welfare and Shelter Management (4.00)
Develops the skills necessary for day-to-day management of an animal housing facility. Examines development of infectious disease control policies, and cleaning and disinfection protocols. Focuses on the daily operation of an animal housing facility to include population management, cleaning and disinfection, disease and infection control within a facility, animal housing, exercise and space needs, enrichment, temperament assessment and adoption procedures. Credits: 4; Hours: (2/4/0/0), Arts & Sciences Elective Code: B

AGV-191 Animal Behavior and Restraint (3.00)
Examines animal capture and restraint from a behavioral perspective. Studies species and breed normal behaviors, and common restraint and capture techniques. Credits: 3; Hours: (3/0/0/0), Arts & Sciences Elective Code: B

AGV-192 Shelter Medicine (3.00)
Introduces common diseases of animals housed in shelter situations. Focuses on identifying mechanisms of disease transmission, diagnosis, prevention and therapy. Addresses proper handling, storage and administration of common vaccinations. Presents basic principles of first aid and physical examination. Credits: 3; Hours: (3/0/0/0), Arts & Sciences Elective Code: B

AGV-193 Vehicle Safety and Operations (1.00)
Introduces the safe operation of animal control vehicles. Develops proficiency and an understanding of safe and legal operation of trucks and trailers, trucks with small animal boxes, and other related animal control and transport vehicles.

AGV-194 Disaster Animal Response Training (1.00)
Familiarizes participants with disaster situations and provides the background necessary to assist an agency in effective emergency animal relief efforts. Covers Incident Command Systems (ICS), animal rescue and transport, community needs, and working with state and national animal rescue groups. Credits: 1; Hours: (1/0/0/0), Arts & Sciences Elective Code: B

AGV-195 Large Animal Welfare (3.00)
Discusses livestock husbandry, handling and nutrition from an animal welfare and animal control perspective. Includes major breed identification and characteristics, behavior traits, humane handling techniques and appropriate housing for cattle, horses, sheep, swine and camels. Credits: 3; Hours: (2/2/0/0), Arts & Sciences Elective Code: B

AGV-196 Euthanasia Technician (1.00)
Introduces acceptable methods of euthanasia based on the AVMA’s current guidelines. Presents restraint techniques, administration of selected euthanasia agents, as well as proper handling, record keeping and storage of euthanasia agents. Develops techniques for recognizing and coping with stress and burnout related to euthanasia. Covers laws relating to controlled substances and animal disposal. Successful completion of the course will earn the student certification as an Euthanasia Technician. Credits: 1; Hours: (5/1/0/0), Arts & Sciences Elective Code: B; Comments: Enrollment limited to Humane Officer Training and Veterinary Technology students

AGV-197 Basic Animal Investigation Techniques (3.00)
Introduces techniques for conducting animal cruelty investigations and procedures used to strengthen cases and convictions. Includes working with state and local laws, prosecutors and the court system. Students complete a series of case studies of animal cruelty cases. Credits: 3; Hours: (3/0/0/0), Prereq: CRJ-133, AGV-190; Arts & Sciences Elective Code: B

AGV-198 Wildlife ID and Management (2.00)
Introduces the identification, housing, nutrition and general care of wildlife indigenous to Iowa. Covers legal issues related to possession of wild-life, and working with Department of Natural Resources and wildlife rehabilitators. Credits: 2; Hours: (2/0/0/0), Arts & Sciences Elective Code: B

AGV-199 Veterinary Forensics (3.00)
Explores the field of forensic science and its impact on science, society and the criminal justice system as it relates to animal-related laws. Provides a background in basic sciences while educating the Humane Officer Training student in the realities and limitations of scientific methods when applied specifically to criminal investigations. Credits: 3; Hours: (3/0/0/0), Arts & Sciences Elective Code: B

AGV-201 Pet Grooming I (3.00)
Emphasis on health care and basics of cats and dogs, introduction to grooming equipment and handling. Credits: 3; Hours: (1/4/0/0), Arts & Sciences Elective Code: B

AGV-202 Pet Grooming II (3.00)
Covers terriers, terrier patterns and terminology. Perfecting basics and feline grooming. Building confidence. Credits: 3; Hours: (1/4/0/0), Prereq: AGV-201; Arts & Sciences Elective Code: B

AGV-203 Pet Grooming III (3.00)
Introduces the student to poodle patterns and mixed breeds. Teaches the use of clippers, scissoring and finishing the groom. Credits: 3; Hours: (1/4/0/0), Prereq: AGV-202; Arts & Sciences Elective Code: B

AGV-204 Pet Grooming IV (3.00)
Develops basic skills for entry-level employment. Covers all breed grooming and various business aspects of the grooming industry. Reviews Level I through III and finishing techniques. Credits: 3; Hours: (1/4/0/0), Prereq: AGV-203; Arts & Sciences Elective Code: B

AGV-214 Small Animal Medicine I (3.00)
Discusses diseases affecting small animals with emphasis on etiology, clinical symptoms, treatment and prevention. Credits: 3; Hours: (3/0/0/0), Prereq: AGV-127; Arts & Sciences Elective Code: B

AGV-215 Small Animal Medicine II (3.00)
Continues Small Animal Medicine I. Discusses diseases affecting small animals with emphasis on etiology, clinical symptoms, treatment and prevention. Emphasizes metabolic diseases, diseases of the cardiovascular, digestive, and urogenital system. Credits: 3; Hours: (3/0/0/0), Prereq: AGV-127, AGV-214; Arts & Sciences Elective Code: B

AGV-216 Avian, Exotics, and Small Mammals (2.00)
Introduces laboratory animals used in research and avian, reptiles, and small mammals. Teaches practical care with selected animals. Credits: 2; Hours: (2/0/0/0), Prereq: AGV-162, AGV-168; Arts & Sciences Elective Code: B

AGV-217 Diagnostic Technologies (2.00)
Introduces technology commonly used in veterinary practices to diagnose and treat animals. Emphasizes imaging technologies and proper positioning for quality results. Covers therapeutic and other technologies. Credits: 2; Hours: (1/1/0/0), Prereq: AGV-162, AGV-214, AGV-215; Arts & Sciences Elective Code: B

AGV-300 Clinical Veterinary Experience (2.00)
Studies the practical application of technical veterinary assisting skills while working in private veterinary practice. Focuses on caring for hospitalized patients, admitting and discharging patients, providing general kennel sanitation and record keeping. Credits: 2; Hours: (0/0/0/8), Prereq: AGV-105, AGV-152, AGV-153, AGV-158; Coreq: AGV-101; Arts & Sciences Elective Code: B

AGV-400 Grooming Shop Management I (3.00)
Covers basic small business concepts for self-employed or independent contractor pet groomers, including financing, regulatory and licensing concerns, business location, insurance, recordkeeping and tax considerations. Credits: 3; Hours: (3/0/0/0), Arts & Sciences Elective Code: B
Students research current trends and predict the future in the field of fashion merchandising. They are provided with opportunities to work with the marketing and advertising departments of various companies, gaining experience in areas such as sales, marketing, and visual merchandising. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: B

AGV-948 Special Projects (1.00-3.00) provides students with the opportunity to work on a project of their choosing, allowing for personalized learning and development. Credits: 1, Hours: (1/0/0/0), Arts & Sciences Elective Code: B

ANT: Anthropology

ANT-105 Cultural Anthropology (3.00) explores cultural diversity and the ways in which cultural differences impact societies. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: A

ANT-924 Honors Project (1.00) allows students to pursue a special concentration of study under the guidance of a faculty member. Requires completion of an honors project contract. May be taken more than once. Credits: 1, Hours: (1/0/0/0), Arts & Sciences Elective Code: B; Comments: Requires approval of supervising professor and dean

APP: Apparel Merchandising

APP-120 Apparel Visual Merchandising (3.00) offers basic instruction in display construction, the relationship of display to the total promotional program, the role of the visual merchandiser, elements of display design, construction materials and merchandise selection. Students have an opportunity to create merchandise displays. Credits: 3, Hours: (2/2/0/0), Arts & Sciences Elective Code: B

APP-130 Principles of Fashion Merchandising (3.00) provides a historical and evolutionary introduction to the field of fashion merchandising: sociological, psychological and economic aspects of fashion; fashion terminology, fashion cycles; and current practices in fashion retailing. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: B

APP-140 Fashion History (3.00) covers the development of costumes and accessories as a part of a socioeconomic and cultural force from ancient times to the present and its relationship to contemporary fashion trends. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: B

APP-170 Fashion Trends and Consumer Analysis (3.00) examines diversity among consumers such as ethnicity, gender identity and body satisfaction. Students research current trends and predict the direction of future trends in consumer behavior. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: B

ARC: Architectural

ARC-100 Architectural Profession (1.00) overviews the professional ethics, human relations and contract procedures in the architectural profession. Emphasizes the process and legal/contractual issues involved in a typical construction project. Credits: 1, Hours: (1/0/0/0), Arts & Sciences Elective Code: B

ARC-102 Architectural Sketching (3.00) introduces the fundamentals of sketching through simulated projects encountered in the profession. Includes translating three-dimensional constructions to two-dimensional orthographic sketches, as-builds and details. Explores lettering, line quality, architectural dimensioning and scale reading, organization, drawing revision and sketching. Familiarizes student with tools and techniques of the trade. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: B

ARC-135 American Architecture (1.00) introduces the history of American architecture and its architects. Emphasizes both 20th century and Iowa architecture. Credits: 1, Hours: (1/0/0/0), Arts & Sciences Elective Code: B

ARC-150 Architecture, Construction, and Engineering Professions (2.00) surveys the responsibilities, legal/contractual issues and skills required of the building team and the construction process from design to occupancy. Intends to foster empathy, trust, and collaboration between the variety of careers. Credits: 2, Hours: (2/0/0/0), Arts & Sciences Elective Code: B

ARC-153 Architecture, Construction and Engineering Professions (3.00) overviews the commercial construction industry through a case study of local Architectural, Construction (both General Contractor and Subcontractors) & Engineering professions. Emphasizes the players as well as the processes and legal/contractual issues involved in a typical project. Includes job shadow opportunities. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: B

ARC-185 Architectural Photoshop Techniques (1.00) uses the capabilities of Photoshop to create architectural renderings. Focuses on understanding processes and developing techniques to enhance presentations. Credits: 1, Hours: (1/0/0/0), Prereq: minimum C in ARC-195 or INT-126; Arts & Sciences Elective Code: B

ARC-195 Sketchup for Architecture (3.00) introduces the basic concepts of architectural illustration and model building. Explores artistic expression using a variety of techniques, including computer software. Emphasizes development of artistic graphics and models necessary for representing architectural structures as well as locating them in context. Credits: 3, Hours: (3/0/0/0), Prereq: minimum C in CSC-410 and in either CSC-110 or IND-155; Arts & Sciences Elective Code: B

ARC-200 Architectural Portfolio (1.00) uses the capabilities of various software to create professional documents. Focuses on creating portfolios, resumes and other artifacts used in obtaining employment or marketing oneself. Credits: 1, Hours: (1/0/0/0), Prereq: CAD-206; Arts & Sciences Elective Code: B

ARC-204 Design Studio - Residential (5.00) simulates an architectural (residential) design firm through real-life projects, employer/employee expectations, client additions/revisions and deadlines. Focuses on 3D CAD (Computer Aided Drafting) skills using Autodesk Revit software. Develops skills with file management, organization of architectural information, attention to detail, concept drawings, converting preliminary concept drawings into presentation drawings, construction documents and renderings. Emphasizes both teamwork, peer evaluation and general problem solving. Credits: 5, Hours: (1/8/0/0), Prereq: CAD-201; Arts & Sciences Elective Code: B

ARC-206 Design Studio - Commercial (5.00) utilizes CAD to develop a set of working drawings for a commercial project located on the college campus. Focuses on correct computer usage, code research, blueprint redline and revision, and appropriate graphic representation. Emphasizes teamwork. Credits: 5, Hours: (1/8/0/0), Prereq: CAD-201; Arts & Sciences Elective Code: B
Course Descriptions

ART-924 Honors Project (1.00)
Allows a qualified honors student to pursue a special concentration of study under the guidance of a faculty member. Requires completion of an honors project contract. May be taken more than once. Credits: 1; Hours: (1/0/0/0), Arts & Sciences Elective Code: A; Comments: Requires approval of supervising professor and dean

ART-928 Independent Study (1.00-3.00)
Provides readings, papers and basic research or other projects under the individual guidance of a staff member. Credits: 1; Hours: (1/0/0/0), Arts & Sciences Elective Code: A; Comments: Permission of instructor, dean

ART-932 Internship (2.00)
Provides practical experience in an architectural or construction work environment. Includes employer/evaluations and instructor visits/interview. Credits: 2; Hours: (0/0/0/128), Prereq: CAD-201, CAD-204, Arts & Sciences Elective Code: B

ART: Art

ART-101 Art Appreciation (3.00)
Provides an overview of art from a historical, contemporary and aesthetic frame of reference. Recommended for non-Art majors. Credits: 3; Hours: (3/0/0/0), Arts & Sciences Elective Code: A

ART-133 Drawing (3.00)
Introduces analysis of visual form and principles of responsive drawing. Includes perspective, chiaroscuro and figure drawing. Once passed, this course may be repeated one time. Credits: 3; Hours: (2/2/0/0), Arts & Sciences Elective Code: A

ART-134 Drawing II (3.00)
Continues skills begun in Drawing. Emphasis on figure drawing from model, various media. Emphasizes development of personal expression and portfolio. Once passed, this course may be repeated one time. Credits: 3; Hours: (2/2/0/0), Prereq: ART-133; Arts & Sciences Elective Code: A

ART-138 Figure Drawing (3.00)
Familiarizes students with drawing the human figure. Course focuses on observational drawing from the model, emphasizing the activity of drawing from life, refining skills in observation and rendering. Attention is given to formal aspects of drawing, including methods of approach and execution, personal expression and broader expectations vis-a-vis critique. Credits: 3; Hours: (2/2/0/0), Prereq: ART-133; Arts & Sciences Elective Code: A

ART-143 Painting (3.00)
Provides the beginning student experience in handling a variety of painting material to foster growth in visual, scientific, conceptual and aesthetic responses. Explores painting from the Renaissance to the current era through examination of paintings and scholarly periodicals. Focuses on student proficiency through observational painting from the model, the still life, and interior and/or exterior spaces, perspective, light structure/chiaroscuro, positive negative spatial relationships, color theory and relationships, handling of materials, and abstraction. Develops artistic vocabulary and critical and conceptual thinking habits through participation in mandatory group critiques. Deepens student introspection through creation of a cohesive portfolio, body of work or artifact for final presentation. Once passed, this course may be repeated one time. Credits: 3; Hours: (2/2/0/0), Arts & Sciences Elective Code: A

ART-144 Painting II (3.00)
Builds on skills learned in Painting with emphasis on development of independent aesthetic judgment. Once passed, this course may be repeated one time. Credits: 3; Hours: (2/2/0/0), Prereq: ART-143; Arts & Sciences Elective Code: A

ART-157 Printmaking (3.00)
Introduces intaglio, relief and stencil printmaking processes and composition. Once passed, this course may be repeated one time. Credits: 3; Hours: (2/2/0/0), Arts & Sciences Elective Code: A

ART-158 Printmaking II (3.00)
Continues technical development in relief and intaglio techniques; aesthetics stressed. Once passed, this course may be repeated one time. Credits: 3; Hours: (2/2/0/0), Prereq: ART-157; Arts & Sciences Elective Code: A

ART-161 Digital Art (3.00)
Introduces the computer as a tool for visual communication and creation of various types of art in the Fine Art context. Includes raster- and vector-based image making, digital collage, digital image manipulation, basic animation, digital painting and drawing, blending of traditional and digital art-making, and experimentation in a variety of input and final output methods. Once passed, this course may be repeated one time. Credits: 3; Hours: (2/2/0/0), Prereq: ART-301; Arts & Sciences Elective Code: A

ART-163 Sculpture (3.00)
Introduces techniques and concepts of sculpture using materials such as metal, glass, clay, wood, and plaster. Once passed, this course may be repeated one time. Credits: 3; Hours: (2/2/0/0), Arts & Sciences Elective Code: A

ART-164 Sculpture II (3.00)
Continues the exploration of techniques and concepts of sculptural form. Assignments are geared for progressive development in the individual's ability. Once passed, this course may be repeated one time. Credits: 3; Hours: (2/2/0/0), Prereq: ART-163; Arts & Sciences Elective Code: A

ART-165 Sculpture III (3.00)
Continues the exploration and development of techniques and concepts of sculptural form. Assignments are geared for progressive development of the individual's ability. Once passed, this course may be repeated one time. Credits: 3; Hours: (2/2/0/0), Prereq: ART-164; Arts & Sciences Elective Code: A

ART-173 Ceramics (3.00)
Introduces wheel-thrown forms and hand-building forms. Students examine methods of working with clay. Once passed, this course may be repeated one time. Credits: 3; Hours: (2/2/0/0), Arts & Sciences Elective Code: A

ART-174 Ceramics II (3.00)
Continues the development of wheel-throwing and hand-building skills. Assignments are geared for progressive development of the individual's ability. Once passed, this course may be repeated one time. Credits: 3; Hours: (2/2/0/0), Prereq: ART-173; Arts & Sciences Elective Code: A

ART-175 Ceramics III (3.00)
Continues the development of wheel-throwing and hand-building skills gained in Ceramics II. Assignments are geared for progressive development of the individual's ability. Once passed, this course may be repeated one time. Credits: 3; Hours: (2/2/0/0), Prereq: ART-174; Arts & Sciences Elective Code: A

ART-184 Photography (3.00)
Provides aesthetic, ethical and philosophical frameworks used in understanding the historical and contemporary worlds of photography. Focuses on both film and digital cameras. Highlights principles and elements of design and photographic composition. Photographs are created in a traditional and contemporary setting for portfolio and display. Once passed, this course may be repeated one time. Credits: 3; Hours: (2/2/0/0), Arts & Sciences Elective Code: A

ART-185 Photography II (3.00)
Continues exploration of photographic capture/concept using traditional and digital media. Emphasizes development of personal vision while exploring the grammar of photography. The frame, focus, motion and materials used to produce work provide a framework for dictating the visual outcome. Traditional and digital approaches are combined in the production of student portfolios and displays. Credits: 3; Hours: (2/2/0/0), Prereq: ART-184; Arts & Sciences Elective Code: A

ART-186 Digital Photography (3.00)
Develops familiarity and proficiency with digital cameras, computers and printers. Studies technical and aesthetic issues in visual communication and digital image capture/presentation. Students complete presentations, critiques online, portfolio and displays. Once passed, this course may be repeated one time. Credits: 3; Hours: (2/2/0/0), Arts & Sciences Elective Code: A

ART-203 Art History I (3.00)
Introduces the history of art chronologically, from the prehistoric period in Europe to the early Renaissance. Cultivates a meaningful recognition of different styles, concepts and concerns through an analysis of selected paintings, sculpture, architecture and other mediums. Emphasizes the thematic issues prevalent in various time periods and geographic-cultural areas. Examines interpretation, concepts, theories, and comparison of styles and techniques through readings, visual presentations, lecture and discussion. Credits: 3; Hours: (3/0/0/0), Arts & Sciences Elective Code: A

ART-204 Art History II (3.00)
Introduces the history of art chronologically, from the Renaissance to the 21st century. Cultivates a meaningful recognition of different styles, concepts and concerns through an analysis of selected paintings, sculpture, architecture and other mediums. Emphasizes the thematic issues
prevalent in various time periods and geographic/cultural areas. Examines interpretation, concepts, theories, and comparison of styles and techniques through readings, visual presentations, lectures, and discussion. Credits: 3; Hours: (3/0/0/0), Arts & Sciences Elective Code: A

**ART-220 Ceramics IV (3.00)**
Provides opportunity for students to do advanced individual projects in sculptural and functional ceramics. Assignments are geared for progressive development of the individual's ability. Technical awareness of glaze materials, glaze formulation, firing techniques and studio operations are covered. Specific objectives are individualized and recorded in a contract signed by instructor and student. Once passed, this course may be repeated one time. Credits: 3; Hours: (2/2/0/0), Prereq: ART-175; Arts & Sciences Elective Code: A

**ART-223 Advanced Photography (3.00)**
Improves proficiency with digital SLR cameras, computer applications and printing. Introduces commercial studio lighting techniques for product and portraiture. Builds on techniques and aesthetic values in visual communication using a combination of digital, traditional and alternative photographic practices. Once passed, this course may be repeated one time. Credits: 3; Hours: (2/2/0/0), Prereq: ART-184 or ART-186; Arts & Sciences Elective Code: A

**ART-224 Commercial Studio Lighting Table Top and Portrait (3.00)**
Studies the use of commercial studio lighting techniques and skills in photography as a way to communicate or make art. Includes table top or product lighting, portrait lighting and special events photography. Credits: 3; Hours: (2/2/0/0), Prereq: ART-184 or ART-186; Arts & Sciences Elective Code: A

**ART-290 Projects in Photography (1.00)**
Studies photography as a way to communicate or make art. Students propose a personal project that can be created in traditional or digital capture. Work is displayed and weekly meetings mark progress on student project. Once passed, this course may be repeated one time. Credits: 1; Hours: (0/2/0/0), Arts & Sciences Elective Code: A

**ART-301 Design Fundamentals (3.00)**
Introduces design concepts and fundamental skills through studio exercises. Explores design elements such as shape, value, texture, color, line, space and mass. Students generate ideas and employ a variety of media and materials to gain visual sensitivity through practical experience. Once passed, this course may be repeated one time. Credits: 3; Hours: (2/2/0/0), Arts & Sciences Elective Code: A

**ART-420 Introduction to Glass (3.00)**
Introduces contemporary and historic glass working techniques and concepts. Covers fusing, slumping, bead making, kiln casting and hot glass blowing. Once passed, this course may be repeated one time. Credits: 3; Hours: (2/2/0/0), Arts & Sciences Elective Code: A

**ART-430 Glass-Fusing, Slumping and Casting (3.00)**
Introduces glass fusing, slumping, pate de verre, stencil inclusions, torch working, pattern bars, casting and cold-working techniques and concepts. Involves group and individual demonstrations, discussions and critiques. Credits: 3; Hours: (2/2/0/0), Arts & Sciences Elective Code: A

**ART-431 Glass-Fusing, Slumping, and Casting II (3.00)**
Explores advanced contemporary and traditional warm glass working techniques and concepts, through lectures, demonstrations, discussions, practice and critiques. Includes flat fusing, slumping, torch working and solid cast forms. Once passed, this course may be repeated one time. Credits: 3; Hours: (2/2/0/0), Prereq: ART-430; Arts & Sciences Elective Code: A

**ART-440 Hot Glass I - Blowing and Sculpting (3.00)**
Furthers contemporary and traditional hot glass working techniques and concepts. Consists of group and individual demonstrations, discussions and critiques. Includes the creation of hollow forms, solid forms, functional and non-functional objects using hot glass. Once passed, this course may be repeated one time. Credits: 3; Hours: (2/2/0/0), Prereq: ART-420; Arts & Sciences Elective Code: A

**ART-441 Hot Glass II - Blowing and Sculpting Casting (3.00)**
Focuses on advanced contemporary and traditional hot glass working techniques and concepts. Consists of group and individual demonstrations, discussions and critiques. Introduces the application of bases, the use of color, color manipulation, annealer pick ups, advanced sculpting, and making cane using hot glass. Once passed, this course may be repeated one time. Credits: 3; Hours: (2/2/0/0), Prereq: ART-440; Arts & Sciences Elective Code: A

**ART-924 Honors Project (1.00)**
Allows a qualified honors student to pursue a special concentration of study under the guidance of a faculty member. Requires completion of an honors project contract. May be taken more than once. Credits: 1; Hours: (1/0/0/0), Arts & Sciences Elective Code: A; Comments: Requires approval of supervising professor and dean

**ART-928 Independent Study (1.00-3.00)**
Allows the student to do readings, papers, research /or other projects under the individual guidance of a staff member. Independent study contract required. Credits: 1-2; Hours: (0/2-4/0/0), Arts & Sciences Elective Code: A; Comments: Requires approval of supervising professor and dean

**ASL: American Sign Language**

**ASL-141 American Sign Language I (4.00)**
Provides a beginning interactive course to promote comfort and knowledge in using grammar, syntax, vocabulary, fingerspelling, semantics and non-manual behaviors. Emphasizes comprehension, production skills and use of language in a cultural context. Course is taught in American Sign Language. This course applies toward satisfaction of Historical/Cultural core for an AA degree. Credits: 4; Hours: (4/0/0/0), Prereq: ASL-141; Arts & Sciences Elective Code: A

**ASL-245 American Sign Language III (4.00)**
Expands on previously learned grammar, syntax, sentence structure and vocabulary in more depth. Emphasizes expressive skills through storytelling exercises and use of the language in a variety of situations. Credits: 4; Hours: (4/0/0/0), Prereq: ASL-171; Arts & Sciences Elective Code: A

**ASL-281 American Sign Language IV (4.00)**
Focuses on an expanded awareness of the behaviors, values and issues in Deaf culture through sign and varying levels of formality and socially appropriate language usage. Emphasizes receptive skills by reading signed stories and poetry. Credits: 4; Hours: (4/0/0/0), Prereq: ASL-245; Arts & Sciences Elective Code: A

**ATR: Automation Tech & Robotics**

**ATR-104 Introduction to Automation (2.00)**
Demonstrates the safe operation of a robot including proper pendent use to create programs, set and change data and edit existing programs. Focuses on recovering from faults, troubleshooting, and designing real-world applications. Credits: 2; Hours: (1/2/0/0), Arts & Sciences Elective Code: B

**ATR-105 Industrial Robotics (3.00)**
Covers the tasks and procedures that an operator, technician, engineer or programmer needs to set up and program a Fanuc Robotics ArcTool software package. Credits: 3; Hours: (1/4/0/0), Prereq: WEL-244; Arts & Sciences Elective Code: B

**ATR-107 Fluids (2.00)**
Covers fluid theory, fluid safety, types of pumps, mechanical seals, operation, and troubleshooting. Labs will be conducted to provide practical application. Credits: 2; Hours: (1/2/0/0), Arts & Sciences Elective Code: B

**ATR-109 PAC Programming and Control I (4.00)**
Introduces programmable automation controller (PAC) systems. Explores system commissioning, programming and troubleshooting through lecture, reading and hands-on labs. Credits: 4; Hours: (2/4/0/0), Prereq: ELT-128; Arts & Sciences Elective Code: B

**ATR-112 Introduction to Visualization (2.00)**
Introduces Electronic Operator Interfaces (EOI) systems. Explores system installation, commis-
sioning, programming and troubleshooting through lecture, reading and hands-on labs. Credits: 2, Hours: (1/2/0/0), Prereq: ATR-109; Arts & Sciences Elective Code: B

**ATR-126 Advanced Maintenance Technologies (2.00)**
Teaches fundamentals of shaft alignment, predictive, and preventative maintenance at the intermediate level. Integrates hands-on shaft alignment with dial indicators and laser alignment. Includes training in technologies used for predictive maintenance in the workplace, e.g., thermal imaging, vibration analysis, and trend analysis. Utilizes labs to reinforce concepts and theory covered in lecture and online material. Credits: 2, Hours: (1/2/0/0), Prereq: ATR-300; Arts & Sciences Elective Code: B

**ATR-134 Robot Machine Integration (3.00)**
Focuses on integrating a robot system with many different industry applications, including welding and CNC environments. Introduces integration of PLCs with a robot system. Credits: 3, Hours: (1/4/0/0), Prereq: ATR-105; Coreq: ATR-136; Arts & Sciences Elective Code: B

**ATR-135 Programming for Advanced Manufacturing Technologies Capstone (3.00)**
Demonstrates industry-standard application programming. Focuses on taking robotic applications from concept to working applications ready for full-time production. Credits: 3, Hours: (1/4/0/0), Prereq: ATR-136, ATR-134, MFG-291, MFG-292; Arts & Sciences Elective Code: B

**ATR-136 Programmable Logic Controllers for Manufacturing (4.00)**
Covers installing, programming and troubleshooting PLC systems as they are used in the manufacturing industry. Credits: 4, Hours: (2/4/0/0), Prereq: EGR-410 or ELT-304; Coreq: ATR-134; Arts & Sciences Elective Code: B

**ATR-201 Automation and Instrumentation Capstone (4.00)**
Explores manufacturing and process-automation control systems while applying abilities, techniques and knowledge learned throughout program. Develops a control system from conception to completion. Credits: 4, Hours: (2/4/0/0), Prereq: ATR-325, ATR-327; Arts & Sciences Elective Code: B

**ATR-254 PLC Integration (4.00)**
Provides an introduction to intermediate PLC software and the concepts associated with system integration. Credits: 4, Hours: (2/4/0/0), Prereq: ATR-136; Arts & Sciences Elective Code: B

**ATR-300 Mechanical Drive Systems I (2.00)**
Introduces fundamentals of mechanical drives. Includes couplings, chain drives, pulley drives, motor leveling and alignment. Reinforces concepts and theory covered in lecture and online material with hands-on labs. Credits: 2, Hours: (1/2/0/0), Arts & Sciences Elective Code: B

**ATR-302 Mechanical Drive Systems II (2.00)**
Introduces additional fundamentals of mechanical drives. Includes bearings, gaskets and gear drives. Reinforces concepts and theory covered in lecture and online material with hands-on labs. Credits: 1, Hours: (1/5/1/0/0), Prereq: ATR-300, IND-167; Arts & Sciences Elective Code: B

**ATR-309 Controls Capstone (3.00)**
Integrates the concepts covered in the Industrial Control courses into project-based lab activities. Focuses on utilizing skills acquired to design solutions for specific situations. After approval, students assemble, test and evaluate their design. Credits: 3, Hours: (1/4/0/0), Prereq: ATR-308; Arts & Sciences Elective Code: B

**ATR-310 Industrial Controls (5.00)**
Introduces industrial control theory. Covers AC and DC power sources, circuit protection devices, switching devices, pilot lights, motor control devices, sensors, schematic symbols and the use of schematics and wiring diagrams. Considers application, installation and troubleshooting of control components. Reinforces theory and classroom study with practical lab exercises. Credits: 5, Hours: (2/6/0/0), Prereq: ELE-238, IND-156; Arts & Sciences Elective Code: B

**ATR-316 Instrumentation & Control Devices (2.00)**
Provides an introduction to various types of instrumentation and control devices. Concepts including commissioning, practical application, integration and troubleshooting are explored and emphasized through lecture, reading and hands-on labs. Credits: 2, Hours: (1/2/0/0), Prereq: ATR-322; Arts & Sciences Elective Code: B

**ATR-319 Process Control I (4.00)**
Provides an introduction to various types of process control schemes, integrated PID control, and logic tuning methods including practical application, best practices, system optimization, and troubleshooting are explored and emphasized through lecture, reading and hands-on labs. Credits: 4, Hours: (2/4/0/0), Prereq: ATR-316; Arts & Sciences Elective Code: B

**ATR-320 PLC Programming and Control II (2.00)**
Explores advanced variable frequency drive (VFD) and programmable logic controller (PLC) capabilities and functionality. Includes programming best practices along with program and system optimization. Explores and emphasizes concepts through lecture and hands-on labs. Credits: 2, Hours: (2/2/0/0), Prereq: ELE-128; Arts & Sciences Elective Code: B

**ATR-322 PAC Programming & Control II (4.00)**
Provides an introduction to intermediate PAC software and hardware functionality, system programming techniques, and expanded control capabilities. Explores system troubleshooting, system optimization and sub system control integration through lecture, reading, and hands-on labs. Credits: 4, Hours: (2/4/0/0), Prereq: ATR-109; Arts & Sciences Elective Code: B

**ATR-323 Mechatronics I (2.00)**
Introduces the concept of mechatronics-based systems. Explores component commissioning, cell and system level programming, and troubleshooting through lecture, reading and hands-on labs. Credits: 2, Hours: (1/2/0/0), Prereq: ATR-322; Arts & Sciences Elective Code: B

**ATR-325 Introduction to System Integration (2.00)**
Introduces the concept of system integration and third party connectivity. Explores component and system level commissioning, programmatic utilization and troubleshooting through lecture, reading and hands-on labs. Credits: 2, Hours: (1/2/0/0), Prereq: ATR-322; Arts & Sciences Elective Code: B

**AUR-327 Process Control II (4.00)**
Provides an introduction to distributed control systems and system level commissioning and control. Explores practical application, best practices, system optimization, and troubleshooting through lecture, reading and hands-on labs. Credits: 4, Hours: (2/4/0/0), Prereq: ATR-319; Arts & Sciences Elective Code: B

**AUT: Automotive Technology**

**AUT-100 Maintenance and Light Repair (4.00)**
Emphasizes student knowledge of the skills necessary to successfully perform common maintenance and light repair tasks in engine systems, automatic transmission/transaxle, manual drive train and axles, suspension and steering, brakes, electrical, and heating and air conditioning. Credits: 4; Hours: (1/6/0/0), Arts & Sciences Elective Code: B

**AUT-104 Introduction to Automotive Technology (3.00)**
Provides the beginning apprentice technician with an introductory overview of automotive servicing from a maintenance and replacement standpoint. Emphasizes routine maintenance and on-the-job procedures in the care of tires, batteries, lighting, belts, hoses, filters and cooling systems through classroom and hands-on activities. Presents career information on career pathways, employers, goal setting, skills inventory, student club information and personal plan. Credits: 3, Hours: (1/4/0/0), Arts & Sciences Elective Code: B

**AUT-165 Automotive Engine Repair (5.00)**
Introduces internal combustion engine fundamentals. Covers engine operation, servicing, diagnosis and overhaul. Teaches engine disassembly, making precision measurements and engine reassembly. Emphasizes theories in practical, hands-on applications in classroom and lab exercises. Credits: 5; Hours: (5/9/0/0), Prereq: AUT-104, AUT-611, MAT-715; Arts & Sciences Elective Code: B

**AUT-205 Automotive Automatic Transmissions and Transaxles (5.00)**
Introduces Toyota’s automatic transmission fundamentals. Covers automatic transmission operation, servicing, diagnosis and overhaul. Teaches engine disassembly, making precision measurements and reassembly of a Toyota AB60E/F transmission. Focuses on identifying components, operational theory, powerflow and diagnosing several Toyota automatic transmissions and transaxles through practical hands-on applications in the classroom and lab exercises. Requires students to certification an automatic transmission or transaxle and perform all NATEF P-1, P-2 and P-3 tasks in the A2 ASE area. Covers specific Toyota units, including A-245E (Simpson Based Gear Train),...
U250E (Tandem Based Gear Train), U660E (Ravigneaux/Lepelletier Based Gear Train) and the AB60E (Compound Based Gear Train). Safety is required. Credits: 5, Hours: (5/9/0/0), Prereq: AUT-104, AUT-821, MAT-715; Arts & Sciences Elective Code: B

AUT-304 Automotive Manual Drive Train and Axles (4.00)
Introduces manual drivetrain fundamentals. Includes manual drivetrain operation, servicing, diagnosis and overhaul. Teaches disassembly, making precision measurements and reassembly of a manual transmission, transaxle, differential and transfer case. Focuses on theories in practical, hands-on applications in both the classroom and lab exercises. Credits: 4, Hours: (1/6/0/0), Prereq: AUT-104, AUT-655, MAT-715; Arts & Sciences Elective Code: B

AUT-404 Automotive Suspension and Steering (4.00)
Introduces chassis fundamentals. Covers tire and wheel service, in addition to modern electronic steering and suspension systems. Focuses on front and rear suspension system principles, system components and steering geometry as they relate to alignment diagnosis. Students remove and replace steering and suspension components, and perform wheel alignment procedures. Reinforces theories in a practical hands-on application through lab activities. Credits: 4, Hours: (1/6/0/0), Prereq: AUT-104, AUT-505, MAT-715; Arts & Sciences Elective Code: B

AUT-505 Automotive Brake Systems (5.00)
Introduces automotive brake hydraulic system fundamentals. Covers brake system operation, servicing and diagnosis. Instructs how to machine rotors and drums, inspect disc/drum brakes and diagnose brake system electrical problems. Focuses on advanced braking systems, including antilock, electronic stability control, hill start and hybrid braking systems. Reinforces theories in practical, hands-on classroom and lab exercises. Credits: 5, Hours: (5/9/0/0), Prereq: AUT-821, MAT-715; Arts & Sciences Elective Code: B

AUT-603 Basic Automotive Electricity (3.00)
Introduces electrical and electronic circuit theory. Covers voltage, amperage, resistance, Ohm’s Law and practical application on series, parallel and series-parallel circuits. Emphasizes studying circuits through electrical wiring diagrams and introduces scan tools. Covers diagnosis of electrical circuits with and without multiplex network control. Includes certification as power users of the Snap-On 525D multi-meter. Credits: 3, Hours: (2/2/0/0), Arts & Sciences Elective Code: B

AUT-611 Automotive Electricity (5.00)

AUT-621 Hybrid Electric Vehicle Fundamentals (3.00)
Introduces the fundamentals of hybrid electric vehicles. Explores the hybrid power plant, including hybrid batteries, high- and low-voltage systems, inverters, safety procedures, hybrid maintenance and diagnostics. Includes other alternative fuels. Credits: 3, Hours: (1/4/0/0), Prereq: AUT-685, either MAT-715 or MAT-076, Automotive Arc Flash; Arts & Sciences Elective Code: B

AUT-655 Automotive Advanced Electricity (5.00)
Covers automotive electrical systems with an emphasis on network controlled auxiliary systems, including navigation, audio, supplemental restraint and immobilizer theft deterrent. Builds diagnostic skills through extensive use of oscilloscopes and multi-meter for body electrical circuit problems. Covers general servicing of hybrid vehicles. Includes certification as power user of the Snap-On Generation I oscilloscope and component tester. Credits: 5, Hours: (5/9/0/0), Prereq: AUT-611; Arts & Sciences Elective Code: B

AUT-704 Automotive Heating and Air Conditioning (4.00)
Introduces Toyota/Lexus HVAC fundamentals. Focuses on refrigerant identification, recovery/recycling, evacuation, recharge and leak testing skills. Instructs removal and installation of an evaporator/heater core assembly on a Toyota/Lexus vehicle. Focuses on identifying components, operational theory, servicing and diagnosis of Toyota/Lexus HVAC systems through practical hands-on applications in the classroom and lab exercises. Includes EPA 609 Technician Certification. Requires all NATEF P-1, P-2 and P-3 tasks in the A7 ASE area. Safety is required. Credits: 4, Hours: (1/6/0/0), Prereq: AUT-821, MAT-715; Arts & Sciences Elective Code: B

AUT-821 Computerized Engine Controls I (5.00)
Introduces Toyota/Lexus engine control fundamentals. Focuses on identifying components, operational theory, servicing and diagnosis of Toyota/Lexus input sensors, ignition systems, fuel systems and ECU outputs through practical hands-on applications in the classroom and lab exercises. Includes certification as power user of the Snap-On Generation II oscilloscope and component tester. Requires all NATEF P-1, P-2 and P-3 tasks in the A8 ASE area. Safety is required. Credits: 5, Hours: (5/9/0/0), Prereq: AUT-104, AUT-655, MAT-715; Arts & Sciences Elective Code: B

AUT-822 Computerized Engine Controls II (5.00)
Explores diagnosis of engine performance faults using all 10 modes of OBD II. Covers Types A, B and C engine misfires. Focuses on identifying components, operational theory, servicing and diagnosis of Toyota/Lexus fuel injection, secondary air injection and EVAP systems through practical hands-on applications in the classroom and lab exercises. Includes certification as power user of the Snap-On Generation II scan tool. Students perform all NATEF P-1, P-2 and P-3 tasks in the A8 ASE area. Credits: 5, Hours: (5/9/0/0), Prereq: AUT-821, MAT-715; Arts & Sciences Elective Code: B

AUT-888 Technical Lab I (4.00)
Simulated automotive repair environment. Learning activities include complaint, cause and correction to customer vehicles. Parts and labor calculations also covered. Credits: 4, Hours: (1/6/0/0), Arts & Sciences Elective Code: B

AUT-889 Technical Lab II (4.00)
Continues to expose students to an automotive repair environment. Learning activities include complaint, cause and correction to customer vehicles. Parts and labor calculations also covered. Credits: 4, Hours: (1/6/0/0), Prereq: AUT-104, AUT-611, MAT-715, and AUT-888 or AUT-100; Arts & Sciences Elective Code: B

AUT-924 Honors Project (1.00)
Allows a qualified honors student to pursue a special concentration of study under the guidance of a faculty member. Requires completion of an honors project contract. May be taken more than once. Credits: 1, Hours: (1/0/0/0), Arts & Sciences Elective Code: B; Comments: Requires approval of supervising professor and dean

AUT-928 Independent Study (1.00-3.00)
Provides readings, papers and basic research or other projects under the individual guidance of a staff member. Credits: 1, Hours: (1/0/0/0), Arts & Sciences Elective Code: A; Comments: Permis- sion of instructor, dean

AUT-932 Internship (2.00)
Builds applied skills through employment, providing practical, on-the-job training at businesses related to instructional programs. Students are required to prepare training plans and other reports. Credits: 2, Hours: (0/0/0/128), Prereq: AUT-889; Arts & Sciences Elective Code: B

BCA: Business Computer Applications

BCA-136 Advanced Word Processing (3.00)
Begins with a review of basic business correspondence. Instruction includes advanced topics such as mail merge, macros, styles, complex tables, long reports, graphics and online forms. Guided drills are designed to increase speed to 55 words per minute with five or fewer errors on five-minute timed writings. Credits: 3, Hours: (2/2/0/0), Arts & Sciences Elective Code: B

BCA-138 Advanced Word Processing Applications (3.00)
Provides further reinforcement of all concepts learned in Advanced Word Processing. Covers mail merge, macros, styles, complex tables, desktop published documents, online forms and long reports. Includes keying specialized documents, such as agendas, news releases, itineraries and speeches. Guided drills are designed to increase speed to 60 words per minute with five or fewer errors on five-minute timed writings. Students learn to make effective document formatting decisions working independently. Credits: 3, Hours: (2/2/0/0), Prereq: BCA-136; Arts & Sciences Elective Code: B

BCA-152 Comprehensive Spreadsheets (3.00)
Teaches creation of efficient spreadsheet models of common and complex business problems. Integrates critical thinking and analysis to find...
effective solutions to real-life business situations. Includes creation of charts using statistical analysis tools; how to locate and manage data with reference functions; how to organize data for complex analyses; and how to apply problem-solving solutions to technical issues. Credits: 3, Hours: (2/2/0/0), Prereq: BCA-136; Arts & Sciences Elective Code: B

BCA-167 Comprehensive Databases (3.00) Teaches how to edit and manage databases created using Microsoft Access, and write SQL statements for applications code. Integrates critical thinking and analysis to find effective solutions to real-life business situations. Credits: 3, Hours: (2/2/0/0), Prereq: BCA-136 or CSC-110; Arts & Sciences Elective Code: B

BCA-179 Emerging Technology Trends (3.00) Develops knowledge of multimedia concepts by studying multimedia software and the hardware components needed to develop and view multimedia productions. Assessment projects are used by students for demonstration of knowledge of multimedia elements (copyright, video, graphics, sound, animation) knowledge of tools (digital camera, video camera, scanner, cam), and knowledge of editing software (sound editing, video editing, graphics editing). Credits: 3, Hours: (2/2/0/0), Arts & Sciences Elective Code: B

BCA-189 Microcomputer Literacy (1.00) Introduces the student to the personal computer concepts and basic computer applications. Students gain knowledge and skills in the basic concepts of Microsoft Windows and Word. They also gain experience using the Internet and email. The course introduces students to spreadsheet and presentation software. This introductory course is intended for students with no knowledge or experience using personal computers. Credits: 1, Hours: (0.5/1/0/0), Arts & Sciences Elective Code: B

BCA-213 Intermediate Computer Business Applications (3.00) Extends basic knowledge of Microsoft Word, Access, Excel and PowerPoint. Demonstrates proficiency at the core level of the MOS (Microsoft Office Specialist) certification. Credits: 3, Hours: (2/2/0/0), Prereq: CSC-110; Arts & Sciences Elective Code: B

BCA-290 Web Design Principles (3.00) Discusses the process of website design and production. Focuses on aesthetic design, which is style, theme and layout, as well as functional design, including usability, content and navigation. Incorporates the use of Web authoring software to produce and maintain websites. Credits: 3, Hours: (2/2/0/0), Arts & Sciences Elective Code: B

BCA-302 Graphics and Multimedia for the Web (3.00) Introduces a number of commercial and open source tools for manipulating graphics, audio and multimedia files for presentation on the web. While not a content creation course, some content editing is covered. Primary emphasis is placed on file types, encoding standards, plug-in issues, file optimization and markup options for various browsers and platforms. Credits: 3, Hours: (2/2/0/0), Arts & Sciences Elective Code: B

BCA-320 Content Management Systems (3.00) Explores a variety of open-source Web platforms based on Apache/PHP/MySQL technology. Emphasizes content management systems such as WordPress and Drupal, although more specialized systems are also considered. Focuses on deploying, configuring and styling these systems to meet a variety of business and client needs. Credits: 3, Hours: (2/2/0/0), Prereq: BCA-290; Arts & Sciences Elective Code: B

BCA-800 Web Technologies Capstone (3.00) Provides a cumulative experience for students to independently complete a portfolio-quality Web project. Integrates skills acquired in core and emphasis courses with individual strengths to develop comprehensive solutions. Credits: 3, Hours: (2/2/0/0), Prereq: CIS-334; Arts & Sciences Elective Code: B; Comments: Students need to register for this course in the final term of program

BIO: Biology

BIO-104 Introductory Biology With Lab (3.00) Includes genetics, evolution, ecology, plant and animal reproduction, and biodiversity. Covers current topics in life science. Offers laboratory through investigations, discussion, written expression and readings. Beginning-level course for liberal arts students. Credits: 3, Hours: (2/2/0/0), Arts & Sciences Elective Code: B

BIO-110 Basic Biological Concepts (3.00) Designed for the student with little or no background in biology or chemistry, or as a refresher for the student who has not taken either for many years. Provides a basic foundation for further course work in the biological sciences. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: B

BIO-112 General Biology I (4.00) Serves as an introductory course for biology, science and health science majors. Covers principles of cellular biology, elementary biochemistry, energy functions, cell division, DNA/RNA, genetics, and evolution theory. Credits: 4, Hours: (3/2/0/0), Prereq: BIO-110 or CHM-165; Arts & Sciences Elective Code: B; Comments: Besides taking a prerequisite course, proficiency may be demonstrated by a passing score on the Biology Readiness Exam. Contact the Test Center for details.

BIO-113 General Biology II (4.00) Continues the study of General Biology I concentrating on organismal biology and ecology. Covers the evolution and diversity of the Bacteria, Archaea, Protista, Fungi, Plantae and Animalia, followed by a comprehensive study of ecology. Includes plant anatomy and physiology, and animal systems including, but not limited to, nervous, circulatory, reproductive and immune systems. Credits: 4, Hours: (3/2/0/0), Prereq: BIO-112; Arts & Sciences Elective Code: A

BIO-151 Nutrition (3.00) Demonstrates the relationship between sound nutrition and good health. Explores energy requirements, carbohydrates, lipids, proteins, vitamins, minerals, metabolism, physical exercise, dieting, weight problems, evaluation of nutritional claims, vegetarianism, and proper nutrition during pregnancy and lactation. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: A

BIO-154 Human Biology (3.00) Examines how human form and function work together to maintain homeostatic balance, and how dysfunctions can lead to disease processes. Explores fundamental biological principles as they apply to the human body. Intended for liberal arts students. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: A

BIO-161 Basic Anatomy and Physiology I (3.00) Presents an overview of human form and function through lecture and laboratory. Credits: 3, Hours: (2/2/0/0), Arts & Sciences Elective Code: B

BIO-168 Human Anatomy and Physiology II (4.00) Introduces the structure and function of the human body. Emphasizes organization at the cellular and tissue level, and selected organ systems. Reinforces concepts through laboratory activities in computer simulations, dissection, and/or human specimens. Credits: 4, Hours: (3/2/0/0), Arts & Sciences Elective Code: A; Comments: One year of recent high school biology/chemistry with a grade of B or higher strongly recommended, or completion of Basic Biological Concepts or other college-level biology course

BIO-173 Human Anatomy and Physiology II (4.00) Continues the study of human organ systems. Reinforces concepts through laboratory activities in computer simulations, dissection, and/or human specimens. Credits: 4, Hours: (3/2/0/0), Prereq: BIO-168; Arts & Sciences Elective Code: A

BIO-186 Microbiology (4.00) Surveys bacteria, viruses and fungi through their growth characteristics, morphology and pathogenicity. Introduces immunology and explores epidemiology and diagnosis of pathogenic bacteria. Emphasizes culturing, identification, aseptic technique and basic immunological assays in the laboratory. Credits: 4, Hours: (3/2/0/0), Arts & Sciences Elective Code: A; Comments: One year of recent high school biology/chemistry with a grade of B or higher strongly recommended, or completion of Basic Biological Concepts or other college-level biology course

BIO-190 Introductory Biotechnology (3.00) Explores biotechnology and its impact on science and society. Includes basic biological principles, biotech product development, agricultural and medical applications of biotechnology and potential careers. Intended for liberal arts students interested in biotechnology and those interested in the Biotechnology AAS degree. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: A

BIO-195 Human Evolution (3.00) Explores biological evolution of the human species, including primate comparisons and prehistoric culture. Examines the development of evolutionary theory, natural selection, principles of inheritance, mechanisms of evolution, human biological diversity and adaptation, the behavioral and ecological diversity of nonhuman primates, and the human fossil and archaeological records.
BIO-208 Agricultural Biology and Chemistry (3.00)
Provides a basic understanding of the biological and chemical concepts and processes necessary for the study of agricultural crop and livestock production, and their end-use products. Applies these concepts to practical agricultural situations. Credits: 3, Hours: (2/0/0/0), Arts & Sciences Elective Code: A

BIO-249 Biotechnology Internship (1.00-3.00)
Provides practical experience in the field of biotechnology. Students who have completed most or all of their course work in the biotechnology program are given the opportunity to acquire work-related skills through a cooperative effort with local biotechnology companies. Credits: 3, Hours: (0/0/0/12), Arts & Sciences Elective Code: A; Comments: Permission of instructor and dean

BIO-400 Lab Methodology (3.00)
Emphasizes basic laboratory techniques commonly used in the biotechnology field. Includes properly collecting data, making laboratory measurements, preparing solutions and using laboratory instruments. Covers quality control and assurance, and biosafety issues such as blood-borne pathogen training and interpretation of MSDS literature. Lab included. Credits: 3, Hours: (2/2/0/0), Arts & Sciences Elective Code: B

BIO-410 Molecular Biology Techniques I (4.00)
Introduces modern molecular biology techniques utilizing nucleic acids (DNA and RNA). Includes nucleic acid purification, quantitation, cloning and restriction enzyme digests. Advanced techniques include Southern and Northern analysis, polymerase chain reaction (PCR), real-time PCR and DNA sequencing. Stresses proficiency in techniques and proper analysis of results. Lab included. Credits: 4, Hours: (1/6/0/0), Arts & Sciences Elective Code: B

BIO-420 Molecular Biology Techniques II (4.00)
Introduces modern molecular techniques utilizing biomolecules, emphasizing proteins. Explores basic techniques in protein expression, protein purification, and protein analysis including Western blot analysis. Includes complex techniques relating to biomolecule separation. These methods include a variety of chromatographic methods including: paper, thin layer, gel permeation, gas and high performance liquid chromatography. Students interpret chromatographic results and practice documentation and reporting skills. Lab included. Credits: 4, Hours: (1/6/0/0), Prereq: BIO-410; Arts & Sciences Elective Code: B; Comments:

BIO-430 Molecular Genetics (3.00)
Introduces the fundamental concepts of genetics. Focuses primarily on the modern discoveries of molecular biology and their applications in today's world; however, basic principles of classical (Mendelian) genetics are also discussed. Topics include DNA structure and analysis, DNA replication, transcription, translation, cell cycle regulation with regard to cancer, recombiant DNA technology, genomics, and proteomics. Credits: 3, Hours: (3/0/0/0), Coreq: BIO-410; Arts & Sciences Elective Code: B; Comments: Lab not included. Students apply lab skills in Molecular Techniques I and Molecular Techniques II.

BIO-450 Basic Bioinformatics (3.00)
Introduces bioinformatics concepts and practice. Includes biological databases, sequence alignment, gene and protein structure prediction, molecular phylogenetics, genomics and proteomics. Emphasizes practical experience with bioinformatics tools, development of basic skills in the collection and presentation of bioinformatics data, as well as basic programming in a scripting language. Credits: 3, Hours: (3/0/0/0), Prereq: BIO-190; Coreq: BIO-410; Arts & Sciences Elective Code: B

BIO-924 Honors Project (1.00)
Allows a qualified honors student to pursue a special concentration of study under the guidance of a faculty member. Requires completion of an honors project contract. Course may be taken more than once. Credits: 1, Hours: (1/0/0/0), Arts & Sciences Elective Code: A; Comments: Requires approval of supervising professor and dean

BIO-928 Independent Study (1.00)
Provides readings, papers and basic research or other projects under the individual guidance of a staff member. Credits: 1, Hours: (0/2/0/0), Arts & Sciences Elective Code: A; Comments: Permission of instructor and dean

BUS: Business

BUS-101 Orientation to Business Professionalism (1.00)
Develops students' professional and professional skills in the business world. Focuses on the components of business image including professional dress, networking with business professionals, the art of handwriting, and proper dining, email and meeting etiquette. Students will create employment documents/tools and explore professional organizations. Emphasizes professionalism in the business industry with additional insight on how to be successful as a Kirkwood student. Credits: 1, Hours: (1/0/0/0), Arts & Sciences Elective Code: B

BUS-102 Introduction to Business (3.00)
Focuses on American and global business and introduces the student to each primary facet of operating a business. This course will help the student understand economic, social and political influences that affect business success. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: B

BUS-149 Small Business Financial Management (3.00)
Focuses on setting up and customizing accounts, the importance of appropriately categorizing transactions, transferring funds, creating invoices, splitting transactions, scheduling transactions, balancing accounts and creating reports. Covers retail analysis, tax collection and reporting, integrating online bank accounts and managing payroll. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: B

BUS-161 Human Relations (3)
Explores the psychological principles of human behavior, helping students understand themselves and others in the workplace. This course is adapted to students' needs and interests depending on their overall degree programs. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: B

BUS-185 Business Law I (3.00)
Surveys the general source of law and structure of the American legal system. Students learn basic principles of tort law, administrative law, constitutional law and contract law with an emphasis on business applications. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: A

BUS-190 Professionalism: BPA (1.00)
Develops and recognizes leadership and teamwork utilizing a student professional organization, Business Professionals of America (BPA). Special emphasis is placed on leadership development activities. Students are provided the opportunity to participate in state and national business competitions, earn awards, perform community service and seek local, state and national office. This course may be repeated for credit. Credits: 1, Hours: (1/0/0/0), Arts & Sciences Elective Code: B

BUS-192 Professionalism: Business Competition (1.00)
Develops and recognizes leadership and teamwork skills utilizing a professional organization. Emphasizes leadership development activities. Provides opportunities to participate in business competitions. Credits: 1, Hours: (1/0/0/0), Arts & Sciences Elective Code: B

BUS-280 Fundamentals of Lean Process Improvement (3.00)
Focuses on learning and practicing Lean methods of minimizing waste, increasing efficiency and improving quality within organizations. Provides basic understanding and practical applications of organization techniques (5S), Lean mapping tools, streamlining work processes and problem-solving methodologies (A3). Concludes with a comprehensive capstone in real-world Lean applications. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: B

BUS-290 Employment Search and Workplace Success (1.00)
Provides students with an understanding of the job-seeking process including resumes and interviews. Credits: 1, Hours: (1/0/0/0), Arts & Sciences Elective Code: B

BUS-294 Business Administration Capstone (1.00)
Serves as a capstone for Business Administration majors. Students develop a leadership/employment portfolio to demonstrate achievement of program goals. Credits: 1, Hours: (1/0/0/0), Arts & Sciences Elective Code: B

BUS-924 Honors Project (1.00)
Allows a qualified honors student to pursue a special concentration of study under the guidance of a faculty member. Requires completion of an honors project contract. May be taken more than once. Credits: 1, Hours: (1/0/0/0), Arts & Sciences Elective Code: A; Comments: Requires approval of supervising professor and dean

BUS-928 Independent Study (1.00-3.00)
Provides readings, papers and basic research or other projects under the individual guidance of a...
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staff member. Credits: 1, Hours: (1/0/0/0), Arts & Sciences Elective Code: A; Comments: Permission of instructor, dean

**BUS-932 Internship (1.00-9.00)**
Provides an opportunity to receive experience through on-the-job training in an approved business establishment. Valuable learning experiences are structured by the program coordinator and the training sponsor. Credits: 1-9, Hours: (0/0/0/4-36), Arts & Sciences Elective Code: B

**BUS-949 Special Topics (1.00-3.00)**
Offers a learning experience in conjunction with a structured work situation. Instruction and readings relate to and supplement the particular job experience. Credits: 1-3, Hours: (0/0/0/4-12), Coreq: BUS-908; Arts & Sciences Elective Code: B

**CAD: Computer Aided Drafting**

**CAD-140 Parametric Solid Modeling I (3.00)**
Provides parametric 3-D solid modeling experience using industry-standard software. Covers modeling operations including creating extrusions, cuts, holes, sweeps, blends and revolutes. Basic operations for creating drawings and assemblies are also covered. The software platform utilized shall be Inventor. The curriculum allows for some self-paced work, but students are required to complete instructor led demonstrations and additional exercises outside the text. Credits: 3, Hours: (2/2/0/0), Prereq: CAD-300; Arts & Sciences Elective Code: B

**CAD-141 Parametric Solid Modeling II (3.00)**
Introduces the fundamentals of drafting, such as graphic language and vocabulary, orthographic projection, drawing layouts, section views, title blocks and dimensioning. Familiarizes students with the tools and techniques of the trade. Covers the basic concepts of creating engineering drawings that are submitted to be manufactured. Credits: 3, Hours: (2/2/0/0), Prereq: CSC-110; Arts & Sciences Elective Code: B

**CAD-147 Parametric Solid Modeling III (3.00)**
Extends the skills with ProE covered in PSMII. Focuses on ProE's sheet metal module and some of the other advanced features of the software useful to the design/manufacturing workplace. Covers advanced topics in modeling in assembly mode, PDM (Product Data Management), Sheet Metal modeling, Editing References, Mechanisms, 3-D drawing annotations, Behavioral Modeling, and Introductory FEA (Finite Element Analysis), as time allows. Credits: 3, Hours: (2/2/0/0), Prereq: CAD-141; Arts & Sciences Elective Code: B

**CAD-200 CAD SoftPlan (3.00)**
Introduces object based CAD programs and the process involved in generating a complete set of working drawings. Emphasizes drawing set up, file management, architectural information organization, attention to detail, converting sketches to CAD, modifying CAD drawings and applying problem-solving skills. Credits: 3, Hours: (3/0/0/0), Prereq: ARC-300 and CON-116, and either IND-155 or CSC-110; Arts & Sciences Elective Code: B

**CAD-201 Introduction to Building Information Modeling (3.00)**
Introduces a building information modeling CAD program and the process involved in generating a complete set of working drawings. Emphasizes drawing set up, file management, architectural information organization, attention to detail, converting sketches to CAD, modifying CAD drawings and applying problem-solving skills. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: B

**CAD-204 Architectural Documentation (6.00)**
Explores processes involved in generating a complete set of commercial working drawings. Focusses on correct computer usage, code research, blueprint redline and revision, and appropriate graphic representation. Emphasizes teamwork. Credits: 6, Hours: (4/4/0/0), Coreq: CAD-207; Arts & Sciences Elective Code: B

**CAD-206 Architectural Design Studio (6.00)**
Utilizes CAD to develop a set of working drawings for a commercial project located on the college campus. Focuses on correct computer usage, code research, blueprint redline and revision, and appropriate graphic representation. Emphasizes teamwork. Credits: 6, Hours: (4/4/0/0), Coreq: CAD-207; Arts & Sciences Elective Code: B

**CAD-212 Revit Customization (3.00)**
Provides instruction in customizing elements within the Revit program. Focuses on creating custom templates, schedules, system and component families. Credits: 3, Hours: (3/0/0/0), Prereq: CAD-201; Arts & Sciences Elective Code: B

**CAD-237 Geometric Dimensioning and Tolerancing (3.00)**
Introduces the special symbols used on mechanical drawings. Geometric dimensioning and tolerancing is a means of specifying engineering design and drawing requirements with respect to actual function and relationship of part features. It is a technique that ensures the most economical and effective production of these features for fabrication and inspection. Credits: 3, Hours: (3/0/0/0), Prereq: DRF-141, or both MFG-120 and MFG-130; Arts & Sciences Elective Code: B

**CAD-300 AutoCAD for Applied Engineering (2.00)**
Provides instruction in entry-level computer-aided design (CAD) skills. Covers basic commands, CAD hardware and applications, and complete 2-D drawings with AutoCAD. Requires keyboard familiarity. Allows for some self-paced work. Credits: 2, Hours: (1/2/0/0), Prereq: CSC-110; Arts & Sciences Elective Code: B; Comments: Drafting, mathematics or practical blueprint reading experience required

**CAD-301 Inventor for Applied Engineering (2.00)**
Provides parametric 3-D solid modeling experience using industry-standard software. Covers modeling operations including creating extrusions, cuts, holes, and revolutions. Basic operations for creating drawings and assemblies are also covered. The software platform utilized shall be Inventor. The curriculum allows for some self-paced work, but students are required to complete instructor led demonstrations and additional exercises outside the text. Credits: 2, Hours: (1/2/0/0), Prereq: CSC-110; Arts & Sciences Elective Code: B

**CAD-400 AutoCAD for Architecture (3.00)**
Provides instruction in two- and three-dimensional architectural CAD drawing creation and editing, program customization, CAD standards, file manipulation/transliteration, and library creation/usage. Discusses basic computer hardware, software and operating systems. Credits: 3, Hours: (3/0/0/0), Prereq: minimum C in CSC-110 or IND-155, minimum C in CON-116 or ARC-102; Arts & Sciences Elective Code: B

**CAD-924 Honors Project (1)**
Allows a qualified honors student to pursue a special concentration of study under the guidance of a faculty member. Requires completion of an honors project contract. May be taken more than once. Credits: 1, Hours: (1/0/0/0), Arts & Sciences Elective Code: A; Comments: Requires approval of supervising professor and dean

**CAD-928 Independent Study (1.00-3.00)**
Provides readings, papers and basic research or other projects under the individual guidance of a staff member. Credits: 1, Hours: (1/0/0/0), Arts & Sciences Elective Code: A; Comments: Permission of instructor, dean

**CHM: Chemistry**

**CHM-110 Introduction to Chemistry (3.00)**
Explores atoms, molecules, and how chemical reactions behave by practicing scientific measurements and using fundamental natural laws. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: A; Comments: The lab is optional.

**CHM-111 Introduction to Chemistry Lab (1.00)**
Accompanies CHM-110 as a laboratory. Credits: 1, Hours: (0/2/0/0), Coreq: CHM-110; Arts & Sciences Elective Code: A

**CHM-132 Introduction to Organic and Biochemistry (4.00)**
Introduces structure, nomenclature and reactions in organic chemistry as well as the study of life processes including carbohydrate, protein, lipid, nucleic acid metabolism and the interrelationships involved. Credits: 4, Hours: (3/2/0/0), Arts & Sciences Elective Code: A; Comments: Not required but highly recommended: CHM-110, CHM-165 or recent high school chemistry

**CHM-165 General Chemistry I (4.00)**
Studies the basic principles of inorganic chemistry with emphasis on such concepts as measurements and problem solving, chemical reactions and equations, stoichiometry, atomic structure and nuclear models, periodicity, chemical bonding, kinetic molecular theory and gas laws,
and the structure and properties of matter. Credits: 4; Hours: (3/2/0/0); Prereq: MAT-102, MAT-138 or MAT-708; Arts & Sciences Elective Code: A; Comments: CHM-110 or one year high school chemistry highly recommended

CHM-175 General Chemistry II (4.00)
Continues General Chemistry I. Studies colligative properties along with thermodynamics and kinetics, chemical equilibrium, electrochemistry, acids, bases and complex ions. Credits: 4; Hours: (3/2/0/0); Prereq: CHM-165; Arts & Sciences Elective Code: A

CHM-262 Organic Chemistry I (4.50)
Introduces the theory and practice of organic chemistry with emphasis on the chemistry of functional groups. Emphasizes nomenclature, stereoisomerism, chemical bonding, reaction mechanisms, the characterization of hydrocarbons, alkyl halides and alcohols. Teaches appropriate organic chemistry separation, isolation and synthetic techniques through laboratory experiments. Credits: 4.5; Hours: (3/3/0/0); Prereq: CHM-175; Arts & Sciences Elective Code: A

CHM-272 Organic Chemistry II (4.50)
Continues the study of ethylenes, aldehydes, ketones, carboxylic acids and their derivatives, amines and biologically important fats, proteins and carbohydrates. Stresses qualitative organic analysis and spectroscopic methods. Credits: 4.5; Hours: (3/3/0/0); Prereq: CHM-262; Arts & Sciences Elective Code: A

CHM-924 Honors Project (1.00)
Allows a qualified honors student to pursue a special concentration of study under the guidance of a faculty member. Requires completion of an honors project contract. Credits: 1; Hours: (1/0/0/0); Arts & Sciences Elective Code: A; Comments: Permission of instructor and dean.

CHM-928 Independent Study (1.00-1.50)
Provides readings, papers and basic research or other projects under the individual guidance of a staff member. Credits: 1-1.5; Hours: (0/2-3/0/0); Arts & Sciences Elective Code: A; Comments: Permission of instructor and dean.

CIS: Computer Information Systems

CIS-121 Introduction to Programming Logic (3.00)
Introduces students to basic computer programming ideas and foundational principles such as problem decomposition and step-wise refinement. Explores problem solving using well-developed programming logic derived with pseudo code, flow charts and related techniques. Focuses on translating student developed solutions into simple programs for testing using an instructor-selected, high-level programming or scripting language. Credits: 3; Hours: (2/2/0/0); Arts & Sciences Elective Code: B

CIS-128 Programming Concepts (3.00)
Introduces computer programming, including the technical aspects of designing and coding computer programs to accomplish business objectives, and how this technology fits into companies’ overall information systems needs. Explores application software development and explains basic programming logic structures, facilitating successful designing, coding and testing. Credits: 3; Hours: (2/2/0/0); Prereq: CSC-110; Arts & Sciences Elective Code: B

CIS-135 Microcomputer Operating Systems (3.00)
Introduces a variety of PC-based operating systems including DOS, Windows, UNIX and LINUX. Reviews the respective strengths of the operating environments, along with the approaches used in providing systems management and software development support capabilities. Credits: 3; Hours: (3/0/0/0); Arts & Sciences Elective Code: B

CIS-171 Java (3.00)
Introduces Java programming language with focus on syntax and the object-oriented model upon which it is based. Teaches how to code, test and debug simple Java applications, and includes creation of classes plus classes in the API. Demonstrates the concepts of encapsulation, inheritance, informationplementation hiding, state retention, messages, classes and polymorphism. Credits: 3; Hours: (2/2/0/0); Prereq: minimum C in CIS-121; Arts & Sciences Elective Code: B

CIS-175 Java II (3.00)
Continues Java. Covers advanced GUI, exception handling, multithreading, multimedia, files and streams, networking, and data structures. Credits: 3; Hours: (2/2/0/0); Prereq: MAT-102 or MAT-708, minimum C in CIS-171 or CIS-172 or CSC-142, and in CIS-335, CIS-307 or CIS-332; Arts & Sciences Elective Code: B

CIS-181 Java III (3.00)
Provides practical application of server-side Java development. Emphasizes meeting business needs through database integration, web and Internet services, servlets and Java server pages (JSP), Explores development of web interfaces for desktop and mobile devices. Credits: 3; Hours: (2/2/0/0); Prereq: CIS-175 or CIS-176; Arts & Sciences Elective Code: B

CIS-207 Fundamentals of Web Programming (3.00)
Presents hypertext markup language and cascading style sheets for encoding Web pages. Introduces Server Side Includes and simple JavaScript for enhancing them. Emphasizes a structured approach to page layout, coding and styling, exposing students to a variety of software tools. Credits: 3; Hours: (2/2/0/0); Arts & Sciences Elective Code: B

CIS-249 Web Languages (3.00)
Introduces concepts and methods for implementing advanced web languages used in web programming to produce dynamic websites. Focuses on the following languages: advanced HTML 5 and CSS3, JS Frameworks, SASS or LESS, and introduces Angular JS and jQuery techniques. Credits: 3; Hours: (2/2/0/0); Prereq: CIS-207; Arts & Sciences Elective Code: B

CIS-280 Client Side Scripting (3.00)
Offers in-depth practical Web client script programming. Emphasizes JavaScript and DOM scripting. Explores the use and modification of open-source scripts and script libraries. Credits: 3; Hours: (2/2/0/0); Prereq: CIS-207, and either CIS-121 or CIS-126 or CIS-128; Arts & Sciences Elective Code: B

CIS-290 Web Content and E-Commerce Systems (3.00)
Introduces the infrastructure, components and management tools necessary for a successful content-driven website that includes e-commerce solutions. Examines techniques for successful content driven and e-commerce Web sites. Explores a variety of open-source web platforms based on Apache/PHP/MySQL technology. Identifies how to deploy, configure and style these systems to meet a variety of business and client needs. Includes the basic concepts, tools and techniques of Web analytics, search engine optimization, payment systems, content management, security, and legal and privacy issues. Includes laboratory experiences with shopping cart, content management systems, tracking and analytics. Credits: 3; Hours: (2/2/0/0); Prereq: BCA-290, CIS-334, MKT-110; Arts & Sciences Elective Code: B

CIS-334 PHP/Apache/MySQL (3.00)
Introduces PHP, Apache and MySQL open source technologies used to create dynamic, database-driven Web applications. Students create MySQL databases and use server-side scripting language (PHP) to write applications that interact with the database through Apache Web server technology. Credits: 3; Hours: (2/2/0/0); Prereq: CIS-121 or CIS-126 or CIS-128, CIS-332 or CIS-335 or CIS-307; Arts & Sciences Elective Code: B

CIS-335 Relational Database Technologies & SQL (3.00)
Emphasizes basic concepts and principles of database systems. Introduces database systems and databases, normalization, table creation, and basic system and language support (SQL) for database systems. Focuses on data management and design inquiries to produce information for decision making, data analysis and integration with other software applications. Credits: 3; Hours: (2/2/0/0); Prereq: CIS-121 or CIS-128; Arts & Sciences Elective Code: B

CIS-342 PHP/Apache/MySQL II (3.00)
Continues instruction on PHP programming language for building Web-based structure. Focuses on the object-oriented method of the PHP programming language as students create reusable assets and modular systems for use on a Web site project. Emphasizes SQL query knowledge and application. Develops knowledge of Apache Web server management through work with a local Apache server. Credits: 3; Hours: (2/2/0/0); Prereq: CIS-334; Arts & Sciences Elective Code: B

CIS-353 Database Models and Design Strategies (3.00)
Provides realistic hands-on project experience, building on database skills learned to date. Applies strategies and methodologies for database design, implementation, and administration of a database using business rules, database security measure, database performance techniques, and database tuning methods per industry standards in a group setting. Credits: 3; Hours: (2/2/0/0); Prereq: CIS-121 or CIS-128, CIS-335; Arts & Sciences Elective Code: B
CIS-370 Fundamentals of 2D Visualizations and Games (3.00)
Introduces 2D casual game development using freely available programming libraries as well as handwritten code. Includes fundamental game concepts such as game loops, animation cycles, collision detection, user controls and scoring algorithms. Emphasizes learning and interactive simulations intended to blend entertainment with education-related goals. Credits: 3, Hours: (2/2/0), Prereq: minimum C- in CIS-121; Arts & Sciences Elective Code: B

CIS-371 Developing 3D Simulations and Games (3.00)
Introduces 3D simulations and game development with the Unity Game Engine and the C# programming language. Introduces asset and game editing tools along with the terminology associated with virtual 3D environments. Includes scripting actions, applying physics, multiplayer issues, and the use of animation and effects. Includes walkthrough simulation or training games intended to blend entertainment with business-related goals. Credits: 3, Hours: (2/2/0), Prereq: minimum C- in CIS-121; Arts & Sciences Elective Code: B

CIS-450 PLTW - Computer Science Principles (3.00)
Develops computational thinking, generates excitement for career paths utilizing computing, and introduces professional tools to foster creativity and collaboration. Develops programming expertise and explores the functionality of the Internet. Offers projects and problem solving associated with computing including application development, visualization of data, cybersecurity and simulation. Credits: 3, Hours: (1/4/0), Arts & Sciences Elective Code: B

CIS-504 Structured Systems Analysis (3.00)
Covers the foundational aspects of system analysis and design, and the role of the systems analyst in a business information systems environment. Teaches the tools, techniques and methodologies used to analyze and design information systems and produce technical solutions for companies' information technology needs. Credits: 3, Hours: (2/2/0), Prereq: minimum C- in CIS-332, CIS-335 or CIS-307, minimum C- in CIS-171, CIS-172 or CIS-622; Arts & Sciences Elective Code: B

CIS-622 .NET Development I (3.00)
Introduces the C# programming language and the Microsoft .NET architecture, the Visual Studio IDE and object-oriented programming with .NET. Emphasizes building stand-alone desktop projects with graphical user interfaces using WinForm components. Focuses on applying the principles of programming and problem solving within an object-based design and event-driven paradigm. Includes interface design, using common libraries and features of the C# common language runtime. Credits: 3, Hours: (2/2/0), Prereq: minimum C- in CIS-121; Arts & Sciences Elective Code: B

CIS-624 .NET Development II (3.00)
Extends students' knowledge of the C# programming language and the Microsoft .NET and related tools. Emphasizes the use of SQL and ADO.NET for the creation of stand-alone and distributed database applications to solve common business problems. Covers issues related to tier-design, network communications, error handling and the production of flexible database reports. Credits: 3, Hours: (2/2/0), Prereq: minimum C- in CIS-622, and in either CIS-335, CIS-332 or CIS-307; Arts & Sciences Elective Code: B

CIS-626 .NET Development III (3.00)
Provides a practical introduction to Internet programming with the C# programming language and the Microsoft .NET MVC framework. Emphasizes development of websites and web services with ASP.NET and related tools. Focuses on creating multi-tier business web applications. Includes basic ASP.NET web controls and script integration, along with server-side issues such as authentication, state management and database connectivity. Credits: 3, Hours: (2/2/0), Prereq: minimum C- in CIS-624; Arts & Sciences Elective Code: B

CIS-802 Software Development Capstone (3.00)
Requires application of knowledge gained from programming design and systems analysis classes in the analysis, design, scheduling and implementation of a complete systems development effort. This course should be taken in the student's final semester. Credits: 3, Hours: (2/2/0), Prereq: minimum C- in CIS-504 and CIS-624; Arts & Sciences Elective Code: B

CIS-924 Honors Project (1.00)
Allows a qualified honors student to pursue a special concentration of study under the guidance of a faculty member. Requires completion of an honors project contract. May be taken more than once. Credits: 1, Hours: (1/0/0), Arts & Sciences Elective Code: A; Comments: Requires approval of supervising professor and dean

CLS: Cultural Studies

CLS-125 Language and Society (3.00)
Introduces basic sociolinguistic principles. Practices methods for discovering and describing socially significant language behavior. Explores correlations between social and linguistic behavior. Analyzes the educational and political implications of sociolinguistic findings. Credits: 3, Hours: (3/0/0), Arts & Sciences Elective Code: A

CLS-140 Understanding Cultures: The Mideast (3.00)
Examines in a cross-cultural context the politics, economics, history, ethnic groups, religions and cultures of the Mideast from Morocco to Afghanist an and Pakistan. Includes study of all aspects of the Arab/Israeli conflict. Students also acquire an understanding of nationalism, tribalism and energy issues in a global context. Credits: 3, Hours: (3/0/0), Arts & Sciences Elective Code: A

CLS-151 Understanding Cultures: Latin America (3.00)
Examines human spatial and cultural behavior in Latin America by exploring political, economic, religious and social institutions. Theoretical readings are balanced with case studies to enable students to explore theoretical perspectives in a cross-cultural context. Credits: 3, Hours: (3/0/0), Arts & Sciences Elective Code: A

CLS-159 Understanding Cultures: Indigenous Central America (3.00)
Explores the ethnographic, political, economic and historical contexts of contemporary indigenous life in Central America, with particular emphasis on the indigenous people of Guatemala and Mexico. While contemporary culture is the main focus of the course, students also explore the themes of continuity and change from pre-Hispanic times to the present. Credits: 3, Hours: (3/0/0), Arts & Sciences Elective Code: A

CLS-165 Understanding Cultures: Modern Japan (3.00)
Begins with a survey of Japanese history and culture to the Meiji Restoration of 1868. Emphasis is on the borrowing and blending of Chinese culture with Japanese culture, dating back to the Tang dynasty in China. Students focus on the Japanese adaptation to the challenges of modernization, with emphasis on accommodating industry and modern systems of government within a traditional Japanese cultural system. Issues include the relationship with China, World War II and the economic expansion of Japan from 1945 to the present. Credits: 3, Hours: (3/0/0), Arts & Sciences Elective Code: A

CLS-167 Understanding Cultures: Modern China (3.00)
Focuses on the 19th and 20th centuries, a period of confusion, violence and chaos, during which China has undergone a dramatic revolution. Compares how ancient China struggled to adopt the most useful practices of the western enlightenment while keeping its unique identity. Explores this struggle by examining geography, philosophy of Confucianism, and religious and political practices. Credits: 3, Hours: (3/0/0), Arts & Sciences Elective Code: A

CLS-171 Understanding Cultures: Sub-Saharan Africa (3.00)
Examines the geography, history, economics, social relations, health issues, urbanization, religion and literature of Sub-Saharan Africa. Considers the development of Africa prior to colonization, the impact of colonization, issues facing Africans since independence, and contemporary challenges and opportunities. Credits: 3, Hours: (3/0/0), Arts & Sciences Elective Code: A

CLS-180 American Pluralism (3.00)
Examines the pluralistic nature of American communities through a critical analysis of the history, literature and culture of one or more of the following cultural groups: African Americans, Asian Americans, European Americans, Hispanic Americans or Native Americans. Credits: 3, Hours: (3/0/0), Arts & Sciences Elective Code: A

CLS-192 Communication and Culture (3.00)
Examines the implications and impacts of various communication media, especially modern ones, on human culture and society. Using tools of historical and cultural studies, as well as the interpretive methods of the humanities, students will explore, for example, how new communication media affect interpersonal relations, self concept, democracy, experiences of space/time and human creativity. Credits: 3, Hours: (3/0/0), Arts & Sciences Elective Code: A
CLS-924 Honors Project (1.00)
Allows a qualified honors student to pursue a special concentration of study under the guidance of a faculty member. Requires completion of an honors project learning contract. Credits: 1; Hours: (1/0/0/0), Arts & Sciences Elective Code: A; Comments: Requires approval of supervising professor and dean

COM: Communication
COM-222 Communication for Health Care Professionals (3.00)
Introduces the theories and skills used to analyze and understand communication variables affecting human relationships, such as personal perception, feedback, idea development and non-verbal cues. Builds competencies and skills relevant to various interpersonal contexts within health care settings. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: B

COM-273 Construction Project (3.00)
Focuses on teamwork and leadership by rotating students through being team members and crew leaders in building a construction project. Emphasizes productivity and supervisory tasks. Credits: 3, Hours: (0/6/0/0), Arts & Sciences Elective Code: B

COM-279 Pre-Construction Services (3.00)
Provides skills and knowledge in the coordination of organizing, planning, controlling and monitoring resources, procedures and protocols related to the contractual objectives of construction projects. Explores competitive bidding strategies and infuses Building Information Modeling (BIM). Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: B

CON: Construction
CON-101 Architectural Plans and Specs (3.00)
Introduces the skills and methods for understanding and interpreting construction drawings and technical specifications for residential and commercial buildings. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: B

CON-116 Architectural Plans and Specs (2.00)
Introduces the skills and methods for understanding and interpreting construction drawings and technical specifications for residential and commercial buildings. Credits: 2, Hours: (1/2/0/0), Arts & Sciences Elective Code: B

CON-134 Surveying and Site Layout (2.00)
Provides class and laboratory activities to gain knowledge in the use of conventional and laser instruments, building site layout, site investigation, leveling, topographic maps and route surveying. Credits: 2, Hours: (1/2/0/0), Arts & Sciences Elective Code: B

CON-190 Construction Lab (3.00)
Provides introductory construction lab experience in a project-based environment that emphasizes teamwork, communication, productivity and the soft skills required for success in the construction industry. Students are introduced to hand and power tools commonly used in construction, along with basic residential and commercial construction systems and construction safety. Construction systems may include foundation systems, floor systems, wall systems, roof systems, exterior finishes and interior finishes. Credits: 3, Hours: (2/2/0/0), Arts & Sciences Elective Code: B

CON-237 Construction Project (3.00)
Focuses on teamwork and leadership by rotating students through being team members and crew leaders in building a construction project. Emphasizes productivity and supervisory tasks. Credits: 3, Hours: (0/6/0/0), Arts & Sciences Elective Code: B

CON-239 Construction Project (3.00)
Focuses on teamwork and leadership by rotating students through being team members and crew leaders in building a construction project. Emphasizes productivity and supervisory tasks. Credits: 3, Hours: (0/6/0/0), Arts & Sciences Elective Code: B

CON-257 Pre-Construction Services (3.00)
Provides skills and knowledge in the coordination of organizing, planning, controlling and monitoring resources, procedures and protocols related to the contractual objectives of construction projects. Explores competitive bidding strategies and infuses Building Information Modeling (BIM). Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: B

CON-272 Commercial Construction (3.00)
Provides introductory lab experience in tool and equipment use, and basic commercial construction procedures. Focuses on safety and foundational elements in a variety of systems. Hands-on lab activities include foundations, floor and wall systems, concrete, masonry, plumbing, HVAC and electrical. Credits: 3, Hours: (2/2/0/0), Arts & Sciences Elective Code: B

CON-273 Carpentry Lab I (6.00)
Introduces the tools and terminology used in basic framing and gives students hands-on framing instruction. Focuses on frame walls, windows, doors and other standard structures. Emphasizes correct materials and methods. Credits: 6, Hours: (3/6/0/0), Arts & Sciences Elective Code: B

CON-274 Carpentry Lab II (8.00)
Continues Carpentry Lab I. Explores the uses of modern construction materials, correct tool usage, accuracy and techniques in a hands-on lab. Continues strengthening basic carpentry skills, then expands to incorporate layout, framing, concrete form building, complex roof structures, stair building, metal stud framing and basic interior trim. Credits: 8, Hours: (4/8/0/0), Prereq: CON-273; Arts & Sciences Elective Code: B

CON-311 Building Construction Systems I (3.00)
Introduces the materials, methods and terminology used in modern construction. Focuses on general knowledge in a broad range of systems and the coordination requirements between those systems. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: B; Comments: A classroom-based discussion course that includes field trips to construction sites

CON-312 Building Construction Systems II - Carpentry (2.00)
Continues the study of materials, methods and terminology used in modern construction. Focuses especially on mechanical, electrical, and plumbing systems and their coordination with other systems. Also studies the use of charts and tables to evaluate system requirements. Credits: 2, Hours: (2/0/0/0), Prereq: CON-311; Arts & Sciences Elective Code: B

CON-313 Structures and Mechanical/Electrical/Plumbing Systems (3.00)
Continues the study of materials, methods and terminology used in modern construction. Focuses on mechanical, electrical and plumbing systems, and their coordination with other systems. Includes the use of charts and tables to evaluate system requirements. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: B

CON-316 Sustainable Construction Science (3.00)
Provides an understanding of building science theory and applications in residential and commercial construction. Discusses sustainable design issues such as climate, environment, durability, air and moisture transfer. Applies knowledge to traditional building methods as well as newer technologies of construction. Develops knowledge and resources beneficial to future certifications in LEED, Energy Star and many others. Credits: 3, Hours: (1/0/0/0), Arts & Sciences Elective Code: B

CON-321 Residential Estimating (2.00)
Introduces the basic principles and skills necessary to develop estimates for residential projects. Concentrates on calculating material and labor quantities. Introduces techniques for pricing. Credits: 2, Hours: (1/2/0/0), Arts & Sciences Elective Code: B

CON-322 Estimating for Construction and Architecture (3.00)
Introduces the basic principles and skills necessary to develop estimates for residential projects. Concentrates on calculating material and labor quantities. Introduces techniques for pricing. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: B

CON-324 Advanced Construction Estimating (3.00)
Introduces the basic principles and skills needed to develop a complete estimate for commercial construction projects through the use of spreadsheets and interactive estimating software. Credits: 3, Hours: (3/0/0/0), Prereq: CON-322; Arts & Sciences Elective Code: B
CON-328 Construction Documentation (3.00)
Introduces construction law and construction contract documents and their legal consequenc-
es on the owner, contractor, A/E and subcon-
tractor with an emphasis on the AIA documents.
Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: B

CON-330 Construction Capstone (3.00)
Includes preparation of a detailed estimate and development of a project up to the first day of
construction. Offers certification in Project Super-
vision by the National Center for Construction
Education and Research for successful comple-
tion of third party standardized tests. Credits:
3, Hours: (2/2/0/0), Coreq: CON-324, MGT-101,
MGT-130; Arts & Sciences Elective Code: B

CON-335 Construction Planning and Scheduling
(2.00)
Covers class and laboratory activities to control
the flow of materials, manpower and equipment
on a construction project, with a major emphasis
on CPM schedule preparation and monitoring.
Credits: 2, Hours: (2/0/0/0), Arts & Sciences
Elective Code: B; Comments: All first-year courses
or permission of instructor

CON-400 Construction Services, Project
Close-Out and Commissioning (3.00)
Introduces the functions of project management
in the construction industry. Studies the defining,
planning, executing and closing phases of a pro-
ject. Focuses on teamwork, leadership and prob-
lem solving. Credits: 3, Hours: (3/0/0/0), Arts &
Sciences Elective Code: B

CON-410 Architectural Modeling (3.00)
Introduces construction concepts through com-
puterized model building. Explores various wall
systems and the phases of the construction pro-
cess. Credits: 3, Hours: (3/0/0/0), Arts & Sci-
ences Elective Code: B

CON-924 Honors Project (1.00)
Allows a qualified honors student to pursue a
special concentration of study under the guid-
ance of a faculty member. Requires completion of
an honors project contract. May be taken more
than once. Credits: 1, Hours: (1/0/0/0), Arts &
Sciences Elective Code: A; Comments: Requires
approval of supervising professor and dean

CON-928 Independent Study (1.00-3.00)
Provides readings, papers and basic research or
other projects under the individual guidance of a
faculty member. Credits: 1, Hours: (1/0/0/0), Arts &
Sciences Elective Code: A; Comments: Permis-
sion of instructor, dean

CON-932 Internship (1.00-6.00)
Provides full-time work in an approved, construc-
tion-related position that includes instructor visit-
ations/evaluations and employer evaluations of
performance. Students gain experience in plan-
ning and production monitoring. Credits: 1-6,
Hours: (0/0/0/4), Arts & Sciences Elective Code:
B; Comments: All first-year courses or permission
of instructor

CRJ: Criminal Justice

CRJ-100 Introduction to Criminal Justice (3.00)
Provides an overview of the American criminal
justice system and examines the process of jus-
tice administration through the agencies of law
enforcement, courts and corrections. Credits:
3, Hours: (3/0/0/0), Arts & Sciences Elective Code:
A

CRJ-101 Ethics in Criminal Justice (3.00)
Examines the ethical considerations facing the
criminal justice practitioner. Includes determin-
ing moral behavior, developing moral and ethical
behavior, ethics and law enforcement, ethics and
the courts, ethics and corrections, policy and
management issues, professionalism, pride and
ethics for practitioners. Credits: 3, Hours:
(3/0/0/0), Prereq: CRJ-100; Arts & Sciences
Elective Code: A

CRJ-111 Police and Society (3.00)
Examines police as part of society's official con-
trol apparatus. A theory-based course which uti-
lizes a multiple causation model to explain police
issues, integrating six core elements: history, role,
socialization, culture, function and experience.
Students study police history, police role and
organization, the making of a police officer, police
behavior, stress, the delivery of effective police
services and the future of law enforcement. Cred-
its: 3, Hours: (3/0/0/0), Prereq: CRJ-100; Arts &
Sciences Elective Code: A

CRJ-120 Introduction to Corrections (3.00)
Examines the history, theories and practices of penal institutions, both adult and juvenile. Addi-
tionally explores penal reform in relation to vari-
ous objectives of modern penology. Credits: 3,
Hours: (3/0/0/0), Prereq: CRJ-100; Arts & Sci-
ences Elective Code: A

CRJ-130 Criminal Law (3.00)
Reviews the historical development of criminal
law and the resulting philosophy of law that has
developed. The law-making process, with the
societal and political influences, is examined and
discussed. Comparisons of common law with
contemporary law are analyzed in an attempt to
determine what impact historical events and
societal changes have had in bringing about
change. Credits: 3, Hours: (3/0/0/0), Prereq:
CRJ-100; Arts & Sciences Elective Code: A

CRJ-133 Constitutional Criminal Procedure
(3.00)
Studies the development of fundamental princi-
ples in constitutional law, integrating a
case-by-case study of United States Supreme
Court decisions and a broad examination of the
judicial legal processes. Coverage includes the
nature of judicial review, powers of the Supreme
Court, president, Congress and federalism. Cred-
its: 3, Hours: (3/0/0/0), Prereq: CRJ-100; Arts &
Sciences Elective Code: A

CRJ-136 Correctional Law (3.00)
Explores current statutory and case law pertinent
to correctional concepts, facilities and related
topics. Examines major legal issues: incapacita-
tion, probation, parole, restitution, pardon, resto-
ration of rights and related topics. Students iden-
tify and discuss legal issues which directly affect
correctional systems and personnel. Credits: 3,
Hours: (3/0/0/0), Prereq: CRJ-100; Arts & Sci-
ences Elective Code: A

CRJ-141 Criminal Investigation (3.00)
Presents the basic principles of investigation,
both public and private, including: examination
of the scene, collecting physical evidence, interro-
gations and interviews, sketching a scene, report
writing, and basic photography. Special methods
of investigating certain crimes are explored, and
the function of the crime laboratory discussed.
Credits: 3, Hours: (3/0/0/0), Prereq: CRJ-100;
Arts & Sciences Elective Code: A

CRJ-200 Criminology (3.00)
Surveys the nature, causes and extent of crime
and delinquency; major consideration is given to
various explanations from numerous disciplines.
Credits: 3, Hours: (3/0/0/0), Prereq: SOC-110 or
SOC-115; Arts & Sciences Elective Code: A

CRJ-201 Juvenile Delinquency (3.00)
Analyzes the various components of delinquency:
home, school, peer group and community struc-
ture. Explores the role of therapeutic and deten-
tion centers and the juvenile court, as well as
approaches to prevention and treatment. Credits:
3, Hours: (3/0/0/0), Prereq: SOC-110 or
SOC-115; Arts & Sciences Elective Code: A

CRJ-202 Cultural Awareness for Criminal
Justice Practitioners (3.00)
Expands the student's awareness of both cogni-
tive knowledge and skills necessary to interact
effectively with and serve culturally diverse pop-
ulations. Emphasizes attitudes, competencies,
and behavioral issues in interracial and cross-cultural contexts between criminal justice
practitioners and a diverse citizenry. Sociological
frameworks allow for examination of diversity
with respect to race, ethnicity, gender, sexual
orientation, poverty, religion, age, disability and
language minorities. Credits: 3, Hours: (3/0/0/0),
Prereq: CRJ-100, SOC-110; Arts & Sciences Elec-
tive Code: A

CRJ-220 Community-Based Corrections (3.00)
Studies the principles and practice of corrections
as applied in the community setting. Includes
examination of theories of corrections that apply
to the correctional practices of parole and proba-
tion. Also explores alternative treatment pro-
grams utilized in community halfway houses,
alternative jails and outpatient facilities. Credits:
3, Hours: (3/0/0/0), Prereq: CRJ-100; Arts & Sci-
ences Elective Code: A

CRJ-222 Correctional Treatment Methods
(3.00)
Examines the history, evolution and development
of correctional treatment in the United States and
presents an overview of the strategies and vari-
ous protocols that are used in the rehabilitation
and counseling of juvenile and adult criminal
offenders who are incarcerated, or assigned to
residential facilities through judicial referrals.
Institutional and non-institutional programs are
reviewed and treatment models discussed. Cred-
its: 3, Hours: (3/0/0/0), Prereq: CRJ-120; Arts &
Sciences Elective Code: A

CRJ-232 Community-Oriented Policing and
Problem Solving (3.00)
Utilizes community-oriented policing philosophy
and problem-oriented policing methods. Empha-
sizes active research into crime patterns, to explain them in terms of environmental influences and develop strategies to prevent and/or control crime problems. Credits: 3, Hours: (3/0/0/0), Prereq: CRJ-100; Arts & Sciences Elective Code: A

CRR-924 Honors Project (1.00)  
Allows a qualified honors student to pursue a special concentration of study under the guidance of a faculty member. Requires completion of an honors project contract. Credits: 1, Hours: (1/0/0/0), Arts & Sciences Elective Code: A; Comments: Requires approval of supervising professor and dean

CRR-928 Independent Study (1.00)  
Provides readings, papers and basic research or other projects under the individual guidance of a staff member. Credits: 1, Hours: (1/0/0/0), Arts & Sciences Elective Code: A

CRI-932 Internship (1.00-6.00)  
Provides placement in a criminal justice agency in a student capacity. Work experience in an agency under supervision of professionals in the field permits students to learn what career opportunities are offered. Credits: 1, Hours: (0/0/3/0), Prereq: CRJ-100; Arts & Sciences Elective Code: A

CRR: Collision Repair/Refinishing

CRR-121 Introduction to Metalworking & Refinishing I (3.00)  
Provides the beginning technician with an introduction to the collision repair industry. Introduces the student technician to shop, personal and environmental safety, and health issues related to automotive collision repair. Establishes procedures and techniques used in metalworking and refinishing, as well as shop equipment, hand and power tool usage. Credits: 3, Hours: (1/4/0/0), Arts & Sciences Elective Code: B

CRR-122 Introduction to Metalworking & Refinishing II (3.00)  
Continues concepts learned in Introduction to Metalworking and Refinishing I. Covers metal straightening theory and procedures, body fillers and applications, surface preparation, application of undercoat and topcoat refinishing materials, and accessing vehicle specific information. Credits: 3, Hours: (1/4/0/0), Prereq: CRR-121; Arts & Sciences Elective Code: B

CRR-342 Metalworking II (4.00)  
Expands on previous material covered in Metalworking and Refinishing I. Reviews prior knowledge and procedures and emphasizes recycled part use, servicing movable and stationary glass and hardware, and noise vibration and harshness (NVH) materials. Introduces restraint systems, and identifying and servicing simple electrical system components. Knowledge will be applied to repairing various projects and live vehicles. Credits: 4, Hours: (0.5/7/0/0), Prereq: CRR-820; Arts & Sciences Elective Code: B

CRR-344 Metalworking III (4.00)  
Expands previous material covered in Metalworking and Refinishing I, and Metalworking II. Emphasizes diagnosing and documenting vehicle structural damage. Establishes use of frame straightening equipment to restore vehicle dimensions. Introduces structural measuring, advanced high strength steels used in unitized structures, and replacing weld-on cosmetic and structural panels on various projects and live vehicles. Encourages students to improve speed and quality of repairs. Credits: 4, Hours: (1/6/0/0), Prereq: CRR-342; Arts & Sciences Elective Code: B

CRR-545 Body Straightening and Painting (7.00)  
Introduces vehicle damage estimating and typical mechanical concerns related to repairing collision damage. Emphasizes increased work quality and speed in the lab setting, working on vehicle projects. Focusses on repairing minor vehicle damage from start to finish with minimal input from instructors. Provides practical application with an emphasis on industry standards of appearance, completion of work on time schedules, and material costs. Fine-tunes previously taught skills and sequences a repair plan while improving speed and work efficiency on a production basis. Students are given an opportunity to complete a project of their choice not to exceed two weeks in duration. Credits: 7, Hours: (1/12/0/0), Prereq: CRR-344; Arts & Sciences Elective Code: B

CRR-820 Metalworking and Refinishing Practices (3.00)  
Reviews knowledge gained in Intro to Metalworking & Refinishing I and II to various projects. Emphasizes using proper welding equipment and techniques, metal straightening theory, and re-storing sheet metal upset. Focuses on selecting and applying the proper types of fillers, undercoat and topcoat materials. Covers surface preparation and refinishing applications, paint application problems, and finish defects and cures. Credits: 3, Hours: (1/4/0/0), Arts & Sciences Elective Code: B

CRR-830 Metalworking and Refinishing I (3.00)  
Expands on previous material covered in Intro to Metalworking and Refinishing I and II, and Metalworking and Refinishing Practices. Reviews knowledge and procedures already learned with an emphasis on identifying vehicle clips, and fasteners, interior trim components and exterior bolt-on panel removal, and replacement and alignment procedures. Introduces plastic and composite repair and adhesive bonding. Demonstrates advanced masking and blendable paint match techniques. Emphasizes refinishing equipment maintenance. Applies knowledge to repairing of various components and live vehicles. Credits: 3, Hours: (1/4/0/0), Arts & Sciences Elective Code: B

CRR-833 Refinishing II (3.00)  
Expands on previous material covered in Metalworking and Refinishing I. Emphasizes identifying and preparing plastic panels for refinishing, re-pairing and refinishing fiberglass surfaces, and mixing and applying flexible refinishing materials. Introduces corrosion resistant material restoration, vehicle final detailing, and application of decals, appliqués and stripes. Credits: 3, Hours: (0.5/5/0/0), Prereq: CRR-830; Arts & Sciences Elective Code: B

CRR-837 Refinishing III (3.00)  
Expands on previous material covered in Metalworking and Refinishing I, and Refinishing II. Emphasizes diagnosing and documenting vehicle finish damage. Introduces color theory, adjusting color, tinting and blending coatings, application of tri-stage paint systems, Waterborne paint systems, and mixing and application of custom finishes. Credits: 3, Hours: (1/4/0/0), Prereq: CRR-833; Arts & Sciences Elective Code: B

CSC: Computer Science

CSC-110 Introduction to Computers (3.00)  
Familiarizes the student with business, personal and industrial uses of microcomputers. Broad-based overview of microcomputer topics is presented; concepts of storage media, file organization and data representation are also presented. The fundamentals of computer problem solving and programming are discussed. Credits: 3, Hours: (2/2/0/0), Arts & Sciences Elective Code: A

CSC-142 Computer Science (4.00)  
Introduces computer programming including data types, expressions, input/output, control structures, functional and object-oriented programming, and simple data structures. Emphasizes problem-solving skills through program refinement, documentation and programming style. Credits: 4, Hours: (4/0/0/0), Prereq: MAT-102 or MAT-708; Arts & Sciences Elective Code: A

CSC-153 Data Structures (4.00)  
Continues the study of program design and construction begun in CSC-142. Emphasizes data structures and practice in their specification, design, implementation and use. Includes container classes, arrays, lists, stacks, queues, trees, graphs, algorithm analysis, object-oriented programming, data abstraction, and searching and sorting techniques. Credits: 4, Hours: (4/0/0/0), Prereq: CSC-142 or CIS-175 or CIS-176; Arts & Sciences Elective Code: A

CSC-160 Software Design and Development (4.00)  
Builds on the foundation of basic programming skills acquired in CSC-142. Emphasizes the design and development of software systems. Includes user interface programming, graphics and multimedia, networking and concurrency. Provides experience developing software over an extended time period through long term projects. Credits: 4, Hours: (4/0/0/0), Prereq: CSC-142; Arts & Sciences Elective Code: A

CSC-175 Computer Organization and Assembly Language Programming (4.00)  
Emphasizes the organization and operation of computer systems at the assembly-language level. Covers mapping of statements and constructs in a high-level language onto sequences of machine instructions, as well as the internal representation of simple data types and structures. Offers programming practice with an assembly language to provide practical application of concepts presented in class. Credits: 4, Hours: (4/0/0/0), Prereq: CSC-142; Arts & Sciences Elective Code: A

CSC-924 Honors Project (1.00)  
Allows qualified honors student to pursue a special concentration of study under the guidance of a faculty member. Requires completion of an honors project contract. Credits: 1, Hours:
DEA: Dental Assistant

DEA-285 Oral Pathology for Dental Assisting (1.00)
Introduces the general principles of pathology. Emphasizes the specifics of disease entities of local and systemic origin to enable interpretation by the dental auxiliary of the medical and dental history with emphasis on specifics of oral pathology. Focuses on terminology, with descriptions of oral lesions and their treatment. Credits: 1, Hours: (1/0/0/0), Prereq: DEN-120; Coreq: DEN-130; Arts & Sciences Elective Code: B

DEA-403 Dental Materials (3.00)
Introduces students to materials utilized in the dental field. Includes handling and preparation of specific materials. Prepares students for clinical procedures. Combines the science of the basic dental materials with manipulative practice. Credits: 3, Hours: (1.5/3/0/0), Arts & Sciences Elective Code: B

DEA-517 Dental Assisting I (3.50)
Learn basic principles of dental assisting including fundamental chair-side concepts and techniques, team delivery systems, and intra-oral skills. Credits: 3.5, Hours: (2/3/0/0), Arts & Sciences Elective Code: B

DEA-518 Dental Assisting II (1.50)
Learn principles of dental assisting with focus on intra-oral skill obtainment, sterilization processes and pharmacology. Credits: 1.5, Hours: (1/1/0/0), Prereq: DEA-517; Arts & Sciences Elective Code: B

DEA-519 Dental Assisting III (1.50)
Learn principles of dental assisting with a focus on expanded functions, occlusal registrations, gingival retraction, final impressions, temporary restorations, cavity liners, bases, desensitizing agents and bonding. Credits: 1.5, Hours: (0.5/2/0/0), Prereq: DEA-518, DEN-120, DEN-130; Arts & Sciences Elective Code: B

DEA-580 Dental Assisting Clinic I (4.00)
Acquire technical skills from clinical experiences by applying theoretical concepts in general and specialty dentistry areas at the University of Iowa College of Dentistry, Veterans Medical Center in Iowa City, and in private dental office settings. Credits: 4, Hours: (0.5/0/10.5/0), Prereq: DEA-403, DEA-517, DEN-100, DEN-110, DEN-120, HSC-107, HSC-210; Coreq: DEN-200; Arts & Sciences Elective Code: B

DEA-581 Dental Assisting Clinic II (4.50)
Requires students to comprehensively apply the skills of dental assisting in the private dental office setting. Credits: 4.5, Hours: (1/0/10.5/0), Prereq: DEN-200; Coreq: DEA-580; Arts & Sciences Elective Code: B

DEA-610 Specialty Dentistry (4.50)
Presents the specialty areas of dentistry including: endodontics, periodontics, orthodontics, oral surgery, pediatric dentistry and geriatric dentistry. Includes procedures, instruments and current concepts for assisting in these areas. Includes expanded functions: dry socket medicaton, periodontal dressings and pulp vitality testing. Also includes psychological considerations in dentistry. Credits: 4.5, Hours: (4/1/0/0), Prereq: DEA-517, DEN-100, DEN-110, DEN-120; Arts & Sciences Elective Code: B

DEA-701 Dental Office Procedures (1.00)
Introduces dental office related functions, including computer operations, telephone, recall systems, reserves, insurance, supply inventory, filing, record keeping, financial arrangements, patient accounts, credit and collection, banking, salaries, tax forms, patient correspondence, jurisprudence and ethical conduct. Credits: 1, Hours: (1/0/0/0), Prereq: DEN-100, DEN-120; Arts & Sciences Elective Code: B

DEA-924 Honors Project (1)
Allows a qualified honors student to pursue a special concentration of study under the guidance of a faculty member. Requires completion of an honors project contract. May be taken more than once. Credits: 1, Hours: (1/0/0/0), Arts & Sciences Elective Code: A; Comments: Requires approval of supervising professor and dean

DEN: Dental

DEN-100 Fundamentals of Dentistry (3.50)
Provides the foundations of knowledge necessary to begin a study in the dental field. Introduction to instrumentation, dental specialties and special needs patients are discussed. Introductory oral hygiene instruction and basic radiography are provided. Credits: 3.5, Hours: (2/3/0/0), Arts & Sciences Elective Code: B

DEN-110 Dental Terminology (2.00)
Enlists a comprehensive study of dental terminology for dental program preparation, career entry or review. Explains the composition of dental terms by exploring prefix, root combination and specific materials. Prepares students for clinical procedures. Credits: 2, Hours: (2/0/0/0), Prereq: Arts & Sciences Elective Code: B

DEN-120 Dental Anatomy (3.00)
Introduces students to basics of embryology, histology, terms and anatomy of the oral cavity including a detailed study of crown and root morphology of both primary and permanent dentition. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: B

DEN-130 Head and Neck Anatomy (1.50)
Utilizes a systems approach to the gross anatomy of the head and neck with emphasis on the maxilla, mandible, oral tissues, neuromuscular and circulatory function, supporting structures and the temporomandibular joint. Credits: 1.5, Hours: (1.5/0/0/0), Arts & Sciences Elective Code: B

DEN-200 Preventive Dentistry (2.00)
Provides an introduction to dental disease, the causes and methods for prevention. An intense focus on dental caries and preliminary information on periodontal disease. Students learn to utilize patient assessment techniques and provide oral health information. Credits: 2, Hours: (1.5/1/0/0), Arts & Sciences Elective Code: B

DEN-220 Dental Nutrition (1.00)
Studies the role of diet upon oral structures and application of the role of dietary analysis to the treatment plan of a dental patient. Emphasizes analysis of the complete diet and preventive recommendations. Credits: 1, Hours: (1/0/0/0), Prereq: DEN-120 and either DEN-110 or BIO-168; Arts & Sciences Elective Code: B

DEN-300 Dental Radiography (3.00)
Teaches principles and techniques of dental radiography. Offers practical experience on manikins and selected patients. Credits: 3, Hours: (2/2/0/0), Prereq: DEN-100, and either DEN-110 or BIO-168; Coreq: DEN-200; Arts & Sciences Elective Code: B

DHY: Dental Hygiene

DHY-134 Therapeutics and Pain Control (2.00)
Provides students with knowledge of chemotherapy used in dentistry and the mechanisms of drugs in the body. Students are then able to understand manifestations of drug administration in dental treatment. Credits: 2, Hours: (2/0/0/0), Prereq: DHY-285; Arts & Sciences Elective Code: B

DHY-140 General and Oral Pathology (2.00)
Introduces general principles of pathology for dental hygienists with emphasis on specifics of oral pathology. Builds upon and applies biomedical science knowledge to the diagnosis and treatment of oral and maxillofacial diseases. Focuses on terminology. Credits: 2, Hours: (2/0/0/0), Prereq: DEN-120, DEN-130; Coreq: DHY-300, DHY-186; Arts & Sciences Elective Code: B

DHY-173 Dental Hygiene I (4.00)
Provides an introduction to the clinical portion of the dental profession. Emphasis is on skills necessary for preliminary patient care including health histories, basic instrumentation, and legal and ethical issues. Manikins and patient practice are utilized. Credits: 4, Hours: (2/0/6/0), Arts & Sciences Elective Code: B

DHY-186 Dental Hygiene II (4.00)
Provides experience in the application of dental hygiene techniques on a variety of patients in a clinical setting. Clinical experience includes oral prophylaxis, fluoride therapy and oral physiotherapy. Didactic training encompasses new clinical skills, assessment, treatment planning and effective communication skills. Credits: 4, Hours: (2/0/6/0), Prereq: DHY-173; Arts & Sciences Elective Code: B

DHY-211 Periodontology (2.00)
Introduction to the aspects of periodontal disease, the disease process and management of periodontal patients. Emphasis is placed on periodontal instrumentation techniques and surgery as performed by the dentist. Credits: 2, Hours: (2/0/0/0), Prereq: DEN-120, DEN-200; Arts & Sciences Elective Code: B

DHY-220 Dental Materials (1.00)
Introduces students to materials utilized in the dental field. Includes handling and preparation of specific materials. Prepares students for clinical procedures to be performed on patients. Credits:
1, Hours: (5/1/0/0), Prereq: DEN-100, DEN-120; Arts & Sciences Elective Code: B

DLT-250 Community Dental Health (1.50)
Provides concepts of health education and promotion, community dental health, and public health dentistry with an emphasis on assessment, planning, implementation and evaluation of community oral health promotion. Credits: 1.5, Hours: (1/1/0/0), Prereq: DEN-100, DEN-200, DLT-285; Arts & Sciences Elective Code: B

DLT-274 Local Anesthesia for the Dental Hygienist (1.50)
Learn basic concepts for safe and effective administration of local anesthesia, including hands-on preparation in techniques used in the practice of administering local anesthesia. Credits: 1.5, Hours: (0.5/2/0/0), Prereq: DEN-120, DEN-130; Arts & Sciences Elective Code: B

DLT-285 Dental Hygiene III (3.00)
Emphasis on treatment of patients with moderate dental disease, continued application of diagnostic information and treatment planning by student. Credits: 3, Hours: (1/0/6/0), Prereq: DLT-186; Arts & Sciences Elective Code: B

DLT-296 Dental Hygiene IV (5.00)
Provides continued development of oral prophylaxis skills. Emphasis is placed on access treatment, outside of a routine prophylactic appointment, and on aided scaling procedures. Credits: 5, Hours: (1/0/12/0), Prereq: DLT-285; Arts & Sciences Elective Code: B

DLT-306 Dental Hygiene V (5.00)
Prepares students for transition to practice. Board preparation material, credentialing, advanced instrumentation and accessory procedure techniques are taught. Current trends in the dental field are discussed. Credits: 5, Hours: (1/0/12/0), Prereq: DLT-296; Arts & Sciences Elective Code: B

DLT-910 Dental Hygiene Clinical Enrichment (1.00)
Provides focused reinforcement in the clinical portion of the dental hygiene profession, with emphasis placed on skills necessary for patient care. Content includes basic instrumentation and instruction in radiographic techniques. Manikin and patient practice are utilized for learning experience. Successful completion of this course fulfills the requirement to re-enter the second year of the Dental Hygiene program at Kirkwood or the remediation requirement for a clinical board examination. Credits: 1, Hours: (0/0/3/0), Prereq: DLY-173, DLY-186; Arts & Sciences Elective Code: B

DLT: Dental Lab Technology

DLT-152 DLT Oral Anatomy (1.00)
Explores the anatomical and physiological features, structures and function of the human head that must be considered in the fabrication of dental prostheses. Credits: 1, Hours: (1/0/0/0), Arts & Sciences Elective Code: B

DLT-156 Dental Anatomy Lab (2.00)
Introduces the student to terms and anatomy of the oral cavity including a detailed study of crown and root morphology of both primary and permanent dentition. Credits: 2, Hours: (0/4/0/0), Arts & Sciences Elective Code: B

DLT-250 Foundation of Dental Technology (3.00)
Orients the student to dental technology including infection control, equipment operation, and health and safety. Applies numerous physiological principles to the study and manipulations of basic dental materials. Credits: 3, Hours: (2/2/0/0), Arts & Sciences Elective Code: B

DLT-251 Introduction to Dentures (5.00)
Introduces the fabrication of complete dentures including procedures, equipment and the materials required for replacing natural dentition and the associated structures of the maxilla and mandible. Includes complete denture repairing, relining and rebasing. Credits: 5, Hours: (2/6/0/0), Coreq: DEN-120, DLT-152, DLT-156, DLT-250; Arts & Sciences Elective Code: B

DLT-253 Introduction to Partial Dentures (5.00)
Applies the basic principles for removable partial denture framework fabrication including classification, components, surveying, designing, waxing, investing, casting and finishing. Credits: 5, Hours: (2/6/0/0), Prereq: DLT-152, DLT-251; Arts & Sciences Elective Code: B

DLT-254 Introduction to Crown and Bridge (5.00)
Applies techniques of model preparation, articulation and laboratory procedures for construction of full-cast crowns, inlays and bridges. Credits: 5, Hours: (2/6/0/0), Prereq: DEN-120, DLT-152, DLT-156, DLT-250; Coreq: DLT-565; Arts & Sciences Elective Code: B

DLT-350 Fixed Dental Prosthodontics (5.00)
Covers advanced fabrication of ceramics and crown/bridge prosthesis to include, but not limited to, multiple unit bridges, press, scanning, post and core using various porcelain systems to match natural dentition. Credits: 5, Hours: (2/6/0/0), Prereq: DLT-254, DLT-456; Arts & Sciences Elective Code: B

DLT-351 Removable Dental Prosthodontics (5.00)
Emphasizes advanced fabrication of complete dentures and partial prosthesis. Includes articulation of teeth in balanced occlusion; immediate dentures; removable partial dentures, implants and attachments; characterization and techniques; identification in denture bases; and various types of acrylics. Credits: 5, Hours: (2/6/0/0), Prereq: DLT-251, DLT-253; Arts & Sciences Elective Code: B

DLT-353 Dental Technology Industry (2.00)
Presents ethical, legal and historical aspects of dentistry and dental laboratory technology. Focuses on basic day-to-day management of a dental laboratory and human relations from a supervisor's point of view. Credits: 2, Hours: (2/0/0/0), Arts & Sciences Elective Code: B

DLT-355 Digital Dentistry (2.00)
Introduces the theory and practice of fabricating dental prosthetics digitally. Explores the theoretical study of CAD/CAM systems as it pertains to open and closed architecture, material selection and the fabrication of final prostheses. Credits: 2, Hours: (1/2/0/0), Prereq: DLT-254, DLT-445; Coreq: DLT-456; Arts & Sciences Elective Code: B

DLT-445 Orthodontics (3.00)
Identifies malocclusion classifications and incorporates the study of orthodontic materials, use of equipment and fabrication. Credits: 3, Hours: (1/4/0/0), Prereq: DEN-120, DLT-152, DLT-156, DLT-250; Coreq: DLT-565; Arts & Sciences Elective Code: B

DLT-450 Advanced Orthodontics (8.00)
Comprehensive application of orthodontic and pedodontic appliance fabrication. Emphasizes quality, productivity, specific techniques and procedures, and the ability to interpret work authorizations. Students gain practical experience in a commercial dental laboratory. Credits: 8, Hours: (2/18/0), Prereq: DLT-445; Arts & Sciences Elective Code: B

DLT-451 Advanced Fixed Dental Prosthodontics (12.00)
Examines comprehensive application of complete and partial fixed prosthesis. Includes, but not limited to, stress-breaker, telescopic, and full porcelain units. Emphasizes porcelain application techniques through the use of modifications of porcelain systems to better match natural dentition. Offers practical experiences through specific patient treatment. Credits: 12, Hours: (2/24/0), Prereq: DLT-350; Arts & Sciences Elective Code: B

DLT-452 Adv Removable Dental Prosthodontics (12.00)
Comprehensive application of complete and partial prostheses. Includes overdentures, lingualized occlusion, biomechanical design principles, specific concepts, stress equalizers, quality and productivity improvement and work authorization interpretation. Students gain practical experience in a commercial dental laboratory. Credits: 12, Hours: (2/24/0), Prereq: DLT-351; Arts & Sciences Elective Code: B

DLT-456 Introduction to Ceramics (5.00)
Fabrication of porcelain-fused-to-metal prosthesis to include framework design considerations, porcelain characteristics and limitations. Includes the equipment and materials required to replace natural dentition. Credits: 5, Hours: (2/6/0/0), Prereq: DLT-254; Arts & Sciences Elective Code: B

DLT-565 Occlusion (2.00)
Provides in-depth study of the principles of occlusion and their application to fabrication of dental prosthesis. Credits: 2, Hours: (1/2/0/0), Coreq: DEN-120, DLT-152; Arts & Sciences Elective Code: B

DRA: Film And Theatre

DRA-101 Introduction to Theatre (3.00)
Requires no previous experience. Introduces the student to the roles of actor, director, designer,
playwright and critic, and provides a brief history of the art. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: A

DRA-116 Film Analysis (3.00)
Focuses on the methods and technologies of film art. The emphasis is on analysis of classic narrative films. Subjects for analysis include narrative structure, segmentation, shot-by-shot breakdown, elements of mise-en-scene and montage, authors, genres, production considerations, and conventions. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: A

DRA-117 Film Topics (3.00)
Offers in-depth study of various topics in film studies. Some topics offered are the study of genre theory, specific genres, film adaptation of literature and drama, moral themes and documentary film. All film topics will study the relationship between the topic and culture, identify operating principles and relevant contextual forces, and apply these concepts to the study of specific films. Course may be repeated for credit. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: A

DRA-125 Introduction to Play Analysis (3.00)
Focuses on the reading, discussion, interpretation, and analysis of dramatic texts. It is the aim of this course to provide a concentrated study of beginning play analysis through discussion and written analysis. Students gain an understanding of the important role that dramatic analysis plays when mounting a production in the theatre. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: A

DRA-130 Acting I (3.00)
Introduces basic acting techniques with emphasis on improvisation, concentration and self-analysis. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: A

DRA-132 Acting II (3.00)
Continues training in basic acting techniques with emphasis on creating characters in scripted scenes. Students present individual and group scenes. Credits: 3, Hours: (3/0/0/0), Prereq: DRA-130; Arts & Sciences Elective Code: A

DRA-162 Technical Theatre (3.00)
Provides information on and experience with the materials, tools, equipment, and techniques of manual drafting, scenery construction and painting, stage lighting, constructing, and make-up. Hands-on experience with each of the areas of study is emphasized. Students are required to work on the technical aspects for one Kirkwood production. The course is designed to produce students who have a working knowledge of the basic techniques of producing a live performance. The course is open to all students. Credits: 3, Hours: (2/2/0/0), Arts & Sciences Elective Code: A

DRA-172 Technical Theatre Lab (1.00)
Provides students credit for work as technicians in one Kirkwood production. A minimum of 24 hours of practical work is required for a passing grade. May be repeated up to six times. Credits: 1, Hours: (0/2/0/0), Arts & Sciences Elective Code: A

DRA-200 Introduction to Design for the Theatre (3.00)
Introduces language, concept and process for designing scenery and costumes in the theatre. Includes analysis, research, sketching, rendering, and model-making. Credits: 3, Hours: (2/2/0/0), Arts & Sciences Elective Code: A

DRA-230 Acting Lab (1.00)
Provides students credit for work as actors in one Kirkwood production. A minimum of 24 hours of practical work is required for a passing grade. May be repeated up to six times. Credits: 1, Hours: (0/2/0/0), Arts & Sciences Elective Code: A

DRA-928 Independent Study (1.00-3.00)
Allows the student to do readings, papers, research and/or production work under the guidance of a theatre faculty member. Independent study contract required. Credits: 1-3, Hours: (0/2-6/0/0), Arts & Sciences Elective Code: A

DRF: Drafting

DRF-141 Engineering Drawings (2.00)
Introduces the fundamentals of drafting, such as graphic language and vocabulary, orthographic projection, drawing layouts, section views, title blocks and dimensioning. Familiarizes students with the tools and techniques of the trade. Covers creating engineering drawings that are submitted to be manufactured. Credits: 2, Hours: (2/0/0/0), Arts & Sciences Elective Code: B

DRF-142 Engineering Design I (3.00)
Allows students to gain an understanding of drawing mechanical parts used in design. Problem-solving approach is used to work out problems on the drafting board, resulting in a final drawing. Topics selected are: instrument instruction, lettering, geometric construction, sketching, multiview projection, sectional views, calculating weight of a mechanical part, auxiliary views, isometrics, obliques, weld symbols, threads and fasteners, dimensioning and tolerancing. Credits: 3, Hours: (2/2/0/0), Prereq: DRF-141; Arts & Sciences Elective Code: B

DRF-143 Engineering Design II (3.00)
Allows students to gain an understanding of drawing mechanical parts used in design. Covers detail drawing, bill of material, weight calculations, weld symbols, assembly drawings, exploded assembly drawings, structural, threads and fasteners, dimensioning and tolerancing. Credits: 3, Hours: (2/2/0/0), Prereq: CAD-300, DRF-141; Coreq: CAD-140; Arts & Sciences Elective Code: B

DRF-924 Honors Project (1.00)
Allows a qualified honors student to pursue a special concentration of study under the guidance of a faculty member. Requires completion of an honors project contract. May be taken more than once. Credits: 1, Hours: (1/0/0/0), Arts & Sciences Elective Code: B; Comments: Requires approval of supervising professor and dean

DSL: Diesel

DSL-143 Fundamentals of Electricity (3.00)
Covers introduction to electricity, i.e. voltage, amperage and resistance with emphasis on Ohm's Law and its practical application. Meter fundamentals are covered. Series, parallel and series-parallel circuits are studied. Credits: 3, Hours: (2/2/0/0), Arts & Sciences Elective Code: B

DSL-156 Truck Electronics (3.00)
Continues the basic electrical coverage of DSL-143 with an additional emphasis on the types of electrical circuits and subassemblies found in most trucks. Students learn interior and exterior lighting, steering column, dash, wiper motors, temperature controls, power locks and windows, and on-board computers. Credits: 3, Hours: (2/2/0/0), Prereq: DSL-143; Arts & Sciences Elective Code: B

DSL-308 Cooling Systems (2.00)
Introduces the student to truck cooling systems. The principles of cooling systems and the standard components of cooling systems are examined. Testing and servicing of cooling systems from a truck perspective are explained. Credits: 2, Hours: (1/2/0/0), Arts & Sciences Elective Code: B

DSL-345 Truck Engines (3.00)
Covers the introduction to diesel engines commonly used in the trucking industry. The design of engine components and subassemblies is examined with emphasis on the reasons certain design features are used. Correct procedures for testing and servicing truck engines are explained and demonstrated. Credits: 3, Hours: (2/2/0/0), Prereq: DSL-355; Arts & Sciences Elective Code: B

DSL-355 Fundamentals of Internal Combustion Engines (3.00)
Covers fundamentals of two- and four-stroke engine operation, servicing and adjustment. Learning activities concentrate on proper disassembly, measuring and reassembly of actual engines. Credits: 3, Hours: (2/2/0/0), Arts & Sciences Elective Code: B

DSL-424 EFI Engine Systems (4.00)
Provides a thorough explanation and hands-on experience in the theory, operation, diagnosis, maintenance and repair of electronic fuel injected diesel engines. Learning activities include the use of testing equipment used to diagnose EFI engines. Lab activities are designed to reinforce the understanding of the operation and maintenance of these engines. Credits: 4, Hours: (2/4/0/0), Prereq: DSL-143, DSL-345, DSL-355; Arts & Sciences Elective Code: B

DSL-543 Truck Clutches (3.00)
Introduces students to the testing and servicing of clutches found on most trucks. Learning activities include examining, servicing and replacement of clutches. Credits: 3, Hours: (2/2/0/0), Arts & Sciences Elective Code: B

DSL-630 Air Brakes and ABS (2.00)
Covers a basic introduction to air brakes and anti-locking braking systems. Learning activities concentrate on theory, operation, diagnosis, maintenance, and repair of air and anti-lock brakes found on diesel trucks. Credits: 2, Hours: (1/2/0/0), Arts & Sciences Elective Code: B
ECE: Early Childhood Education

ECE-103 Introduction to Early Childhood Education (3.00)
Provides a historical and philosophical foundation within the field of early childhood education. Includes an overview of assessment and evidence-based practices. Addresses the influences of family-centered practice, inclusion, culture, and language. Explores early childhood careers. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: A

ECE-105 Technology for Early Childhood (1.00)
Introduces appropriate use of technology in early childhood professional practice, including a focus on approaches for instructional use with young children. Introduces students to development of a personal eportfolio and discusses appropriate use of technology, including assistive technology, in early childhood classrooms. Credits: 1, Hours: (1/0/0/0), Coreq: ECE-103 or ECE-158; Arts & Sciences Elective Code: A

ECE-133 Child Health, Safety, and Nutrition (3.00)
Focuses on evidence-based 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 problem solving, practical applications and assessments. Includes collaboration with families and assesses the role of culture, language and ability on health, safety and nutrition decisions in early childhood settings. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: A

ECE-158 Early Childhood Curriculum I (3.00)
Focuses on the development, implementation and assessment of appropriate environments and curricula for young children ages three through eight. Utilizes evidence-based, developmentally appropriate practices in the context of culture, language and abilities. Emphasizes development stages and appropriate learning opportunities, interactions and environments to support each child in the areas of emergent literacy, math, science, technology and social studies. Credits: 3, Hours: (3/0/0/0), Prereq: ECE-158; Arts & Sciences Elective Code: A

ECE-159 Early Childhood Curriculum II (3.00)
Focuses on the development, implementation and assessment of appropriate environments and curricula for young children ages three through eight. Utilizes evidence-based, developmentally appropriate practices in the context of children's culture, language and abilities. Emphasizes child developmental stages and development of appropriate learning opportunities, interactions and environments to support each child in the areas of emergent literacy, math, science, technology and social studies. Credits: 3, Hours: (3/0/0/0), Prereq: ECE-158; Arts & Sciences Elective Code: A

ECE-170 Child Growth and Development (3.00)
Reviews typical and atypical development of children from conception to adolescence in all developmental domains. Examines interactions between child, family and society within a variety of community and cultural contexts and how each impacts the developing child. Examines theories and evidence-based practices associated with understanding and supporting children. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: A

ECE-221 Infant/Toddler Care and Education (3.00)
Focuses on care, education and assessment of children from birth to thirty-six months. Utilizes developmentally appropriate evidence-based practices including responsive caregiving, routines as curriculum, collaborative relationships with culturally, linguistically and ability diverse children and families, with a focus on the whole child in inclusive settings. Credits: 3, Hours: (3/0/0/0), Prereq: ECE-170 or PSY-121; Arts & Sciences Elective Code: A

ECE-243 Early Childhood Guidance (3.00)
Focuses on developmentally appropriate evidence-based approaches and positive guidance strategies for supporting the development of each child. Emphasizes supportive interactions and developmentally appropriate environments. Uses assessment to analyze and guide behaviors. Studies impact of families, and each child's culture, language and ability on child guidance. Credits: 3, Hours: (3/0/0/0), Prereq: ECE-170 or PSY-121; Arts & Sciences Elective Code: A

ECE-262 Early Childhood Field Experience (3.00)
Offers supervised experience in selected early childhood settings serving ages birth through eight years. Includes integration of theory and developmentally appropriate evidence-based practice. Provides an understanding of working with culturally, linguistically and ability diverse young children and families. Emphasizes professional relationships and behavior, appropriate adult/child interactions, basic curriculum planning and program routines. Credits: 3, Hours: (.75/0/6.75/0), Prereq: ECE-103, ECE-158, ECE-170; Arts & Sciences Elective Code: A; Comments: Requires a minimum of 108 hours of direct work with children

ECE-290 Early Childhood Program Administration (3.00)
Addresses the function common to administering quality child care programs, planning, implementation, operating and evaluating. Aspects covered include director responsibilities; policy setting; development; staff, fiscal and facility management; parent involvement; and marketing. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: A; Comments: Experience in child care setting, Early Childhood curriculum courses preferred

ECE-924 Honors Project (1.00)
Allows a qualified honors student to pursue a special concentration of study under the guidance of an honors faculty member. Requires completion of an honors project learning contract. May be taken more than once. Credits: 1, Hours: (1/0/0/0), Arts & Sciences Elective Code: A; Comments: Requires approval of supervising professor and dean

ECN: Economics

ECN-120 Principles of Microeconomics (3.00)
Introduces principles of the economic problem with emphasis on national income and employment analysis. Includes national income accounting, the business cycle, money and banking, fiscal and monetary theory, policy, and economic growth. Recommended for students pursuing a baccalaureate degree. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: A

ECN-130 Principles of Microeconomics (3.00)
Emphasizes markets, the price system and the allocation of resources, demand and supply, market structures, price and output determination, and income distribution. Recommended for students pursuing a baccalaureate degree. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: A

ECE-924 Honors Project (1.00)
Allows a qualified honors student to pursue a special concentration of study under the guidance of an honors faculty member. Requires completion of an honors project learning contract. May be taken more than once. Credits: 1, Hours: (1/0/0/0), Arts & Sciences Elective Code: A; Comments: Requires approval of supervising professor and dean

ECN-928 Independent Study (1.00)
Provides readings, papers and basic research or other projects under the individual guidance of a staff member. Credits: 1, Hours: (1/0/0/0), Arts & Sciences Elective Code: A; Comments: Permis- sion of instructor, dean

EDU: Education

EDU-110 Exploring Teaching (3.00)
Introduces the rewards, challenges, roles and responsibilities of beginning teachers and paraeducators. Develops generic teaching skills applicable from preschool through high school. Utilizes microteaching to simulate actual teaching situations, and discusses common teaching problems through case studies. Offers hands-on services in a K-12 classroom, or observes and interviews of a K-12 teacher. Meets part of the requirement for the Iowa Paraeducator Generalist Certification. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: A
Course Descriptions

EDU-119 Behavior Management (3.00)
Develops research-based, effective, and respectful skills of prevention, observation, data collection, diagnosis, and change of the behavior of students in K-12 classrooms. Develops strategies for helping others manage their own behavior. Meets part of the requirement for the Iowa Paraeducator Generalist Certification. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: A

EDU-129 Inclusion and Adaptation (3.00)
Develops the skills to facilitate the mainstreaming of students with disabilities, and work with gifted and talented students in school settings. Teaches strategies for instructing diverse groups of learners and adapting curriculum and materials. Includes an overview of the special education system and the evolving relationship with regular education. Discusses issues related to adults with disabilities. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: A

EDU-200 Topics in Education (1.00)
Provides an opportunity for students to study a current issue in education. Topics are selected from the following categories: teaching methods, learning theory, motivation and professionalism. Credits: 1, Hours: (1/0/0/0), Arts & Sciences Elective Code: A

EDU-210 Foundations of Education (3.00)
Examines American education from historical, philosophical, and sociological perspectives. Discusses challenges and issues in education in the context of school organization, politics, funding, curriculum, professionalism, legal issues, and effective school and teacher characteristics. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: A

EDU-240 Educational Psychology (3.00)
Applies psychological concepts to the field of education. Major focus is on cognitive, behavioral and humanistic theories. Areas of emphasis include child and adolescent development, learning theory, memory, motivation, intelligence, instruction and measurement. Credits: 3, Hours: (3/0/0/0), Prereq: PSY-111; Arts & Sciences Elective Code: A

EDU-248 Exceptional Persons (3.00)
Studies the educational, cultural, and social aspects of children and adults who are exceptional in the context of mental, emotional and physical development. Includes discussion of gifted and talented children in schools. Credits: 3, Hours: (3/0/0/0), Prereq: PSY-111; Arts & Sciences Elective Code: A

EDU-249 Cultural and Linguistic Diversity (3.00)
Prepares staff to work with culturally and linguistically diverse children, including English language learners, those with language disorders, deaf and hard of hearing students. Includes use of technology, instructional methodology, appropriate translation and interpretation procedures, and communication with team members. Participants work collaboratively and individually to develop projects. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: A

EDU-258 Autism Spectrum Disorder Support (3.00)
Develops skills of observation, understanding and management of students with Autism Spectrum Disorders (ASD). Develops strategies for helping students with ASD manage behavior and develop social and communication skills. Meets Iowa paraeducator certification requirements for Autism Spectrum Disorders Area of Concentration. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: A

EDU-259 Vision Impairment Support (3.00)
Addresses competencies for state paraeducator certification in Level II Vision Impairment Area of Concentration. Prepares paraeducators to support children with vision impairments or blindness, including those with additional disabilities. Studies roles and responsibilities of the paraeducator in understanding the expanded core curriculum and how to integrate support of these skills into the instructional day, how to ensure student access to the core curriculum, strategies to promote independence and self-determination, and professional and ethical guidelines. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: A

EDU-279 Transition Services (3.00)
Studies the role of the paraeducator and job coach in assisting teachers in preparing students who receive special education services for the transition from K-12 education to adult life. Studies the continuum of K-12 career and transition programs, as well as the variety of adult services that K-12 graduates may need in the areas of living, learning and working. Addresses issues of self-determination; career assessment; transition to living, learning and working; behavior support; and linkages to adult service providers. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: A

EDU-805 Literacy Tutor Experience (1.00-3.00)
Provides students with an opportunity to spend 30, 60 or 100 hours in a school or other community agency tutoring in reading and other basic skills. In addition, 12 hours of seminar are part of the course. Credits: 1-3, Hours: (0/0/3-9/0), Arts & Sciences Elective Code: A; Comments: Minimum GPA of 2.5 required to take this course

EDU-810 Field Experience (3.00)
Offers experience in classrooms. Integrates 100 hours per semester at a school working under the supervision of a teacher. Choices include preschool, elementary and secondary settings. Includes a seminar. Credits: 3, Hours: (1/0/6/0), Prereq: EDU-110, PSY-111 and either PSY-121 or EDU-240; Arts & Sciences Elective Code: A

EDU-928 Independent Study (1.00)
Provides readings, papers and basic research or other projects under the individual guidance of the staff members. Credits: 1, Hours: (1/0/0/0), Arts & Sciences Elective Code: A; Comments: Permission of instructor, dean.

EGR: Engineering

EGR-100 Engineering Orientation (1.00)
Introduces professional development as it relates to engineering. Explores various engineering disciplines and career paths. Covers the scientific and engineering method, engineering design process, problem solving, ethics, and the teaching and learning process. Incorporates both visual and oral communication. Offers opportunities to build an E-Portfolio of reflection through activities and skills surveys. Credits: 1, Hours: (1/0/0/0), Prereq: MAT-102 or MAT-708; Arts & Sciences Elective Code: A

EGR-160 Engineering I (3.00)
Develops skills in modeling and solving engineering problems, data analysis, engineering graphics, and technical communication using computer application software. Integrates both a visual and oral research project. Credits: 3, Hours: (2/2/0/0), Prereq: MAT-136; Arts & Sciences Elective Code: A

EGR-167 Engineering II (4.00)
Develops skills in solving engineering problems using the C-programming language. Applies programming and numerical techniques directly to the engineering discipline. Credits: 4, Hours: (4/0/0/0), Prereq: MAT-136; Arts & Sciences Elective Code: A

EGR-170 Materials Science (3.00)
Covers the different structures of materials and the resulting mechanical, electrical and magnetic properties; phase diagrams; kinetics and materials in engineering design. Credits: 3, Hours: (3/0/0/0), Prereq: CHEM-165, MAT-136; Arts & Sciences Elective Code: A

EGR-180 Statics (3.00)
Covers vector algebra, forces, couples, equivalent-force, couple system, Newton's laws, friction, equilibrium, centroids, area moments of inertia, and applications. Integrates both a visual and oral research project. Credits: 3, Hours: (3/0/0/0), Prereq: MAT-210; Arts & Sciences Elective Code: A

EGR-280 Dynamics (3.00)
Emphasizes vector calculus, Newton's laws, kinetics and kinematics of particle motion, many-particles systems, and rigid bodies and applications. Integrates both a visual and oral research project. Credits: 3, Hours: (3/0/0/0), Prereq: EGR-180, MAT-216; Arts & Sciences Elective Code: A

EGR-285 Introduction to Electrical Science (4.00)
Covers DC and AC circuits, Ohm's law, Kirchoff's voltage and current laws. Provides circuit analysis techniques including Thevenin equivalents, superposition, source transformation, nodal and mesh analysis, transient and steady state response, complex impedance, average power, RMS voltage and current. Credits: 4, Hours:
Course Descriptions

(3/2/0/0), Prereq: MAT-216; Arts & Sciences Elective Code: A

EGR-290 Thermodynamics (3.00) Includes basic elements of classical thermodynamics, first and second law, reversibility, irreversibility, Carnot cycle, properties of pure substance, closed and open simple systems and one dimension steady-state and transient flow systems, and engineering applications. Integrates both a visual and oral research project presentation. Credits: 3, Hours: (3/0/0/0), Prereq: EGR-180, MAT-216; Arts & Sciences Elective Code: A

EGR-380 Mechanics of Deformable Bodies (3.00) Introduces basic theory of deformable bodies by analyzing stress/strain relationships in objects subject to axial, transverse, bending, torsion, combined loads and buckling. Incorporates the elementary theory of material failure. Integrates both a visual and oral research project presentation. Credits: 3, Hours: (3/0/0/0), Prereq: EGR-180, MAT-216; Arts & Sciences Elective Code: A

EGR-400 PLTW - Introduction to Engineering Design (3.00) Studies engineering design process by applying math, science and engineering standards to hands-on projects. Works individually and in teams to design solutions to a variety of problems using 3D modeling software. Documents work in an engineering notebook. Credits: 3, Hours: (1/4/0/0), Arts & Sciences Elective Code: A

EGR-410 PLTW - Principles of Engineering (3.00) Explores a broad range of engineering topics including mechanisms, the strength of structures and materials, and automation. Develops skills in problem solving, research and design strategies for design process documentation, collaboration and presentation. Credits: 3, Hours: (1/4/0/0), Arts & Sciences Elective Code: A

EGR-415 PLTW - Environmental Sustainability (3.00) Introduces investigation and design of solutions in response to real-world challenges related to clean and abundant drinking water, food supply issues and renewable energy. Within the PLTW Engineering sequence of courses, ES is a specialty course designed to follow Introduction to Engineering Design and Principles of Engineering. This course was developed by Project Lead the Way. Credits: 3, Hours: (1/4/0/0), Arts & Sciences Elective Code: A

EGR-420 PLTW - Digital Electronics (3.00) Provides a foundation for students interested in electrical engineering, electronics or circuit design. Studies combinational and sequential logic, introduces circuit design tools including logic gates, integrated circuits and programmable logic devices. Credits: 3, Hours: (1/4/0/0), Arts & Sciences Elective Code: A

EGR-440 PLTW - Biotechnical Engineering (3.00) Introduces students to the application of biological and engineering concepts related to biomechanics, genetic engineering and forensics. This course was developed by Project Lead the Way. Credits: 3, Hours: (1/4/0/0), Prereq: EGR-400, EGR-410; Arts & Sciences Elective Code: A

EGR-450 PLTW - Computer Integrated Manufacturing (3.00) Introduces the high-tech and innovative nature of modern manufacturing. Teaches manufacturing processes, product design, robotics and automation. Offers the opportunity to earn a virtual manufacturing badge recognized by the National Manufacturing Badge system. Credits: 3, Hours: (1/4/0/0), Arts & Sciences Elective Code: A

EGR-460 PLTW - Civil Engineering and Architecture (3.00) Studies the design and construction of residential and commercial building projects. Introduces building design concepts and construction including land use codes, utilities and services, sustainable design, building components and systems, structural design, storm water management, and cost estimation. Learns STEM (Science, Technology, Engineering, Math) principles including the 3D design software Revit. Credits: 3, Hours: (1/4/0/0), Arts & Sciences Elective Code: A

EGR-900 NSF Technology Seminar (1.00) Investigates the skills and responsibilities associated with high technology careers. Includes development of a Personal Growth Portfolio. May be repeated for credit. Credits: 1, Hours: (1/0/0/0), Arts & Sciences Elective Code: A; Comments: Permission of instructor and dean

EGR-924 Honors Project (3.00) Allows a qualified honors student to pursue a special concentration of study under the guidance of a faculty member. Requires completion of an honors project contract. May be taken more than once. Credits: 1, Hours: (1/0/0/0), Arts & Sciences Elective Code: A; Comments: Requires approval of supervising professor and dean

EGT: Engineering Technology

EGT-124 Strength of Materials (4.00) Presents design and analysis of bars, beams, trusses, shafts, connectors, columns, and other structural members under various loadings. Covers stress, strain, deflection and geometric dimensions of various mechanical components. Includes thin walled pressure vessels, Poison effect, thermal stresses, combined loads, eccentric loads, statically indeterminate loads, buckling loads and Mohr's Circle of Stress. Utilizes Excel software and laboratory activities. Credits: 4, Hours: (3/2/0/0), Prereq: EGT-125; Arts & Sciences Elective Code: B

EGT-125 Applied Statics (4.00) Analyzes forces and moments necessary to produce static equilibrium for bodies at rest. Covers vectors, free body diagrams, the equations of equilibrium, analysis of simple structures (trusses, frames, and simple machines), friction (wedges, screws, belts, rolling wheels), fluid statics, hanging cables, centroids and area moments of inertia. Credits: 4, Hours: (3/2/0/0), Prereq: PHY-190; Arts & Sciences Elective Code: B

EGT-132 Kinematics (4.00) Covers terminology, classification, analyses and design of planar mechanisms, stressing graphical techniques with CAD software. Focuses on position, velocity (relative and instant center method) and acceleration for a variety of mechanisms, typically containing 4-bar or slider/crank linkages. Emphasizes modeling of mechanisms using computer software with design and analysis applications as time allows. Credits: 4, Hours: (2/4/0/0), Prereq: EGT-125; Coreq: CAD-141; Arts & Sciences Elective Code: B

EGT-136 Dynamics (4.00) Uses problem solving to deepen student's understanding of the geometry of motion (kinematics) and the forces that create it (kinetics). Solves problems involving planar motion of both particles and rigid bodies. Analyzes the kinetics of planar motion using Newton’s Second Law, Work/Energy, and Impulse/Momentum methods. Uses PC based software as an analysis and visualization tool. Credits: 4, Hours: (3/2/0/0), Prereq: EGT-125; Arts & Sciences Elective Code: B

EGT-148 Hydraulics and Basic Circuits (3.00) Introduces the use of hydraulic pumps and systems, and basic electronic circuit design, including analysis techniques for both. Emphasizes using Kirchhoff's Laws and Ohms Law to analyze circuits. Covers pumping, controlling, measuring flows, designing and analyzing hydraulic systems. Focuses on distinguishing between types of valves, pumps, hose and connection arrangements, flow patterns, as well as basic circuit parts, such as resistors, capacitors, switches and inductors. Introduces basic terminology and schematic drawing symbols for both hydraulics and circuit elements. Credits: 3, Hours: (2/2/0/0), Arts & Sciences Elective Code: B

EGT-188 Design Project (4.00) Offers students the opportunity to use their creativity in designing specific products. Begins with a basic concept and progresses through analytic stage involving calculations and solid modeling. Includes solid modeling, final assembly and detail drawings and bill of materials. Credits: 4, Hours: (2/4/0/0), Prereq: CAD-140, CAD-141, MFG-202; Coreq: EGT-194; Arts & Sciences Elective Code: B

EGT-194 Machine Design (5.00) Focuses on problem solving involving size, shape and material requirements of machine parts. Applies various loading conditions to the machine components. Focuses on analyzing plates, shafts, weldments, fasteners, springs, wire rope and bearings. Credits: 5, Hours: (4/2/0/0), Prereq: EGT-188; Arts & Sciences Elective Code: B

EGT-400 PLTW - Introduction to Engineering Design (3.00) Examines the engineering design process through application of math, science and engineering standards to hands-on projects. Students design solutions to problems using 3D modeling software and create an engineering notebook. Credits: 3, Hours: (1/4/0/0), Arts & Sciences Elective Code: B

EGT-410 PLTW - Principles of Engineering (3.00) Explores engineering topics including mechanisms, the strength of structures and materials, and automation. Develops problem solving, research and design skills and strategies for design process documentation, collaboration and presentation. Credits: 3, Hours: (1/4/0/0), Arts & Sciences Elective Code: B
Course Descriptions

EGT-415 PLTW - Environmental Sustainability (3.00)
Introduces investigation and design of solutions in response to real-world challenges related to clean and abundant drinking water, food supply issues and renewable energy. Within the PLTW Engineering sequence of courses, ES is a speciality course designed to follow Introduction to Engineering Design and Principles of Engineering. This course was developed by Project Lead the Way. Credits: 3, Hours: (1/4/0/0), Arts & Sciences Elective Code: B

EGT-420 PLTW - Digital Electronics (3.00)
Provides a foundation in electrical engineering, electronics and circuit design. Covers combinational and sequential logic, and circuit design tools including logic gates, integrated circuits and programmable logic devices. Credits: 3, Hours: (1/4/0/0), Arts & Sciences Elective Code: B

EGT-440 PLTW - Biotechnical Engineering (3.00)
Introduces students to the application of biological and engineering concepts related to biomechanics, genetic engineering and forensics. This course was developed by Project Lead the Way. Credits: 3, Hours: (1/4/0/0), Arts & Sciences Elective Code: B

EGT-450 PLTW - Computer Integrated Manufacturing (3.00)
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. Credits: 3, Hours: (1/4/0/0), Arts & Sciences Elective Code: B

EGT-460 PLTW - Civil Engineering and Architecture (3.00)
Explores the design and construction of residential and commercial building projects. Investigates careers in the design and construction industry. Introduces concepts involved in building design and construction including land use, codes, utilities and services, sustainable design, building components and systems, structural design, storm water management, and cost estimation. Integrates STEM (Science, Technology, Engineering, Math) principles and teaches Revit, an Autodesk 3D design software for course projects. Credits: 3, Hours: (1/4/0/0), Arts & Sciences Elective Code: B

EGT-928 Independent Study (1.00-3.00)
Provides readings, papers and basic research or other projects under the individual guidance of a staff member. Credits: 1, Hours: (1/0/0/0), Arts & Sciences Elective Code: A; Comments: Permission of instructor, dean

ELE: Electrical Technology

ELE-103 Industrial Wiring (2.00)
Covers industrial wiring applications for starters, transformers, fusing, grounding and troubleshooting. Labs are conducted to provide practical applications. Credits: 2, Hours: (1/2/0/0), Arts & Sciences Elective Code: B

ELE-364 Basic Electrical Circuits (4.00)
Focuses on basic safety for electrical trades. Studies general shop safety, the effect of electricity on the human body, and safe handling of batteries, toxic and nontoxic liquids and vapors. Covers basic electrical soldering techniques, and constructing and soldering splices. Credits: 4, Hours: (1/6/0/0), Arts & Sciences Elective Code: B

ELE-365 Industrial Wiring (3.00)
Covers industrial methods and practices used to install and maintain electrical distribution systems, busway, cable tray, conduit, panel boards, circuit protection, branch circuits, support methods, and NEC application. Credits: 3, Hours: (2/2/0/0), Arts & Sciences Elective Code: B

ELT: Electronics

ELT-100 Introduction to PLC Wiring and Troubleshooting (1.00)
Provides an introduction to system wiring as well as hardware and software troubleshooting tools and techniques. Concepts are explored and emphasized through lecture, reading and hands-on labs. Credits: 1, Hours: (.5/1/0/0), Prerequisite: ELT-101; Arts & Sciences Elective Code: B

ELT-101 Introduction to PLC Programming and Basic Discrete Control (1.00)
Provides an introduction to PLC ladder-logic programming concepts, guidelines and programming best practices, as well as processors scan and basic discrete control. Explores and emphasizes concepts through lecture, reading and hands-on labs. Credits: 1, Hours: (.5/1/0/0), Prerequisite: ELT-105; Arts & Sciences Elective Code: B

ELT-311 Extreme Internet Technology Troubleshooting (3)
Introduces the theory of troubleshooting GPON and VSDL as an optical FTTH access technology. Includes troubleshooting of OLT, ONT, EDFA, optical combiners and optical splitters. Provides laboratory troubleshooting sessions in layers 1-3, alarms and LED status. Credits: 3, Hours: (2/2/0/0), Prerequisite: ELT-455; Corequisite: ELT-510; Arts & Sciences Elective Code: B

ELT-127 Introduction to Intermediate PLC Instruction and Function (1.00)
Provides an introduction to timing and counting functions as well as compare functions and data manipulation. Concepts are explored and emphasized through lecture, reading and hands-on labs. Credits: 1, Hours: (.5/1/0/0), Prerequisite: ELT-100; Arts & Sciences Elective Code: B

ELT-137 Introduction to Solid State Motor Control Wiring and Troubleshooting (1.00)
Provides an introduction to system wiring as well as hardware and software troubleshooting tools and techniques. Concepts including system components, operational theory and functionality are explored and emphasized through lecture, reading and hands-on labs. Credits: 1, Hours: (.5/1/0/0), Prerequisite: ELT-128; Arts & Sciences Elective Code: B

ELT-179 Electronic Board Soldering (1.00)
Teaches the identification, selection and safe use of appropriate soldering tools and equipment. Covers the technology and techniques of proficient soldering and inspection of through-hole components, dual-inline package integrated circuits and surface mount components to printed circuit boards (PCBs). Demonstrates proper desoldering of through-hole and SMT components. Credits: 1, Hours: (0/2/0/0), Arts & Sciences Elective Code: B

ELT-224 Motors and Transformers (5.00)
Provides theory and hands-on experience with electric motors and transformers. Learning activities include reading, lecture and labs. Covers DC, three-phase and single-phase motors in depth, and studies three-phase and single-phase transformers, applications and connections. Credits: 5, Hours: (4/2/0/0), Prerequisite: ELT-238, MAT-233; Arts & Sciences Elective Code: B

ELT-255 Programmable Logic Controllers (6.00)
Covers basic and advanced programming of the most popular programmable controllers used in industrial automation. Basic ladder logic programming, timers, counters, data manipulation, data compare, temperature control and analog operations are covered. Troubleshooting and installation are also included. Credits: 6, Hours: (3/6/0/0), Prerequisite: ELT-211; Arts & Sciences Elective Code: B

ELT-277 Electronic Practices (3.00)
Provides dc current, voltage, energy, power, resistance, capacitance, inductance, and semiconductor theory in a practical laboratory setting. Focuses on lab safety, component identification, schematic reading, and the use of equipment to measure prototype circuits. Includes extensive laboratory sessions requiring schematic reading, constructing circuits, using soldering and solderless breadboard, and utilizes lab equipment to measure and troubleshoot circuits. Credits: 3, Hours: (1/4/0/0), Arts & Sciences Elective Code: B

ELT-299 Introduction to LabView (3.00)
Introduces LabView, including modular programming, loops, charts, arrays, clusters, case and sequence structures, strings and file I/O. Presents Windows operating system basics, word processing and Excel software. Credits: 3, Hours: (2/2/0/0), Arts & Sciences Elective Code: B

ELT-309 Digital Circuits (3.00)
Presents the analysis and design of digital circuits. Introduces Boolean algebra as a tool in working with basic gates, flip-flops, counters, shift registers, adders, timers and busses. Provides laboratory and computer-simulation exercises. Credits: 3, Hours: (2/2/0/0), Arts & Sciences Elective Code: B

ELT-341 Electric Circuits II (5.00)
Adapts DC circuit analysis techniques to the AC realm. Examines fundamental concepts of passive filters and frequency response. Includes computer simulations and laboratory sessions for further concept investigation. Credits: 5, Hours: (4/2/0/0), Prerequisite: ELT-345; Arts & Sciences Elective Code: B

ELT-345 Electric Circuits I (5.00)
Studies the fundamental DC concepts including current, voltage, polarity, energy and power. Describes the methods of analysis of DC electric circuits. Includes resistive-inductive and resistive-capacitive circuits and introduces the fundamen-
ELT-396 Communications Electronics (4.00)
Offers the theoretical background necessary for working with systems used in today's communication industry. Focuses on signal representations, transmission of, modulation of, and coding of both analog and digital signals. Includes system block diagrams, operation and application of the phase-locked loop, and propagation of electromagnetic waves in guided media and free space. Credits: 4, Hours: (4/0/0/0), Prereq: ELT-341, ELT-518; Coreq: ELT-398; Arts & Sciences Elective Code: B

ELT-398 Communications Systems I (3.00)
Covers projects related to building and measuring active filters. Includes the design, build and test of a variety of modulation techniques. Credits: 3, Hours: (1/4/0/0), Coreq: ELT-396; Arts & Sciences Elective Code: B

ELT-399 Communications Systems II (4.00)
Continues Communications Systems I laboratory work related to the design, build and test of digital and analog communications links. Focuses on the construction of antennas, transmission lines, the propagation of electromagnetic waves and waveguides, through lectures, comprehensive laboratory activities, lab report writing and computer simulations. Credits: 4, Hours: (2/2/0/0), Prereq: ELT-398; Arts & Sciences Elective Code: B

ELT-400 Local Loop (3.00)
Introduces students to the construction, maintenance and documentation of the Local Loop including Digital Loop Carriers. Covers procedures for hand held and remote test units for pre-line qualification and testing. Includes both residential and business customer circuits. Learning activities include laboratory sessions, line qualification, line testing and troubleshooting techniques. Credits: 3, Hours: (2/2/0/0), Prereq: ELT-443; Arts & Sciences Elective Code: B

ELT-408 Structured Cabling System (3.00)
Introduces structured cabling concepts of installation, testing and certifying. Covers types of cabling including UTP, STP, coaxial and fiber optics. Includes horizontal, backbone, work area and closet cabling. Utilizes TIA/EIA cabling standards and requirements. Includes laboratory sessions on wire schemes and IDP terminations. Credits: 3, Hours: (2/2/0/0), Arts & Sciences Elective Code: B

ELT-428 Telephony Circuits II (3.00)
Continues Telephony Circuits I with analysis of voice, data and video circuits. Includes the North American Digital Hierarchy and Sonet Digital Hierarchy signal levels and testing procedures. Covers the laws and proper procedures for cable locating and identification. Includes laboratory sessions, digital circuit testing, testing access and cable locating. Focuses on basic understanding of telephony circuits as they relate to the telecommunications industry. Credits: 3, Hours: (2/2/0/0), Prereq: ELT-460; Arts & Sciences Elective Code: B

ELT-443 Multiplexing I (3.00)
Studies the theory and applications of time division, frequency division, statistical division and wave division multiplexing. Identifies different types of equipment, cables and configurations. Covers N+1 multiplexers and Digital Subscriber Line Access Multiplexers. Includes laboratory sessions, digital circuit testing, provisioning, configuration and design. Credits: 3, Hours: (2/2/0/0), Prereq: ELT-455; Arts & Sciences Elective Code: B

ELT-455 Transmission Circuits I (3.00)
Covers basic theory, practical knowledge and instruction for provisioning, testing and maintaining optical communication transmission systems. Includes ring technologies, timing, communication channels and alarm verification. Covers protection schemes, circuit configuration and remote back-ups. Focuses on laboratory sessions in circuit design, circuit provisioning and testing. Credits: 3, Hours: (2/2/0/0), Prereq: ELT-428; Arts & Sciences Elective Code: B

ELT-460 Fiber Optics (3.00)
Covers the theory and application of fiber optic principles and devices. Topics include performance comparisons of specific systems, noise analysis and receive sensitivity. Credits: 3, Hours: (2/2/0/0), Prereq: ELT-408; Arts & Sciences Elective Code: B

ELT-510 Extreme Internet Technology (3.00)
Introduces theory of GPON and VSDL as an optical FTTH access technology. Includes OLT, ONU, EDFA, optical combiners and optical splitters. Provides laboratory sessions in installation, cabling and provisioning. Credits: 3, Hours: (2/2/0/0), Prereq: ELT-455; Coreq: ELT-511; Arts & Sciences Elective Code: B

ELT-517 Active Devices I: Transistor Amplifiers (6.00)
Presents an analytical approach with laboratory and computer-simulation exercises related to the design and troubleshooting of transistor amplifiers. Includes bipolar junction transistors, FETs, small signal amplifiers, power amplifiers, amplifier frequency responses, and amplifier transient responses. Introduces operational amplifiers. Credits: 6, Hours: (4/4/0/0), Prereq: ELT-345; Arts & Sciences Elective Code: B

ELT-518 Active Devices II: Operational Amplifiers (3.00)
Presents an analytical approach through laboratory and computer-simulation exercises regarding the design and troubleshooting of operational amplifier circuits. Examines four basic types of operational amplifier circuits. Includes voltage amplifiers, comparator, analog-to-digital conversion, wave shaping, active filters, and printed circuit design. Credits: 3, Hours: (2/2/0/0), Prereq: ELT-517; Arts & Sciences Elective Code: B

ELT-616 Microprocessors I (4.00)
Studies counters, shift registers, memory, storage, digital signal processing and microprocessors. Credits: 4, Hours: (3/2/0/0), Prereq: ELT-309; Arts & Sciences Elective Code: B

ELT-621 Microprocessors II (4.00)
Introduces software engineering through a combination of C programming language, robotics, microcontrollers, and version control software. Incorporates writing programs in C. Credits: 4, Hours: (3/2/0/0), Arts & Sciences Elective Code: B

ELT-798 Fundamentals of Hydraulic and Pneumatic Systems (5.00)
Focuses on proper usage and application of, as well as the theory and physics behind, hydraulic and pneumatic systems and controls. Introduces the various components used in each type of system, electro-hydraulic components, electro-pneumatic components and component selection. Students design, assemble and troubleshoot various types of hydraulic and pneumatic control systems and components. Credits: 5, Hours: (2/6/0/0), Prereq: ELT-211, MAT-109; Arts & Sciences Elective Code: B

ELT-845 Design Projects (4.00)
Practices system design through teamwork. Emphasizes designing, building, troubleshooting, and testing a complex electronic system as specified and approved by the design team’s customer. Credits: 4, Hours: (3/2/0/0), Prereq: ELT-396, ELT-398; Arts & Sciences Elective Code: B

ELT-853 Air Conditioning and Refrigeration II (10.00)
Covers domestic and light commercial refrigeration, air conditioning, heating systems and heat pumps in theory and labs. Provides students with extensive experience in system troubleshooting. Credits: 10, Hours: (8/4/0/0), Prereq: ELT-852; Arts & Sciences Elective Code: B

ELT-860 Heating, Vent, and Air Conditioning Systems and Controls (6.00)
Provides the student with working knowledge of commercial air handling units and heating/cooling systems. Pneumatic environmental controls application, calibration and troubleshooting are also covered in theory and laboratory exercises. Credits: 6, Hours: (4/4/0/0), Prereq: ELT-853; Arts & Sciences Elective Code: B

ELT-924 Honors Project (1.00)
Allows a qualified honors student to pursue a special concentration of study under the guidance of a faculty member. May be taken more than once. Credits: 1, Hours: (1/0/0/0), Arts & Sciences Elective Code: A; Comments: Requires approval of supervising professor and dean

ELT-928 Independent Study (1.00-3.00)
Provides readings, papers and basic research or other projects under the individual guidance of a staff member. Credits: 1, Hours: (1/0/0/0), Arts & Sciences Elective Code: A; Comments: Permission of instructor, dean

ELT-931 Telecommunications Internship (2.00)
Provides student credit for on-the-job training in an approved business establishment. Credits: 2, Hours: (0/0/0/8), Arts & Sciences Elective Code: B
EMS: Emergency Medical Services

EMS-255 Emergency Medical Technician I (4.00)
Provides emergency medical care information at an Emergency Medical Technician (EMT) level as outlined by the National Emergency Medical Services Education standards. Introduces basic emergency care concepts in a preparatory module, including fundamental knowledge of the EMT system, safety/well-being of the EMT and medical/legal and ethical issues to the provision of emergency care. Requires HIPAA, Infection Control and Mandatory Reporting for child/adult training for health care providers. Offers American Heart Association Basic Life Support certification with successful completion. Credits: 4; Hours: (4/0/0/0), Arts & Sciences Elective Code: B

EMS-260 Emergency Medical Technician I (4.00)
Prepares the student to provide emergency medical care at an Emergency Medical Technician (EMT) level as outlined by the National Emergency Medical Services Education standards. Introduces basic emergency care concepts in a preparatory module, including fundamental knowledge of the EMT system, safety/well-being of the EMT and medical/legal and ethical issues to the provision of emergency care. Requires HIPAA, Infection Control and Mandatory Reporting for child/adult training for health care providers. Students earn American Heart Association Basic Life Support certification. Credits: 4; Hours: (4/0/0/0), Arts & Sciences Elective Code: B

EMS-300 Advanced Emergency Medical Technician (6/1.00)
Prepares students for the National Registry practical and written examinations for State of Iowa certification. Focuses on prehospital emergency care fundamentals, and advanced airway and cardiac management skills. Requires 72 hours of clinical internship at hospitals, ambulance services or fire departments. Credits: 8; Hours: (6/1/4.5/0), Prereq: EMS-255, EMS-350, EMS-365; Arts & Sciences Elective Code: B; Comments: Current certification in CPR for health care providers and active EMT certification are required

EMS-350 Emergency Medical Technician II (3.50)
Continues EMS-255. Introduces shock and resuscitation, patient assessment, care and transportation of the acutely ill trauma patient, special patient populations and EMS operations. Focuses on Geriatric Education for EMS (GEMS), Hazmat Awareness and Incident Command. Requires demonstration of proficiency for skills within the scope of practice for patients of all ages. Credits: 3.5; Hours: (3/1/0/0), Prereq: EMS-255; Arts & Sciences Elective Code: B

EMS-365 Emergency Medical Technician II Clinical (1.00)
Provides emergency medical assessment, care and transportation of acutely ill or injured patients of all ages. Develops proficiency in previously learned skills for direct patient care in selected clinical settings. Requires participation in and documentation of patient contacts and field experience approved by the medical director and the EMS program director. Requires demonstration of competency in skills for patients of all ages within the scope of practice. Credits: 1; Hours: (0/0/3/0), Prereq: EMS-255; Coreq: EMS-350; Arts & Sciences Elective Code: B

EMS-641 Introduction to Paramedicine (3.00)
Provides an overview of paramedic roles and responsibilities and the emergency medical service system. Includes discussion of medicolegal and ethical issues in EMS, agents of trauma and disease, and career opportunities for paramedics. Provides discussion and demonstration of proper documentation in EMS, emergency vehicle operations, and non-patient care aspects of EMS. Credits: 3; Hours: (3/0/0/0), Prereq: EMS-255, EMS-350, EMS-365; Arts & Sciences Elective Code: B; Comments: Need to hold a current EMT-B Iowa Certification

EMS-642 Pharmacology for Paramedicine (3.00)
Provides an introduction to drug classifications, mechanism of action and metabolism. Discusses indications, contraindications, dosages, routes of administration and side effects of drugs administered by the paramedic. Credits: 3; Hours: (3/0/0/0), Prereq: BIO-168, MAT-772; Arts & Sciences Elective Code: B

EMS-643 Cardiorespiratory Paramedicine (3.00)
Provides lecture, discussion and case-based teaching in the pathophysiology, recognition, and advanced life support of cardiovascular and respiratory emergencies and shock. Credits: 3; Hours: (3/0/0/0), Prereq: BIO-173, EMS-441, EMS-642; Arts & Sciences Elective Code: B

EMS-644 Paramedic Clinical I (3.00)
Provides opportunities for observation and supervised participation in the delivery of advanced life support in pre-hospital and emergency department settings. Credits: 3; Hours: (0/0/9/0), Prereq: BIO-181, EMS-641, EMS-642; Coreq: EMS-645; Arts & Sciences Elective Code: B

EMS-646 Paramedic Clinical II (2.50)
Provides scenario-based teaching and student practice in techniques of assessment and management of patients with cardiovascular and respiratory emergencies. This course includes ACLS certification. Credits: 2.5; Hours: (0.5/4/0.0), Prereq: EMS-641, EMS-642; Coreq: EMS-643, EMS-644; Arts & Sciences Elective Code: B

EMS-647 Paramedic II (3.50)
Provides demonstration and scenario-based practice of assessment and management of trauma, medical, psychological, pediatric, geriatric and obstetric patients. Includes PALS and PHTLS certification. Credits: 3.5; Hours: (1/5/0/0), Prereq: EMS-645; Coreq: EMS-646, EMS-648, EMS-649; Arts & Sciences Elective Code: B

EMS-650 Medical and Psychological Emergencies (4.00)
Prepares students for the National Registry practical and written examinations for State of Iowa certification. Focuses on prehospital emergency care fundamentals, and advanced airway and cardiac management skills. Requires 72 hours of clinical internship at hospitals, ambulance services or fire departments. Credits: 8; Hours: (6/1/4.5/0), Prereq: EMS-255, EMS-350, EMS-365; Arts & Sciences Elective Code: B; Comments: Current certification in CPR for health care providers and active EMT certification are required

EMS-651 Introduction to Paramedicine (4.00)
Provides an introduction to paramedic roles and responsibilities and the emergency medical service system. Includes discussion of medicolegal and ethical issues in EMS, agents of trauma and disease, and career opportunities for paramedics. Provides discussion and demonstration of proper documentation in EMS, emergency vehicle operations, and non-patient care aspects of EMS. Credits: 3; Hours: (3/0/0/0), Prereq: EMS-255, EMS-350, EMS-365; Arts & Sciences Elective Code: B; Comments: Need to hold a current EMT-B Iowa Certification

EMS-652 Pharmacology for Paramedicine (3.00)
Provides an introduction to drug classifications, mechanism of action and metabolism. Discusses indications, contraindications, dosages, routes of administration and side effects of drugs administered by the paramedic. Credits: 3; Hours: (3/0/0/0), Prereq: BIO-168, MAT-772; Arts & Sciences Elective Code: B

EMS-653 Cardiorespiratory Paramedicine (3.00)
Provides lecture, discussion and case-based teaching in the pathophysiology, recognition, and advanced life support of cardiovascular and respiratory emergencies and shock. Credits: 3; Hours: (3/0/0/0), Prereq: BIO-173, EMS-441, EMS-642; Arts & Sciences Elective Code: B

EMS-654 Paramedic Clinical I (3.00)
Provides opportunities for observation and supervised participation in the delivery of advanced life support in pre-hospital and emergency department settings. Credits: 3; Hours: (0/0/9/0), Prereq: BIO-181, EMS-641, EMS-642; Coreq: EMS-645; Arts & Sciences Elective Code: B

EMS-655 Paramedic Clinical II (2.50)
Provides scenario-based teaching and student practice in techniques of assessment and management of patients with cardiovascular and respiratory emergencies. This course includes ACLS certification. Credits: 2.5; Hours: (0.5/4/0.0), Prereq: EMS-641, EMS-642; Coreq: EMS-643, EMS-644; Arts & Sciences Elective Code: B

EMS-656 Paramedic Clinical III (4.00)
Provides opportunity for guided paramedic practice and evaluation in the pre-hospital setting. Students are expected to achieve increasing independence as paramedic level practitioners. The student must complete a prescribed number of patient contacts as team leader. Credits: 4; Hours: (0/0/12/0), Prereq: EMS-643, EMS-644; Coreq: EMS-651, EMS-652; Arts & Sciences Elective Code: B

EMS-657 Paramedic Clinical III (4.00)
Provides opportunities for guided paramedic practice and evaluation in hospital clinical environments. Credits: 4; Hours: (0/0/12/0), Prereq: EMS-643, EMS-644; Coreq: EMS-651, EMS-652; Arts & Sciences Elective Code: B

EMS-658 Paramedic Clinical III (1.00)
Provides opportunity for scenario-based skill and assessment practice in biweekly lab sessions that prepare the student for the NREMT paramedic practical examination for certification. Credits: 1; Hours: (0/0/12/0), Prereq: EMS-643, EMS-644; Coreq: EMS-650, EMS-651, EMS-652; Arts & Sciences Elective Code: B

END: Electroneurodiagnostic

END-100 Introduction to Electroneurodiagnostics (2.50)
Provides an introduction to basic electroencephalographic concepts and techniques. Demon-
strates instrumentation in the classroom and hands-on experience in the laboratory. Credits: 2.5, Hours: (1/3/0/0), Coreq: BIO-168; Arts & Sciences Elective Code: B

END-310 Electroencephalographic Technical Science (7.00)
Provides theory and application of electrical concepts, recording techniques, data analysis and description. Credits: 7, Hours: (2/6/6/0), Prereq: BIO-168, END-100; Arts & Sciences Elective Code: B

END-330 Electroencephalographic Clinical Science (2.00)
Introduces students to electroencephalography, neurophysiology, functional neuroanatomy, normal and abnormal conditions, and correlations. Includes electroencephalographic signs of cerebral disorders. Studies specific neurological disease entities; integrates EEG patterns for cerebral disorders and diagnosis. Credits: 2, Hours: (2/0/0/0), Prereq: BIO-168, END-100; Arts & Sciences Elective Code: B

ENG: English Composition

ENG-013 Basic Writing (3.00)
Provides group instruction in basic writing skills: writing to communicate with the reader, sentence and paragraph structure, proofreading for spelling, grammar and punctuation errors. Students in this course should not have previous or concurrent enrollment in Elements of Writing, Composition I and II, College Writing or Workplace Communication. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: D

ENG-027 Basic Essay Writing (1.00)
Introduces students to the concept of writing papers using the five paragraph organization approach. Students in this course should not have previous or concurrent enrollment in Elements of Writing, Composition I and II, College Writing, or Workplace Communication. Credits: 1, Hours: (0/2/0/0), Arts & Sciences Elective Code: D

ENG-059 College Prep Writing (3)
Provides students with basic skills instruction in a traditional group setting. The curriculum includes two hours of reading and one hour of writing per week. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: D

ENG-070 Personal Achievement Writing (1-2)
Designed to assess a student's writing strengths and weaknesses. The student receives instruction on an individualized basis in the areas of skill needs while building on skills already mastered. The course is divided into two parts: knowledge about language and experience using the language. The course helps prepare the student to take Elements of Writing and may also be supplemental support for students enrolled in Composition I, Composition II, Workplace Communication or other writing courses. Credits: 1-2, Hours: (0/2-4/0/0), Arts & Sciences Elective Code: D

ENG-101 Elements of Writing (3.00)
Develops students' fluency in communication and clarity in thinking through writers’ notebooks, expository writing, and drafting and listening. Students use structured assignments to explore personal goals and values, exercising skills needed for reasoning and writing across the curriculum. Credits: 3, Hours: (3/0/0/0), Prereq: Qualifying placement score; Arts & Sciences Elective Code: D

ENG-105 Composition I (3.00)
Develops expository writing with emphasis on organization, supporting details, style, vocabulary and library research skills. Credits: 3, Hours: (3/0/0/0), Prereq: ENG-105 or ENG-120; Arts & Sciences Elective Code: A

ENG-106 Composition II (3.00)
Teaches precise and responsible use of research tools. Requires critical analysis of reading materials, audience and self when communicating content material. Develops students’ ability to use effective and ethical arguments. Credits: 3, Hours: (3/0/0/0), Prereq: ENG-105; Arts & Sciences Elective Code: A

ENG-108 Composition II: Technical Writing (3.00)
Provides concepts, principles and practice of writing and analyzing documents in business, science (including health occupations) and industry. Research emphasized. Credits: 3, Hours: (3/0/0/0), Prereq: ENG-105 or ENG-120; Arts & Sciences Elective Code: D

ENG-109 Integrated Composition (1.00-3.00)
Supports success in ENG-105 through group and individualized instruction. Develops college-level reading and writing skills. Credit hours vary depending on placement scores. Credits: 1-3, Hours: (1-3/0/0/0), Coreq: ENG-105; Arts & Sciences Elective Code: A

ENG-120 College Writing (5.00)
Develops expository writing with emphasis on substance, organization, supporting details, style and vocabulary. Teaches precise and responsible use of research tools. Requires critical analysis of reading materials in curriculum content areas, current issues and literature. Develops students' ability to use ethical and logical argument. Credits: 5, Hours: (5/0/0/0), Prereq: ENG-101 or qualifying placement score; Arts & Sciences Elective Code: A

ENG-221 Creative Writing: Poetry (3.00)
Offers a writing workshop devoted to students' poetry. Class time devoted to responding to and revising work, reading and discussing published poetry, and exploring various forms of the poem. Credits: 3, Hours: (3/0/0/0), Prereq: ENG-105 or ENG-120; Arts & Sciences Elective Code: A

ENG-223 Creative Writing: Short Fiction (3.00)
Offers a writing workshop focused on students' attempts and successes in writing 500- to 3,500-word short stories. Seventy-five percent of class time devoted to drafting, reading and responding to peers' drafts; 25 percent devoted to reading and discussing published short stories and the elements of fiction as they apply to craft stories. Credits: 3, Hours: (3/0/0/0), Prereq: ENG-105, ENG-120; Arts & Sciences Elective Code: A

ENG-235 Playwriting/Screenwriting (3.00)
Offers a writing workshop for students' playwriting or screenwriting. Class time devoted to reading and responding to students' work, and discussing published and produced plays and screenplays. Homework devoted to drafting and revising and to reading and responding to published and produced plays and screenplays. Credits: 3, Hours: (3/0/0/0), Prereq: ENG-105 or ENG-120; Arts & Sciences Elective Code: A

ENG-238 Creative Writing: Nonfiction (3.00)
Offers a writing workshop for students' nonfiction: personal essays, memoir, nature writing, literary journalism, or other subgenre of the craft. Class time devoted to reading and responding to classmates' work, discussing published nonfiction and the writing craft. Homework devoted to drafting and revising, to reading and responding to published nonfiction in a variety of
subgenres. Credits: 3; Hours: (3/0/0/0), Prereq: ENG-105 or ENG-120; Arts & Sciences Elective Code: A

ENG-240 Advanced Creative Writing (3.00) Offers students an opportunity to develop advanced work in fiction, poetry and literary nonfiction, with an eye toward getting something published. Students respond to each other's writing and enhance their knowledge of the publishing industry. Credits: 3; Hours: (3/0/0/0), Prereq: ENG-221 or ENG-225 or ENG-233 or ENG-235 or ENG-238; Arts & Sciences Elective Code: A

ENG-245 Advanced Creative Writing: Short Fiction (3.00) Provides a writing workshop approach to working on students' short fiction. Seventy-five percent of class time is devoted to reading and responding to other students' work and discussing the responses; 25 percent of class time is devoted to discussing already published work. All critiquing is based in either New Critical/Elements of Fiction discourse or Reader Response. Credits: 3; Hours: (3/0/0/0), Prereq: ENG-221 or ENG-233; Arts & Sciences Elective Code: A

ENG-275 Editing a Literary Magazine (3.00) Provides practical experience in reading and editing literary manuscripts (nonfiction, fiction and poetry). Students design and edit hypothetical magazines using actual student manuscripts and work on preparing an issue of Cedar Valley Divide, Kirkwood's student art and literary magazine. Credits: 3; Hours: (3/0/0/0), Prereq: ENG-105 or ENG-120; Arts & Sciences Elective Code: A

ENG-290 Literary Magazine Layout and Production (3.00) Provides practical experience working on an editorial team to produce a student art and literary magazine, Kirkwood's Cedar Valley Divide (CVD). Focuses on designing and editing the magazine using Adobe InDesign and Photoshop software; coordinating with submitters, independent publishers and printers; and establishing and meeting deadlines to successfully publish the CVD by semester's end. Credits: 3; Hours: (2/2/0/0), Prereq: ENG-275; Arts & Sciences Elective Code: A

ENG-924 Honors Project (1.00) Allows a qualified honors student to pursue a special concentration of study under the guidance of a faculty member. Requires completion of an honors project contract. Credits: 1, Hours: (1/0/0/0), Arts & Sciences Elective Code: A; Comments: Requires approval of supervising professor and dean

ENG-928 Independent Study (1.00) Provides students an opportunity to further their studies in environmental science. After consultation with instructor, readings, papers and basic research or other projects may be assigned. Credits: 1, Hours: (1/0/0/0), Arts & Sciences Elective Code: A; Comments: College-level biology or environmental science course or permission of instructor

ENV: Environmental Science

ENV-115 Environmental Science (3.00) Explores major environmental issues including biotechnology, climate change, fossil fuel use, human population growth, land utilization, pollution, resource management, soil degradation, and toxicology. Teaches concepts from a variety of the sciences. Practices synthesizing environmental concepts, analyzing facts, and forming hypotheses. Credits: 3; Hours: (3/0/0/0), Arts & Sciences Elective Code: A

ENV-924 Honors Project (1.00) Allows a qualified honors student to pursue a special concentration of study under the guidance of a faculty member. Requires completion of an honors project contract. Credits: 1, Hours: (1/0/0/0), Arts & Sciences Elective Code: A; Comments: Requires approval of supervising professor and dean

ESI: Intensive English Second Language

ESI-006 L1 ELA Reading & Vocabulary (3.00) Begins the study of English reading and vocabulary development for non-native speakers who have few English skills. Emphasizes reading skills in informal settings. Credits: 3; Hours: (3/0/0/0), Arts & Sciences Elective Code: D

ESI-007 L1 ELA Listening and Conversation (3.00) Begins the study of conversation and listening skills in English for non-native speakers who have little to no English. Emphasizes communicative speaking and negotiating listening in informal language settings. Credits: 3; Hours: (3/0/0/0), Arts & Sciences Elective Code: D

ESI-010 L1 Phonetics and Pronunciation (3.00) Begins the study of English segments and intonation for non-native speakers who have little to no English. Emphasizes the use of phonetic alphabet. Focuses on using segments and intonation, in informal language settings. Credits: 3; Hours: (3/0/0/0), Arts & Sciences Elective Code: D

ESI-011 L1 ELA Grammar (4.00) Begins the study of the basics of English grammar for non-native speakers of English with few English skills. Focuses on using English grammar fluently in writing, reading and speaking. Credits: 4; Hours: (4/0/0/0), Arts & Sciences Elective Code: D

ESI-014 L1 ELA Writing (2.00) Provides practice in the basic formation of the English alphabet. Focuses on writing at the sen-
tential level for non-native speakers who have little to no English. Increases the use of vocabulary in writing. Familiarizes the student with keyboarding. Credits: 2, Hours: (2/0/0/0), Arts & Sciences Elective Code: D

ESI-016 L2 ELA Writing (2.00) Provides practice in the basic formation of English sentences, paragraphs and reports for non-native speakers of English at the beginning level. Provides practice in structure, and in using English vocabulary in writing. Credits: 2, Hours: (2/0/0/0), Prereq: ESI-014; Arts & Sciences Elective Code: D

ESI-018 L2 ELA Grammar (4.00) Provides beginning level practice in the basics of English grammar for non-native speakers of English. Focuses on using English grammar fluently in writing, reading and speaking. Credits: 4; Hours: (4/0/0/0), Prereq: ESI-011; Arts & Sciences Elective Code: D

ESI-019 L2 ELA Listening Skills and Culture (3) Provides beginning-level practice in conversation and listening skills in English for non-native speakers of English. Emphasizes reading and listening in formal and informal language settings. Credits: 3; Hours: (3/0/0/0), Prereq: ESI-007; Arts & Sciences Elective Code: D

ESI-021 L2 ELA Phonetics and Pronunciation (3.00) Provides practice in English segments and intonation of the English language for non-native speakers at the beginning level. Focuses on using segments and intonation, in formal and informal language settings. Credits: 3; Hours: (3/0/0/0), Prereq: ESI-010; Arts & Sciences Elective Code: D

ESI-023 L2 ELA Reading and Vocabulary (3) Provides practice in reading and vocabulary development at the beginning level for non-native speakers of English. Emphasizes reading skills in academic settings. Credits: 3; Hours: (3/0/0/0), Prereq: ESI-006; Arts & Sciences Elective Code: D

ESI-037 L3 ELA Writing (2) Continues practice in the formation of English sentences, paragraphs and reports for non-native speakers of English at a beginning intermediate level. Builds students' writing structure skills, and use of English vocabulary in writing. Credits: 2; Hours: (2/0/0/0), Prereq: ESI-016; Arts & Sciences Elective Code: D

ESI-038 L3 ELA Grammar (4) Continues practice in English grammar for non-native speakers of English at the beginning intermediate level. Focuses on using English grammar fluently in writing, reading and speaking. Credits: 4; Hours: (4/0/0/0), Prereq: ESI-018; Arts & Sciences Elective Code: D

ESI-039 L3 ELA Listening Skills, Conversation and Culture (3) Continues practice in conversation and listening skills in English for non-native speakers of English at the beginning intermediate level. Emphasizes speaking and listening in formal and informal language settings. Exposes students to English culture and cultural expectations. Credits: 3; Hours: (3/0/0/0), Prereq: ESI-019; Arts & Sciences Elective Code: D
ESI-040 L3 ELA Phonetics and Pronunciation (3)
Continues practice in English segmental and intonation of the English language for non-native speakers at the beginning intermediate level. Provides practice in using segmentals and intonation, in formal and informal language settings. Credits: 3, Hours: (3/0/0/0), Prereq: ESI-021; Arts & Sciences Elective Code: D

ESI-042 L3 ELA Reading and Vocabulary (3)
Continues practice in reading and vocabulary development at the beginning intermediate level for non-native speakers of English. Emphasizes reading skills in academic settings. Credits: 3, Hours: (3/0/0/0), Prereq: ESI-023; Arts & Sciences Elective Code: D

ESI-062 L4 ELA Culture and Conversation (3)
Continues practice in conversation in English for non-native speakers of English at the advanced intermediate level. Focusses on speaking, in formal and informal language settings. Exposes students to English culture and cultural expectations in conversation and oral interaction. Credits: 3, Hours: (3/0/0/0), Prereq: ESI-062; Arts & Sciences Elective Code: D

ESI-063 L4 ELA Writing (3)
Continues practice in the formation of English sentences, paragraphs, and reports for non-native speakers of English at an advanced intermediate level. Provides practice in writing structure, and using English vocabulary in writing. Emphasizes academic report structure and conventions. Credits: 3, Hours: (3/0/0/0), Prereq: ESI-037; Arts & Sciences Elective Code: D

ESI-064 L4 ELA Grammar and Usage (3)
Continues practice in English grammar for non-native speakers of English at the advanced intermediate level. Provides practice in using English grammar fluently in writing, reading and speaking. Emphasizes grammar in applications. Credits: 3, Hours: (3/0/0/0), Prereq: ESI-038; Arts & Sciences Elective Code: D

ESI-068 L4 ELA Reading and Vocabulary (3)
Practice in reading and vocabulary development at the advanced intermediate level. Emphasizes more subtle vocabulary and comprehension for academic settings. Credits: 3, Hours: (3/0/0/0), Prereq: ESI-042; Arts & Sciences Elective Code: D

ESI-069 L4 ELA Presentations (3)
Prepares non-native speakers of English for academic communication skills, including presentations. Provides opportunity to practice academic skills, emphasizing presentation and other skills, at the advanced intermediate level. Credits: 3, Hours: (3/0/0/0), Prereq: ESI-040; Arts & Sciences Elective Code: D

ESI-072 Fundamentals of English Grammar (3.00)
Reviews English grammatical structure and examines advanced grammatical patterns for non-native speakers of English. Provides practice in using English grammar fluently in writing, reading, and speaking. Emphasizes grammar in application and linguistic analysis of grammar. Credits: 3, Hours: (3/0/0/0), Prereq: ESI-064; Arts & Sciences Elective Code: D

ESI-090 L5 ELA Culture and Conversation (3)
Continues practice in conversation in English for non-native speakers of English at the beginning advanced level. Provides practice in speaking in formal and informal language settings. Exposes students to English culture and cultural expectations in conversation and oral interaction. Credits: 3, Hours: (3/0/0/0), Prereq: ESI-062; Arts & Sciences Elective Code: D

ESI-093 English Language Acquisition Special Topics (1.00-12.00)
Develops English language skills for non-native speakers of English in a classroom setting, in reading, writing, communication, grammar and/or for special purposes. Credits: 1-12. Hours: (1-12/0/0/0), Arts & Sciences Elective Code: D

EXS: Exercise Science

EXS-120 Human Anatomy and Physiology for Exercise Science (3.00)
Covers structure and function of the human body as each pertains to the skeletal, muscular, cardiovascular and respiratory systems. Stresses cellular metabolism and neuromuscular function as each applies to human movement. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: A

EXS-180 Fitness Programming and Design (3.00)
Provides students with a basic understanding of laboratory and field assessment techniques used in exercise physiology, fitness/wellness facilities, and to a minor extent, clinical situations. Emphasizes fitness assessment and exercise program design principles for cardiovascular fitness, muscular strength and endurance, body composition, balance and flexibility. Credits: 3, Hours: (3/0/0/0), Prereq: minimum C-in EXS-120 or BIO-168; Arts & Sciences Elective Code: A

EXS-280 Exercise Physiology (4.00)
Defines exercise through the study of neuromuscular physiology, metabolism, exercise endocrinology, cardiometabolic response, environmental adaptation and optimized physical performance. Examines physiological response to various modes of exercise through laboratory activities. Credits: 4, Hours: (3/2/0/0), Prereq: minimum C-in EXS-120 or both BIO-168 and BIO-173, minimum C-in EXS-180 and PEH-170; Arts & Sciences Elective Code: A

EXS-285 Personal Trainer Capstone (3.00)
Solidifies in-depth knowledge and preparation for nationally certified personal trainers. Focuses on the components of personal training including behavior modification, client screening and the business of personal training. Successful completion of this course provides the necessary knowledge to apply for the NASM personal trainer, NSCA personal trainer and ACSM personal trainer certification exams. Credits: 3, Hours: (3/0/0/0), Prereq: minimum C-in EXS-120 or BIO-168/BIO-173, and in BIO-151, EXS-180, EXS-280 and PEH-170; Arts & Sciences Elective Code: A

EXS-932 Internship (2.00)
Provides practical experience in a fitness center/sports training environment. Includes employer/supervisor evaluations and instructor visits/interview. Credits: 2, Hours: (0/0/0/0), Prereq: Minimum C-in EXS-120 or both BIO-168 and BIO-173, in BIO-151 or PEH-191, in PEH-170, and in EXS-180; Arts & Sciences Elective Code: A

FIN: Finance

FIN-110 Money and Banking (3.00)
Presents a fundamental treatment of how money functions in the U.S. and world economies. Topics include the concept of money supply and the role the bank plays as a money creator and participant in the nation’s payment mechanism. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: B

FIN-121 Personal Finance (3.00)
Provides a comprehensive examination of the concepts and principles of personal finance and offers solid strategies for successful management and planning. Students learn planning, analyzing and controlling financial resources, and develop the knowledge and skills necessary to take advantage of favorable financial opportunities, resolve personal financial problems, achieve self-satisfaction and strive towards financial security. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: B

FIN-130 Principles of Finance (3.00)
Examines the tools and techniques used in the world of finance. Introduces basic financial concepts including time value of money, asset valuation, risk analysis and return on investment. Emphasizes evaluation and decision-making techniques pertaining to financial management in various business situations. Credits: 3, Hours: (3/0/0/0), Prereq: ACC-152, ADM-133; Arts & Sciences Elective Code: A

FIN-300 Topics in Financial Services (3.00)
Covers sales, marketing and service for FS, leadership and professionalism, insurance and risk management, personal finance and financial products and services. Integrates lecture, case study analysis, scenarios, individual and group project work, and industry professional tours and/or presentations. Credits: 3, Hours: (3/0/0/0), Prereq: MKT-140, minimum C-in FIN-110 & FIN-121, either ADM-133 or MAT-102 or MAT-708; Arts & Sciences Elective Code: B

FIR: Fire Science

FIR-110 History and Philosophy of the Fire Service (2.00)
Provides students with an understanding of where the fire service has come from so they can better help steer fire service into the future. Instructional units are facilitated through a guided self-study format. Credits: 2, Hours: (2/0/0/0), Arts & Sciences Elective Code: B

FIR-124 Building Construction (3.00)
Examines structural reactions to fire. Studies building codes and their relationship to the architectural strength of various designs. Covers how construction and design are key factors when inspecting buildings, preplanning fire operations and functioning at emergencies. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: B
FIR-127 Fire Behavior and Combustion (3.00)
Studies how the chemical and physical aspects of fuels, the combustion process and the products of combustion affect how fire is caused, spread and extinguished. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: B

FIR-130 Fire Prevention (3.00)
Covers the techniques, procedures, regulations and enforcement of codes (fire, building, life safety) in various occupancies. Communication with the property owner on changes to meet code requirements are presented. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: B

FIR-141 Firefighter I - Unit II (2.00)
Continues to build on skills taught in Firefighting Skills I. Students learn new skills and advance their previous skills for preparation for the Firefighter I Exam. Topics include fire alarm communciation, fire department organization, fire hose, fire stream, water supplies, forcible entry and ventilation, ladders, organization, personal protective equipment and safety. Attendance for all sessions is mandatory. Class is graded on P/F (Pass/Fail) basis. Credits: 2, Hours: (1/2/0/0), Arts & Sciences Elective Code: B

FIR-146 Firefighting Tactics and Strategy (3.00)
Studies methods of coordinating personnel, equipment and deploying apparatus on the fire ground. Practical methods of controlling and extinguishing structural and other types of fires are discussed. Includes simulation exercises. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: B

FIR-150 Fire Detection and Suppression Systems (3.00)
Covers the identification of system elements, the proper type for the occupancy as per code, fire department operations at premises, and inspection practices to ensure the system is operating and installed as required. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: B

FIR-180 Chemistry of Hazardous Materials (3.00)
Covers properties of chemistry in fire service. Types of chemicals, processes and legal requirements are discussed as they pertain to use, storage and transportation of chemicals. Credits: 3, Hours: (2.5/1/0/0), Prereq: MAT-102; Arts & Sciences Elective Code: B

FIR-183 Hazardous Materials Management (3.00)
Discusses the properties of chemically active substances related to hazardous materials. Identifies and demonstrates techniques, methods and strategies to mitigate haz-mat incidents. Covers state and federal laws as they relate to management of hazardous materials. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: B

FIR-199 Firefighter I (8.00)
Prepares potential firefighters for the state administered Firefighter I certification exam. Includes basic firefighting tactics, fire behavior, safety, forcible entry, hose handling, ladders, protective clothing, SCBA rescue, ventilation, PPE and additional topics. Requires passing the Firefighter I exam through the Iowa Fire Service Training Bureau to become certified. Credits: 8, Hours: (6/4/0/0), Arts & Sciences Elective Code: B

FIR-201 Firefighter II (3.00)
Continues as the second level of standards-based certification available to candidates. Focuses on the basic principles of firefighting as they relate to Firefighter Professional Qualifications. Covers topics included in the Firefighter I program, and allows the candidate to participate in certification testing to obtain Firefighter II certification based on NFPA 1001, 2002 edition. Credits: 3, Hours: (2.5/1/0/0), Prereq: FIR-289; Arts & Sciences Elective Code: B

FIR-213 Principles of Emergency Services (3.00)
Studies fire service nomenclature, career opportunities in fire protection, organization and function of fire protection services, laws and regulations affecting the fire service, and fire departments as part of local government. Includes job shadowing with career firefighters. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: B

FIR-280 Instructional Techniques for Fire Service Training (3.00)
Covers concepts and techniques for conducting periodic company-level or small-unit training. Emphasizes teaching principles applicable to in-service fire and rescue service skills training. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: B

FIR-330 Fire Service Company Officer (3.00)
Studies the company officer’s role in the fire department. Examines topics including effective communications, organization and management, resource management, leadership, safety, fire prevention and investigation, and pre-planning. Meets NFPA 1021, Fire Officer I, 2003 edition. Includes lecture with activities and exercises designed to reinforce the topic. Requires completion of written assignments throughout the course that are required for the requirements of Fire Officer I. Credits: 3, Hours: (3/0/0/0), Prereq: FIR-199; Arts & Sciences Elective Code: B

FIR-400 Emergency Safety and Survival (3.00)
Introduces the basic principles and history related to national firefighter life safety initiatives. Focuses on the need for cultural and behavioral change across the emergency services. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: B

FIR-924 Honors Project (1)
Allows a qualified honors student to pursue a special concentration of study under the guidance of a faculty member. Requires completion of an honors project contract. May be taken more than once. Credits: 1, Hours: (1/0/0/0), Arts & Sciences Elective Code: A; Comments: Requires approval of supervising professor and dean

FIR-928 Independent Study (1-3)
Provides readings, papers and basic research or other projects under the individual guidance of a staff member. Credits: 1, Hours: (1/0/0/0), Arts & Sciences Elective Code: A; Comments: Permission of instructor, dean

FLC: Foreign Language - Chinese

FLC-141 Elementary Chinese I (4.00)
Develops functional abilities in the Chinese (Mandarin) language. Focuses on using Mandarin Chinese in linguistically, socially and culturally appropriate ways. Covers listening, speaking, reading, writing and cultural aspects of communication. Open to students with little or no previous study of Chinese. Credits: 4, Hours: (4/0/0/0), Arts & Sciences Elective Code: A

FLC-142 Elementary Chinese II (4.00)
Builds on language skills learned in Elementary Chinese I. Expands functional abilities in the Chinese (Mandarin) language and encourages improved use of Mandarin Chinese in linguistically, socially and culturally appropriate ways. Focuses on listening, speaking, reading, writing and cultural aspects of communication. Credits: 4, Hours: (4/0/0/0), Prereq: FLC-141; Arts & Sciences Elective Code: A

FLC-241 Intermediate Chinese I (4.00)
Concentrates on communicating Chinese (Mandarin) by practicing authentic language tasks to improve skills in reading, writing, speaking and listening. Focuses on building understanding of Chinese culture and extends students’ language use beyond contexts of elementary discourse. Course activities are conducted in Chinese. Credits: 4, Hours: (4/0/0/0), Prereq: FLC-142; Arts & Sciences Elective Code: A

FLC-242 Intermediate Chinese II (4.00)
Continues development in Chinese (Mandarin) communication, building upon cultural and linguistic skills. Focuses on practicing authentic language tasks to improve reading, writing, speaking and listening skills. Builds intermediate proficiency with extended discourse and expanding topics. Course activities are conducted in Chinese. Credits: 4, Hours: (4/0/0/0), Prereq: FLC-241; Arts & Sciences Elective Code: A

FLC: Foreign Language - French

FLF-141 Elementary French I (4.00)
Introduces the 5 Cs of second language acquisition (communication, cultures, connections, comparisons and communities) by developing the fundamental communicative skills of listening, speaking, reading and writing, and providing the opportunity to examine the practices and products of various francophone cultures. Making comparisons and connections between the French and English language, practices, products and people is an important course component. Open to students with little or no previous study of French. Credits: 4, Hours: (4/0/0/0), Arts & Sciences Elective Code: A

FLF-142 Elementary French II (4.00)
Continues to develop the 5 Cs of second language acquisition (communication, cultures, connections, comparisons, and communities) by improving the fundamental communicative skills of listening, speaking, reading and writing acquired in Elementary French I. Examines the practices and products of francophone cultures.
Includes discussion of the comparisons and connections that exist between various francophone cultures and language and our own. Credits: 4, Hours: (4/0/0/0), Prereq: FLF-141; Arts & Sciences Elective Code: A

FLF-241 Intermediate French I (4.00)
Develops the 5 Cs (communication, cultures, connections, comparisons and communities) by providing intensive practice in the fundamental communicative skills of listening, speaking, reading and writing, with a methodic study of different cultural contexts and a review of the basic grammar. Examines the cultural practices and products of francophone cultures. Credits: 4, Hours: (4/0/0/0), Prereq: FLF-142; Arts & Sciences Elective Code: A

FLF-242 Intermediate French II (4.00)
Continues to develop the 5 Cs (communication, cultures, connections, comparisons and communities) by expanding the repertoire of realia (movies, readings, Internet explorations) and class activities. Provides continuous practice in developing the communicative skills and encourages group discussion about everyday subjects as well as the practices and products of francophone cultures. Credits: 4, Hours: (4/0/0/0), Prereq: FLF-241; Arts & Sciences Elective Code: A

FLF-924 Honors Project (1.00)
Allows a qualified student to pursue a special concentration of study under the guidance of a faculty member. Requires completion of an honors project contract. May be taken more than once. Credits: 1, Hours: (1/0/0/0), Arts & Sciences Elective Code: A; Comments: Requires approval of supervising professor and dean

FLF-928 Independent Study (1.00-3.00)
Provides for individualized learning beyond courses offered on a regular basis. Students work directly with a faculty member on furthering proficiency in several different areas of the student’s own choosing, e.g., reading comprehension, aural/oral proficiency, understanding of civilization and culture, etc. Credits: 1-3, Hours: (1-3/0/0/0), Arts & Sciences Elective Code: A; Comments: Permission of instructor, dean

FLG: Foreign Language - German
FLG-141 Elementary German I (4.00)
Develops fundamental skills in German language. Emphasis is on acquiring the proficiency to communicate with the native speaker in everyday situations. Credits: 4, Hours: (4/0/0/0), Arts & Sciences Elective Code: A

FLG-142 Elementary German II (4.00)
Continues Elementary German I. Credits: 4, Hours: (4/0/0/0), Prereq: FLG-141; Arts & Sciences Elective Code: A

FLG-241 Intermediate German I (4.00)
Develops the students’ ability to communicate in German in a culturally authentic mode. Students learn about the culture of the German-speaking world through authentic materials, discussions of how language and culture function in their own lives, and through activities designed to build skills in reading, writing, speaking and listening. Credits: 4, Hours: (4/0/0/0), Prereq: FLG-142; Arts & Sciences Elective Code: A

FLG-242 Intermediate German II (4.00)
Develops the students’ ability to communicate in German in simple to complex language in a culturally authentic mode. Students build upon cultural analysis skills developed in Intermediate German I, to further develop language and cultural competencies. Uses digital video and has a large Web-based component. Expands basic communicative skills in speaking, listening, reading and writing. Credits: 4, Hours: (4/0/0/0), Prereq: FLG-241; Arts & Sciences Elective Code: A

FLS: Foreign Language - Spanish
FLS-118 Spanish for Professionals: Hospitality (3.00)
Introduces the Spanish language with a special focus on culinary arts and hospitality. Covers vocabulary, grammar, reading and listening comprehension, and emphasizes oral communication in culinary and hospitality settings. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: B

FLS-128 Conversational Spanish (3.00)
Develops conversational skills in the Spanish language. The emphasis is on acquiring proficiency in communicating in Spanish in work situations. Includes activities that promote basic Spanish grammar, specialized and everyday vocabulary and basic understanding of Latin American culture. Credits: 3, Hours: (2/2/0/0), Arts & Sciences Elective Code: B

FLS-141 Elementary Spanish I (4.00)
Develops fundamental skills in the Spanish language. Emphasis is on acquiring the proficiency to communicate with the native speaker in everyday situations. Includes activities that promote an understanding and knowledge of the Spanish-speaking peoples and their culture. Credits: 4, Hours: (4/0/0/0), Arts & Sciences Elective Code: A

FLS-142 Elementary Spanish II (4.00)
Allows the student to communicate with others on subjects of daily common experience in most informal and a limited number of formal conversations on activities related to family, work, health, friends, leisure activities, social life, environment, etc. The vocabulary used in this course is non-specialized, containing everyday words as well as frequently used expressions, all within a cultural context. Cultural facts from Hispanic and Latin American cultures will also be presented in the classroom. Credits: 4, Hours: (4/0/0/0), Prereq: FLS-141; Arts & Sciences Elective Code: A

FLS-241 Intermediate Spanish I (4.00)
Provides practice of language beyond the controlled situations of the elementary course. Develops fundamental skills in Spanish through activities aimed at expressing original ideas and conveying messages in correct Spanish with the aid of authentic resources. Class activities offer advanced training in listening, speaking, reading, writing, and understanding the cultures of Spanish-speaking countries. Grammar study includes a review of previously introduced topics as well as new ones. Credits: 4, Hours: (4/0/0/0), Prereq: FLS-142; Arts & Sciences Elective Code: A

FLS-242 Intermediate Spanish II (4.00)
 Enables students to continue to develop all communication skills, using primarily materials from literature, contemporary newspapers and magazines aimed at providing a better understanding of the Hispanic and Latin cultures and pertinent current issues. Class activities include pronunciation exercises, some grammar review and class discussion that promotes spontaneous conversation. Credits: 4, Hours: (4/0/0/0), Prereq: FLS-241; Arts & Sciences Elective Code: A

FLS-266 Advanced Spanish: Latin American and Spanish Culture (3.00)
Develops communication skills through the study of the history, literature and cultures of the Spanish-speaking countries of the world. May emphasize a specific area (Spain, Mexico, Central America, South America) or explore common aspects of all or several areas. Conducted in Spanish. May be repeated (elective credit second time). Credits: 3, Hours: (3/0/0/0), Prereq: FLS-232; Arts & Sciences Elective Code: A

FLS-924 Honors Project (1.00)
Allows a qualified honors student to pursue a special concentration of study under the guidance of a faculty member. Requires completion of an honors project contract. May be taken more than once. Credits: 1, Hours: (1/0/0/0), Arts & Sciences Elective Code: A; Comments: Requires approval of supervising professor and dean

FLS-928 Independent Study (1.00-3.00)
Provides readings, papers and basic research or other projects under the individual guidance of a staff member. Credits: 1, Hours: (1/0/0/0), Arts & Sciences Elective Code: A; Comments: Permission of instructor, dean

GEO: Geography
GLS: Global Studies
GLS-110 Global Leadership (1.00)
Develops global perspectives and valuable skills necessary to effectively work in a global environment. Focuses on comparing and contrasting cultures specifically as they relate to organizations, social justice issues and ethics. Develops leadership, personal responsibility, communication, conflict resolution and negotiation skills. Credits: 1-3, Hours: (0/2-6/0/0), Arts & Sciences Elective Code: B

GLS-120 Education Experience Abroad (1.00-3.00)
Provides a structured cross-cultural experience, including pre-departure cultural orientation, in-country immersion experience and culminating project. Includes history, religion, geography, philosophy, literature, anthropology, culture, fine arts, food, language and other relevant topics. Includes a short-term study abroad experience with additional fees for travel. Credits: 1-3, Hours: (1-3/0/0/0), Arts & Sciences Elective Code: A
GRA: Graphic Communications

GRA-101 Survey of Graphic Communications (3.00)
Introduces the graphic communication industry, including traditional layout and design techniques, electronic/traditional publishing, bindery operations and Internet design basics. Introduces the fundamental processes used in the graphic communication industry. Covers two-dimensional design concepts and production preparation. Explores current graphic design computer applications, as well as the Apple OS as it relates to its interaction with printers, servers and design. Credits: 3; Hours: (2/2/0/0), Arts & Sciences Elective Code: B

GRA-127 Illustrator I (3.00)
Introduces Adobe Illustrator and its application in graphic communication. Includes Adobe Illustrator tools as they apply to object- (vector) based files, filters and layers, pages, basic drawing and tracing techniques, and creating line art and logos. Addresses how to simplify art work through stylizing. Explores creative use of type. Incorporates how to set up color reproduction, how to save and manage files, and how these files interact with page layout and paint (raster) programs. Credits: 3; Hours: (2/2/0/0), Arts & Sciences Elective Code: B

GRA-128 Illustrator II (3.00)
Explores vector drawing tools as they apply to object-based files using Adobe Illustrator. Includes advanced drawing techniques, creation of medium to high-quality art, and how to simplify artwork through stylizing. Teaches color set up for reproduction, saving and management of files, and how files interact with page layout and paint (raster) programs. Credits: 3; Hours: (2/2/0/0), Prereq: GRA-127, GRA-101; Arts & Sciences Elective Code: B

GRA-131 Digital Layout (3.00)
Provides working knowledge of InDesign and its use in creating effective page layouts combining graphics and type. Includes toolbox and tool usage, importing and editing text and graphics, master pages, use of styles, text and paragraph formatting, general layout and design concepts, printing operations, importing graphics, and setting up text styles, columns and grids. Covers single- and spot-color printed material. Credits: 3; Hours: (2/2/0/0), Arts & Sciences Elective Code: B

GRA-132 Digital Layout II (3.00)
Expands knowledge of InDesign including page setup, text and graphic frames, links management, use of spot and process colors within publications, how to color separate files, general layout and design concepts, and printing operations. Continues use of master pages, use of styles, text and paragraph formatting and effective use of type and graphics. Credits: 3; Hours: (2/2/0/0), Prereq: GRA-101, GRA-131; Arts & Sciences Elective Code: B

GRA-140 Digital Imaging (3.00)
Introduces Photoshop. Covers basic scanning techniques for grayscale and line art images; proper manipulation procedures required for various output sources including input and output resolutions, file size, multiple file-saving formats, simple image enhancements and creating duotones; and creative application of Photoshop. Credits: 3; Hours: (2/2/0/0), Arts & Sciences Elective Code: B

GRA-141 Digital Imaging II (3.00)
Introduces color correction theory and practices, image enhancements using third-party plug-ins, effective use of layers, paths, adding type to images, and color correction controls to create visually effective images. Emphasizes properly preparing images for printing and publishing. Explores use of Photoshop for Web page design. Credits: 3; Hours: (2/2/0/0), Prereq: GRA-101, GRA-140; Arts & Sciences Elective Code: B

GRA-151 Web Design (3.00)
Introduces, explores and expands web design skills and knowledge base of Fundamentals of Web Programming. Incorporates design solutions via social and business models based on client need. Focuses on layout, wire framing, graphics selection and fonts using core graphic design principles. Teaches responsive design and web editing applications. Introduces Adobe Muse and Dreamweaver. Includes presentation for client approval. Credits: 3; Hours: (1/6/0/0), Prereq: minimum C- in CIS-207, GRA-127, GRA-131 and GRA-140; Arts & Sciences Elective Code: B

GRA-152 Web Design II (4.50)
Provides website design through resources such as Bootstrap and Word Press to add multiple types of content for the web. Covers form building and utilizing Java Script on Web pages. Includes development of a website. Credits: 4.5; Hours: (3/3/0/0), Prereq: minimum C- in CIS-207, GRA-127, GRA-132, GRA-140, GRA-151 and GRA-195; Arts & Sciences Elective Code: B

GRA-153 Web Media II (3.00)
Continues Web content development and interactivity using Flash, Illustrator and Photoshop as the primary tools. Explores intermediate video editing and enhancements using Adobe Premiere and After Effects. Requires working through Web content scenarios and developing Web design layouts, navigation interactivity, Web animations and multimedia applications. Interactive content and design are used in students’ final Graphic Communication portfolio. Credits: 3; Hours: (2/2/0/0), Prereq: GRA-127, GRA-131, GRA-140; Arts & Sciences Elective Code: B

GRA-192 Production Techniques (4.50)
Provides actual and realistic hands-on experience; builds on skills learned to date. Covers pre- and post-production project issues for print and web. Emphasizes management of multiple projects and meeting deadlines, and working as part of a team through a storefront scenario. Integrates work with actual clients in a team-based (company) operation, presents packaging design and production, and practice of design, output and proofing options. Incorporates an analog portfolio of student graphic design and production skills. Credits: 4.5; Hours: (3/3/0/0), Prereq: CIS-207, GRA-128, GRA-132, GRA-141, GRA-195; Arts & Sciences Elective Code: B

GRA-195 Introduction to Web Media (3.00)
Provides introductory skills in Web content development and interactivity using Flash, Illustrator and Photoshop as the primary tools. Students work through textbook-based Web content scenarios to develop Web design concepts, layouts, navigation and interactivity, as well as Flash-based Web animations. Students develop interactive content and design to be used in their final (GRA-151) Web Design project. Credits: 3; Hours: (2/2/0/0), Prereq: GRA-127, GRA-131; Arts & Sciences Elective Code: B

GRA-199 Graphic Communication Job Shadowing (1.00)
Provides an opportunity to receive experience through job shadowing sessions with an approved graphic communications business. Students receive valuable learning experience in area businesses. Credits: 1; Hours: (1/0/0/0), Arts & Sciences Elective Code: B

GRA-924 Honors Project (1.00)
Allows a qualified honors student to pursue a special concentration of study under the guidance of a faculty member. Requires completion of an honors project contract. May be taken more than once. Credits: 1; Hours: (1/0/0/0), Arts & Sciences Elective Code: A; Comments: Requires approval of supervising professor and dean

GRA-928 Independent Study (1.00-3.00)
Provides readings, papers and basic research or other projects under the individual guidance of a staff member. Credits: 1; Hours: (1/0/0/0), Arts & Sciences Elective Code: A; Comments: Permiss- ion of instructor, dean

HCM: Hospitality, Culinary, Management

HCM-100 Sanitation and Safety (2.00)
Studies basic principles of bacteriology, food borne illness, sanitation, workplace safety, personal hygiene, food security, health regulations and inspections. Emphasizes the importance of sanitary equipment and facilities, and pest control. Students must complete the National Restaurant Association Educational Foundation certification exam to pass this course. Credits: 2; Hours: (2/0/0/0), Arts & Sciences Elective Code: B

HCM-109 Kitchen Essentials (1.50)
Familiarizes students with standard operating procedures, employee practices and the tools and equipment used in a commercial food service operation. Students practice skills in work simplification, equipment operation and cleaning, recipe writing and standardization. Emphasizes food sanitation, personal hygiene and safety in the kitchen. Credits: 1.5; Hours: (5/2/0/0), Coreq: HCM-100, HCM-260; Arts & Sciences Elective Code: B

HCM-117 Bakery Basics (3.00)
Provides theory on basic baking methods and lab experience in preparing bakery products. Emphasizes yeast products, quick breads, pies, cakes, pastry doughs, custards, puddings and cookies. Stressess bakery procedures, scaling techniques, weighing, measuring, use and care of equipment, sanitation and safety, work simplification, costing and the production of high quality baked products. Credits: 3; Hours: (1/4/0/0), Prereq: HCM-109; Coreq: HCM-100, HCM-260; Arts & Sciences Elective Code: B

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**Course Descriptions**

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HCM-122 International Breads (3.00)
Provides expanded theory on bread baking, and additional lab experience in preparing yeast and quick bread products. Includes identification of special ingredients, traditional shaping techniques, costing and selection of ingredients, preparation procedures, use and care of bakery equipment, sanitation and work simplification. Introduces the history and traditional uses of breads. Credits: 3; Hours: (1/4/0/O), Prereq: HCM-117, HCM-125, HCM-126; Arts & Sciences Elective Code: B

HCM-123 International Pastries (3.00)
Provides additional theory and lab experience in preparing pastries representative of cultural traditions of the world. Stresses bakery procedures, use and care of equipment of bakery equipment, sanitation, safety, work simplification, costing and production of high quality pastry items. Includes research into cuisines of the world and associated pastries. Credits: 3; Hours: (1/4/0/O), Prereq: HCM-117, HCM-126; Coreq: HCM-125; Arts & Sciences Elective Code: B

HCM-125 Basic Cake Decorating (1.00)
Provides instructions for the beginning cake decorator. Emphasizes practical border work, cake writing, figure piping, flowers, wedding cake assembly and airbrushing. Students utilize decorator's tools, practice basic decorating design, techniques and develop artistic creativity. Equipment required. Credits: 1; Hours: (0/2/0/0), Prereq: HCM-100; Arts & Sciences Elective Code: B

HCM-126 Science of Baking (2.00)
Introduces food science principles as applied to bakery ingredients using scientific methods. Students create, compare and revise recipes with emphasis on quality, nutrient content and cost. Introduces sensory evaluation of food. Credits: 2; Hours: (1/2/0/0), Prereq: HCM-100; Arts & Sciences Elective Code: B

HCM-127 Advanced Cake Decorating (1.00)
Provides advanced skills in the art of cake decorating, including fondant icing and its use in the baking industry; designing tiered and multi-leveled cakes; and making decorations and floral arrangements with gum. Credits: 1; Hours: (0/2/0/0), Prereq: HCM-125; Arts & Sciences Elective Code: B; Comments: Equipment needed.

HCM-133 Fabrication I (1.50)
Studies the fabrication of meats including beef, pork, poultry and fish in a lab setting. Stresses proper cooking methods for various cuts, and the importance of cooking and yield tests. Emphasizes proper kitchen procedures, use and care of equipment, sanitation, safety, cost control and efficient work methods. Credits: 1.5; Hours: (1.5/2/0/0), Prereq: HCM-100, HCM-138, HCM-260; Arts & Sciences Elective Code: B

HCM-134 Fabrication II (1.50)
Studies the fabrication of meats including lamb, veal, seafood, duck, quail, pheasant and offal in a lab setting. Stresses proper cooking methods for various cuts, and the importance of cooking and yield tests. Emphasizes proper kitchen procedures, use and care of equipment, sanitation, safety, cost control and efficient work methods. Credits: 1.5; Hours: (1.5/2/0/0), Prereq: HCM-133; Arts & Sciences Elective Code: B

HCM-138 Food Fundamentals (3.00)
Studies the composition of foods and the scientific principles involved in food preparation. Emphasizes basic food handling competencies and cookery techniques. Students work with herbs, spices, dairy, eggs, fruits, vegetables, starches, stocks, sauces and soups, learning to produce quality products. Focuses on the development of proper kitchen procedures, use and care of equipment, sanitation, safety, cost control and efficient work methods. Credits: 3; Hours: (1/4/0/O), Prereq: HCM-147; Coreq: HCM-100, HCM-260; Arts & Sciences Elective Code: B

HCM-140 Fabrication (3.00)
Studies the fabrication of meats including beef, pork, poultry, lamb, fish and seafood in a lab setting. Stresses proper cooking methods for various items and cuts, and the importance of cooking and yield tests. Emphasizes proper kitchen procedures, use and care of equipment, sanitation, safety, cost control and efficient work methods. Credits: 3; Hours: (1/4/0/O), Prereq: HCM-161; Arts & Sciences Elective Code: B

HCM-147 Culinary Techniques (1.50)
Introduces fundamental cookery methods in a blended lab and theory environment. Explores the theory behind cookery methods before applying that theory when producing various dishes. Introduces moist heat, dry-heat and combination cookery methods. Emphasizes knife skills and the use and care of kitchen equipment, sanitation, kitchen procedures, cost control and efficient work methods. Credits: 1.5; Hours: (0.5/2/0/0), Prereq: HCM-109; Coreq: HCM-100, HCM-260; Arts & Sciences Elective Code: B

HCM-161 Stocks and Sauces (1.50)
Develops student understanding of and practical skills in the production of stocks, sauces and a variety of condiments. Emphasizes modern and classical sauce techniques. Develops general kitchen production skills through repeated performance. Reinforces proper kitchen procedures, care and use of equipment, sanitation, safety, cost control and efficient work methods. Credits: 1.5; Hours: (0.5/2/0/0), Prereq: HCM-100, HCM-138; Arts & Sciences Elective Code: B

HCM-166 Culinary Arts (4.00)
Emphasizes advanced culinary competencies while rotating through various stations in a full-service, operating restaurant kitchen. Requires hands-on food preparation experience at breakfast, lunch and dinner in the restaurant. Emphasizes proper kitchen procedures, kitchen management, team work, use and care of equipment, sanitation, safety, cost control and efficient work methods. Credits: 4; Hours: (2/0/6/0), Prereq: HCM-140, HCM-181, HCM-269; Arts & Sciences Elective Code: B

HCM-181 International Cuisine (4.00)
Introduces various international cuisines and their ingredients, preparation methods and cultural influences. Provides further practical experience in preparing quality food, and practice in following standard recipes to prepare a variety of dishes with varying degrees of difficulty. Students work individually and produce their own work independent of others in the class. Emphasizes critical thinking skills as students evaluate their completed dishes. Reinforces proper kitchen procedures, care and use of equipment, sanitation, safety, cost control and efficient work methods. Credits: 4; Hours: (1/6/0/O), Prereq: HCM-138, HCM-140; Arts & Sciences Elective Code: B

HCM-190 Bakery Essentials (1.00)
Familiarizes students with standard operating procedures, and the tools and equipment used in a commercial bakery. Students practice skills in: work simplification, mixing techniques, ingredient identification, equipment operation and cleaning, recipe writing and standardization. Emphasizes food sanitation, personal hygiene and safety in the bakery. Credits: 1; Hours: (0/2/0/0), Coreq: HCM-100; Arts & Sciences Elective Code: B

HCM-204 Service Techniques (3.00)
Defines and describes points of service in restaurant and banquet functions. Discusses sales techniques, cash handling standards, methods of customer satisfaction, and other topics related to the smooth operation of any restaurant or catered event. Requires hands-on experience at breakfast, lunch and dinner in a full-service restaurant. Emphasizes proper service procedures, cost control and efficient work methods. Credits: 3; Hours: (1/0/6/0), Prereq: HCM-100; Arts & Sciences Elective Code: B

HCM-207 Menu Planning (1.50)
Studies the principles of menu marketing and management. Focuses on writing and analyzing menus for various population groups, types of food service facilities and service styles. Credits: 1.5, Hours: (1.5/0/0/O), Prereq: HCM-138; Arts & Sciences Elective Code: B

HCM-213 Service Management (Lab) (4.00)
Allows students to perform as supervisors and managers in the dining areas. Requires management techniques and theories in working with others to create a successful restaurant environment, under the direction of professional staff. Emphasizes computer application in analyzing food and beverage costs, labor costs and other operating costs as applied to The Class Act restaurant. Credits: 4; Hours: (2/0/6/0), Prereq: HCM-100, HCM-204, HCM-260, HCM-279; Arts & Sciences Elective Code: A

HCM-231 Nutrition (2.00)
Reviews basic nutritional concepts in relation to current health concerns and the food service industry. Practices recipe and menu modification to improve nutrition. Prepares students for the national certification test by the National Restaurant Association Educational Foundation. Credits: 2; Hours: (2/0/0/0), Arts & Sciences Elective Code: B

HCM-251 Purchasing, Receiving and Inventory (2.00)
Studies principles in purchasing, receiving, issuing and inventory management. Emphasizes cost management techniques. Practices skills in a clinical lab experience supervised by the purchasing manager of The Hotel at Kirkwood Center. Credits: 2; Hours: (1.5/0/1.5/0), Prereq: HCM-100, HCM-260; Arts & Sciences Elective Code: B

HCM-256 Cost Control and Merchandising (3.00)
Defines and describes the cost control process in a foodservice operation. Emphasizes cost control methods in the purchasing, receiving, storage,
production and service stages. Practices specification writing, recipe costing, menu pricing and product yield tests. Offers basic instruction in bakery merchandising, and opportunities to create bakery product displays. Credits: 3; Hours: (3/0/0/0), Prereq: HCM-260; Arts & Sciences Elective Code: B

HCM-260 Hospitality Math (3.00) Reviews the fundamentals of mathematics, including calculating percent, ratios, decimals, fractions, weights and measures, and introductory algebra concepts. Emphasizes application of mathematical fundamentals to a variety of culinary and hospitality uses. Provides instruction in equivalencies, recipe costing and conversion, calculating food and labor cost percentages, baker's percentages, yield conversions, and selling prices. Credits: 3; Hours: (3/0/0/0), Arts & Sciences Elective Code: B

HCM-268 Baking for Dietary Restrictions (2.00) Provides fundamental knowledge necessary to accommodate baking for customers with restrictive dietary needs, including diabetes, celiac intolerance, heart conditions and common allergies. Focuses on comparing, revising and producing recipes in a lab environment, with an emphasis on evaluating product quality and ingredients relative to special needs baking. Credits: 2; Hours: (1/2/0/0), Prereq: HCM-100, HCM-117, HCM-122, HCM-123, HCM-126, HCM-260; Arts & Sciences Elective Code: B

HCM-269 Garde Manger (lab/lec) (1.50) Introduces basic cold food preparation and presentation, including sandwiches, salads, salad dressings and simple cold appetizers. Emphasizes proper kitchen procedures, use and care of equipment, sanitation, safety, cost control and efficient work methods. Credits: 1.5; Hours: (.5/2/0/0), Prereq: HCM-100, HCM-138; Arts & Sciences Elective Code: B

HCM-273 Advanced Garde Manger (3.00) Studies advanced techniques in cold food preparation and presentation techniques. Emphasizes chaufaids, aspigs, pates, galantines, ballotines, terrines, hors d'oeuvre, charcuterie and food decorating. Focuses on proper kitchen procedures, use and care of equipment, sanitation, safety, cost control and efficient work methods. Credits: 3; Hours: (1/4/0/0), Prereq: HCM-140, HCM-181, HCM-269; Arts & Sciences Elective Code: B

HCM-279 Hospitality Accounting (3.00) Provides an understanding of basic accounting concepts and procedures relevant to hotel and food service operations. Instructs students in recording transactions, understanding financial statements, managing inventory, payroll problems, occupancy issues and other special topics. Credits: 3; Hours: (3/0/0/0), Prereq: HCM-260; Arts & Sciences Elective Code: B

HCM-288 Introduction to Hospitality II (1.00) Explores the hospitality/foodservice industry with emphasis on a variety of industry segments and influences including fine dining, independent operations, health services, institutional operations. Provides career planning, career development and goal setting, and portfolio development. Credits: 1; Hours: (1/0/0/0), Prereq: HCM-321; Arts & Sciences Elective Code: B

HCM-289 Wedding Cake Decorating (2.00) Provides theory and experience in designing and preparing traditional and contemporary multi-layered wedding cakes. Studies current trends related to wedding cake production. Credits: 2; Hours: (0/4/0/0), Prereq: HCM-125; Arts & Sciences Elective Code: B

HCM-295 Professional Production (4.00) Provides an opportunity to receive on-the-job training with the professional bakers at The Hotel at Kirkwood Center. Maximizes exposure and training depth through learning experiences related to the production demands of the commercial outlets of The Hotel. Credits: 4; Hours: (1/0/9/0), Prereq: HCM-100, HCM-122, HCM-123, HCM-125, HCM-126, HCM-260; Arts & Sciences Elective Code: B

HCM-296 Introduction to Food and Bar Operations (2.00) Focuses on the management of food and beverage operations in hospitality establishments. Includes stewarding, banquets, restaurant, beverage and room service. Facilitates internships in hospitality operations. Credits: 2; Hours: (2/0/0/0), Prereq: HCM-600 or HCM-138, HCM-601 or HCM-138; Arts & Sciences Elective Code: B

HCM-310 Hospitality Law (3.00) Reviews legal subjects relevant to the hospitality industry. Emphasizes government regulations, food and liquor liability, patron rights and safety, employer/employee rights and responsibilities, the court system, and business management. Credits: 3; Hours: (3/0/0/0), Arts & Sciences Elective Code: B

HCM-315 Wine, Beer and Spirits Basics (3.50) Identifies characteristics of alcoholic beverage classifications including wine, beer and spirits. Describes fermentation, brewing and distillation. Reviews alcoholic service basics and beverage control laws. Introduces wine classifications, characteristics, tasting and pairings with food. Credits: 3.5; Hours: (2.5/2/0/0), Arts & Sciences Elective Code: B

HCM-321 Introduction to Hospitality Industry (1.00) Develops an understanding of the hospitality industry and career opportunities in close cooperation with the college's Career Services department. Students create an education and career portfolio. Credits: 1; Hours: (1/0/0/0), Arts & Sciences Elective Code: B

HCM-326 Basic Hospitality Communications (3.00) Allows students to improve English writing skills (grammar and mechanics), listening skills, phone and e-mail etiquette, and basic customer service skills. Enhances skills through exercises applicable to the hospitality industry. Credits: 3; Hours: (3/0/0/0), Prereq: ENG-013; Arts & Sciences Elective Code: B

HCM-330 Hospitality Personnel Management (3.00) Introduces the functions of human resource management, including, planning, communicating, recruiting, hiring, training, coaching, counseling, discipline, performance evaluation, termination and labor relations. Emphasizes the legal issues related to managerial decisions, motivation and managing diversity. Students are certified by the National Restaurant Association Educational Foundation upon successful performance on the national test. Credits: 3; Hours: (3/0/0/0), Arts & Sciences Elective Code: B

HCM-340 Hospitality Events and Catering (FOH) (3.00) Applies and refines, in a rigorous practical setting, competencies mastered in previous coursework within the Culinary Arts program. Explores front-of-the-house management skills as students demonstrate to plan, produce and successfully execute college catering events. Emphasizes quality product and service, financial performance, teamwork and customer satisfaction, along with demonstrated mastery of refined competencies. Credits: 3; Hours: (1/0/6/0), Prereq: HCM-213, HCM-227; Arts & Sciences Elective Code: B; Comments: Students must be flexible to attend class during the day, evenings and weekends

HCM-342 Hospitality Events and Catering (BOH) (3.00) Applies and refines, in a rigorous practical setting, competencies mastered in previous coursework within the Culinary Arts program. Explores back-of-the-house management skills through demonstration to plan, produce and successfully execute catering events of The Hotel at Kirkwood Center. Emphasizes quality product and service, financial performance, teamwork and customer satisfaction, along with demonstrated mastery of refined competencies. Credits: 3; Hours: (1/0/6/0), Prereq: HCM-117, HCM-166, HCM-207, HCM-231; Arts & Sciences Elective Code: B

HCM-405 Culinary Competition (3.00) Provides skills and techniques for food preparation in culinary competitions based on American Culinary Federation competencies. Focuses on food production time management, protein fabrication, plate presentation and knife skills. Offers preparation for participation in culinary competitions to demonstrate refined practical skills. Credits: 3; Hours: (0/6/0/0), Prereq: HCM-181; Arts & Sciences Elective Code: B

HCM-530 Culinary Capstone (1.00) Integrates the skills, knowledge, professional qualities and attributes required by the industry. Integrates creation of a multi-course menu to demonstrate proficiency in crucial functions including ingredient preparation, fabrication, sauce production, application of classical cooking methods, mathematical decision-making, cost control, sanitation and nutritional analysis. Credits: 1; Hours: (.5/1/0/0), Prereq: HCM-166, HCM-231, HCM-273, HCM-342, and either HCM-207 or HCM-227; Arts & Sciences Elective Code: B

HCM-597 Front Office and Revenue Management (4.00) Presents a systematic approach to front office procedures and revenue management by detailing the flow of business through the entire guest cycle. Examines the various elements of effective front office management including forecasting and revenue management, front office planning and operation, and management of human resources. Requires students to perform various
guest services duties throughout the front office. Revenue management and guest services content prepares the student for an internship experience. Credits: 4, Hours: (2.5/0/4.5/0), Prereq: HCM-600, HCM-601; Arts & Sciences Elective Code: B

HCM-599 Engineering and Risk Management (1.00)
Provides exposure to various mechanical systems within a hotel, including fire suppression, heating and cooling, geothermal, kitchen and laundry equipment, surveillance systems, communication systems, alarm systems and guestroom security equipment, such as locks. Discusses guest protection and internal security for asset protection. Explores risk management and loss prevention issues and outlines OSHA regulations that apply to lodging properties. Credits: 1, Hours: (1/0/0/0), Prereq: HCM-934, HCM-935; Arts & Sciences Elective Code: B

HCM-600 Introduction to Lodging Operations (2.00)
Provides students with an overview of the lodging industry and how its functions are organized and operated. Introduces each of the seven traditional disciplines: general management, hotel sales, financial control, rooms operations, food and beverage operations, human resources, and physical plant maintenance. Emphasizes business ethics and effective communication. Credits: 2, Hours: (2/0/0/0), Arts & Sciences Elective Code: B

HCM-601 Housekeeping and Environmental Services (3.00)
Provides principles and practical experiences of housekeeping management and its related functions of property-wide environmental services and laundry operations. Emphasizes direct day-to-day operations, from big-picture management issues such as inventory and human resources, to technical details for cleaning and maintenance of hospitality operational areas. Learn first-hand the duties of these various housekeeping functions. Credits: 3, Hours: (1.5/0/4.5/0), Coreq: HCM-600; Arts & Sciences Elective Code: B

HCM-602 Introduction to Food and Bar Operations (3.00)
Focuses on the management of food and beverage operations in lodging establishments. Includes stewarding, banquet operations, beverage and room service. Prepares students for internships in lodging operations. Credits: 3, Hours: (3/0/0/0), Prereq: HCM-600; Arts & Sciences Elective Code: B

HCM-603 Hotel Sales, Catering and Event Management (3.00)
Examines sales department activities related to group and transient business. Includes developing leads, building relationships, closing the sale, servicing groups and account follow-up/maintenance. Discusses group meeting trends and practices. Reviews event management and further explores the discipline of revenue management to determine the applicability of revenue maximization strategies and their operational aspects. Offers a professional sales, catering and event management departmental internship with The Hotel at Kirkwood Center's Sales and Catering staff. Credits: 3, Hours: (2/0/3/0), Prereq: MKT-110 or HCM-615, HCM-934, HCM-935; Arts & Sciences Elective Code: B

HCM-614 Leadership in Hospitality (3.00)
Examines the profound difference between management and leadership in the hospitality industry. Utilizes case studies to explore power and empowerment, quality management, high-performance teams, ethics and various management philosophies. Requires utilization of competencies mastered in previous course work within the Hotel Management program as students participate in The Hotel at Kirkwood Center's Manager on Duty (MOD) program. Performs MOD shifts during evenings, weekends and overnights. Credits: 3, Hours: (2/0/3/0), Prereq: HCM-934, HCM-935; Arts & Sciences Elective Code: B

HCM-615 Hospitality Marketing (3.00)
Explores the process to plan and execute the conception of pricing, promotion, and distribution of ideas, goods, and services. Creates hospitality-oriented exchanges to satisfy individual and organizational objectives. Teaches strategies for integrating a social media plan into the traditional marketing plan. Focuses on effective social media platforms to drive business and for beneficial responses to customer needs within hospitality. Credits: 3, Hours: (3/0/0/0), Prereq: HCM-296, HCM-597; Arts & Sciences Elective Code: B

HCM-616 Hospitality Professionalism (1.00)
Develops and recognizes leadership and teamwork utilizing a student professional organization, American Hotel and Lodging Association (AHLA). Involves students in club leadership and officer positions, industry trade shows and field trips. Offers community service projects to demonstrate social responsibility. Emphasizes experiential learning activities. Credits: 1, Hours: (1/0/0/0), Arts & Sciences Elective Code: B

HCM-618 Food and Beverage Operations (3.00)
Focuses on the management of food and beverage operations in hospitality establishments. Includes restaurant, banquet, room service, and beverage operations, menu planning, and stewarding. Facilitates internships in hospitality operations. Credits: 3, Hours: (3/0/0/0), Prereq: HCM-600, HCM-601; Arts & Sciences Elective Code: B

HCM-924 Honors Project (1.00)
Allows a qualified honors student to pursue a special concentration of study under the guidance of a faculty member. Requires completion of an honors project contract. May be taken more than once. Credits: 1, Hours: (1/0/0/0), Arts & Sciences Elective Code: A; Comments: Requires approval of supervising professor and dean

HCM-928 Independent Study (1.00-3.00)
Provides readings, papers and basic research or other projects under the individual guidance of a staff member. Credits: 1, Hours: (1/0/0/0), Arts & Sciences Elective Code: A; Comments: Permission of instructor, dean

HCM-930 Internship Seminar (3.00)
Gains valuable hospitality industry experience through application and theory pertaining to personal and cohort experiences from within the student internship process. Focuses on creating student/major/departmental internship goals, cohort collaboration with other Hospitality Management interns, and reflective learning and assessment of student internship experience. Credits: 3, Hours: (3/0/0/0), Prereq: HCM-597, HCM-618; Coreq: HCM-933; Arts & Sciences Elective Code: B

HCM-932 Internship (0.50-4.00)
Provides an opportunity to receive on-the-job training at the Hotel at Kirkwood Center. Maximizes exposure and training depth through learning experiences structured by the program coordinator and training sponsor. May focus on one position/department or may be structured to encompass numerous areas within the hotel. Credits: 0.5-4, Hours: (0/0/0/32-256), Prereq: HCM-597, HCM-602; Coreq: HCM-213, HCM-599; Arts & Sciences Elective Code: B

HCM-933 Internship I (1.00-4.00)
Provides an opportunity to receive experience through on-the-job-training within the hospitality industry. Maximizes industry exposure and training depth through learning experiences structured by the program coordinator and training sponsor. Credits: 1-4, Hours: (0/0/0/4-16), Prereq: HCM-597, HCM-618; Coreq: HCM-930; Arts & Sciences Elective Code: B

HCM-934 Internship Seminar II (2.00)
Builds practical internship supervisory experiences through exposure to operational management theory pertaining to personnel, guest services, and financial management from an operational perspective. Includes cohort collaboration with other Hospitality Management interns, and reflective learning and assessment of student internship experience. Credits: 2, Hours: (2/0/0/0), Prereq: HCM-930, HCM-933; Coreq: HCM-935; Arts & Sciences Elective Code: B

HCM-935 Internship II (1.00) Provides an opportunity to receive supervisory experience through on-the-job-supervisor training at The Hotel at Kirkwood Center. Maximizes exposure and training depth through learning experiences structured with hospitality operations. Internship opportunities include such operational areas as Front Office, Housekeeping and Laundry, and Food and Beverage operations. Additional arrangements may be made to encompass other areas within The Hotel at Kirkwood Center. Credits: 1, Hours: (0/0/0/4), Coreq: HCM-934; Arts & Sciences Elective Code: B

HCR: Heating and Air Conditioning

HCR-410 Electrical Applications I (3.00)
Covers general knowledge of basic electrical applications used by industry. Use of basic electrical equipment including multimeters is stressed. Topics include current, voltage, resistance, symbols and basic AC and DC circuits. Credits: 3, Hours: (2/2/0/0), Arts & Sciences Elective Code: B

HCR-450 Electrical Apps for HVAC II (3.00)
Continues the coverage of electrical applications used by HVAC installers. Students learn a more thorough explanation of voltage and current, including basic measuring techniques and safety concerns. Motors and transformers in their typical applications are also included. Credits: 3, Hours: (2/2/0/0), Prereq: HCR-410; Arts & Sciences Elective Code: B
HCR-600 Pipe Joining Methods (3.00) Includes proper techniques for joining pipes. Covers proper techniques for making a solder joint, brazed joint and threaded joint. Alternative techniques include flare, crimp and compression. Credits: 3, Hours: (2/2/0/0), Prereq: HCR-605; Arts & Sciences Elective Code: B

HCR-605 HVAC Installation I (5.00) Provides a comprehensive introduction to designing and installing HVAC systems. Students learn sheet metal fabrication and installation, basic principles of heat transfer, and the basic refrigeration cycle applied to air conditioning. Credits: 5, Hours: (2/6/0/0), Arts & Sciences Elective Code: B

HCR-610 HVAC Installation II (7.00) Provides a comprehensive introduction to designing and installing HVAC systems. Other topics covered include refrigerant handling procedures, gas piping and sizing, chimney and vent calculations, and the uniform mechanical code. Credits: 7, Hours: (3/8/0/0), Prereq: HCR-605; Arts & Sciences Elective Code: B

HCR-710 Fundamentals of Plan and Print Reading (2.00) Covers the fundamentals of blueprints and floor plans used for common layouts. Includes dimensions, specifications and interpretation of details found on typical sets of plans. Credits: 2, Hours: (1/2/0/0), Arts & Sciences Elective Code: B

HCR-924 Honors Project (1.00) Allows a qualified honors student to pursue a special concentration of study under the guidance of a faculty member. Requires completion of an honors project contract. May be taken more than once. Credits: 1, Hours: (1/0/0/0), Arts & Sciences Elective Code: B; Comments: Requires approval of supervising professor and dean

HCR-928 Independent Study (1.00-3.00) Provides readings, papers and basic research or other projects under the individual guidance of a faculty member. Credits: 1, Hours: (1/0/0/0), Arts & Sciences Elective Code: A; Comments: Requires approval of supervising professor and dean

HIS: History

HIS-121 Ancient Mediterranean World (3.00) Surveys the cultural, religious, political and social heritage of the ancient Near Eastern people as the foundation of Western civilization. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: A

HIS-122 Europe in the Age of Monarchy (3.00) Explores the social, cultural, intellectual, economic and political foundations of Western civilization in Europe from the Middle Ages to Absolutism and Constitutionalism. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: A

HIS-123 Europe in the Age of Revolution (3.00) Studies four revolutions - the Scientific, French, Industrial and 19th Century Liberal revolutions - that changed the traditional Western society into the modern world. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: A

HIS-124 Europe in the Age of Nationalism (3.00) Examines themes of modern European civilization. Emphasis is on the development of nationalism, the rise of Communism and Fascism, and the changes in the present society. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: A

HIS-135 Modern World Military History (3.00) Examines the development of modern warfare from the Napoleonic Era to the present, using a multi-disciplinary approach. Focuses on how international politics, technological, social issues, economics, religion, and ideology shape military policy, expectations, outcomes and cultural expressions. Concentrates on key conflicts throughout multiple regions to illustrate the evolving dynamics of strategy and tactics. Discusses warfare's different forms: conventional, guerrilla and nuclear. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: A

HIS-151 U.S. History to 1877 (3.00) Studies the European background, the colonial experience, the revolutionary period and 19th century history to the Civil War. Includes political, economic and social history of this period as well as the development of American thought. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: A

HIS-152 U.S. History Since 1877 (3.00) Studies the period from reconstruction to the present. Emphasis is upon industrialization and its impact; the development of a strong federal government; an aggressive foreign policy; and a growing involvement in an international economy. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: A

HIS-221 Holocaust and Genocide in Memory and Literature (3.00) Explores the reasons for the Holocaust and the nature and history of anti-Semitism. Analyzes why the Holocaust/Final Solution occurred in Germany. Studies resistance and both collaboration and resistance between Nazism and foreign countries. Compares the Holocaust aimed at the extermination of the Jews with genocide and extermination of other groups in history. Uses a comparative framework. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: A

HIS-254 American Indian History (3.00) Examines American Indian societies from the colonial era to the present, using a cross-cultural framework focusing on six major geographical areas of the United States: New England and the Northeast, the Southeast, the Great Lakes region, the Plains, the Southwest and the Northwest. Emphasizes American Indian cultures, including religion and socio-political structure. Examines American Indian responses to federal Indian policy, including removal, allotment and termination, as well as present-day issues related to revitalization. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: A

HIS-291 History of Science (3.00) Covers major aspects of the history of science from the early modern period into the 20th century. As this is a history course, not a science or technology course, the emphasis is on the historical backgrounds of various scientific ideas. The course focuses on some of the major figures in the development of modern Western science including Newton, Darwin, Faraday and Einstein. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: A

HIS-924 Honors Project (1.00) Allows a qualified honors student to pursue a special concentration of study under the guidance of a faculty member. Requires completion of an honors project contract. Credits: 1, Hours: (1/0/0/0), Arts & Sciences Elective Code: A; Comments: Requires approval of supervising professor and dean

HIS-928 Independent Study (1.00-3.00) Provides readings, papers and basic research or other projects under the individual guidance of a staff member. Credits: 1, Hours: (1/0/0/0), Arts & Sciences Elective Code: A

HIT: Health Information Technology

HIT-220 Introduction to Medical Coding (2.50) Studies basic disease and procedural coding of the International Classification of Diseases, 10th Revision, Clinical Modification (ICD-10-CM). Credits: 2.5, Hours: (2.5/0/0/0), Coreq: BIO-168, HSC-115, HIT-361; Arts & Sciences Elective Code: B


HIT-280 CPT-4 Coding (3.00) Continues more complex concepts of procedural coding utilizing the Current Procedural Terminology, 4th Edition (CPT-4) classification system. Includes practical application of coding outpatient/ambulatory records. Credits: 3, Hours: (3/0/0/0), Prereq: HIT-240; Arts & Sciences Elective Code: B

HIT-291 Reimbursement Methods (2.50) Introduces prospective payment systems for inpatient health care (Diagnosis Related Groups-DRG) and ambulatory health care (Ambulatory Patient Classifications-APC). Explores Local Coverage Determination (LCD) and the Resource Based Relative Value System (RBRVS). Focuses on fraud and abuse issues, coding compliance, and the National Correct Coding Guide. Includes practical application of diagnosis and procedural coding as well as DRG and APC assignment. Credits: 2.5, Hours: (2.5/0/0/0), Prereq: HIT-240; Arts & Sciences Elective Code: B
HIT-350 Health Information Systems (2.50)
Provides an overview of the use of automated information systems in the health care delivery system. Introduces terminology and essential concepts of health information systems and management of data. Examines data integrity and privacy/security issues affecting the access to and use of patient information. Credits: 2.5, Hours: (2.5/0/0/0), Prereq: OSC-110, HIT-361; Arts & Sciences Elective Code: B

HIT-361 Introduction to Health Information Technology (3.00)
Provides an overview of the health information management profession, and the development, content and analysis of medical records in health care settings. Students will learn the importance of health information management in reimbursement and different classification systems. Includes legal issues in medical records, patient confidentiality, form construction and design, numbering systems, indexes, and registries. Explores health information storage and retention systems and computerization of health records. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: B

HIT-420 Legal Aspects of Health Information (2.00)
Includes use of the medical record as a legal document, release of information, consents, the medical record in legal proceedings and an overview of current health legislation. Credits: 2, Hours: (2/0/0/0), Arts & Sciences Elective Code: B

HIT-431 Quality Improvement (3.00)
Focuses on quality assessment and performance improvement in health care settings and the role of health information technology professionals in quality improvement, utilization management, credentialing and risk management. Includes simulations of quality assessment and utilization management functions, the role of peer review organizations and their impact on health information. Credits: 3, Hours: (3/0/0/0), Prereq: HIT-361; Arts & Sciences Elective Code: B

HIT-449 Information Governance (3.00)
Explores the analysis, categorization, and management of data encountered in the HIT profession. Integrates data analytics, and how to manage, acquire, manipulate and analyze data to report the findings. Credits: 3, Hours: (2.5/1/0/0), Prereq: HIT-361; Arts & Sciences Elective Code: B

HIT-450 Health Statistics (2.00)
Emphasizes abstracting of medical records and computer input of data. Includes basic mathematical and statistical principles, hospital statistics and formulas, vital and public health data sources. Discusses presentation of data and data quality. Credits: 2, Hours: (2/0/0/0), Prereq: HIT-361, MAT-772; Arts & Sciences Elective Code: B

HIT-490 Health Management and Supervision (3.50)
Provides basic principles of personnel supervision including developments and considerations vital to the performances of supervisors in today’s health care environment. Credits: 3.5, Hours: (3.5/0/0/0), Prereq: HIT-552; Arts & Sciences Elective Code: B

HIT-495 Medical Office Management (2.50)
Present concepts and procedures in relation to medical office management, phone etiquette, patient scheduling, patient medical recordkeeping, manual and computerized bookkeeping, and ordering of office supplies. Credits: 2.5, Hours: (2.5/0/0/0), Arts & Sciences Elective Code: B

HIT-550 Professional Practice Experience I (2.50)
Combines the theory of health information management with supervised practice in selected health care settings. Introduces the student to the Health Information Management/Medical Record department, its specific health information systems, filing systems, numbering systems, indexes, registries, etc., including health care provider specific coding practices. Coordinated by the college. Credits: 2.5, Hours: (0.5/0/6/0), Arts & Sciences Elective Code: B

HIT-551 Professional Practice Experience II (1.00)
Combines the theory of health information management in a physician's office. Provides practical application in specific health information systems, filing systems, numbering systems and provider specific coding practices. Coordinated by the college. Credits: 1, Hours: (1/0/0/0), Prereq: HIT-550; Arts & Sciences Elective Code: B

HIT-552 Professional Practice Experience III (3.00)
Combines the theory of health information management in selected health care settings with experiences in health information systems, quality assurance, coding of diseases and procedures, and medical record management. Credits: 3, Hours: (0/0/9/0), Prereq: HIT-551; Arts & Sciences Elective Code: B

HIT-554 HIT Capstone (3.00)
Combines the theory of health information management in selected alternative health care settings. Emphasizes specific health information systems, filing systems, numbering systems, indexes, registries, etc., including provider specific coding practices. Credits: 3, Hours: (2.5/1/0/0), Prereq: HIT-361; Arts & Sciences Elective Code: B

HSC: Health Sciences

HSC-103 Studies in Health Sciences (1.00-3.00)
Provides readings, papers, seminars and basic research or other projects/assignments under the individual guidance of a faculty member. Credits: .5-3, Hours: (1.5-3.0/0/0/0), Arts & Sciences Elective Code: B; Comments: Permission of instructor, coordinator

HSC-107 Professionals in Health (2.00)
Presents skills and characteristics expected for professional preparation and employability. Provides an overview of the health industry as it relates to health and safety regulations. Credits: 2, Hours: (2/0/0/0), Arts & Sciences Elective Code: B

HSC-115 Medical Terminology (4.00)
A comprehensive study of medical terminology as the language of medicine. Analyzes words by dividing them into component parts. Relates the medical terms to the structure and functional pathology of diseases and current medical procedures. Emphasizes word usage, abbreviations, pronunciation and spelling. Credits: 4, Hours: (4/0/0/0), Arts & Sciences Elective Code: B

HSC-117 Basic Medical Terminology (2.50)
Introduces basic word structure and terminology pertaining to body systems. Includes spelling, pronunciation and word usage. Provides a basic overview of disease process, symptoms, anatomy, special procedures, pharmacology and abbreviations. Credits: 2.5, Hours: (2.5/0/0/0), Arts & Sciences Elective Code: B

HSC-142 Elements of Pharmacology (1.00)
Introduces essential concepts of pharmacology including drug legislation, terminology and pharmacy therapy in the clinical management of patient care. Provides an overview of the different drug classifications and their actions and use. Credits: 1, Hours: (1/0/0/0), Prereq: None; Coreq: HSC-115; Arts & Sciences Elective Code: B

HSC-162 Health Support Professional (3.50)
Provides an introduction to key skills needed to be a direct care worker. Includes core, personal activities of daily living, and health monitoring and maintenance. Requires passage of CORE by 70 percent or better to proceed into the HMM (Health Monitoring & Maintenance) and PADL (Personal Activities of Daily Living) modules. Credits: 3.5, Hours: (2/3/0/0), Arts & Sciences Elective Code: B

HSC-168 Nurse Aide (3.50)
Required to meet the training requirements for nurse aides in long-term care facilities. Emphasizes achievement of a basic level of knowledge and demonstration of skills to provide safe and effective resident care. Integrates 30 hours of clinical, outside of normal class times, at a long-term care facility under the supervision of an RN. Requires your own transportation. Credits: 3.5, Hours: (2/1.5/2.5/0), Arts & Sciences Elective Code: B

HSC-189 Introduction to Nursing (4.00)
Focuses on professional role development of the student nurse. Emphasizes five modules: the nursing profession, health care competencies, health care delivery, skills and care planning. Reviews the nursing profession, history, current trends and future of nursing, influences on the profession, educational tracks, professional nursing organizations, and legal/ethical concerns. Develops basic understanding of health care competencies through implementation of the Institute of Medicine (IOM) and Quality and Safety in Nursing Education (QSEN) competencies. Introduces health care delivery concepts including systems, policy and finance, reform, health care disparities, global health, health promotion, informatics and patient education. Introduces skills including medical terminology, professional writing skills, therapeutic communication and care planning. Credits:
4, Hours: (3/2/0/0), Prereq: minimum C in ENG-105, ENG-106 or ENG-120; either 30 on ALEKS, or 19 on ACT Math, or minimum C in the math course recommended by lower placement score; minimum B- in BIO-168 within last 5 years; program GPA 2.5; program conference within 2 years of attempt to register; less than 15 remaining pre-requisite credits including in-progress classes; CNA, LPN or HSP; if not a native English speaker, TOEFL score 86 or higher; Coreq: none; Arts & Sciences Elective Code: B; Comments: CNA or HSP required. HSC-189 must be taken within two semesters of admission to PN technical.

HSC-205 Exploration of Healthcare Careers (3.00)
Explores multiple aspects of health care and careers in the health field. Covers the past, present and future of health care. Introduces key career cluster terms and career pathways within each career cluster. Provides career information, including education required for each area, educational costs to attain a degree versus expected career earnings, job descriptions, case studies and skills needed for specific career areas. Results in BLS CPR certification upon successful completion. Credits: 3; Hours: (3/0/0/0), Arts & Sciences Elective Code: B

HSC-210 Health Skills I (1.00)
Introduces basic patient care skills: infection control techniques, measuring and recording vital signs, and body mechanics. Laboratory practice and skill achievement is required. Credits: 1; Hours: (0.5/1/0/0), Arts & Sciences Elective Code: B

HSC-217 Introduction to Pathology (3.00)
Introduces the study of pathology. Includes description, etiology, signs and symptoms, diagnostic procedures, current medical treatment, progress and prevention of disease in each body system, with emphasis on basic concepts and terminology. Credits: 3; Hours: (3/0/0/0), Prereq: BIO-161 or BIO-168; Arts & Sciences Elective Code: B

HSV: Human Services

HSV-109 Introduction to Human Services (3.00)
Introduces the value base of human services and evaluates problems that can be encountered in working with people when these values conflict with client needs. Introduces the framework of human services approach, specifically information of individual values, systems analysis, problem solving and conflict resolution. Concepts of systems analysis are accompanied by application of these concepts to problems. Credits: 3; Hours: (3/0/0/0), Arts & Sciences Elective Code: A

HSV-110 Human Service Policy and Programs (3.00)
Investigates the relationship between social service programs and related social issues in the context of cultural conditions. Introduces historical trends in human services and acquaints students with current human services available to various client groups. Credits: 3; Hours: (3/0/0/0), Prereq: HSV-109; Arts & Sciences Elective Code: A

HSV-120 Observation Skills (3.00)
Focuses on learning the distinction between inference and behavior, and recording behaviors in a systematic way. Course also includes learning the importance of environment as an influence on human behavior. Closely related competencies to be addressed are writing behavioral objectives and contracts. Credits: 3; Hours: (3/0/0/0), Prereq: HSV-101 or HSV-109; Arts & Sciences Elective Code: A

HSV-131 Basic Problem Solving Skills (3.00)
Includes an overview of various intervention techniques. Teaches principles of communication, interviewing and conflict resolution. Practices these principles and techniques in role-played videotape situations. Credits: 3; Hours: (3/0/0/0), Prereq: HSV-101 or HSV-109; Arts & Sciences Elective Code: A

HSV-200 Adaptation Strategies (3.00)
Examines the values, skills and issues of working with people with disabilities in vocational, residential, social/recreational and other community settings. Focuses on exploring, researching and understanding the relationships between consumers, families, support staff, community-based agencies and other community systems. Encourages students to develop the skills to utilize adaptation strategies necessary to promote independence, participation and success among all age groups. Credits: 3; Hours: (3/0/0/0), Arts & Sciences Elective Code: A

HSV-201 Loss, Trauma and Resilience (3.00)
Examines loss as a part of life and the impact of trauma on individuals, families, and communities. Studies processes of resilience including grieving and growth. Discusses cultural influences and ethical issues. Explores social services and theories of helping as resources for survivors. Credits: 3; Hours: (3/0/0/0), Arts & Sciences Elective Code: A

HSV-282 Health and Psychosocial Rehabilitation (3.00)
Focuses on an overview of health, substance abuse and mental health issues of individuals. Develops skills in identification, planning, assessment, treatment/interventions, and the development of support systems and community resources. Applies learned knowledge of integrated practice in a discipline-specific project. Credits: 3; Hours: (3/0/0/0), Prereq: HSV-109 or CRJ-100, SOC-110 or SOC-115; Arts & Sciences Elective Code: A

HSV-287 Counseling Theories and Techniques (3.00)
Provides further reinforcement and expands topics introduced in Basic Problem Solving. Includes goals of psychosocial rehabilitation, mental health disorders and their diagnosis, and categories and classification of the Diagnostic and Statistical Manual-5. Describes the process of making appropriate client referrals, locating community human service resources and agencies, and creating and implementing service plans for health care issues. Credits: 3; Hours: (3/0/0/0), Prereq: HSV-131, HSV-282, HSV-109; Arts & Sciences Elective Code: A

HSV-292 Substance Abuse and Treatment (3.00)
Examines alcohol and drug issues and the implications of having an addiction. Includes theories of the addictive process, prevention and treatment options, and specific counseling and therapeutic skills used with individuals in inpatient and outpatient settings. Focuses on the impact of the family unit, social systems and the greater community. Students apply their knowledge of integrated practice in a discipline-specific project. Credits: 3; Hours: (3/0/0/0), Arts & Sciences Elective Code: A

HSV-800 Human Services Field Experience and Seminar (6.00)
Provides practical experience in a human services agency for 220 hours. Encourages students to gain deeper insight through a field experience seminar. Objectifies student experience through discussion with other students and the instructor. Credits: 6; Hours: (1/4/9/0), Prereq: minimum C+ in HSV-110, HSV-120, HSV-131, HSV-282 and either HSV-101 or HSV-109; Arts & Sciences Elective Code: A; Comments: Completion of Human Service classes. Minimum GPA of 2.5 required to take this course.

HSV-801 Human Services Field Experience (3.00)
Provides 110 hours of practical experience in a human services agency to meet state required hours for a field experience seminar. Objectifies experiences through classroom discussion. Credits: 3; Hours: (.75/0/6.75/0), Prereq: minimum C+ in HSV-110, HSV-120, HSV-131 and HSV-282; Arts & Sciences Elective Code: A

HSV-813 Alcohol and Drug Counselor Field Experience and Seminar I (6.00)
Provides 250 hours of practical experience in a substance abuse treatment facility. Encourages deeper insight through a field experience seminar. Objectifies experiences through classroom discussion. Credits: 6; Hours: (1/0/15/0), Prereq: minimum C+ in HSV-110, HSV-120, HSV-131, HSV-282 and either HSV-101 or HSV-109; Arts & Sciences Elective Code: A; Comments: Meets part of the practicum requirement for the Iowa Board of Certification. Minimum GPA of 2.5 required to take this course.

HSV-814 Alcohol and Drug Counselor Field Experience & Seminar II (6.00)
Provides practical experience in a substance abuse treatment facility for a total of 250 hours. Follows and builds on Alcohol and Drug Counselor Field Experience and Seminar I. Encourages students through weekly seminars to maximize their experience through insight from other students and the instructor. Objectifies student experience through discussion with other students and the instructor via the weekly seminars. Credits: 6; Hours: (1/0/15/0), Prereq: minimum C+ in HSV-110, HSV-120, HSV-131, HSV-282 and either HSV-101 or HSV-109; Arts & Sciences Elective Code: A; Comments: Meets part of the
practicum requirement for the Iowa Board of Certification. Minimum GPA of 2.5 required to take this course.

**HSV-924 Honors Project (1.00)**
Allows a qualified honors student to pursue a special concentration of study under the guidance of a faculty member. Requires completion of an honors project contract. May be taken more than once. Credits: 1 Hours: (1/0/0/0), Arts & Sciences Elective Code: A; Comments: Requires approval of supervising professor and dean

**HSV-928 Independent Study (1.00-3.00)**
Allows the student to pursue a special concentration of study under the guidance of a faculty member. Requires an independent study contract. Credits: 1-2; Hours: (0/2-4/0), Arts & Sciences Elective Code: A; Comments: Requires approval of supervising faculty member and dean

**HUM: Humanities**

**HUM-105 Working in America (3.00)**
Introduces students to the humanities through an interdisciplinary study of work. By examining works of art, literature, music, philosophy, religion, history, and anthropology, this course explores human labor in the past, present, and future in an attempt to understand how work shapes human nature and culture. Focus will be on the meanings and values of students' work experiences. Credits: 3; Hours: (3/0/0/0), Arts & Sciences Elective Code: A

**HUM-116 Encounters in Humanities (3.00)**
By asking a series of questions about various examples of human activity (literature, philosophy, history, visual arts and music), this course explores a method of inquiry for use in understanding and appreciating the humanities. Credits: 3; Hours: (3/0/0/0), Arts & Sciences Elective Code: A

**HUM-123 U.S. Film History (3.00)**
Tracks the development of film art in the United States from its earliest silent years to the modern era. Identifies and explores the contributions of American filmmakers and the influences of the American film industry and American culture on cinema as an art form. Credits: 3; Hours: (3/0/0/0), Arts & Sciences Elective Code: A

**HUM-124 World Film History (3.00)**
Tracks the development of film art in countries other than the United States from the primitive era to the modern era. Identifies and explores the contributions of major world filmmakers and the influences of the various film industries and cultures as reflected in the films of these specific countries. Credits: 3; Hours: (3/0/0/0), Arts & Sciences Elective Code: A

**HUM-142 Popular Culture (3.00)**
Introduces students to the study of popular culture. Analyzes the way in which human beings interact with popular culture, both as individuals and as part of the larger society. The course also examines a wide variety of popular texts to illustrate the ways in which they reflect and perhaps shape cultural values. Through this process, students develop skills for the critical analysis of advertising, television programs, comic books, and interactive multimedia, among other forms of popular culture. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: A

**HUM-190 Culture and Technology (3.00)**
Introduces students to the relationships between technology and culture through an interdisciplinary study of the humanities. The course examines these relationships through works in the humanities, for example art, literature, music, philosophy, religion, history, film and anthropology. Credits: 3; Hours: (3/0/0/0), Arts & Sciences Elective Code: A

**HUM-200 International Study in Humanities (3.00)**
Provides students with the opportunity to pursue studies in such areas as history, art, politics, music, literature, and foreign language. Credits: 3; Hours: (3/0/0/0), Arts & Sciences Elective Code: A

**HUM-924 Honors Project (1.00)**
Allows a qualified honors student to pursue a special concentration of study under the guidance of a faculty member. Requires completion of an honors project contract. May be taken more than once. Credits: 1; Hours: (1/0/0/0), Arts & Sciences Elective Code: A; Comments: Requires approval of supervising professor and dean

**IND: Industrial Technology**

**IND-101 Technology Integration for Welders (2.00)**
Provides students with orientation of the various technical programs being integrated into the welding profession. Introduces using Microsoft Office to build a welding portfolio to track progress and house a resume. Uses "Sketch-Up" design program as a way to create and illustrate welded components. Credits: 2; Hours: (2/0/0), Arts & Sciences Elective Code: B

**IND-155 Microcomputer Applications (2.00)**
Covers several applications for microcomputers in business and industry. Included are operating systems, data management, communications, word processing and peripheral devices. Credits: 2; Hours: (1/2/0), Arts & Sciences Elective Code: B

**IND-156 Microcomputers for the Trades (2.00)**
Introduces personal computer concepts and basic computer applications. Covers basic concepts of MS Windows, Office, CAD, Angel, Amatrol and other software used in the IMT, EPDT and AIT programs. This course is intended for students with no knowledge or experience using personal computers. Credits: 2; Hours: (1/2/0/0), Arts & Sciences Elective Code: B

**IND-167 Torqueing and Tensioning (1.00)**
Focuses on proper use of torque wrenches to apply appropriate torque and tension on bolts. Reinforces concepts and theory covered in lecture with hands-on labs. Credits: 1; Hours: (.5/1/0/0), Arts & Sciences Elective Code: B

**IND-175 Advanced Alignment (1.00)**
Introduces intermediate fundamentals of shaft alignment using dial indicators and laser alignment. Reinforces concepts and theory covered in lecture and online material with hands-on labs. Credits: 1, Hours: (.5/1/0/0), Prereq: ATR-302; Arts & Sciences Elective Code: B

**IND-187 Predictive Maintenance (2.00)**
Covers all facets of predictive maintenance, including thermal imaging vibration analysis and trend analysis. Reinforces concepts and theory covered in lecture and online material with hands-on labs. Credits: 2; Hours: (1/2/0/0), Prereq: ATR-302; Arts & Sciences Elective Code: B

**IND-196 Fundamentals of Hydraulic and Pneumatic Systems (5.00)**
Focuses on proper usage and application of, as well as the theory and physics behind, hydraulic and pneumatic systems and controls. Introduces the various components used in each type of system, electro-hydraulic components, electro-pneumatic components and component selection. Students design, assemble and troubleshoot various types of hydraulic and pneumatic control systems and components. Credits: 5; Hours: (2/6/0/0), Prereq: ELE-238, MAT-233; Arts & Sciences Elective Code: B

**INT: Interior Design**

**INT-126 Introduction to Interior Design (3.00)**
Introduces the field of interior design, design elements, systems, principles and theories. Applies principles of design and concept development to two- and three-dimensional design projects. Focuses on the process of design regarding space planning and furniture layout projects. Develops design vocabulary relative to interior design. Studies teamwork structures and dynamcs. Credits: 3; Hours: (2/2/0/0), Arts & Sciences Elective Code: B

**INT-128 Historical Interiors and Architecture (3.00)**
Provides a complete survey and evaluation of interiors and architecture throughout history, as well as furnishings, art and decorative arts. Focuses on identifying, recognizing and evaluating significant historical periods, design, architecture, and art relating to interior design. Covers use of correct terminology and vocabulary associated with the history of interior design. Credits: 3; Hours: (3/0/0/0), Coreq: INT-126; Arts & Sciences Elective Code: B

**INT-129 SketchUp for Interior Design (3.00)**
Introduces the basic concepts of interior design illustration and digital model building. Explores artistic expression using a variety of techniques through computer software. Emphasizes development of artistic graphics and models necessary for representing interiors as well as locating them in context. Credits: 3; Hours: (3/0/0/0), Arts & Sciences Elective Code: B

**INT-132 Theories and Visual Applications (3.00)**
Addresses the application of design and color theories through sketching, manual drawing and rendering, and use of technology. Covers various types of project delivery methods and media to produce presentation drawings and documents. Focuses on creation of visual and verbal presentation techniques. Demonstrates creative thinking and problem solving. Credits: 3, Hours: (2/2/0/0), Prereq: ARC-102, INT-126, INT-129; Coreq: INT-201; Arts & Sciences Elective Code: B
INT-200 Interior Design Studio (3.00)
Addresses the principles and elements of design, the design process, design documentation and construction documents. Develops creative problem solving skills individually and in teams, utilizing design software through the creation of analytical interior design projects. Credits: 3; Hours: (3/0/0/0), Prereq: ARC-185, CAD-201, INT-132, INT-300; Arts & Sciences Elective Code: B

INT-201 CAD REVIT for Interior Design I (3.00)
Introduces the basic skills, information and concepts, using Revit and AutoCAD, necessary for the interior design field related to computer aided drafting (CAD), and building information modeling (BIM). Credits: 3; Hours: (3/0/0/0), Prereq: CON-101, INT-126, INT-128, INT-129; Arts & Sciences Elective Code: B

INT-206 Residential Design I (4.00)
Introduces residential design and specialties, such as kitchen, bath and lighting design. Applies NKBA guidelines and principles of lighting design to small/medium scale projects. Focuses on identifying and selecting appropriate FFE items specific to kitchen, bath and lighting design projects. Covers use of appropriate terminology to describe kitchen, bath, and lighting design projects. Explores interior design project processes, as well as human factors and ergonomics. Credits: 4; Hours: (3/2/0/0), Prereq: ARC-185, CAD-201, INT-132; Arts & Sciences Elective Code: B

INT-207 Commercial Design I (4.00)
Introduces commercial space planning, with an emphasis on restaurant, retail, hotel and entertainment design. Explores sustainable and acoustic design solutions. Demonstrates industry specific guidelines and sustainability guidelines. Credits: 4; Hours: (3/2/0/0), Prereq: ARC-185, CAD-201, INT-132; Arts & Sciences Elective Code: B

INT-208 Costing and Estimating Interior Materials and Finishes (3.00)
Teaches basic principles and techniques for estimating residential and commercial projects, materials, finishes, and surfaces. Incorporates relevant mathematical processes to interior design businesses and practices. Credits: 3; Hours: (3/0/0/0), Arts & Sciences Elective Code: B

INT-211 CAD REVIT for Interior Design II (3.00)
Emphasizes basic skills of 3D, BIM (Building Information Modeling) as applied to interior design projects through simulated, real-work exercises. Focuses on CAD-related information, attention to detail, and converting existing (non-Revit) drawings to full Revit computer models. Credits: 3; Hours: (3/0/0/0), Prereq: INT-201; Arts & Sciences Elective Code: B

INT-216 Residential Design II (4.00)
Focuses on refinement of creative and theoretical problem solving skills with respect to large scale residential design, with an emphasis on whole home design and different styles of homes. Explores aging in place, accessibility, universal design, and furniture design and construction. Emphasizes selection, interpretation and application of anthropometric data and universal design principles. Credits: 4; Hours: (3/2/0/0), Prereq: minimum grade C- in INT-206; Arts & Sciences Elective Code: B

INT-217 Commercial Design II (4.00)
Refines creative and theoretical problem solving skills with respect to large scale commercial design, with an emphasis on office design and systems furniture, as well as educational and healthcare environments through medium scale projects. Emphasizes factors relating to health, safety and welfare of users. Focuses on concepts, theories, materials, systems and occupants. Credits: 4; Hours: (3/2/0/0), Prereq: minimum grade C- in INT-207; Arts & Sciences Elective Code: B

INT-218 Professional Practice and Development (3.00)
Examines the business of interior design, documents, ethics and project management. Explores interior design job opportunities, with a focus on creating professional goals, portfolios, resumes and professional documents. Students perform an internship search during this course. Credits: 3; Hours: (3/0/0/0), Prereq: minimum grade C- in both INT-206 and INT-207; Arts & Sciences Elective Code: B

INT-262 Interior Codes and Building Structures (3.00)
Teaches current international and local building codes, as well as ADA, barrier-free, and life-safety codes as they relate to interior design and interior environments. Focuses on codes and applications to meet overall health, safety, and welfare standards through design. Credits: 3; Hours: (3/0/0/0), Arts & Sciences Elective Code: B

INT-300 Textiles for Interior Design (3.00)
Studies fibers, yarns, fabrics, finishes and regulations used in commercial and residential interior textile products. Evaluates fabric properties according to variables of end-use serviceability and product categories. Credits: 3; Hours: (3/0/0/0), Arts & Sciences Elective Code: B

INT-311 Global Perspectives in Interior Design (3.00)
Focuses on hands-on national and global design issues. Explores human factors through exposure to contemporary issues, historical architecture and design, dynamics, and various cultures and economic groups. Requires field study and travel. Credits: 3; Hours: (2/2/0/0), Arts & Sciences Elective Code: B

INT-312 Interior Design Topics (1.00-3.00)
Examines current topics related to interior design. Includes, but not limited to, interior photography, sustainability, furniture construction and other contemporary topics. Credits: 1-3; Hours: (1-3/0/0/0), Prereq: INT-201; Coreq: ARC-185, CAD-201, INT-132; Arts & Sciences Elective Code: B

INT-924 Honors Project (1.00)
Allows a qualified honors student to pursue a special concentration of study under the guidance of a faculty member. Requires completion of an honors project contract. May be taken more than once. Credits: 1; Hours: (1/0/0/0), Arts & Sciences Elective Code: A; Comments: Requires approval of supervising professor and dean

INT-928 Independent Study (1.00-3.00)
Provides readings, papers and basic research or other projects under the individual guidance of a staff member. Credits: 1; Hours: (1/0/0/0), Arts & Sciences Elective Code: A; Comments: Permission of instructor, dean

INT-932 Internship (0.50-4.00)
Provides an opportunity to receive interior design work experience through on-the-job training in an approved work setting. This internship will be approved by the Interior Design coordinator and will be evaluated with a letter grade. Credits: 0.5-4; Hours: (0/0/0/2-16), Arts & Sciences Elective Code: A

ITP: Interpreting

LIT: Literature

LIT-105 Children's Literature (3.00)
Provides a broad overview of children's literature, with emphasis upon work done by American writers and illustrators. Students use standard techniques of literary analysis to critique the works explored in the course. Credits: 3; Hours: (3/0/0/0), Prereq: ENG-105 or ENG-120; Arts & Sciences Elective Code: A

LIT-158 Literature of the African Peoples (3.00)
Provides an introduction to the literature and culture of persons of African descent. Readings include fiction and nonfiction authors from Africa, the Caribbean and the United States. Credits: 3; Hours: (3/0/0/0), Prereq: ENG-105 or ENG-120; Arts & Sciences Elective Code: A

LIT-180 Mythology (3.00)
Introduces literary versions of diverse cultural traditions from around the globe as expressed in myth, including but not limited to regions of the Middle East, Africa, India, China, the Americas, and Northern Europe. Considers myth in its literary, social, geographical, political, historical, religious, moral and personal contexts. Examines theories of the evolution and analysis of myth, and applies these theories to diverse traditions, including contemporary ones. Compares unique qualities of individual myths and focuses on the enduring human issues present in most mythologies. Credits: 3; Hours: (3/0/0/0), Prereq: ENG-105; Arts & Sciences Elective Code: A

LIT-203 Forms of Literature: Story Cycle (3.00)
Explores, through story cycles and critical theory, the question: What is a story cycle? How are they crafted, read and interpreted? How are they different from or similar to other forms of literary expression? How does form affect interpretation? Credits: 3; Hours: (3/0/0/0), Prereq: ENG-105 or ENG-120; Arts & Sciences Elective Code: A

LIT-204 Forms of Literature: Nonfiction (3.00)
Focuses on literary nonfiction - essays, memoirs, profiles or criticism - that aspires not only to inform, but also to employ language aesthetically and prompt reflection on experience. Students will explore, through literature and critical theory, the following questions: What is literary nonfiction? How are works of literary nonfiction crafted, read and interpreted? How are they different from and similar to other forms of literary expression? How does form affect interpretation? Credits: 3; Hours: (3/0/0/0), Prereq: ENG-105 or ENG-120; Arts & Sciences Elective Code: A
LIT-205 Forms of Literature: Drama (3.00)
Focuses on the study of dramatic literature. Students will practice a method of reading and interpreting plays, exploring the following questions: What is drama? How are works of drama crafted, read and interpreted? How are they different from and similar to other forms of literary expression? How do forms affect interpretation? Credits: 3, Hours: (3/0/0/0), Prereq: ENG-105 or ENG-120; Arts & Sciences Elective Code: A

LIT-206 Forms of Literature: Fiction (3.00)
Explores, through short stories, novels, films and critical theory, the following questions: What is fiction? What are its common elements? How does understanding these elements and the ways they interconnect affect our understanding of how fiction is crafted, read and interpreted? How is fiction different from or similar to other forms of literary expression? Credits: 3, Hours: (3/0/0/0), Prereq: ENG-105 or ENG-120; Arts & Sciences Elective Code: A

LIT-207 Forms of Literature: Poetry (3.00)
Focuses on the study of poetry. Students will practice reading and interpreting poems, exploring the following questions: What is poetry? How are poems crafted, read and interpreted? How are they different from and similar to other forms of literary expression? How does form affect interpretation? Credits: 3, Hours: (3/0/0/0), Prereq: ENG-105 or ENG-120; Arts & Sciences Elective Code: A

LIT-208 Forms of Literature: New Media (3.00)
Explores online and computer-based literature. Employing relevant literary theory, students study traditional literature (poetry, fiction, nonfiction, drama) and compare those forms to new media literary forms like hypertext and hyperpoetry. Questions include the following: What is new media literature? How does it compare with traditional genres? What makes it qualify as literature? How does literary form affect interpretation? Credits: 3, Hours: (3/0/0/0), Prereq: ENG-105 or ENG-120; Arts & Sciences Elective Code: A

LIT-209 Forms of Literature: Film Adaptation (3.00)
Focuses on the relationship between literary works (fiction, drama, nonfiction, poetry or graphic literature) and their adaptations to film. Students explore the adaptation of literature to film; how the elements of plot, character, setting, point of view, symbol and theme are adapted or altered from literature to film; and how film adaptations influence our understanding of both literature and film. Credits: 3, Hours: (3/0/0/0), Prereq: ENG-105 or ENG-120; Arts & Sciences Elective Code: A

LIT-222 Literature and Culture: American Dreams (3.00)
Explores a variety of expressions of self and society in America through established fiction, autobiography, journals, letters, photographs and other cultural artifacts. Credits: 3, Hours: (3/0/0/0), Prereq: ENG-105 or ENG-120; Arts & Sciences Elective Code: A

LIT-224 Literature and Culture: Women and Work (3.00)
Through reading literature along with social documents by women and men, the course explores gender identity and work issues for women in traditional and nontraditional gender roles - as domestic angels, factory workers or professionals. Materials may include autobiographies, letters, films, short fiction, poetry, drama, novels and other artifacts. Credits: 3, Hours: (3/0/0/0), Prereq: ENG-105 or ENG-120; Arts & Sciences Elective Code: A

LIT-225 Literary Themes: Beyond Bartleby: Images of Business and Labor in Literature and Film (3.00)
Explores images and issues of business and labor as they manifest in major fiction and nonfiction texts. Credits: 3, Hours: (3/0/0/0), Prereq: ENG-105 or ENG-120; Arts & Sciences Elective Code: A

LIT-226 Literary Themes: Literature and the Search for Identity (3.00)
Explores the theme of identity in literature - short stories, novels, poems, and nonfiction. May use ideas and approaches from literary criticism, psychology, philosophy and religion to illuminate the importance of stories in structuring human experience and establishing a sense of our own identities. Credits: 3, Hours: (3/0/0/0), Prereq: ENG-105 or ENG-120; Arts & Sciences Elective Code: A

LIT-227 Literature and Culture: World Poetry (3.00)
Explores non-Western traditional and contemporary poetry of Asia, Africa, the Middle East, Latin America and the Caribbean. Studies the forces that shape the creation as well as the experience of poetry in these cultures, such as politics, gender, religion, technology, etc. Students learn to compare literary expression across cultures and to place the Western tradition in a larger context. Credits: 3, Hours: (3/0/0/0), Prereq: ENG-105 or ENG-120; Arts & Sciences Elective Code: A

LIT-924 Honors Project (1.00)
Allows a qualified honors student to pursue a special concentration of study under the guidance of an honors faculty member. Requires that students meet honors eligibility criteria. Requires completion of an honors project contract. Credits: 1, Hours: (1/0/0/0), Arts & Sciences Elective Code: A

LIT-928 Independent Study (1.00-3.00)
Provides readings, papers and/or research projects in literature under the guidance of a staff member. Credits: 1-3, Hours: (1/0/0/0), Arts & Sciences Elective Code: A

LIT-945 Selected Topics (1.00-3.00)
Offers specialized study in interest areas. Areas may include special courses in mythology, American culture, adolescent literature or other concentrations. Credits: 1-3, Hours: (1-3/0/0), Prereq: ENG-105 or ENG-120; Arts & Sciences Elective Code: A

MAP: Medical Assistant
MAP-123 Administrative Medical Office Procedures (3.00)
Provides basic principles and skills in hematology, urinalysis, venipuncture, blood chemical exams, and quality control as applied to the medical office. Credits: 3.5, Hours: (1.5/4/0/0), Prereq: HSC-107, HSC-115, HSC-210, MAP-123, MAP-402; Arts & Sciences Elective Code: B

MAP-210 Medical Lab (3.50)
Provides basic principles and skills in hematology, urinalysis, venipuncture, blood chemical exams, and quality control as applied to the medical office. Credits: 3.5, Hours: (1.5/4/0/0), Prereq: HSC-107, HSC-115, HSC-210, MAP-123, MAP-402; Arts & Sciences Elective Code: B

MAP-260 Basic Electrocardiography (1.00)
Provides instruction in electrocardiography including psychological and physical preparation of a patient for an ECG; paper set-up and operation of equipment, mounting of tracings and troubleshooting to obtain acceptable tracings. This course does not include complex interpretation and diagnosis of cardiac rhythms. Credits: 1, Hours: (0.5/1/0/0), Prereq: HSC-107, HSC-115, HSC-210, MAP-123, MAP-402; Arts & Sciences Elective Code: B

MAP-312 Medical Assistant Clinical Procedures (3.00)
Includes basic clinical skills used in a medical office: preparing for the patient's visit; assisting the physician and patient during examination and treatment, including minor surgery; positioning, microbiology and sterilization; X-rays; physical therapy; nutrition; and administration of injected medications as applied to the medical office. Credits: 3, Hours: (1.5/3/0/0), Prereq: HSC-107, HSC-115, HSC-210, MAP-123, MAP-402; Arts & Sciences Elective Code: B

MAP-402 Medical Law and Ethics (2.00)
Focuses on the legal and ethical implications of practice in a medical setting. Includes scope of practice, confidentiality, HIPAA privacy and security requirements, legal terms and elements in the delivery of care, ethical guidelines of practice, and legal documentation requirements. Credits: 2, Hours: (2/0/0/0), Prereq: minimum grade C- in BIO-161; Arts & Sciences Elective Code: B

MAP-403 Basic Medical Office Insurance (2.00)
Provides a working knowledge of basic medical insurance programs, forms utilized and record-keeping involved in insurance claims. Applies the principles of diagnostic and procedure coding, and an understanding of a variety of insurance plans, including but not limited to Medicare, group, workers compensation and Tricare. Credits: 2, Hours: (2/0/0/0), Coreq: HSC-115, MAP-402; Arts & Sciences Elective Code: B

MAP-501 Math for Medications (1.00)
Provides a basic mathematical background for an understanding of measurement systems and the calculation of dosages of oral and parenteral medications for medical assisting. Credits: 1, Hours: (1/0/0/0), Arts & Sciences Elective Code: B

MAP-513 Medical Assisting Pharmacology (3.00)
Provides a basic background in the classification of drugs, their sources, uses and legal implications. Discusses characteristics of typical drugs, side effects, precautions, interactions and patient education. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: B
MAP-518 Medical Assisting Externship (7.00)
Offers supervised practical experience in medical offices, clinics and other medical care settings. Credits: 7; Hours: (2/0/15/0), Prereq: MAP-123, MAP-210, MAP-513, MAP-260, MAP-501, MAP-402, MAP-403; Arts & Sciences Elective Code: B; Comments: All Medical Assisting technical courses.

MAT: Mathematics

MAT-024 ELA Mathematics Vocabulary and Usage (1.00)
Prepares non-native English speakers for mathematics coursework. Emphasizes student interaction and discussions regarding terminology typically encountered in math courses. Credits: 1; Hours: (1/0/0/0), Arts & Sciences Elective Code: D

MAT-049 Fundamentals of Mathematics (3.00)
Designed to increase ability in basic mathematics. Includes arithmetic operations on whole numbers, decimals, fractions, mixed numbers, percents, ratios, and proportions. Credits: 3; Hours: (3/0/0/0), Arts & Sciences Elective Code: D

MAT-052 Pre-Algebra (3.00)
Introduces basic algebra concepts and reviews basic math. Includes fractions, decimals, proportions and percents. Introduces integers, exponents, simple equations and graphing. Credits: 3; Hours: (3/0/0/0), Prereq: MAT-049; Arts & Sciences Elective Code: D

MAT-059 Introduction to Technical Mathematics (2.00)
Prepares the student for the study of technical mathematics. Concentrates on algebraic skills and other related math skills. Credits: 2; Hours: (2/0/0/0), Arts & Sciences Elective Code: D

MAT-076 Preparation for College Mathematics (3.00)
Emphasizes active computer-based learning supported by instructor guidance and small group lectures. Includes signed numbers, fractions, decimals and percents, geometry and measurement, and algebraic expressions and equations. May include linear equations and inequalities, basic geometry, and factoring. Credits: 3; Hours: (3/0/0/0), Prereq: MAT-052; Arts & Sciences Elective Code: D

MAT-095 Personal Achievement Math (1.00)
Provides one-on-one and group supplemental instruction in any pre-college level mathematics course. Must be registered concurrently in a separate mathematics course. Credits: 1; Hours: (0/2/0/0), Arts & Sciences Elective Code: D

MAT-102 Intermediate Algebra (4.00)
Includes equations, inequalities, systems of equations, matrices, functions, graphs, polynomials, rational expressions, exponents, radicals and logarithms. Credits: 4; Hours: (4/0/0/0), Prereq: MAT-707, or MAT-076 through Module 6; Arts & Sciences Elective Code: B

MAT-103 Applied Math for Manufacturing (1.00)
Provides practical application of math theory to the manufacturing sector. Serves as a technical math course taken in conjunction with emporium math. Introduces trigonometry as it relates to manufacturing, specifically targeting Computer Numeric Controlled Machining and processes that use precision CNC press brakes and manual press brakes. Credits: 1; Hours: (1/0/0/0), Coreq: MAT-707; Arts & Sciences Elective Code: B

MAT-107 Survey of Mathematics (4.00)
Provides an overview of topics that include sets, real number systems, ratios, proportions, percents, geometry, algebra and functions. Requires a minimum of one year of high school algebra and for those who intend to take Statistical Ideas, Mathematics and Society, or Mathematics for Elementary Teachers. Credits: 4; Hours: (4/0/0/0), Prereq: MAT-052; Arts & Sciences Elective Code: B

MAT-115 Mathematics and Society (3.00)
Introduces selected areas of mathematics in familiar settings and develops conceptual and problem-solving skills. Includes a study of mathematical concepts selected from statistics, probability, game theory, growth patterns and coding information. Other topics may be included. Credits: 3; Hours: (3/0/0/0), Prereq: MAT-102 or MAT-107 or MAT-707; Arts & Sciences Elective Code: A

MAT-117 Math for Elementary Teachers (3.00)
Depends on understanding of the mathematics taught to elementary school children. Includes methods of problem solving, measurement, geometry, place value, arithmetic operations in a variety of algorithms, and the relationships between these algorithms. Explores concepts using manipulatives. For elementary education majors who choose a specialization different from mathematics, but is not limited to those students. Credits: 3; Hours: (3/0/0/0), Prereq: MAT-102 or MAT-107 or MAT-707; Arts & Sciences Elective Code: A

MAT-119 Algebra with Limits (4.00)
Examines polynomial, rational, radical, exponential and logarithmic functions, and equation solutions. Includes matrices, sequences, series and introduces limits. Intended as a calculus track course. Credits: 4; Hours: (4/0/0/0), Prereq: MAT-102 or MAT-708; Arts & Sciences Elective Code: A

MAT-140 Finite Math (3.00)
Includes methods of solving linear equations and inequalities. Introduces linear programming, matrices, functions, graphs, counting techniques, probability, mathematics of finance and applications. Credits: 3; Hours: (3/0/0/0), Prereq: MAT-102 or MAT-708 or MAT-707 through Module 10; Arts & Sciences Elective Code: A

MAT-149 Linear Algebra (3.00)
Includes matrix and vector arithmetic, using matrices to solve systems of linear equations, eigenvalues and eigenvectors, diagonalization of matrices, and an introduction to subspaces of Euclidean space. Credits: 3; Hours: (3/0/0/0), Prereq: MAT-210; Arts & Sciences Elective Code: A

MAT-150 Discrete Math (3.00)
Introduces concepts in discrete mathematics as applied to computer science. Includes logic, methods of proof, sets, counting techniques, discrete probability, permutations and combinations, graphs and trees. Emphasizes connections between discrete math and programming concepts. Credits: 3; Hours: (3/0/0/0), Prereq: MAT-102 or MAT-708 or MAT-707 through Module 10; Arts & Sciences Elective Code: A

MAT-155 Statistical Ideas (3.00)
Provides an overview of the basic ideas needed by consumers of statistics plus a framework for a more detailed study of the subject. Intended for liberal arts students. Credits: 3; Hours: (3/0/0/0), Prereq: MAT-102 or MAT-707 or MAT-708; Arts & Sciences Elective Code: A

MAT-157 Statistics (4.00)
Focuses on descriptive statistics (mean, median, mode, standard deviation and variance) and introduces correlation and linear regression. Emphasizes inferential statistics and probability distributions as applied to confidence intervals, hypothesis testing of means and proportions, and applications to business and other fields. Credits: 4; Hours: (4/0/0/0), Prereq: MAT-102 or MAT-707 or MAT-115 or MAT-155; Arts & Sciences Elective Code: A

MAT-162 Business Statistics (4.00)
Introduces statistics, primarily for business majors. Investigates methods of collection, organization, presentation, analysis and interpretation of data in the context of effective business decision-making. Utilizes computer applications to visualize and analyze data. Covers descriptive statistics, probability, inferential procedures including confidence intervals and hypothesis testing for one and two samples, regression, correlation and chi-square. Additional topics such as ANOVA may be covered. Credits: 4; Hours: (4/0/0/0), Prereq: MAT-138 or MAT-140 or MAT-155 or MAT-157; Arts & Sciences Elective Code: A
MAT-165 Business Calculus (3.00)
Emphasizes techniques and applications of differential and integral calculus to business economics. Credits: 3; Hours: (3/0/0/0), Prereq: MAT-139; Arts & Sciences Elective Code: A

MAT-210 Calculus I (4.00)
Includes limits, derivative, differentiation, the differential elementary applications of calculus and introduction to integration. Credits: 4; Hours: (4/0/0/0), Prereq: MAT-136; Arts & Sciences Elective Code: A

MAT-216 Calculus II (4.00)
Continues Calculus I. Includes integration, applications of integration used in applied disciplines, differential equations, Taylor series, and calculus in polar coordinates. Credits: 4; Hours: (4/0/0/0), Prereq: MAT-210; Arts & Sciences Elective Code: A

MAT-219 Calculus III (4.00)
Continues Calculus II. Includes study of vector functions, function of several variables, multiple integrals and vector fields. Credits: 4; Hours: (4/0/0/0), Prereq: MAT-216; Arts & Sciences Elective Code: A

MAT-227 Differential Equations With Laplace (4.00)
Studies exact equations, separable equations, linear equations, physical applications, series solution and methods of approximating the solutions to first-order equations. Introduces Laplace transforms that are used to solve differential equations. Credits: 4; Hours: (4/0/0/0), Prereq: MAT-216; Arts & Sciences Elective Code: A

MAT-232 Applied Industrial Math for Technicians (3.00)
Reviews mathematical principles and fundamentals that enable students to understand and apply course material throughout the Industrial Maintenance, Energy Production and Automation programs. Covers metric prefixes, conversions, exponents, scientific notation, engineering notation, ratios, proportions binary, geometry, dimensional analysis and algebraic expressions. Credits: 3; Hours: (3/0/0/0), Prereq: MAT-052; Arts & Sciences Elective Code: B

MAT-234 Applied Electrical Math for Technicians (1.00)
Reviews mathematical principles and fundamentals utilized throughout the Industrial Maintenance, Energy Production and Automation programs. Covers area, volume, electrical formulas and series, parallel and series parallel circuits. Credits: 1; Hours: (1/0/0/0), Prereq: MAT-052; Arts & Sciences Elective Code: B

MAT-707 Algebra Mastery 1 (3.00)
Continues modules from MAT-076, including linear equations and inequalities, polynomials, factoring, and systems of linear equations and inequalities. Emphasizes active, computer-based, individually-paced learning supported by instructor guidance and small-group lectures. Credits: 3; Hours: (3/0/0/0), Prereq: MAT-076; Arts & Sciences Elective Code: B

MAT-708 Algebra Mastery 2 (3.00)
Continues modules from MAT-707, including rational and radical expressions and equations, exponential and logarithmic functions, and quadratic equations. Emphasizes active, computer-based, individually-paced learning supported by instructor guidance and small-group lectures. Credits: 3; Hours: (3/0/0/0), Prereq: MAT-707; Arts & Sciences Elective Code: B

MAT-715 Industrial Math I (3.00)
Covers basic math skills such as addition, subtraction, multiplication and division of whole numbers, decimals and fractions. Covers specifically dimensional analysis and significant digit concepts. Also gives practice and solving stated problems and covers introductory algebra concepts. Credits: 3; Hours: (3/0/0/0), Arts & Sciences Elective Code: B

MAT-716 Industrial Math II (3.00)
Covers basic algebra as it relates to fundamental equations, ratios and proportion, and percentages. Covers applied geometry as it relates to finding length, area, volume, etc. Incorporates basic right angle trigonometry and provides practice in solving stated problems. Credits: 3; Hours: (3/0/0/0), Prereq: MAT-715; Arts & Sciences Elective Code: B

MAT-719 Applied HVAC Math (3.00)
Provides instruction in basic math skills such as addition, subtraction, multiplication, and division of whole numbers and fractions. Includes ratio and proportion, percent and percentage, computed measure, and heat load calculations. Covers specific math concepts related to HVAC and terminology technicians will encounter in the field. Credits: 3; Hours: (3/0/0/0), Prereq: MAT-772; Arts & Sciences Elective Code: B

MAT-731 Introduction to Math (2)
Reviews basic arithmetic operations and problem solving, including whole numbers, fractions, decimals, ratio and proportion, and percent as they apply to health professions. Covers computations, evaluating formulas with signed numbers and radicals, and exponents, as well as practical applications of the Metric, Troy and Apothecaries system of measurement. Credits: 2; Hours: (2/0/0/0), Arts & Sciences Elective Code: B; Comments: Placement test.

MAT-735 Machinist Mathematics I (2.00)
Begins with a review of fractions and decimals as they are used to solve shop problems. Students are introduced to the problems involving powers and roots, tapers and angles. Use of the calculator is introduced, along with handbook tables and formulas. Introduces the student to metric conversion and more advanced applied math involving calculations of area, volume and weight of material. Credits: 2; Hours: (2/0/0/0), Arts & Sciences Elective Code: B

MAT-736 Machinist Mathematics II (1.00)
Continues Machinist Mathematics I. Introduces students to more advanced practical mathematics. Includes metric conversion, area and volume calculation, temperature conversion and expansion of metals. Right angle trigonometry is introduced along with calculations that relate to numerical control programming. Credits: 1; Hours: (1/0/0/0), Prereq: MAT-735; Arts & Sciences Elective Code: B

MAT-737 Applied Plumbing Math (3.00)
Provides instruction on the applied mathematics used in the plumbing and pipingfitting industries. Reviews addition, subtraction, multiplication, division of whole numbers and fractions, and measurement conversions. Includes pipefitting dimensions and diameters, fitting allowances or make-up dimensions, 90, 60, 45 and 22 1/2 degree piping offsets, parallel offsets and rolling offsets. Credits: 3; Hours: (3/0/0/0), Prereq: MAT-772; Arts & Sciences Elective Code: B

MAT-738 Applied Plumbing Math II (1.00)
Provides instruction on plumbing trade calculations including British Thermal Units (BTUs), heat transfer, heat loss and heat gain, latent and sensible heat, volume, weight and surface area calculations, percentage calculations, water and head pressure calculations, Boyle's Law, and the applications of Boyle's Law. Credits: 1; Hours: (1/0/0/0), Prereq: MAT-737; Arts & Sciences Elective Code: B

MAT-745 Technical Mathematics I (4.00)
Studies applied math with emphasis on high-skilled calculations. Includes concepts of basic algebra, functions and graphs, trig functions, geometry, quadratic equations, exponents and radicals, systems of equations, and determinants. Credits: 4; Hours: (4/0/0/0), Prereq: MAT-052 or MAT-076 depending on program; Arts & Sciences Elective Code: B

MAT-746 Technical Mathematics II (4.00)
Includes logarithms and exponentials, solving nonlinear equations, variation, sequences, binomial theorem, trig identities, analytic geometry and statistics. Introduces the fundamental concepts of calculus, including limits, the derivative, definite and indefinite integrals and applications of each. Emphasizes solving problems relevant to the mechanical engineering field. Credits: 4; Hours: (4/0/0/0), Prereq: MAT-745; Arts & Sciences Elective Code: B

MAT-755 Fabrication Math I (2.00)
Covers basic math skills such as addition, subtraction, multiplication and division of whole numbers, decimals and fractions. Introduces linear measurement with emphasis on common measurement tools and techniques, scientific calculators, handbook tables, formulas, basic algebraic concepts, metric conversion, and applied problems of calculating area, volume, mass and weight. Credits: 2; Hours: (2/0/0/0), Arts & Sciences Elective Code: B

MAT-756 Fabrication Math II (2.00)
Continues Fabrication Math I. Introduces students to more advanced practical mathematics, including plane geometry and trigonometry, by resolving real industry problems. Credits: 2; Hours: (2/0/0/0), Prereq: MAT-755; Arts & Sciences Elective Code: B

MAT-765 Welding Mathematics (3.00)
Covers basic algebra as it relates to fundamental equations, ratios and proportions, and percentages. Incorporates basic right angle trigonometry and provides for additional practice in solving stated problems. Credits: 3; Hours: (3/0/0/0), Prereq: MAT-049; Arts & Sciences Elective Code: B

MAT-772 Applied Math (3.00)
Covers basic mathematical skills for students in career and technical fields. Focuses on computing with whole numbers, fractions, decimals, and signed numbers; percents; evaluating formulas; ratio and proportion as a problem-solving tool;
interactions, data storage and sensors using standard libraries and APIs. Credits: 3, Hours: (2/2/0), Prereq: minimum grade C- in CIS-171, CIS-172 or CSC-142; Arts & Sciences Elective Code: B

MFG: Manufacturing

MFG-103 Applied Metallurgy (3.00) Covers the different structures of metals and alloys and the resulting mechanical, electrical and magnetic properties; phase diagrams; kinetics of phase transformation; materials failure; thermal process; materials in engineering design/safety, applications and processing of metal alloys. Aligns with SENSE II. Units 1 through 3. Credits: 3, Hours: (1/4/0), Arts & Sciences Elective Code: B

MFG-104 Light Machining for Maintenance Trades (3.00) Introduces industrial maintenance-specific machining and metal-working technologies and processes. Includes basic part design, layout, replication, and repair emphasized through lecture, reading and hands-on labs. Credits: 3, Hours: (1/4/0), Prereq: MAT-232; Arts & Sciences Elective Code: B

MFG-120 Machine Trade Printreading I (1.00) Introduces students to the importance of prints in industry. Covers the alphabet of lines and principles of sketching. Continues with an introduction to orthographic projection, auxiliary views, detail and assembly drawings, dimensions and tolerances, and sectional views. Title block information is covered along with materials lists, drawing notes and drawing change systems. Credits: 1, Hours: (1/0/0), Arts & Sciences Elective Code: B

MFG-130 Machine Trade Printreading II (1.00) Continues Machinist Trade Printreading I. Covers geometric dimensionalizing and tolerancing and the interpretation of advanced prints, including numerical control programming and documents. Credits: 1, Hours: (1/0/0), Prereq: MFG-120; Arts & Sciences Elective Code: B

MFG-135 Fabrication Print Reading I (2.00) Introduces students to the importance of blueprints in industry. Covers topics such as the alphabet of lines, orthographic projection, auxiliary views, detail and assembly drawings, dimensions and tolerances and sectional views. Basic fabrication, machining, and welding prints are covered. Credits: 2, Hours: (2/0/0), Arts & Sciences Elective Code: B

MFG-136 Fabrication Print Reading II (2.00) Continues Fabrication Print Reading I. Covers advanced print reading topics dealing with sheet-metal fabrication, welding and machining. Geometric dimensionalizing and tolerancing are included. Credits: 2, Hours: (2/0/0), Prereq: MFG-135; Arts & Sciences Elective Code: B

MFG-140 Geometric Dimensioning and Tolerance (1.00) Presents information concerning the special symbols used in geometric dimensionalizing and tolerancing. These symbols are a language used to communicate the ideas and intent of the designer to the people who manufacture the parts or the person who inspects the finished part. Credits: 1, Hours: (1/0/0), Prereq: MFG-120, MFG-130; Arts & Sciences Elective Code: B; Comments: Appropriate work experience may be taken in lieu of prerequisite course work

MFG-145 Light Machining for Maintenance Trades (4.00) Covers machine/shop safety, machine theory, blueprint reading, tolerances, tooling selection, machine feed and speed, and proper usage of manual knee mills and manual lathes. Emphasizes print reading, mill and lathe usage, and machine maintenance, in a hands-on lab setting. Credits: 4, Hours: (2/4/0), Arts & Sciences Elective Code: B

MFG-202 Manufacturing Processes (2.00) Focuses on producing a part on a CNC mill and lathe. Covers engineering parts to be cost effective as well as well-produced. Credits: 2, Hours: (0/4/0), Prereq: DRF-142; DRF-143; Arts & Sciences Elective Code: B

MFG-213 Basic Machine Theory (5.00) Covers theory of operation of machining tools, metallurgy as it applies to manufacturing, identification and elementary heat treatment of steel. Safety is taught as it applies to each machine process. Proper terminology of the machinist trade is emphasized. Credits: 5, Hours: (5/0/0), Arts & Sciences Elective Code: B

MFG-215 Advanced Machine Theory (3.00) Continues Basic Machine Theory. Covers more advanced principles in setup and operation of lathes, mills and grinders. Introduces carbide lathe tools, milling cutters, and emphasizes productivity and accuracy. Covers theory of basic shaper setup and operation, and an introduction to basic turret lathe setups. Shop safety, cooperation and communication continue to be stressed. Credits: 3, Hours: (3/0/0), Prereq: MFG-227; Arts & Sciences Elective Code: B

MFG-222 Machine Operations I (4.00) Covers lab use of basic measuring tools, layout and inspection tools, and bench work. Safe operation of machine tools and heat treating equipment is taught. Emphasis is on following blueprints and holding tolerances through the use of a variety of processes to produce a product. Credits: 4, Hours: (0/8/0), Coreq: MAT-735, MFG-120, MFG-213; Arts & Sciences Elective Code: B

MFG-227 Advanced Machine Operations I (4.00) Continues MFG-222. More complex prints are used to introduce additional machine tool processes. Credits: 4, Hours: (0/8/0), Prereq: MFG-222; Coreq: MAT-735, MFG-120, arts & Sciences Elective Code: B

MFG-228 Machine Operations II (4.00) Covers advanced setup and operation of lathes, mills and grinders using different materials and cutters. Productivity and safe operation are emphasized. Credits: 4, Hours: (0/8/0), Prereq: MFG-227; Coreq: MAT-736, MFG-130, MFG-215; Arts & Sciences Elective Code: B

MDT: Mobile Development Technology

MDT-230 Programming in Swift (3.00) Introduces Apple software development with the Swift programming language and the Xcode development environment. Introduces object-oriented programming, Cocoa development and common Apple framework libraries. Includes programming projects with graphical interfaces, event-driven programming, and a layered, MVC approach to solution design. Includes making use of code libraries originally written for the Objective-C programming language. Credits: 3, Hours: (2/2/0), Prereq: minimum grade C- in CIS-121; Arts & Sciences Elective Code: B

MDT-240 Objective-C Development (3.00) Introduces Apple software development with the Objective-C programming language and the Xcode development environment. Students are introduced to object-oriented programming, the use of Apple standard libraries and common frameworks. Programming projects include graphical interfaces, event-driven programming, and a layered, MVC approach to solution design. Includes a brief overview of the C programming language. Credits: 3, Hours: (2/2/0), Prereq: minimum grade C- in CIS-121; Arts & Sciences Elective Code: B

MDT-340 IOS App Development (3.00) Presents IOS development for Apple devices, including the iPhone, iPad and iPod touch using a project-based approach. Introduces Swift and mixed language programming. Includes development using the MVC design pattern within the Cocoa Touch Framework. Projects include user interfaces and touch screen interactions, sensors such as the GPS, Sprite Kit and other common libraries. Credits: 3, Hours: (2/2/0), Prereq: minimum grade C- in CIS-171 or CIS-622 or CSC-142; Arts & Sciences Elective Code: B

MDT-350 Android App Development (3.00) Building on a foundation of Java programming, this course introduces students to Android development for phone and tablet devices. The course takes a project approach after exploring Android fundamentals including activities, services, providers, receivers, notifications and intents. Development tools include the Android SDK, emulators and the Eclipse IDE. Projects involve graphical user interfaces, touch screen
MFG-230 Advanced Machine Operations II (4.00)
Continues MFG-228. Use of carbide cutters is emphasized. Productivity and safety continue to be emphasized, along with more complex prints and setups. Credits: 4; Hours: (0/8/0/0), Prereq: MFG-228; Coreq: MAT-736, MFG-130, MFG-215; Arts & Sciences Elective Code: B

MFG-259 Measurement, Materials & Safety (NIMS) (3.00)
Introduces basic press brake operations. Covers manual hydraulic down acting press brake practice and problem solving through hands-on experience and practical applications. This course aligns with NIMS (National Institute of Metalworking Skills) standards. Credits: 3; Hours: (2/2/0/0), Arts & Sciences Elective Code: B

MFG-279 CNC Machine Operations (4.00)
Provides a basic understanding of CNC codes commonly used in a machine shop. Focuses on computer-based and hands-on training in code writing and CNC machine setup and operation, while producing various related projects. Credits: 4; Hours: (1/6/0/0), Arts & Sciences Elective Code: B

MFG-281 CNC Punch Press Operations (NIMS) (3.00)
Introduces basic operations of a CNC turret press. Covers basic and advanced tooling, programming using G&M code and CAM software. Emphasizes teamwork, critical thinking and problem solving through hands-on experience and practical applications. This course aligns with NIMS (National Institute of Metalworking Skills) standards. Credits: 3; Hours: (1/4/0/0), Prereq: MFG-259, MFG-286; Arts & Sciences Elective Code: B

MFG-283 Laser Operations (2.00)
Introduces basic theories and practices of machine operation, shop procedures, material properties and material handling. Covers programming and editing and adjusting parameters. Students perform inspections and routine machine maintenance. Credits: 2; Hours: (1/2/0/0), Prereq: CAD-300; Arts & Sciences Elective Code: B

MFG-286 Job Planning, Benchwork & Layout (NIMS) (3.00)
Provides the basics of hand tools, understanding drawings, manual machines and layout. Focuses on interpretation of drawing information, description of basic symbols, and notation and interpretation of basic GD&T feature control frames. Emphasizes teamwork, critical thinking and problem solving through hands-on experience and practical applications. This course aligns with NIMS (National Institute of Metalworking Skills) standards. Credits: 3; Hours: (2/2/0/0), Arts & Sciences Elective Code: B

MFG-287 Manual Press Brake Operator (NIMS) (3.00)
Introduces basic press brake operations. Covers manual hydraulic down acting press brake practices, tooling, bending principals and applied mathematics. Emphasizes teamwork, critical thinking and problem solving through hands-on experience and practical applications. Credits: 3; Hours: (2/2/0/0), Prereq: MFG-259, MFG-286; Arts & Sciences Elective Code: B

MFG-288 Water Jet Operations (2.00)
Introduces basic theories and practices of machine operation, shop procedures, material properties and material handling. Covers programming and editing and adjusting parameters. Students perform inspections and routine machine maintenance. Credits: 2; Hours: (1/2/0/0), Prereq: CAD-300; Arts & Sciences Elective Code: B

MFG-289 Automated Production Methods for AMET (3.00)
Introduces automation as it applies to machining, fabrication and welding. Covers automation feeding, automatic cycle repetition, robots and other equipment-oriented concepts. Studies theory of system concepts, such as mass production, batch processing and just-in-time processing. Credits: 3; Hours: (1/4/0/0), Arts & Sciences Elective Code: B

MFG-291 CNC Mill Operator (NIMS) (3.00)
Introduces basic milling operations. Covers manual and CNC milling practices, tooling, machining practices and applied mathematics. Emphasizes teamwork, critical thinking and problem solving through hands-on experience and practical applications. This course aligns with NIMS (National Institute of Metalworking Skills) standards. Credits: 3; Hours: (2/2/0/0), Arts & Sciences Elective Code: B

MFG-292 CNC Lathe Operation (NIMS) (3.00)
Introduces basic lathe operations. Covers manual and CNC lathe turning practices, tooling, machining practices and applied mathematics. Emphasizes teamwork, critical thinking and problem solving through hands-on experience and practical applications. This course aligns with NIMS (National Institute of Metalworking Skills) standards. Credits: 3; Hours: (2/2/0/0), Arts & Sciences Elective Code: B

MFG-297 Milling Machine Operations (NIMS) (3.00)
Introduces basic and advanced manual milling operations. Covers manual milling machine practices, tooling, machining principles and applied mathematics. Emphasizes teamwork, critical thinking and problem solving through hands-on experience and practical applications. This course aligns with NIMS (National Institute of Metalworking Skills) standards. Credits: 3; Hours: (2/2/0/0), Arts & Sciences Elective Code: B

MFG-298 Surface Grinding Operations (NIMS) (2.00)
Introduces basic surface grinding operations. Covers precision surface grinding practices, grinding wheel identification, proper grinding techniques and grinding safety. Emphasizes teamwork, critical thinking and problem solving through hands-on experience and practical applications. This course aligns with NIMS (National Institute of Metalworking Skills) standards. Credits: 2; Hours: (1/2/0/0), Prereq: MFG-259, MFG-286; Arts & Sciences Elective Code: B

MFG-299 Turning Operations (Turning Between Centers - NIMS) (3.00)
Introduces basic and advanced lathe operations dealing with turning parts between centers. Focuses on general lathe practices, lathe tool grinding, lathe nomenclature, proper use of lathe tooling as applied to turning between centers and lathe safety. Emphasizes teamwork, critical thinking and problem solving through hands-on experience and practical applications. This course aligns with NIMS (National Institute of Metalworking Skills) standards. Credits: 3; Hours: (2/2/0/0), Arts & Sciences Elective Code: B

MFG-302 CNC Fundamentals (3.00)
Introduces computer numerical control as it relates to CNC lathes and milling machines. The use of microcomputers and related software is covered. Emphasizes input language, codes, machine setup and operation, inspection of parts, and communication with peripherals. Credits: 3; Hours: (1/4/0/0), Prereq: MFG-227, MFG-215; Arts & Sciences Elective Code: B

MFG-311 Intermediate CNC (6.00)
Continues the introductory course adding canned cycles, looping, sub-routines and interpretation of programs written by others. Internal machining on the lathes is covered. More complex parts and production of multiple parts will be undertaken. Credits: 6; Hours: (1/10/0/0), Prereq: MFG-302 or appropriate industrial experience; Arts & Sciences Elective Code: B

MFG-313 Advanced CNC (6.00)
Allows students to progress from the trainers to the full-size industrial CNC machines. Conversational programming is introduced, and advanced projects involving mating parts and short production runs are undertaken. Students are introduced to computer-assisted programming as it applies to CAD/CAM. Routine and preventive maintenance procedures are learned. Credits: 6; Hours: (0/12/0/0), Prereq: MFG-311 or appropriate industrial CNC programming experience; Arts & Sciences Elective Code: B

MFG-317 Automated Production Methods (5.00)
Covers computer-assisted programming and introduces students to automation as it applies to machining operations. Automatic machine feeding, automatic cycle repetition, robots and other equipment-oriented concepts are studied. System concepts such as mass production, batch processing and just-in-time processing are covered from a theoretical view. Credits: 5; Hours: (1/8/0/0), Prereq: MFG-332, MFG-334; Arts & Sciences Elective Code: B

MFG-318 Introduction to Fabrication Practices (5.00)
Introduces basic theories and practices used in precision sheet metal fabrication, including layout, shearing, punching and bending. Students apply theory concepts through practical lab projects, with emphasis on shop safety, cooperation and communication. Credits: 5; Hours: (2/6/0/0), Arts & Sciences Elective Code: B

MFG-324 Turning Operations (Turning in a Chuck - NIMS) (3.00)
Introduces basic and advanced lathe operations dealing with turning parts in different types of chucks. Covers general lathe practices pertaining to turning in a chuck, lathe tool grinding, lathe nomenclature, proper use of lathe tooling as applied to turning in a chuck and lathe safety. Emphasizes teamwork, critical thinking and problem solving through hands-on experience and practical applications. This course aligns with NIMS (National Institute of Metalworking Skills)
MFG-332 CNC Mill Program and Setup (NIMS) (3.00)
Introduces basic CNC vertical milling operations. Focuses on setup and operation practices pertaining to CNC milling and programming language using G&M codes. Emphasizes teamwork, critical thinking and problem solving through hands-on experience and practical applications. This course aligns with NIMS (National Institute of Metalworking Skills) standards. Credits: 2, Hours: (2/1/0/0), Prereq: MFG-259, MFG-286 and MFG-291, CNC students also need MFG-297; Arts & Sciences Elective Code: B

MFG-334 CNC Lathe Program & Setup (NIMS) (3.00)
Introduces basic CNC horizontal lathe turning operations. Covers setup and operation practices pertaining to CNC turning and programming language using G&M codes. Emphasizes teamwork, critical thinking and problem solving through hands-on experience and practical applications. This course aligns with NIMS (National Institute of Metalworking Skills) standards. Credits: 3, Hours: (2/2/0/0), Prereq: MFG-259, MFG-286 and MFG-292, CNC students also need MFG-299, MFG-324; Arts & Sciences Elective Code: B

MFG-339 CNC Press Brake Operator (NIMS) (2.00)
Introduces CNC controls and programming as related to a CNC press brake. Covers advanced concepts in tooling, bending principles and applied mathematics dealing with a hydraulic down acting CNC press brake. Emphasizes teamwork, critical thinking and problem solving through hands-on experience and practical applications. This course aligns with NIMS (National Institute of Metalworking Skills) standards. Credits: 2, Hours: (1/2/0/0), Prereq: MFG-259, MFG-286; Coreq: MFG-287; Arts & Sciences Elective Code: B

MFG-341 CNC Lathe Operations (NIMS) (2.00)
Continues CNC lathe turning (program and setup). Covers advanced concepts pertaining to CNC turning and programming language using G&M codes and CAM software. Emphasizes teamwork, critical thinking and problem solving through hands-on experience and practical applications. This course aligns with NIMS (National Institute of Metalworking Skills) standards. Credits: 2, Hours: (2/2/0/0), Prereq: MFG-259, MFG-286, MFG-292, MFG-299, MFG-324, MFG-334; Arts & Sciences Elective Code: B

MFG-342 CNC Lathe Operations (NIMS) (2.00)
Continues CNC lathe turning (program and setup). Covers advanced concepts pertaining to CNC turning and programming language using G&M codes and CAM software. Emphasizes teamwork, critical thinking and problem solving through hands-on experience and practical applications. This course aligns with NIMS (National Institute of Metalworking Skills) standards. Credits: 2, Hours: (1/2/0/0), Prereq: MFG-259, MFG-286, MFG-292, MFG-299, MFG-324, MFG-334; Arts & Sciences Elective Code: B

MFG-343 CNC Milling Operations (NIMS) (2.00)
Continues CNC milling (program and setup). Covers advanced concepts pertaining to CNC vertical and horizontal milling machines and programming language using G&M codes and CAM software. Emphasizes teamwork, critical thinking and problem solving through hands-on experience and practical applications. This course aligns with NIMS (National Institute of Metalworking Skills) standards. Credits: 2, Hours: (2/1/0/0), Prereq: MFG-259, MFG-286, MFG-292, MFG-299, MFG-324, MFG-334; Arts & Sciences Elective Code: B

MFG-348 EDM Wire Operations (NIMS) (1.00)
Introduces basic and advanced operations dealing with a CNC Electrical Discharge Machine (EDM). Covers basic and advanced EDM theory and concepts, programming using G&M code and CAM software. Emphasizes teamwork, critical thinking and problem solving through hands-on experience and practical applications. This course aligns with NIMS (National Institute of Metalworking Skills) standards. Credits: 1, Hours: (1/1/0/0), Prereq: MFG-259, MFG-286; Arts & Sciences Elective Code: B

MFG-390 Introduction to Automated Fabrication Practices (7.00)
Introduces CNC through water jet and turret punch techniques. Emphasizes equipment operation, programming, safety and maintenance, off-line programming, and troubleshooting. Credits: 7, Hours: (2/1/0/0), Prereq: MFG-318; Arts & Sciences Elective Code: B

MFG-391 Intermediate Automated Fabrication Practices (7.00)
Continues MFG-390. Focuses on complex problem solving and application, with emphasis on communications with respect to machines, computers or offline program systems. Introduces the laser cutter to demonstrate various cutting methods. Credits: 7, Hours: (2/1/0/0), Prereq: MFG-390; Arts & Sciences Elective Code: B

MFG-392 Advanced Automated Fabrication Practices (7.00)
Focuses on computer assist software for programming, and the steps of metal fabrication. Students complete multiple projects from start to finished product. Credits: 7, Hours: (2/1/0/0), Prereq: MFG-391; Arts & Sciences Elective Code: B

MFG-393 Introduction to Machine Shop (4.00)
Explores basics of machining, raw materials, use of hand tools, safety and maintenance. Includes measurement techniques, materials, safety, machine tool math, quality control, understanding drawings, manual machines and layout. Focuses on interpretation of drawing information, description of basic symbols, and notation and interpretation of basic GD&T (Geometric Dimensioning and Tolerancing) and maintenance. Emphasizes teamwork, critical thinking and problem solving through hands-on experience and practical applications. Credits: 4, Hours: (2/4/0/0), Arts & Sciences Elective Code: B

MFG-394 CNC Machine Tool Operations (4.00)
Introduces basic machining operations. Covers manual and CNC milling and turning practices, tooling, machining practices and applied mathematics, and workholding techniques. Emphasizes teamwork, critical thinking and problem solving through hands-on experience and practical applications. Credits: 4, Hours: (2/4/0/0), Arts & Sciences Elective Code: B

MFG-395 CNC Machine Tool Program and Setup (4.00)
Introduces basic CNC vertical mill and lathe programming. Focuses on practices pertaining to CNC milling and turning programming language using G&M codes. Emphasizes teamwork, critical thinking and problem solving through hands-on experience and practical applications. Credits: 4, Hours: (2/4/0/0), Prereq: MFG-394; Arts & Sciences Elective Code: B

MFG-396 Alternative Manufacturing Processes (3.00)
Introduces basic theories and practices of machine operation, shop procedures, material properties and material handling. Covers programming, editing and adjusting parameters. Incorporates hands-on inspections and routine machine maintenance. Credits: 3, Hours: (1/4/0/0), Prereq: CAD-300; Arts & Sciences Elective Code: B

MFG-420 Jig and Fixture Design (2.00)
Covers theory of design and machining practices as they relate to jigs and fixtures used in manufacturing facilities. Introduces students to the importance of jig and fixture classification and to their uses in modern machine tools. Credits: 2, Hours: (2/4/0/0), Arts & Sciences Elective Code: B

MGT: Management

MGT-101 Principles of Management (3.00)
Applies current techniques and methods to the management functions of planning, organizing, leading and controlling. Focuses on critical analysis, development and effectiveness of organizational processes. Credits: 3, Hours: (3/0/0), Arts & Sciences Elective Code: A

MGT-112 Business Innovation (3.00)
Applies creativity and innovation to manage projects in conjunction with STEM mentors from local businesses. Provides an experiential learning environment designed to foster development of entrepreneurial leadership skills through strategic development and execution. Credits: 3, Hours: (3/0/0), Arts & Sciences Elective Code: A

MGT-121 Project Management Basics (3.00)
Defines project management and examines the role of the project manager. Emphasizes on-the-job project management knowledge areas and processes. Practical applications and case studies are used to reinforce and apply concepts to real life situations. Credits: 3, Hours: (3/0/0), Arts & Sciences Elective Code: B
MGT-124 Project Management Tools (3.00)
Continues MGT-121, focusing on traditional pro-
ject management tools and emerging project
management techniques. Students develop a
project plan, define and sequence tasks, identify
critical path, allocate resources, estimate risks and
maintain a budget. Utilizes popular project
management software, such as MS Project and
MS Excel. Credits: 3; Hours: (2/2/0/0), Prereq:
MGT-121; Arts & Sciences Elective Code: B

MGT-130 Principles of Supervision (3.00)
Introduces the management functions of plan-
ning, organizing, leading and controlling. Focuses
on technical supervision skills and human rela-
tions skills needed to develop a productive work
team, and conceptual skills to group interde-
pendent organizational processes. Credits: 3;
Hours: (3/0/0/0), Arts & Sciences Elective Code: B

MGT-137 Developing Leadership Skills (1.00)
Designed to give valuable suggestions on com-
mu nic at ing effectively using coaching, counsel-
ing, delegating and performance reviews to de-
velop subordinates. Credits: 1; Hours: (1/0/0/0),
Arts & Sciences Elective Code: B

MGT-139 Effective Team Building for Managers
(1.00)
Participants learn the basics of team manage-
ment, how to motivate team members, how to
improve the communication process and under-
stand the principles of leadership. Credits: 1;
Hours: (1/0/0/0), Arts & Sciences Elective Code: B

MGT-140 Time Management in the Workplace
(1.00)
Focuses on high performance work times, being
effective vs. being efficient, time wasters and
solutions to them. Students also learn organiza-
tional skills, how to set goals, plan and prioritize.
Credits: 1; Hours: (1/0/0/0), Arts & Sciences
Elective Code: B

MGT-145 Human Relations in Management
(3.00)
Emphasizes the importance of proper attitudes
towards self, others and organization values.
Stresses the development of a good self-concept
and the relationship this has to energy levels,
emotions, verbal and nonverbal communication.
Prepares students to understand how to deal
with conflict and how to be a productive member
of a work group. Credits: 3; Hours: (3/0/0/0),
Arts & Sciences Elective Code: B

MGT-155 Integrated Project Management (3.00)
Allows students to practice managing a variety of
projects from initiation to completion. Students
demonstrate technical and applied knowledge
gained in their field, as well as critical thinking,
diverse perspectives and communication skills.
Credits: 3; Hours: (3/0/0/0), Prereq: MGT-124;
Arts & Sciences Elective Code: B

MGT-158 Office Supervision and Management
(3.00)
Develops vocabulary and knowledge needed to
examine sound principles and successful prac-
tices used by office managers to effectively and
efficiently manage an office. This course provides
students an opportunity to hone essential soft
skills while exploring human resource issues. In
addition, students design and implement an
etiquette training module. Credits: 3; Hours:
(3/0/0/0), Arts & Sciences Elective Code: B

MGT-161 Agile Project Management With
Scrum (3.00)
Introduces agile project management processes
to improve efficiency and flexibility while de-
creasing time to market. Explores Scrum, an agile
practice that develops cross-functional and
self-managed teams to produce a viable product
that reacts to rapidly changing markets and cli-
mates. Credits: 3; Hours: (3/0/0/0), Arts & Sci-
ences Elective Code: B

MGT-170 Human Resource Management (3.00)
Includes managerial philosophy of human re-
source administration, emphasizing the study of
the personnel functions of recruiting, interview-
ing, selecting, placement, training and evaluating.
Also addresses the issues of diversity in a dy-
namic environment. Credits: 3; Hours: (3/0/0/0),
Arts & Sciences Elective Code: B

MGT-171 Human Resource Strategies - Talent
Management and Employee Relations (3.00)
Focuses on development of hands-on skills and
critical thinking abilities necessary in the field of
Human Resource Management. Includes the
application of tools and techniques in the follow-
 ing HR functions: talent acquisition, total rewards,
employee and labor relations, training and de-
velopment, and performance management. Cred-
its: 3; Hours: (3/0/0/0), Prereq: MGT-101, mini-
um C- in CSC-110 and MGT-170; Arts & Sci-
ences Elective Code: B

MGT-179 Human Resource Strategies - Total
Rewards, Safety and Labor (3.00)
Develops hands-on skills and critical thinking
abilities necessary in the field of Human Re-
source Management. Introduces the application
of tools and techniques in compensation, bene-
fits, employee safety and workers compensation,
and labor relations. Credits: 3; Hours: (3/0/0/0),
Prereq: MGT-101, minimum C- in CSC-110 and
MGT-170; Arts & Sciences Elective Code: B

MGT-205 Introduction to Global Trade (3.00)
Addresses the complications associated with
business operations in today's global economy.
Focuses on applying knowledge gained through
business core courses of management, market-
ing, accounting, operations, and finance with
particular attention on global business opera-
tions. Translates theory into practice and helps
students learn the terminology and systems that
support international trade. Emphasizes under-
standing the language of trade for documents
and movement of goods and services while
meeting corporate needs within environmental
constraints and corporate goals. Credits: 3;
Hours: (3/0/0/0), Arts & Sciences Elective Code: B

MGT-206 Global Business Skills (3.00)
Focuses on fundamental global business skills
needed in today's global business environment.
Includes a basic understanding of globalization
as it impacts the business environment, business
evaluation of culture as it relates to business,
ethical decision making in the cross-cultural en-
vironment, and culturally appropriate techniques
for international business settings. Credits: 3;
Hours: (3/0/0/0), Arts & Sciences Elective Code: B

MGT-300 Introduction to Entrepreneurship
(3.00)
Examines the feasibility of a new business con-
cept and the fundamentals of organizing a small
business. Students measure their potential as an
entrepreneur, identify business opportunities,
examine entry strategies, understand the ad-
vantages and disadvantages of buying a business
and evaluate the value of that business. Focuses
on realizing business strengths, weaknesses,
opportunities and threats. Implements the plan-
ning process through feasibility and business
plans. Credits: 3; Hours: (3/0/0/0), Arts & Sci-
ences Elective Code: B

MGT-301 Management Capstone (3.00)
Emphasizes current trends in management and
upper-level management concepts such as plan-
ning, organizing, leading and controlling. Provides
a career component that focuses on employment
tools, tips, preparation and industry exploration.
Credits: 3; Hours: (3/0/0/0), Arts & Sciences
Elective Code: B

MGT-305 Business Plans for Entrepreneurs
(3.00)
Focuses on small business strategies by devel-
oping a business plan and studying successful
small businesses. Incorporates finance, market-
ing, sales, organizational structure, and strategic
management and decision making. Addresses
the unique entrepreneurial experience of con-
ceiving, evaluating, creating, managing and po-
tentially starting a business. Credits: 3; Hours:
(3/0/0/0), Prereq: MGT-300; Arts & Sciences
Elective Code: B

MIL-924 Honors Project (1.00)
Allows a qualified honors student to pursue a
special concentration of study under the guid-
ance of a faculty member. Requires completion of
an honors project contract. May be taken more
than once. Credits: 1; Hours: (1/0/0/0), Arts &
Sciences Elective Code: B; Comments: Requires
approval of supervising professor and dean

MIL-928 Independent Study (1.00-4.00)
Taken concurrently with a standard course in
the student's area of specialty. Special projects
and/or individual readings are assigned by the
program coordinator or an individual staff mem-
ber. Projects must be approved before the begin-
ning of the semester in which the work is to be
done. Credits: 1-4, Hours: (1-4/0/0/0), Arts &
Sciences Elective Code: A; Comments: Permission
of instructor, dean

MIL: Military

MIL-100 Foundations of the U.S. Air Force I
(1.00)
Introduces the U.S. Air Force and Air Force Re-
serve Officer Training Corps (AFROTC). Features
the history and structure of the Air Force, its ca-
pabilities, career opportunities, installations, and
core values while developing team building,
communication and leadership skills. Credits: 1;
Hours: (1/0/0/0), Arts & Sciences Elective Code: A

MIL-101 Foundations of the U.S. Air Force II
(1.00)
Continues Foundations I. Provides more infor-
mation about the U.S. Air Force and Air Force
Course Descriptions

Reserve Officer Training Corps (AFROTC). Features the history and structure of the Air Force, its capabilities, career opportunities, installations, and core values while developing team building, communication and leadership skills. Credits: 1, Hours: (1/0/0/0), Arts & Sciences Elective Code: A

MIL-202 The Evolution of USAF Air & Space Power II (1.00)
Continues Evolution I. Presents additional information on the general aspects of air and space power through historical perspectives. Covers the time from the first balloons and dirigibles to the Space Age global positioning systems of the Persian Gulf War. Historical examples define the Air Force's capabilities and missions, and demonstrate the evolution of today's USAF air and space power. Credits: 1, Hours: (1/0/0/0), Arts & Sciences Elective Code: A

MIL-201 The Evolution of USAF Air & Space Power II (1.00)
Continues Evolution I. Presents additional information on the general aspects of air and space power through historical perspectives. Covers the time from the first balloons and dirigibles to the Space Age global positioning systems of the Persian Gulf War. Historical examples define the Air Force's capabilities and missions, and demonstrate the evolution of today's USAF air and space power. Credits: 1, Hours: (1/0/0/0), Arts & Sciences Elective Code: A

MIL-104 Army ROTC Leadership & Personal Development (1.00)
This course introduces cadets to the military personal challenges and competencies critical for effective leadership. Cadets learn how the personal development of life skills such as critical thinking, goal setting, time management, physical fitness, and stress management relate to leadership, officerhood, and the Army profession. The focus is on developing basic knowledge and comprehension of Army leadership dimensions while gaining a big picture understanding of the ROTC program, its purpose in the Army, and its advantages for the student. No military obligation is associated with participation in the course. Credits: 1, Hours: (1/0/0/0), Arts & Sciences Elective Code: A

MIL-105 Army ROTC Introduction to Tactical Leadership (1.00)
This course introduces students to leadership fundamentals such as setting direction, problem solving, listening, presenting briefs, providing feedback, and using effective writing skills. Students explore dimensions of leadership values, attributes and competencies in the context of practical, hands-on, and interactive exercises. Instructor mentorship and building relationship among the students through common experience and practical interaction are a critical aspect of the course experience. No military obligation is associated with participation in the course. Credits: 1, Hours: (1/0/0/0), Arts & Sciences Elective Code: A

MIL-111 AFROTC Leadership Lab I (1.00)
Develops knowledge of what is required to be an Air Force officer by honing leadership skills through hands-on experience and performing various tasks at the University of Iowa AFROTC Detachment. Faculty supervise all labs, but students plan and conduct all events. Credits: 1, Hours: (1/0/0/0), Arts & Sciences Elective Code: A

MIL-112 AFROTC Leadership Lab II (1.00)
Develops knowledge of what is required to be an Air Force officer by honing leadership skills through hands-on experience and performing various tasks at the University of Iowa AFROTC Detachment. Faculty supervise all labs, but students plan and conduct all events. Credits: 1, Hours: (1/0/0/0), Arts & Sciences Elective Code: A

MIL-200 The Evolution of USAF Air & Space Power I (1.00)
Presents general aspects of air and space power through historical perspectives. Covers the time from the first balloons and dirigibles to the Space Age global positioning systems of the Persian Gulf War. Historical examples define the Air Force's capabilities and missions, and demonstrate the evolution of today's USAF air and space power. Credits: 1, Hours: (1/0/0/0), Arts & Sciences Elective Code: A

MIL-200 The Evolution of USAF Air & Space Power I (1.00)
Presents general aspects of air and space power through historical perspectives. Covers the time from the first balloons and dirigibles to the Space Age global positioning systems of the Persian Gulf War. Historical examples define the Air Force's capabilities and missions, and demonstrate the evolution of today's USAF air and space power. Credits: 1, Hours: (1/0/0/0), Arts & Sciences Elective Code: A

MIL-201 The Evolution of USAF Air & Space Power II (1.00)
Continues Evolution I. Presents additional information on the general aspects of air and space power through historical perspectives. Covers the time from the first balloons and dirigibles to the Space Age global positioning systems of the Persian Gulf War. Historical examples define the Air Force's capabilities and missions, and demonstrate the evolution of today's USAF air and space power. Credits: 1, Hours: (1/0/0/0), Arts & Sciences Elective Code: A

MKT: Marketing

MKT-110 Principles of Marketing (3.00)
Studies the process of planning and executing the conception, pricing, promotion and distribution of ideas, goods and services to create the exchanges that satisfy individual and organizational goals. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: A

MKT-130 Social Media in Business (3.00)
Outlines the fundamentals of social media marketing in business. Addresses strategies for integrating a solid social media plan with traditional marketing plans and/or organizational goals for utilizing social media, and determining the best social media platforms. Credits: 3, Hours: (3/0/0/0), Prereq: MKT-110; Arts & Sciences Elective Code: B

MKT-135 Content Marketing (3.00)
Outlines the fundamentals of creating online marketing content that supports social media marketing strategies. Addresses strategies for customizing creative content that meets ROI objectives, developing and maintaining online professional presence through optimization of content and appropriate business communications for various platforms. Credits: 3, Hours: (3/0/0/0), Prereq: MKT-110; Coreq: MKT-130; Arts & Sciences Elective Code: B

MKT-140 Principles of Selling (3.00)
Provides basic skills needed to sell goods and services in a marketing economic system. Students learn about careers in selling, buyer behavior, product knowledge and selling concepts. Emphasis is on problem solving. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: B

MKT-150 Principles of Advertising (3.00)
Acquaints students with the philosophy of advertising, historical concepts, and practical applications of advertising at the local and national levels. Includes media and media selection, copywriting, and layout, with an emphasis on product selection for advertising. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: B

MKT-160 Principles of Retailing (3.00)
Studies retailing and its functions in a free enterprise system. All facets of retail operation are considered including planning, organization, personnel, facilities, control, pricing, buying, selling and promotion. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: B

MKT-180 Customer Service Strategies (1.00)
Designed to help students target their customers and develop appropriate services. Discusses the use of effective customer services as a competition tool. Credits: 1, Hours: (1/0/0/0), Arts & Sciences Elective Code: B

MKT-190 International Marketing (3.00)
Covers the theoretical and practical concepts of international marketing. A clear delineation of marketing functions in domestic and international business is stressed. Other topics covered
include cultural dynamics of the global markets, political and legal environment and multinational markets. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: B

MKT-195 Marketing Management (3.00)
Examines the marketing process from product conception to production and delivery. Emphasizes marketing plan development, situation analysis, marketing strategies and product management for both new and current products. Utilizes a capstone simulation project to develop and enhance marketing and management skills. Credits: 3, Hours: (3/0/0/0), Prereq: MKT-110; Arts & Sciences Elective Code: B

MKT-350 Customer Service Professional (9.00)
Explores areas of customer service representative, call center representative, helpdesk support, technical support, financial services support and administrative support professional. Teaches core knowledge and competencies on call center operation including metrics, required skills and terminology. Emphasizes soft skills including listening, speaking, questioning and de-escalating upset customers. Incorporates facilitation, review techniques, role-play and practice. Successful completion of this course will lead to the Customer Service Professional Certificate. Credits: 9, Hours: (4.5/0/0/0), Prereq: CSC-110, and either COM-723 or ENG-101 or ENG-105; Arts & Sciences Elective Code: B

MLT-924 Honors Project (1.00)
Allows a qualified honors student to pursue a special concentration of study under the guidance of a faculty member. Requires completion of an honors project contract. May be taken more than once. Credits: 1, Hours: (1/0/0/0), Arts & Sciences Elective Code: B; Comments: Requires approval of supervising professor and dean

MLT-928 Independent Study (1.00-3.00)
Provides readings, papers and basic research or other projects under the individual guidance of a staff member. Credits: 1, Hours: (1/0/0/0), Arts & Sciences Elective Code: B; Comments: Requires permission of instructor, dean

MLT: Med Lab Tech

MLT-105 Pathophysiology for the Laboratorian (3.00)
Practicals the laboratory and diseases commonly tested for in the field of laboratory medicine. Covers pathology, etiology, diagnosis, interactions and interferences, symptoms and prognosis. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: B

MLT-106 Introduction to Biosafety (1.00)
Provides an introduction to the concepts and principles of biological safety in the laboratory workplace. Provides understanding of risks present in the laboratory and how to protect oneself from risks. Credits: 1, Hours: (1/0/0/0), Arts & Sciences Elective Code: B

MLT-109 Principles of Phlebotomy (3.00)
Develops advanced skills to perform phlebotomy. Includes demonstrations of and practice collecting blood specimens by venipuncture and capillary methods. Teaches anatomy and physiology of the circulatory system, medical terminology, customer service, methods to facilitate the collection and transportation of other laboratory specimens as well as how to obtain blood specimens. Credits: 3, Hours: (1.5/1/3/0), Arts & Sciences Elective Code: B

MLT-115 Clinical Lab Fundamentals (3.00)
Addresses the field of laboratory medicine. Teaches basic laboratory mathematics, testing methods, and quality control. Introduces blood collection and the study of common blood cells and blood cell disorders. Credits: 3, Hours: (2/2/0/0), Arts & Sciences Elective Code: B

MLT-120 Urinalysis (3.00)
Studies urine formation and methodology determining the physical, chemical, and microscopic properties of urine in normal and abnormal states. Credits: 3, Hours: (2/2/0/0), Prereq: minimum C in MLT-105, MLT-106, MLT-109, MLT-115; Arts & Sciences Elective Code: B

MLT-130 Hematology (3.00)
Studies hematology, the formed elements of the blood-red blood cells, white blood cells, and platelets. Addresses development and characteristics of cells and platelets, methods of measurement, and abnormalities. Credits: 3, Hours: (2/2/0/0), Prereq: minimum C in MLT-105, MLT-106, MLT-109, MLT-115; Arts & Sciences Elective Code: B

MLT-230 Advanced Hematology (3.00)
Continues Hematology. Includes an in-depth study of various anemias, leukemias, and other hematologic disorders. Credits: 3, Hours: (2/2/0/0), Prereq: minimum C in MLT-120 and MLT-130; Arts & Sciences Elective Code: B

MLT-233 Hemostasis and Thrombosis (2.00)
Focuses on the reactions of the body's immune system to foreign substances. Emphasizes reactions between antigens and antibodies. Teaches disease detection such as syphilis, infectious mononucleosis, rheumatic fever and others. Credits: 2, Hours: (1/2/0/0), Prereq: minimum C in MLT-120 and MLT-130; Arts & Sciences Elective Code: B

MLT-283 Clinical Practicum: Urinalysis (1.00)

MLT-284 Clinical Practicum: Immunohematology (3.00)
Continues Immunohematology. Provides clinical experience in specimen collection and performance of immunohematologic tests. Stresses comparison and contrast with methodology of Immunohematology. Credits: 3, Hours: (0/0/144/0), Prereq: minimum C in MLT-245, MLT-255, MLT-260 and MLT-290; Arts & Sciences Elective Code: B

MLT-285 Clinical Practicum: Chemistry (3.00)
Continues Clinical Chemistry. Provides clinical experience in specimen collection and performance of clinical chemistry tests. Stresses comparison and contrast with methodology of Clinical Chemistry is stressed and there is emphasis on use of automatic equipment. Credits: 3, Hours: (1/0/96/0), Prereq: minimum C in MLT-245, MLT-255, MLT-260 and MLT-290; Arts & Sciences Elective Code: B

MLT-286 Clinical Practicum: Immunology and Serology (1.00)
Continues Immunology and Serology. Provides clinical experience in the performance of serologic testing. Emphasizes the comparison and contrast with methodology of Immunology and Serology. Credits: 1, Hours: (0/0/3/0), Prereq: minimum C in MLT-245, MLT-255, MLT-260 and MLT-290; Arts & Sciences Elective Code: B

MLT-287 Clinical Practicum: Hematology (4.00)
Continues Hematology and Advanced Hematology. Provides clinical experience in specimen collection and performance of routine hematology and coagulation tests. Stresses comparison and contrast with methodologies of Hematology and Advanced Hematology. Provides experience with automation. Credits: 4, Hours: (1/0/9/0), Prereq: minimum C in MLT-245, MLT-255, MLT-260 and MLT-290; Arts & Sciences Elective Code: B

MLT-288 Clinical Practicum: Microbiology (4.00)
Continues Clinical Microbiology. Provides experience in bacteriologic, mycotic and parasitologic studies in a clinical setting. Emphasizes practices...
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and procedure of Clinical Microbiology as compared and contrasted with clinical practice. Credits: 4; Hours: (1/0/9/0), Prereq: minimum C in MLT-283, MLT-284, MLT-285, MLT-286 and MLT-287; Arts & Sciences Elective Code: B

MLT-290 Clinical Seminar and Review (2.00)
Reviews all MLT subjects. Presents case studies and provides class time for interactive review of didactic materials and preparation for the comprehensive examination. Credits: 2, Hours: (2/0/0/0), Prereq: BIO-186, either CHM-110 or CHM-132, minimum C in MLT-230, MLT-233 and MLT-270; Arts & Sciences Elective Code: B

MLT-291 Lab Survey and Review (1.00)
Reviews all departments of the laboratory toward the end of the clinical practicum. Provides review of didactic materials in preparation for the comprehensive examination. Includes clinic time for review or additional experience in any or all departments of the laboratory. Credits: 1, Hours: (0/0/48/0), Prereq: minimum C in MLT-283, MLT-284, MLT-285, MLT-286 and MLT-287; Arts & Sciences Elective Code: B

MMS: Mass Media Studies

MMS-101 Mass Media (3.00)
Surveys the field of mass communications. Takes the theoretical position that mass communication is a social system, considering the functions, structure and performance of the individual medium, as well as the auxiliaries. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: A

MMS-104 Introduction to Electronic Production (2.00)
Presents basic principles and techniques used in audio and video production. Emphasizes studio operation, including how to operate cameras and studio switchers, and how to serve as floor director. Includes audio techniques such as operation of audio console and use of prerecorded music. Credits: 2, Hours: (2/0/0/0), Arts & Sciences Elective Code: A

MMS-131 News Reporting (3.00)
Involves an in-depth study of objective news reporting and advocacy journalism as well as training in writing leads, the news story, interviewing, copyright and editing. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: A; Comments: Ability to type 30 wpm required

MMS-133 News Media Convergence (3.00)
Introduces skills required for print, broadcast and Web journalism. Students develop skills that include identifying news, interviewing and event coverage, researching, reporting, writing print and broadcast material and converting it to the Web. Final versions of stories will be evaluated for publication in the Communique, broadcast on KSP News and posted to the Kirkwood Student Media Web site. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: A; Comments: Permission of program coordinator

MMS-200 Advanced Audio (2.00)
Teaches recording, editing and audio production techniques. Students conduct interviews and create music sound tracks. Credits: 2, Hours: (1/2/0/0), Prereq: MMS-104; Arts & Sciences Elective Code: A

MMS-215 Broadcast Writing and Performance (3.00)
Emphasizes scripts and commercial writing skills. Students will announce and perform before microphones and cameras. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: A

MMS-220 Advanced Television (2.00)
Covers proper operation of remote video and audio equipment. Emphasizes script writing and videotape editing. Provides opportunity for final projects to be televised on the campus cable channel. Credits: 2, Hours: (1/2/0/0), Prereq: MMS-104; Arts & Sciences Elective Code: A

MMS-240 Promotions and Public Relations (3.00)
Teaches students how to plan an effective promotional campaign by identifying target audiences, understanding the effect of mass communication media and preparing materials for media campaigns. Includes principles of design and layout. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: A

MMS-920 Field Experience (3.00)
Provides on-the-job training in the media field. Credits: 3, Hours: (0/0/9/0), Arts & Sciences Elective Code: A; Comments: Permission of instructor/coordinator

MMS-928 Independent Study (1.00-3.00)
Allows the student to pursue a special concentration of study under the guidance of a faculty member. Requires an independent study contract. Credits: 1-2, Hours: (0/2-4/0), Arts & Sciences Elective Code: A; Comments: Requires approval of supervising faculty member and dean

MMS-948 Special Projects (1.00)
Provides opportunity to carry out a media project under professional direction. Credits: 1, Hours: (0/2/0/0), Arts & Sciences Elective Code: A

MTR: Medical Transcription

MTR-102 Professionalism in Medical Transcription (2.00)
Emphasizes professionalism in transcription environment and processing medical reports. Introduces HIPAA and confidentiality. Credits: 2, Hours: (2/0/0/0), Coreq: HSC-115; Arts & Sciences Elective Code: B

MTR-113 Medical Transcription (2.50)
Develops skills of transcribing various medical reports with an emphasis on the proper use of medical terminology. Introduces transcription systems and management techniques. Confidentiality in the completion of medical reports is stressed. Credits: 2.5, Hours: (2.5/0/0/0), Coreq: HSC-115, MTR-102; Arts & Sciences Elective Code: B

MTR-150 Career Medical Transcription (6.50)
Includes transcribing physician-dictated reports with an emphasis on developing accuracy, speed and medical knowledge for transcription of medical reports. Emphasizes correct usage of grammar, punctuation, editing and proofreading skills, along with professionalism and confidentiality. Credits: 6.5, Hours: (6.5/0/0/0), Prereq: MTR-113; Arts & Sciences Elective Code: B; Comments: All Medical Transcription courses

MUA: Music - Applied

MUA-101 Applied Voice (1-2)
Provides weekly applied lessons and guided instruction in tone production, technique, musicianship and performance practice. Students advance their skills through weekly lessons and regular practice of fundamental techniques, repertory and performance. This course is not intended for students who wish to pursue transfer study in music. One weekly 30-minute lesson is one credit. One weekly 60-minute lesson is 2 credits. May be repeated for credit. Credits: 1-2, Hours: (1-2/0/0), Arts & Sciences Elective Code: A

MUA-119 Class Piano (1.00)
Introduces a wide range of basic functional performance skills enabling students to utilize the piano/keyboard for enjoyment and as a stepping stone for further piano studies. Includes sight-reading, harmonization, repertoire, accompanying, transposition, improvisation and other creative activities. Students with a transfer interest in music, and no prior piano skills should enroll in this course. Credits: 1, Hours: (0/2/0/0), Arts & Sciences Elective Code: A

MUA-147 Applied Instrumental (1-2)
Provides weekly applied lessons and guided instruction in tone production, technique, musicianship and performance practice. Students advance their skills through weekly lessons and regular practice of fundamental techniques, repertory and performance. This course is not intended for students who wish to pursue transfer study in music. One weekly 30-minute lesson is one credit. One weekly 60-minute lesson is 2 credits. May be repeated for credit. Credits: 1-2, Hours: (1-2/0/0), Arts & Sciences Elective Code: A

MUA-300 Applied Euphonium (2.00)
Instruction intended for advanced students and those with a transfer interest in music. Provides weekly one hour applied lessons, and a weekly performance seminar. Includes guided instruction in tone production, technique, musicianship and performance practice. Students advance their skills through weekly lessons, seminar, and regular practice of fundamental techniques and solo repertory. May be repeated for credit. Credits: 2, Hours: (2/0/0/0), Arts & Sciences Elective Code: A

MUA-301 Applied Bassoon (2.00)
Instruction intended for advanced students and those with a transfer interest in music. Provides weekly one hour applied lessons, and a weekly performance seminar. Includes guided instruction in tone production, technique, musicianship and performance practice. Students advance their skills through weekly lessons, seminar, and regular practice of fundamental techniques and solo repertory. May be repeated for credit. Credits: 2, Hours: (2/0/0/0), Arts & Sciences Elective Code: A

MUA-302 Applied Cello (2.00)
Instruction intended for advanced students and those with a transfer interest in music. Provides...
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weekly one hour applied lessons, and a weekly performance seminar. Includes guided instruction in tone production, technique, musicianship and performance practice. Students advance their skills through weekly lessons, seminar, and regular practice of fundamental techniques and solo repertory. May be repeated for credit. Credits: 2, Hours: (2/0/0/0), Arts & Sciences Elective Code: A

MUA-304 Applied Clarinet (2.00)
Instruction intended for advanced students and those with a transfer interest in music. Provides weekly one hour applied lessons, and a weekly performance seminar. Includes guided instruction in tone production, technique, musicianship and performance practice. Students advance their skills through weekly lessons, seminar, and regular practice of fundamental techniques and solo repertory. May be repeated for credit. Credits: 2, Hours: (2/0/0/0), Arts & Sciences Elective Code: A

MUA-311 Applied Saxophone (2.00)
Instruction intended for advanced students and those with a transfer interest in music. Provides weekly one hour applied lessons, and a weekly performance seminar. Includes guided instruction in tone production, technique, musicianship and performance practice. Students advance their skills through weekly lessons, seminar, and regular practice of fundamental techniques and solo repertory. May be repeated for credit. Credits: 2, Hours: (2/0/0/0), Arts & Sciences Elective Code: A

MUA-312 Applied String Bass (2.00)
Instruction intended for advanced students and those with a transfer interest in music. Provides weekly one hour applied lessons, and a weekly performance seminar. Includes guided instruction in tone production, technique, musicianship and performance practice. Students advance their skills through weekly lessons, seminar, and regular practice of fundamental techniques and solo repertory. May be repeated for credit. Credits: 2, Hours: (2/0/0/0), Arts & Sciences Elective Code: A

MUA-314 Applied Trombone (2.00)
Instruction intended for advanced students and those with a transfer interest in music. Provides weekly one hour applied lessons, and a weekly performance seminar. Includes guided instruction in tone production, technique, musicianship and performance practice. Students advance their skills through weekly lessons, seminar, and regular practice of fundamental techniques and solo repertory. May be repeated for credit. Credits: 2, Hours: (2/0/0/0), Arts & Sciences Elective Code: A

MUA-308 Applied Oboe (2.00)
Instruction intended for advanced students and those with a transfer interest in music. Provides weekly one hour applied lessons, and a weekly performance seminar. Includes guided instruction in tone production, technique, musicianship and performance practice. Students advance their skills through weekly lessons, seminar, and regular practice of fundamental techniques and solo repertory. May be repeated for credit. Credits: 2, Hours: (2/0/0/0), Arts & Sciences Elective Code: A

MUA-316 Applied Tuba (2.00)
Instruction intended for advanced students and those with a transfer interest in music. Provides weekly one hour applied lessons, and a weekly performance seminar. Includes guided instruction in tone production, technique, musicianship and performance practice. Students advance their skills through weekly lessons, seminar, and regular practice of fundamental techniques and solo repertory. May be repeated for credit. Credits: 2, Hours: (2/0/0/0), Arts & Sciences Elective Code: A

MUA-317 Applied Viola (2.00)
Instruction intended for advanced students and those with a transfer interest in music. Provides weekly one hour applied lessons, and a weekly performance seminar. Includes guided instruction in tone production, technique, musicianship and performance practice. Students advance their skills through weekly lessons, seminar, and regular practice of fundamental techniques and solo repertory. May be repeated for credit. Credits: 2, Hours: (2/0/0/0), Arts & Sciences Elective Code: A

MUA-318 Applied Violin (2.00)
Instruction intended for advanced students and those with a transfer interest in music. Provides weekly one hour applied lessons, and a weekly performance seminar. Includes guided instruction in tone production, technique, musicianship and performance practice. Students advance their skills through weekly lessons, seminar, and regular practice of fundamental techniques and solo repertory. May be repeated for credit. Credits: 2, Hours: (2/0/0/0), Arts & Sciences Elective Code: A

MUA-319 Applied Voice (2.00)
Instruction intended for advanced students and those with a transfer interest in music. Provides weekly one hour applied lessons, and a weekly performance seminar. Includes guided instruction in tone production, technique, musicianship and performance practice. Students advance their skills through weekly lessons, seminar, and regular practice of fundamental techniques and solo repertory. May be repeated for credit. Credits: 2, Hours: (2/0/0/0), Arts & Sciences Elective Code: A

MUS: Music - General

MUS-100 Music Appreciation (3.00)
Includes study of elements and forms of music with attention to major historical periods and composers of historical significance and survey of indigenous music. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: A

MUS-102 Music Fundamentals (3.00)
Introduces the notation of pitch, rhythm, meter, scales, key signatures, intervals, and chords. Intended for students with strong interest in music but with limited or no music reading skills. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: A

MUS-120 Music Theory I (3.00)
Studies the notation of pitch and rhythm, meter, major and minor key relationships, melodic
structure, intervals, triads, two-part counterpoint, the basics of four-part harmony and instrument transposition. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: A

MUS-121 Music Theory II (3.00)
Studies seventh chords (spelling, quality, inver-
sions, Roman numerals and figures) and the use of all inversions of diatonic seventh chords in four-part harmony, melodic phrase structures and the harmonization of melody, the concepts of modulation and tonization (secondary-dominant function chords), and binary and ternary form. Credits: 3, Hours: (3/0/0/0), Prereq: MUS-120; Arts & Sciences Elective Code: A

MUS-127 Great Composers (3.00)
Examines composers and musical compositions specific to the Western classical music tradition. Uses the case studies of nearly 30 specific com-
posers and works to answer these questions: Is there such a thing as a "masterpiece of music" and, if so, why do these masterpieces endure? Expands the student's knowledge of classical masters and their creators, and offers a broader appreciation of the historical and cultural significance of classical concert music through listening exercises, class discussions and at-
tending live performances. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: A

MUS-135 Music Theory Lab I (1.00)
Supports the objectives in MUS-120 by developing
skills in ear training (aural identification of scales, intervals and chords), dictation (rhythmic, melodic and harmonic), and sight singing. Credits: 1, Hours: (0/2/0/0), Arts & Sciences Elective Code: A

MUS-136 Music Theory Lab II (1.00)
Continuation of Music Theory Lab I. Supports the objectives in MUS-121 by developing skills in ear training (aural identification of scales, intervals and chords), dictation (rhythmic, melodic and harmonic) and sight singing. Credits: 1, Hours: (0/2/0/0), Prereq: MUS-135; Arts & Sciences Elective Code: A

MUS-138 Jazz Improvisation (3.00)
Introduces theoretical principles and techniques used in the jazz idiom. Provides opportunity for application of music theory at the performance level to include scales, chord progressions, melodic patterns, rhythmic elements and small combo performance. Recommended for both instrumentalists and vocalists. Credits: 3, Hours: (2/2/0/0), Arts & Sciences Elective Code: A

MUS-139 Jazz Improvisation II (3.00)
Builds on skills learned in Jazz Improvisation with emphasis placed on applying advanced improvisation techniques in small combo performance practice. Once passed, this course may be re-
peated two times. Credits: 3, Hours: (2/2/0/0), Prereq: MUS-138; Arts & Sciences Elective Code: A

MUS-140 Concert Choir (1.00)
Serves students with ability and desire to sing in a mixed-voice group. May be repeated for credit. Credits: 1, Hours: (0/0/3/0), Arts & Sciences Elective Code: A

MUS-145 Concert Band (1.00)
Introduces new literature each semester to ex-
tend the experience of the student's learning to read and play different styles and tempos. This group is open to community members and does not require an audition. Credits: 1, Hours: (0/2/0/0), Arts & Sciences Elective Code: A

MUS-150 Chamber Ensemble (1.00)
Students practice and perform traditional litera-
ture for trios, quartets and other small groups. Credits: 1, Hours: (0/2/0/0), Arts & Sciences Elective Code: A

MUS-152 Vocal Ensemble (1.00)
Provides auditioned members an opportunity to sing a variety of choral styles from traditional to contemporary arrangements. May be repeated for credit. Credits: 1, Hours: (0/5/0/0), Arts & Sciences Elective Code: A

MUS-157 Vocal Jazz Ensemble (1.00)
Provides auditioned members an opportunity to sing a variety of jazz styles from traditional to contemporary arrangements. May be repeated for credit. Credits: 1, Hours: (0/5/0/0/4), Arts & Sciences Elective Code: A

MUS-163 Instrumental Jazz Ensemble (1.00)
Explores various styles of jazz from traditional to contemporary through a performance-oriented class. May be repeated for credit. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: A

MUS-207 Introduction to Film Music (3.00)
Familiarizes students with the major genres of film and notable film composers from the early twentieth century to the present. Analyzes movie soundtracks to discover how film composers influence the mood of the film, affect the devel-
opment of characters and propel the narrative. Credits: 3, Hours: (0/2/0/0/4), Arts & Sciences Elective Code: A

MUS-208 American Popular Music & Jazz (3.00)
Examines the evolution of American popular music styles and jazz genres from their early stages to the present. Emphasizes significant
individual works, composers and performers of jazz, rock, folk, blues and others. Enlarges the use of basic music vocabulary, improves aural perception of style and genre, and encourages a fuller understanding of how popular music and jazz enrich life, function in society and reflect cultural diversity. Credits: 3, Hours: (3/0/0/0/0), Arts & Sciences Elective Code: A

MUS-209 Topics in Western Music History (3.00)
Examines style periods, composers and works of Western art music from c. AD 600 to the present, and explores the issues that influenced their composition. Through reading, listening and dis-
cussion, the course builds a basic musical vo-
cabulary, improves aural perceptions of form and genre, and encourages a deeper appreciation for music as cultural expression and personal en-
richment. Music reading is helpful, but not nec-
essary. Intended for students with strong interest in music. Credits: 3, Hours: (3/0/0/0/0), Arts & Sciences Elective Code: A

MUS-220 Music Theory III (3.00)
Studies plainchant and modal theory; early po-
lyphony in 2, 3 and 4 voices; inventions and fugues; borrowed, Neapolitan and augmented
sixth harmonies; harmonic and melodic varia-
tions; sonata form and rondo form. Examines and analyzes music from the medieval period through the early Romantic era. Credits: 3, Hours: (3/0/0/0), Prereq: MUS-121; Arts & Sciences Elective Code: A

MUS-221 Music Theory IV (3.00)
Studies enriched and chromatically altered har-
monies and enharmonic modulation; instrument transposition and the orchestral score; the mate-
rials of Impressionism; tonality in the 20th centu-
ry; and atonality, set theory and twelve-tone structures. Examines and analyzes music from the 1820s to the present. Credits: 3, Hours: (3/0/0/0), Prereq: MUS-220; Arts & Sciences Elective Code: A

MUS-235 Music Theory Lab III (1.00)
Continuation of Music Theory Lab III. Supports the objectives in MUS-220 by developing
advanced skills in ear training (aural identifi-
cation of scales, intervals and chords), dictation (rhythmic, melodic and harmonic) and sight sing-
ing. Credits: 1, Hours: (0/2/0/0), Prereq: MUS-136; Arts & Sciences Elective Code: A

MUS-236 Music Theory Lab IV (1.00)
Continuation of Music Theory Lab IV. Supports the objectives in MUS-221 by developing advanced skills in ear training (aural identifi-
cation of scales, intervals and chords), dictation (rhythmic, melodic and harmonic) and sight singing. Credits: 1, Hours: (0/2/0/0), Prereq: MUS-235; Arts & Sciences Elective Code: A

MUS-298 Performance Seminar for Musicians (1.00)
Provides the opportunity to develop and improve performing techniques required of all musicians. Emphasizes student performances, development of repertoire and discussion of performance style. Required of all music majors and open to all students enrolled in applied lessons. May be taken four times for credit. Credits: 1, Hours: (0/2/0/0), Coreq: Any applied music lesson MUA-300 through MUA-319; Arts & Sciences Elective Code: A

MUS-924 Honors Project (1.00)
Allows a qualified honors student to pursue a special concentration of study under the guid-
ance of a faculty member. Requires completion of an honors project contract. May be taken more than once. Credits: 1, Hours: (1/0/0/0), Arts & Sciences Elective Code: A; Comments: Requires approval of supervising professor and dean

MUS-928 Independent Study (1.00-2.00)
Allows the student to pursue a special concentra-
tion of music study under the guidance of a fac-
culty member. Requires an independent study
contract. Credits: 1-2, Hours: (0/2/4/0/0), Arts & Sciences Elective Code: A; Comments: Requires approval of supervising faculty member and dean

NET: Computer Networking

NET-122 Computer Hardware Basics (3.00)
Introduces the operation of a modern personal
computer from a hardware point of view. Stu-

dent learn about the basic components of a computer and develop troubleshooting skills for advanced courses. Some of the areas covered include system boards, storage drives, memory and power supplies. In addition, some software topics, such as operating systems, are presented. Low-level laboratory exercises enhance and reinforce understanding of the material covered. Credits: 3, Hours: (2/2/0/0), Arts & Sciences Elective Code: B

NET-137 Advanced PC Concepts (3.00)
Introduces the architecture, structure, functions, components, and models of the Internet and other communication networks. Covers the principles and structure of IP addressing and the fundamentals of Ethernet concepts, media and operations to provide a foundation for the curriculum. Covers building simple LANs, performing basic configurations for routers and switches, and implementing IP addressing schemes. Credits: 3, Hours: (2/2/0/0), Prereq: NET-154 or NET-165; Arts & Sciences Elective Code: B

NET-165 Network Plus (3.00)
Prepares users for a basic introduction to networking, and can also be used to prepare for CompTIA’s Network+ certification exam. Presents current networking hardware and software along with the skills necessary to succeed in the field of networking. Covers protocols, network design and implementation, and troubleshooting and support. Credits: 3, Hours: (2/2/0/0), Arts & Sciences Elective Code: B

NET-174 LAN Administration (3.00)
Focuses on the hardware and software requirements of a client-server network, the installation process, workstation configuration and configuration of the user environment using a current network operating system. Includes workstation and server configuration, network printing setup, creation and management of network user accounts, security, scripting, directory structures, and file server management and monitoring. Introduces network administrator duties, such as network configuration and system support. Credits: 3, Hours: (2/2/0/0), Prereq: NET-321; Arts & Sciences Elective Code: B

NET-184 Wide Area Network (WAN) Basics (2.00)
The student introduces to concepts used to connect multiple local area networks to form a wide area network. Topics include routing, hardware used to connect network segments, leased telephone lines, dial-up telephone lines and other transmission media. Credits: 2, Hours: (2/0/0/0), Prereq: NET-236; Arts & Sciences Elective Code: B

NET-192 Network Cabling (3.00)
Introduces students to the advanced concepts of network infrastructure. Students learn what types of media are used and the concepts about the manufacture and installation of that media. Additionally, students work with copper media in installation, trim-out and finishing. Other topics include infrastructure standards, request for proposals and basic electrical theory. Credits: 3, Hours: (2/2/0/0), Prereq: NET-236; Arts & Sciences Elective Code: B

NET-235 CCNA Cisco 1 (3.00)
Introduces the architecture, structure, functions, components, and models of the Internet and other communication networks. Covers the principles and structure of IP addressing and the fundamentals of Ethernet concepts, media and operations to provide a foundation for the curriculum. Covers building simple LANs, performing basic configurations for routers and switches, and implementing IP addressing schemes. Credits: 3, Hours: (2/2/0/0), Prereq: NET-154 or NET-165; Arts & Sciences Elective Code: B

NET-236 CCNA Cisco 2 (3.00)
Describes the architecture, components, and operations of routers and switches in a small network. Covers configuring a router and a switch for basic functionality, troubleshooting routers and switches, and resolving common issues with RIPV1, RIPV2, single-area and multi-area OSPF, virtual LANs, and inter-VLAN routing in both IPv4 and IPv6 networks. Credits: 3, Hours: (2/2/0/0), Prereq: NET-235; Arts & Sciences Elective Code: B

NET-237 CCNA Cisco 3 (3.00)
Describes the WAN technologies and network services required by converged applications in a complex network. Enables students to understand the selection criteria of network devices and WAN technologies to meet network requirements. Covers configuring and troubleshooting network devices and resolving common issues with data link protocols. Develops the knowledge and skills needed to implement IPsec and virtual private network (VPN) operations in a complex network. Credits: 3, Hours: (2/2/0/0), Prereq: NET-236; Arts & Sciences Elective Code: B

NET-238 CCNA Cisco 4 (3.00)
Discuss the WAN technologies and network services required by converged applications in a complex network. Enables students to understand the selection criteria of network devices and WAN technologies to meet network requirements. Covers configuring and troubleshooting network devices and resolving common issues with data link protocols. Develops the knowledge and skills needed to implement IPsec and virtual private network (VPN) operations in a complex network. Credits: 3, Hours: (2/2/0/0), Prereq: NET-236; Arts & Sciences Elective Code: B

NET-252 Healthcare IT Technician (3.00)
Introduces the field of healthcare information systems. Includes a comprehensive view of HIT by examining healthcare regulatory requirements and the functions of a healthcare organization, including its medical business operations, IT hardware, software, networking and security. Follows CompTIA Healthcare IT Technician (HIT-001) exam objectives. Credits: 3, Hours: (2/2/0/0), Prereq: NET-174, NET-235; Arts & Sciences Elective Code: B

NET-321 Windows Networking (3.00)
Allows students to design and build LANs with various versions of Microsoft Windows workstation software. Students learn software and hardware requirements, operating system installation, operation and maintenance, and networking techniques. Credits: 3, Hours: (2/2/0/0), Arts & Sciences Elective Code: B

NET-323 Windows Network Management (3.00)
Explain administrative duties for Windows Serv- er 2012. Includes installing, configuring and maintaining client and server operating systems, monitoring performance and supporting users, evaluating different versions of Server 2012, exploring services such as DHCP, Clustering, Remote Access, DNS, Virtual Private Networking, and learning to implement security using permissions, encryption and policies. Credits: 3, Hours: (2/2/0/0), Prereq: NET-561; Arts & Sciences Elective Code: B

NET-338 Directory Concepts (3.00)
Focuses on network design, how directory services are used to manage users, and how to pick servers based on proper utilization. Students learn basic elements and design of both Novell eDirectory, Microsoft Active Directory and related LDAP directory services. Additionally, students are introduced to server concepts including system requirements, volume management and security. Credits: 3, Hours: (3/0/0/0), Prereq: NET-321; Arts & Sciences Elective Code: B

NET-348 System Automation and Scripting (3.00)
Explores system automation through the use of scripts. Focuses on designing and implementing scripts that parse event logs, configure hardware, software and networking components. Credits: 3, Hours: (2/2/0/0), Prereq: NET-561 and either MAT-102 or MAT-708; Arts & Sciences Elective Code: B

NET-400 Linux Networking (3.00)
Focuses on Linux GUI. Introduces Linux installation, navigating the Linux GUI, creating Linux users and groups, setting up Linux file and directory permissions, managing the Linux file system, using the Linux control panel to customize the system, configuring the Linux network, and developing basic command line and DNS skills. Credits: 3, Hours: (2/2/0/0), Prereq: NET-321; Arts & Sciences Elective Code: B

NET-561 Directory Administration (3.00)
Continues Directory Concepts. Focuses on implementation of Active Directory using Windows Server, and eDirectory using NetWare 6x. Includes configuration and management of organizations, users, groups, printers, file systems, and many other directory service objects. Introduces virtualization concepts and students deploy software in a virtual environment. Credits: 3, Hours: (2/2/0/0), Prereq: NET-174, NET-338; Arts & Sciences Elective Code: B

NET-571 Server Configuration (3.00)
Emphasizes managing Linux in a multi-server enterprise environment. Introduces enterprise-level skills in integrating Linux servers in a multiple server environment, configuring advanced network services such as FTP, VPNs, remote management, Web services, DNS, DHCP, LDAP Directory Services, logical volume management, scripting and advanced software installation. Other services may include e-mail and LAMP package management. Credits: 3, Hours: (2/2/0/0), Prereq: NET-338, NET-400; Arts & Sciences Elective Code: B

NET-572 VMware Certified Advanced Professional (VCAP) (3.00)
Emphasizes security, advanced troubleshooting and performance management for VMware Virtual Infrastructure. Prepares students for the VMware Certified Advanced Professional (VCAP) Data Center Administrator exam. Credits: 3,
NET-599 Information and Storage Management (3.00) Emphasizes advanced storage architectures, protocols and systems, including Network-Attached Storage (NAS), iSCSI Storage Area Networks (SAN), Fibre Channel Networks, Internet Protocol Storage (iPSAN) and Content-Addressable Storage (CAS). Prepares student for the EMC Proven Professional Associate Certification exam. Credits: 3, Hours: (2/2/0/0), Prereq: NET-174, NET-235, NET-400; Arts & Sciences Elective Code: B

NET-600 Network Security Basics (3.00) Introduces students to basic network security concepts. The non-vendor specific course includes general security concepts, authentication, attacks, secure communications and Internet security. Additional topics include perimeter defense and intruder detection. This course begins student preparation for the Security+ exam. Credits: 3, Hours: (2/2/0/0), Prereq: NET-174, NET-235; Arts & Sciences Elective Code: B

NET-616 VMware VCP (3.00) Emphasizes virtual network design and implementation, in an enterprise environment. Includes basic storage area networks, high availability design, virtual system management, virtual switching and virtualization security. Covers the vSphere VMware Certified professional (VCP) exam domains. Credits: 3, Hours: (2/2/0/0), Prereq: NET-236; Arts & Sciences Elective Code: B

NET-618 Network Defense & Remote Access Configuration (3.00) Focuses on network defenses and defensible networks. Includes basic network defense topologies, basic DMZ configuration, basic intrusion detection configuration and logical security management (proper address assignment, software configuration). Examines identity management systems, such as directory services, to provide authentication, authorization and auditing for sound security management. Includes basic remote access configuration. Credits: 3, Hours: (2/2/0/0), Prereq: NET-630; Coreq: NET-600; Arts & Sciences Elective Code: B

NET-619 Network Attacks: Detection, Analysis & Countermeasures (3.00) Provides students the opportunity to attack computer networks to test their defenses and teaches them how to analyze attacks. Topics include attacks and attack analysis, intrusion detection and analysis, and advanced defense countermeasure configuration using firewalls, routers and intrusion detection systems. Credits: 3, Hours: (2/2/0/0), Prereq: NET-618; Arts & Sciences Elective Code: B

NET-620 VMware Optimize and Scale (3.00) Emphasizes virtual network design and implementation, in an enterprise environment. Includes basic storage area networks, high availability design, virtual system management, virtual switching and virtualization security. Covers the vSphere VMware Certified professional (VCP) exam domains. Credits: 3, Hours: (2/2/0/0), Prereq: NET-616; Arts & Sciences Elective Code: B

NET-630 Cyber Law and Ethics (3.00) Covers basic laws and ethical behavior associated with network security. Topics include discussions about current common practices used to secure networks as well as test them, and the potential these methods can have in creating a secure network environment. Also included are discussions about HIPAA and Sarbanes-Oxley laws, and the impact they have on information technology practices. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: B

NET-650 Cloud Infrastructure (3.00) Emphasizes building cloud infrastructure based on a cloud computing reference model that includes five fundamental layers (physical, virtual, control, orchestration and service) and three cross-layer functions (business continuity, security, and service management). Covers technologies, components, processes and mechanisms for each layer and cross-layer function. Credits: 3, Hours: (2/2/0/0), Prereq: NET-616; Arts & Sciences Elective Code: B

NET-680 TCP/IP for Networking (3.00) Introduces students to the concepts of the TCP/IP suite of protocol. Students learn IP addressing, dynamic host configuration protocol, domain name services, universal naming conventions and how this protocol is used to connect to the Internet. Credits: 3, Hours: (2/2/0/0), Prereq: NET-236; Arts & Sciences Elective Code: B

NET-850 Special Topics in Technology (3.00) Focuses on the history/future of computer technology and the social implications of that technology. Utilizes projects, expert speakers and field trips to explore ethical computing, computer career trends, encryption and security, the wireless world and the human face of computing. Credits: 3, Hours: (2/2/0/0), Prereq: NET-122; Arts & Sciences Elective Code: B

NET-924 Honors Project (1.00) Allows a qualified honors student to pursue a special concentration of study under the guidance of a faculty member. Requires completion of an honors project contract. May be taken more than once. Credits: 1, Hours: (1/0/0/0), Arts & Sciences Elective Code: A; Comments: Requires approval of supervising professor and dean

NET-928 Independent Study (1.00-3.00) Provides readings, papers and basic research or other projects under the individual guidance of a staff member. Credits: 1, Hours: (1/0/0/0), Arts & Sciences Elective Code: A; Comments: Permission of instructor, dean

OTA: Occupational Therapy Assistant

OTA-100 Foundations of Occupational Therapy (3.00) Introduces the philosophical, ethical and theoretical concepts of the current practice of occupational therapy. Presents the role of the OTR and COTA in the processes of patient evaluation, treatment planning, implementation and discharge. Presents note writing and goal development. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: B

OTA-150 Occupational Therapy Assistant Medical Terminology (1.50) Introduction to medical terminology, including prefixes, suffixes, root words, and combined forms. Presents medical terminology specific to the practice of the OTA. Credits: 1.5, Hours: (1.5/0/0/0), Coreq: OTA-100, OTA-207; Arts & Sciences Elective Code: B

OTA-205 Occupational Therapy Assistant Management (2.00) Includes the basic principles of management for the OTA. Topics include levels of authority and responsibility, supervisory process, performance appraisals, and policies and procedures. Discusses state and professional association regulations and legal/ethical issues. Explores reimbursement systems and their impacts on health care, as well as public policy and professional advocacy. Covers resume writing, interviewing and employability skills. Credits: 2, Hours: (2/0/0/0), Prereq: OTA-850, OTA-851; Arts & Sciences Elective Code: B

OTA-206 Community Health and Special Populations (3.00) Provides knowledge and instruction for the intervention, prevention, and maintenance for optimal occupational performance in individuals and populations. Includes clinical observations. Credits: 3, Hours: (3/0/0/0), Prereq: OTA-851; Arts & Sciences Elective Code: B

OTA-207 OT Methods I (3.00) Introduces methods and techniques used in OT. Provides knowledge and skill in the use of activity analysis, task analysis, occupational performance and addresses human diversity in relation to occupation. Credits: 3, Hours: (2/2/0/0), Arts & Sciences Elective Code: B

OTA-208 Occupational Development (2.50) Presents normal physical and psychosocial developmental processes which affect an individual throughout the lifespan. Emphasis on integration of physical, psychosocial, cognitive, social and cultural aspects of occupational development. Credits: 2.5, Hours: (2.5/0/0/0), Coreq: OTA-100, OTA-207, PSY-111; Arts & Sciences Elective Code: B

OTA-211 Pathophysiology for the OTA (4.00) Presents clinical disorders and diseases commonly treated in the field of occupational therapy. Covers pathology, etiology, diagnosis, signs, symptoms and prognosis. Credits: 4, Hours: (4/0/0/0), Prereq: OTA-100, OTA-207 and either BIO-161 or BIO-168/173 or BIO-177/180; Arts & Sciences Elective Code: B

OTA-212 Functional Kinesiology (3.00) Provides a basic understanding of normal body movement as related to skeletal, muscular and neurological systems. Focuses on muscle origin, insertion and action, joint structure, anatomical palpation, human gait, and movement analysis during functional activities and daily life skills. Credits: 3, Hours: (2/2/0/0), Prereq: OTA-100, OTA-207 and either BIO-161 or BIO-168/173 or BIO-177/180; Arts & Sciences Elective Code: B

OTA-306 OT Methods II (3.00) Presents evaluations and treatment methods for individuals used in occupational therapy. Emphasis is on the instruction and adaptation of daily
Course Descriptions

living skills and sensorimotor activities. Presents information on positioning and wheelchair selection. Documentation of the treatment process is presented. Credits: 3; Hours: (2/2/0/0), Prereq: OTA-207; Arts & Sciences Elective Code: B

OTA-308 Physical Dysfunction I (4.00)
Provides knowledge and skills for the assessment of cardiovascular fitness through structured individual and group exercise activities. Credits: 1, Hours: (0/2/0/0), Arts & Sciences Elective Code: A

OTA-412 Pediatric Interventions for the OTA (3.00)
Provides further experiences in weight conditioning, such as circuit training and variation in the training regime. Credits: 1, Hours: (2/0/2/0), Arts & Sciences Elective Code: A

OTA-100, OTA-211, OTA-212; Arts & Sciences Elective Code: B

OTA-309 Physical Dysfunction II (4.00)
Provides knowledge and skills for the assessment of cardiovascular fitness through structured individual and group exercise activities. Credits: 1, Hours: (0/0/2/0), Arts & Sciences Elective Code: A

PEA: Physical Education Activity

PEA-102 Aerobic Fitness I (1.00)
Provides knowledge and skills for the assessment of cardiovascular fitness through structured individual and group exercise activities. Credits: 1, Hours: (0/2/0/0), Arts & Sciences Elective Code: A

PEA-409 Professional Development (2.00)
Provides knowledge and skills for the assessment of cardiovascular fitness through structured individual and group exercise activities. Credits: 1, Hours: (0/2/0/0), Arts & Sciences Elective Code: A

PEA-104 Theory of Coaching Softball (2.00)
Provides knowledge and skills for the assessment of cardiovascular fitness through structured individual and group exercise activities. Credits: 1, Hours: (0/2/0/0), Arts & Sciences Elective Code: A

OTA-406 OT Methods III (3.00)
Provides knowledge and skills for the assessment of cardiovascular fitness through structured individual and group exercise activities. Credits: 1, Hours: (0/2/0/0), Arts & Sciences Elective Code: A

OTA-100, OTA-211, OTA-212; Arts & Sciences Elective Code: B

OTA-308 Occupational Therapy Assistant Fieldwork I-A (1.00)
Provides knowledge and skills for the assessment of cardiovascular fitness through structured individual and group exercise activities. Credits: 1, Hours: (0/2/0/0), Arts & Sciences Elective Code: A

OTA-851 Occupational Therapy Assistant Fieldwork I-B (1.00)
Fieldwork and seminar experiences provide opportunities to develop observational, interpersonal, and communication abilities. Experience includes evaluation and intervention of physical and cognitive occupational dysfunction. Credits: 1, Hours: (5/0/1.5/0), Prereq: OTA-208, OTA-211, OTA-212, OTA-306; Arts & Sciences Elective Code: B

OTA-852 Occupational Therapy Assistant Fieldwork II-A (6.00)
Provides a supervised Level II fieldwork experience emphasizing physical dysfunction, psychosocial or specialty practices in occupational therapy. Offers experience to develop expectations of an entry-level occupational therapy assistant. Credits: 6, Hours: (0/0/18/0), Prereq: OTA-851; Coreq: OTA-409, OTA-854; Arts & Sciences Elective Code: B

OTA-853 OTA Fieldwork I-C (2.50)
Fieldwork and seminar experiences provide opportunities to develop observational, interpersonal, and communication skills. Credits: 2.5, Hours: (1.5/0/3/0), Prereq: OTA-850; Arts & Sciences Elective Code: B

OTA-854 Occupational Therapy Assistant Fieldwork II-B (6.00)
Provides a supervised Level II fieldwork experience emphasizing physical dysfunction, psychosocial or specialty practices in occupational therapy. Offers experience to develop expectations of an entry-level occupational therapy assistant. Credits: 6, Hours: (0/0/18/0), Coreq: OTA-409, OTA-852; Arts & Sciences Elective Code: B

PAC: Coaching Officiating

PEC-111 Techniques and Theory of Coaching (2.00)
Introduces the philosophical and ethical issues in athletic coaching. Credits: 2; Hours: (2/0/0), Arts & Sciences Elective Code: A

PEC-116 Athletic Development and Human Growth (2.00)
Explains basic concepts of sports psychology. Focuses on improving human skill, enhancing group effort and understanding the reduction of stress. Encourages some of the diverse topic areas important to both psychologists in general and those focused on athletic feats. Credits: 2, Hours: (2/0/0), Arts & Sciences Elective Code: A

PEC-126 Athletic Injury Prevention (2.00)
Introduces conditioning programs and training methods that tend to prevent athletic injuries. Provides basic skills in injury evaluation, treatment procedures and practical experience in taping techniques. Credits: 2, Hours: (2/0/0), Arts & Sciences Elective Code: A

PEC-140 Theory of Coaching Softball (2.00)
Studies the theory and practice of coaching softball. Emphasizes skill development and playing strategy with consideration given to rules and teaching pedagogy so that the game may be effectively coached. Credits: 2, Hours: (2/0/0), Arts & Sciences Elective Code: A

PEC-144 Theory of Coaching Baseball (2.00)
Introduces the coaching profession with specific emphasis on baseball fundamentals, strategy, organization, public relations and coaching psychology. Credits: 2, Hours: (2/0/0), Arts & Sciences Elective Code: A

PEC-148 Theory of Coaching Basketball (2.00)
Introduces the coaching profession with specific emphasis on basketball fundamentals, strategy, organization, public relations and coaching psychology. Credits: 2, Hours: (2/0/0), Arts & Sciences Elective Code: A

PEC-150 Theory of Coaching Volleyball (2.00)
Introduces the theory and practice of coaching volleyball. Emphasis on volleyball fundamentals, playing strategy, organization, public relations and coaching psychology. Credits: 2, Hours: (2/0/0), Arts & Sciences Elective Code: A

PEC-160 Sports Officiating (2.00)
Teaches the fundamentals, techniques, rules, procedures and professional attitudes required of officials in two major sports. Credits: 2, Hours: (2/0/0), Arts & Sciences Elective Code: A
PEH: General Physical Education and Health

PEH-111 Personal Wellness (3.00)
Emphasizes the importance of personal responsibility in health and wellness. Focuses on personal decision making in cardiovascular fitness, muscular fitness, nutrition and weight control, as well as aging and health. Reinforces improvement and maintaining quality of life through health and healthy decisions. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: A

PEH-155 Exercise Psychology (3.00)
Provides an overview of the theories and practices related to engagement in physical activity. Emphasizes motivational theories of behavior and behavioral changes as they relate to exercise and health. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: A

PEH-160 Fundamentals of Health Coaching (3.00)
Reviews health coaching and its relevance in today's health care industry. Includes information on coaching psychology, insight on weight management psychology, the physiology of obesity, techniques for lifestyle coaching, and the relationships between exercise and nutrition for weight control. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: A

PEH-162 Introduction to Physical Education (3.00)
Introduces an overview of the foundations, philosophies, history and principles of physical education. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: A

PEH-165 Introduction to Complementary and Alternative Medicine (3.00)
Discusses the most commonly used complementary and alternative medicine modalities in the U.S. Focuses on the five domains of complementary and alternative medicine: alternative medical systems (traditional Chinese medicine, ayurveda, homeopathy, naturopathy), mind-body medicine (techniques designed to facilitate the mind's capacity to affect the physical body's functions in health and illness, such as meditation and yoga), manual therapies (massage, chiropractic), energy therapies (biofeedback, acupuncture), and biologically-based therapies (herbal medicine, dietary supplements). Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: A

PEH-170 Principles of Weight Training (3.00)
Reviews the anatomical and physiological processes of muscle growth and development, and the effects of strength training on those processes. Introduces fundamental principles and techniques of strength training, and applies those principles toward personal fitness development and development of programs for health and performance. Credits: 3, Hours: (3/0/0/0), Pre-req: minimum C- in EXS-120 or BIO-168; Arts & Sciences Elective Code: A

PEH-191 Sports Nutrition (3.00)
Examines nutrition's effect on health and human performance, including the study of supplementation and specific diets. Focuses on the role of nutrition in disease prevention, special population activity and general performance enhancement. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: A

PEH-255 Principles of Sports Management (3.00)
Provides an overview of the theories and practices related to management and leadership in the fitness and sports industries. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: A

PEH-270 Exercise Prescription for Special Populations (3.00)
Provides practical information on exercise for people with special diseases and disabilities. Discusses each unique condition, effects of the condition on the exercise response, effects of exercise training on the condition, and recommendations for exercise testing and programming. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: A

PEH-924 Honors Project (1.00)
Allows a qualified honors student to pursue a special concentration of study under the guidance of a faculty member. Requires completion of an honors project contract. May be taken more than once. Credits: 1, Hours: (1/0/0/0), Arts & Sciences Elective Code: A; Comments: Requires approval of supervising professor and dean

PEH-928 Independent Study (1-3)
Allows the student to pursue a special concentration of study under the guidance of a faculty member. Requires an independent study contract. Credits: 1-2, Hours: (0/2-4/0), Arts & Sciences Elective Code: A; Comments: Requires approval of supervising faculty member and dean

PEV: Intercollegiate Physical Education

PEV-115 Varsity Baseball (1.00)
Designed to give credit for knowledge and skills gained through varsity sports baseball participation during an academic year. Credits: 1, Hours: (.5/1/0/0), Arts & Sciences Elective Code: A; Comments: Students may earn one credit per year for each varsity sport in which they participate. Students in multiple varsity sports may earn four credits total in Varsity sports participation courses.

PEV-121 Varsity Basketball, Men (1.00)
Designed to give credit for knowledge and skills gained through varsity sports basketball participation during an academic year. Credits: 1, Hours: (.5/1/0/0), Arts & Sciences Elective Code: A; Comments: Students may earn one credit per year for each varsity sport in which they participate. Students in multiple varsity sports may earn four credits total in Varsity sports participation courses.

PEV-122 Varsity Basketball, Women (1.00)
Designed to give credit for knowledge and skills gained through varsity sports basketball participation during an academic year. Credits: 1, Hours: (.5/1/0/0), Arts & Sciences Elective Code: A; Comments: Students may earn one credit per year for each varsity sport in which they participate. Students in multiple varsity sports may earn four credits total in Varsity sports participation courses.

PEV-140 Varsity Golf (1.00)
Designed to give credit for knowledge and skills gained through varsity sports golf participation during an academic year. Credits: 1, Hours: (.5/1/0/0), Arts & Sciences Elective Code: A; Comments: Students may earn one credit per year for each varsity sport in which they participate. Students in multiple varsity sports may earn four credits total in Varsity sports participation courses.

PEV-160 Varsity Softball (1.00)
Designed to give credit for knowledge and skills gained through varsity sports softball participation during an academic year. Credits: 1, Hours: (.5/1/0/0), Arts & Sciences Elective Code: A; Comments: Students may earn one credit per year for each varsity sport in which they participate. Students in multiple varsity sports may earn four credits total in Varsity sports participation courses.

PEV-170 Varsity Volleyball (1.00)
Designed to give credit for knowledge and skills gained through varsity sports volleyball participation during an academic year. Credits: 1, Hours: (.5/1/0/0), Arts & Sciences Elective Code: A; Comments: Students may earn one credit per year for each varsity sport in which they participate. Students in multiple varsity sports may earn four credits total in Varsity sports participation courses.

PEV-215 Varsity Baseball II (1.00)
Designed to give credit for knowledge and skills gained through varsity sports baseball participation during an academic year. Credits: 1, Hours: (.5/1/0/0), Arts & Sciences Elective Code: A; Comments: Students may earn one credit per year for each varsity sport in which they participate. Students in multiple varsity sports may earn four credits total in Varsity sports participation courses.

PEV-221 Varsity Basketball II, Men (1.00)
Designed to give credit for knowledge and skills gained through varsity sports basketball participation during an academic year. Credits: 1, Hours: (.5/1/0/0), Arts & Sciences Elective Code: A; Comments: Students may earn one credit per year for each varsity sport in which they participate. Students in multiple varsity sports may earn four credits total in Varsity sports participation courses.

PEV-222 Varsity Basketball II, Women (1.00)
Designed to give credit for knowledge and skills gained through varsity sports basketball participation during an academic year. Credits: 1, Hours: (.5/1/0/0), Arts & Sciences Elective Code: A; Comments: Students may earn one credit per year for each varsity sport in which they participate. Students in multiple varsity sports may earn four credits total in Varsity sports participation courses.

PEV-240 Varsity Golf II (1.00)
Designed to give credit for knowledge and skills gained through varsity sports golf participation during an academic year. Credits: 1, Hours: (.5/1/0/0), Arts & Sciences Elective Code: A; Comments: Students may earn one credit per
year for each varsity sport in which they participate. Students in multiple varsity sports may earn four credits total in Varsity sports participation courses.

PEV-260 Varsity Softball II (1.00)
Designed to give credit for knowledge and skills gained through varsity sports volleyball participation during an academic year. Credits: 1; Hours: (1/5/1/0); Arts & Sciences Elective Code: A; Comments: Students may earn one credit per year for each varsity sport in which they participate. Students in multiple varsity sports may earn four credits total in Varsity sports participation courses.

PEV-270 Varsity Volleyball II (1.00)
Designed to give credit for knowledge and skills gained through varsity sports volleyball participation during an academic year. Credits: 1; Hours: (1/5/1/0); Arts & Sciences Elective Code: A; Comments: Students may earn one credit per year for each varsity sport in which they participate. Students in multiple varsity sports may earn four credits total in Varsity sports participation courses.

PHI: Philosophy

PHI-101 Introduction to Philosophy (3.00)
Investigates some of the fundamental issues in human existence - for example human nature, the nature of reality, the good life, how and what we know, the existence of God(s), justice and freedom, and free will and determinism - through readings and discussions of seminal philosophical texts in Western or non-Western traditions. Credits: 3; Hours: (3/0/0/0); Arts & Sciences Elective Code: A

PHI-105 Introduction to Ethics (3.00)
Investigates major issues and theories in Western or non-Western moral thought. The adequacies of ethical theories such as egoism, utilitarianism, virtue ethics, the ethics of care, and duty ethics are explored through discussions of topics such as those found in medicine, the media, the environment, social justice, education, gender relations, war, business and family life. Credits: 3; Hours: (3/0/0/0); Arts & Sciences Elective Code: A

PHI-111 Basic Reasoning (3.00)
Introduces both formal and informal aspects of reasoning and argument including principles of deductive reasoning, inductive reasoning, informal fallacies and critical thinking. Credits: 3; Hours: (3/0/0/0); Arts & Sciences Elective Code: A

PHI-125 Native American Philosophies (3.00)
Introduces some of the main philosophies of Native Americans. This course includes study of the histories and cultures of Native American groups with a focus on philosophical perspectives. This course examines metaphysics, epistemology, ethics, aesthetics, social philosophy and philosophy of nature of various Native American philosophical traditions, and those views will be contrasted with a variety of Western philosophical traditions. Credits: 3; Hours: (3/0/0/0); Arts & Sciences Elective Code: A

PHI-126 Chinese Philosophies (3.00)
Introduces some of the main philosophies of the Chinese tradition. This course includes study of the history and culture of China, especially the Classical Period with a focus on philosophical perspectives. The majority of time will be spent studying classical Chinese Confucianism, Taoism, Mohism and Legalism, with some emphasis on Chinese Buddhism and Neo-Confucianism. Credits: 3; Hours: (3/0/0/0); Arts & Sciences Elective Code: A

PHI-130 Philosophy of Human Nature (3.00)
Investigates some important theories of human nature through discussions of such issues as the mind-body problem, the nature of freedom, social contracts, the roles of nature and nurture, the meaning of life, and happiness. Though the course will consider mainly philosophical texts, it may also include material from disciplines such as biology, literature, psychology and anthropology. Credits: 3; Hours: (3/0/0/0); Arts & Sciences Elective Code: A

PHI-132 Philosophy of Education (3.00)
Investigates the nature and purposes of education and the major issues and theories in the philosophy of education. The educational philosophy of thinkers from Plato and Aristotle to Hobbes and Rousseau to Whitehead, Dewey, Fraire, Hooks, Palmer and Gutman are examined by exploring issues such as democracy and education, modes of teaching and learning, testing and assessment, implications of development theories, children's rights, equity issues, and multiculturalism. Credits: 3; Hours: (3/0/0/0); Arts & Sciences Elective Code: A

PHI-135 Multicultural Ethics (3.00)
Examines moral perspectives and theories from a variety of cultural contexts, such as Confucian, Hindu, Buddhist, Islamic, and African ethics. Focuses on human rights by examining ethical issues raised by Western and non-Western diversity, such as moral relativism, feminism, war, homosexuality, immigration, and race relations. Credits: 3; Hours: (3/0/0/0); Arts & Sciences Elective Code: A

PHI-150 Social & Political Philosophy (3.00)
Examines theories of society and the political state, such as paternalism, absolutism, theocracy, democracy, conservatism, liberalism, socialism, feminism and pluralism. Explores public values, such as justice, liberty and equality, as they apply to issues of state power, political obligation, property and class, race, ethnicity, gender/sexuality and the environment. Credits: 3; Hours: (3/0/0/0); Prereq: PHI-101, PHI-105, PHI-111 or PHI-130; Arts & Sciences Elective Code: A

PHI-154 Honors Project (1.00)
Qualifies honors student to pursue a special concentration of study under the guidance of a faculty member. Requires completion of an honors project contract, may be taken more than once. Credits: 1; Hours: (1/0/0/0); Arts & Sciences Elective Code: A; Comments: Requires approval of supervising professor and dean

PHI-928 Independent Study (1.00-3.00)
Provides readings, papers, study and/or research under the guidance of a faculty member. Credits: 1, Hours: (1/0/0/0); Arts & Sciences Elective Code: A; Comments: Permission of instructor, dean

PHR: Pharmacy Tech

PHR-154 Pharmacology for Pharmacy Technician I (2.00)
Provides understanding of pharmacology terms as well as working knowledge of pharmacologic therapies used to treat common diseases. Teaches the side effects of prescription and non-prescription medications required by a pharmacy technician. Credits: 2; Hours: (2/0/0/0); Arts & Sciences Elective Code: B

PHR-156 Pharmacology for Pharmacy Technician II (2.00)
Builds upon the concepts of PHR-154. Provides understanding and knowledge base of pharmacologic therapies used to treat complex diseases. Teaches the unique knowledge base needed by pharmacy technicians. Credits: 2; Hours: (2/0/0/0); Prereq: PHR-154; Arts & Sciences Elective Code: B

PHR-165 Pharmacy Technician Calculations and Compounding With Lab (4.00)
Introduces calculations and conversions necessary to prepare doses and medication products. Teaches common sterile and non-sterile compounding techniques. Credits: 4; Hours: (3/2/0/0); Arts & Sciences Elective Code: B

PHR-171 Pharmacy Technician (6.50)
Provides the knowledge and skills necessary for employment as a pharmacy technician in a retail, hospital or clinic pharmacy while under the direct supervision of a pharmacist. Includes basic understanding of medications, prescriptions and terminology, pharmaceutical calculations and techniques, record keeping, ethics and jurisprudence, as well as the role of the pharmacy technician. Emphasizes the importance of making informed, intelligent decisions. Offers experience alongside a pharmacist to provide medication and other types of health care products to patients. Designed to prepare learners for the National Pharmacy Technician Certification Exam. Credits: 6.5, Hours: (6/1/0/0); Prereq: MAT-102; Coreq: PHR-172; Arts & Sciences Elective Code: B

PHR-172 Pharmacy Technician Clinical (1.00)
Provides opportunities for observation and supervised participation in hospital and retail pharmacy settings. Credits: 1; Hours: (0/0/3/0); Prereq: PHR-154; Coreq: PHR-175; Arts & Sciences Elective Code: B

PHR-175 Pharmacy Technician Operations and Regulations (4.00)
Provides operational responsibilities required of the pharmacy technician. Integrates hands-on
day-to-day tasks performed in common pharmacy practice settings. Credits: 4, Hours: (3/2/0/0), Coreq: PHR-172; Arts & Sciences Elective Code: B

PHS: Physical Science

PHS-151 Introduction to Astronomy (3.00) Centers around a variety of topics including the universe and the earth in space, properties of stars, nuclear energy sources, the solar system, quasars, black holes and life in the universe. Incorporates laboratories and observations. Credits: 3, Hours: (2/2/0/0), Arts & Sciences Elective Code: A

PHS-170 Physical Geology (3.00) Explores how natural forces shape our planet and how geology is tied together through the theory of plate tectonics. Covers common earth materials, history of the Earth, geological resources and geologic hazards. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: A; Comments: Either Physical Geology (PHS-170) or Environmental Geology (PHS-175) will satisfy three hours of science core requirements. However, both cannot be counted toward meeting core. If both courses are taken, the second will count as an elective.

PHS-171 Physical Geology Lab (1.00) Designed to be taken with PHS-170. Credits: 1, Hours: (0/2/0/0), Coreq: PHS-170; Arts & Sciences Elective Code: A

PHS-175 Environmental Geology (3.00) Examines the effects of geological processes and geohazards on human life and activities. Explores common earth materials, volcanoes, earthquakes, flooding, water pollution, mining, and climate change. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: A; Comments: Either Physical Geology (PHS-170) or Environmental Geology (PHS-175) will satisfy three hours of science core requirements. However, both cannot be counted toward meeting core. If both courses are taken, the second will count as an elective.

PHS-176 Environmental Geology Laboratory (1.00) Designed to be taken with PHS-175 Credits: 1, Hours: (0/2/0/0), Coreq: PHS-175; Arts & Sciences Elective Code: A

PHS-180 Evolution of the Earth (3.00) Considers interdisciplinary principles, techniques and methods essential to the interpretation of the geological history of the earth. Examines the development of plate tectonics and continental drift through geological time and the progression and evolution of life from Pre-Cambrian time to present time. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: A

PHS-181 Evolution of the Earth Lab (1.00) Designed to be taken with PHS-180. Credits: 1, Hours: (0/2/0/0), Coreq: PHS-180; Arts & Sciences Elective Code: A

PHS-924 Honors Project (1.00) Allows qualified honors student to pursue a special concentration of study under the guidance of a faculty member. Requires completion of an honors project contract. Credits: 1, Hours: (1/0/0/0), Arts & Sciences Elective Code: A; Comments: Permission of instructor and dean

PHS-928 Independent Study (1.00) Provides readings, papers, field or basic research projects for independent work in the geological sciences. Students study under the individual guidance of a staff member. Credits: 1, Hours: (0/2/0/0), Arts & Sciences Elective Code: A; Comments: Permission of instructor and dean

PHY: Physics

PHY-120 Introductory Physics (3.00) Provides basic work with scientific reasoning and fundamental concepts in classical and modern physics. Provides opportunities for measurement and application of concepts in a lab setting. Credits: 3, Hours: (2/2/0/0), Prereq: MAT-102 or MAT-707 or MAT-716; Arts & Sciences Elective Code: A

PHY-162 College Physics I (4.00) Emphasizes introductory physics concepts and methods of scientific reasoning. Introduces the structure and properties of matter, descriptions of motion, Newton's Laws, conservation laws, rotational motion, fluid statics, fluid dynamics and thermodynamics. Credits: 4, Hours: (3/2/0/0), Prereq: MAT-102 or MAT-708; Arts & Sciences Elective Code: A

PHY-172 College Physics II (4.00) Continues College Physics I. Includes static and current electricity, electromagnetism, wave motion, optics, atomic and nuclear physics. Integrates applications to the life sciences with material throughout the semester. Credits: 4, Hours: (3/2/0/0), Prereq: PHY-182; Arts & Sciences Elective Code: A

PHY-180 Applied Physics I (2.00) Studies Moliere diagrams, psychrometric charts, thermodynamics and gas laws. Demonstrates how these properties of physics apply to the refrigeration cycle, heating, cooling, humidification and dehumidification. Credits: 2, Hours: (1/2/0/0), Prereq: MAT-232; Arts & Sciences Elective Code: B

PHY-182 Applied Physics II (3.00) Studies mechanical power transmission, energy converters, fluid power and precision measuring instruments, measurement conversion, air and fluid flow characteristics. Credits: 3, Hours: (2/2/0/0), Prereq: PHY-180; Arts & Sciences Elective Code: B

PHY-190 Physics I (3.00) Covers physical concepts needed to understand and practice mechanical engineering technology. Includes measurement and vectors, static equilibrium, torque, uniformly accelerated motion, Newton's laws, friction, work, energy and power, and simple machines. Emphasizes problem solving, teamwork and data collection using PC-based data acquisition equipment. Credits: 3, Hours: (2/2/0/0), Prereq: MAT-745 or both MAT-103 and MAT-707, depending on program; Arts & Sciences Elective Code: B

PHY-192 Physics II (3.00) Continues Physics I with topics useful to mechanical engineering technology. Includes impulse/momentum, rotational motion, dynamics of rotation, fluids, properties of materials and simple harmonic motion, temperature, matter and heat energy, and introductory thermodynamics. Emphasizes problem solving, teamwork and data collection using PC-based data acquisition equipment. Credits: 3, Hours: (2/2/0/0), Prereq: PHY-190; Arts & Sciences Elective Code: B

PHY-212 Classical Physics I (5.00) Introduces physics using calculus-level mathematics. Covers vectors, linear and rotational kinematics, statics, dynamics, and oscillatory and wave motion. Credits: 5, Hours: (4/2/0/0), Prereq: MAT-210; Arts & Sciences Elective Code: A

PHY-222 Classical Physics II (5.00) Continues Classical Physics I. Includes thermodynamics, static and current electricity, electromagnetism, geometric and wave optics, and a brief introduction to modern physics. Credits: 5, Hours: (4/2/0/0), Prereq: MAT-216, PHY-212; Arts & Sciences Elective Code: A

PHY-230 Technical Physics I (3.00) Studies the technical applications of motion, force, momentum, statics, work, rotation and simple machines. Emphasizes concepts through laboratory and lecture. Credits: 3, Hours: (2/2/0/0), Prereq: MAT-746; Arts & Sciences Elective Code: B

PHY-232 Technical Physics II (3.00) Subjects studied include matter, fluids, temperature and heat transfer, properties of gases, wave motion and sound, light, reflection and refraction, color, and modern physics. Concepts are emphasized through laboratory and lecture. Credits: 3, Hours: (2/2/0/0), Prereq: PHY-230; Arts & Sciences Elective Code: B

PHY-924 Honors Project (1.00) Allows a qualified honors student to pursue a special concentration of study under the guidance of a faculty member. Requires completion of an honors project contract. May be taken more than once. Credits: 1, Hours: (1/0/0/0), Arts & Sciences Elective Code: A; Comments: Requires approval of supervising professor and dean

PLU: Plumbing

PLU-101 Pipelining for Maintenance Trades (2.00) Introduces plumbing definitions, plumbing workmanship, flushometer valves, and drainage fixture units. Focuses on plumbing code requirements that may be encountered within industrial maintenance. Emphasizes pipe joining techniques through a number of pipe projects using a variety of materials and assembly methods. Explores concepts of applied mathematics, safety, and pipe fitting techniques in a hands-on lab. Credits: 2, Hours: (1/2/0/0), Arts & Sciences Elective Code: B

PLU-130 Plumbing Theory I (6.00) Provides instruction on the basic principles of plumbing system installations. At the conclusion of the course, the student will be able to complete a variety of plumbing-related tasks such as identify and describe safe work practices; identify and explain the materials, fittings and supports used in a plumbing installation; identify the Uni-
form Plumbing Code; identify the content covered in each chapter of the UPC and perform basic pipe sizing; create plan and elevation plumbing drawings and sketches; and identify and describe potable water systems, water wells and basic water treatment. Credits: 6, Hours: (4/4/0/0), Arts & Sciences Elective Code: B

PLU-132 Plumbing Theory II (8.00)
Provides instruction in all aspects of plumbing installations in a residential setting. Students learn to plan, design and install a plumbing drain, a waste and vent system, plumbing fixtures, water distribution systems, natural gas supply piping, venting, and chimney systems in accordance with the Uniform Plumbing Code, state and local amendments. Credits: 8, Hours: (6/4/0/0), Prereq: PLU-130; Arts & Sciences Elective Code: B

PLU-140 Plumbing Practices I (4.00)
Provides instruction on common pipe joining techniques and common pipe fitting procedures for pressure and drainage weight pipe and fittings. At the completion of the course, the student will be able to identify the common materials used in plumbing and gas piping systems, identify and perform common joining methods used on piping materials, and maintain a job log of time spent and materials used for each of the piping assignments. Credits: 4, Hours: (0/8/0/0), Arts & Sciences Elective Code: B

PLU-142 Plumbing Practices II (4.00)
Provides instruction for installation of plumbing systems. At the completion of the course, the student will be able to plan, design and install a plumbing drain, a waste and vent system, plumbing fixtures, water distribution systems, natural gas supply piping, venting, and chimney systems in accordance with the Uniform Plumbing Code, state and local amendments. Credits: 4, Hours: (1/6/0/0), Prereq: PLU-140; Arts & Sciences Elective Code: B

PLU-148 Plan and Print Reading for Plumbing (2.00)
Provides instruction in plan and print reading for plumbing system installations. Combines plan and print reading assignments together with drawing assignments. Credits: 2, Hours: (1/2/0/0), Arts & Sciences Elective Code: B

PLU-150 Plumbing Plan and Print Reading II (2.00)
Provides instruction on reading, interpreting and understanding standard construction drawings. From a given construction drawing, students develop piping sketches including plan, elevation and isometric views, size drain waste and vent piping by use of the Uniform Plumbing Code and the City of Cedar Rapids amendments, prepare a materials list from a given piping sketch and download and print a variety of manufacturers' product information sheets for fixtures, faucets, fittings and other related items. Credits: 2, Hours: (1/2/0/0), Prereq: PLU-148; Arts & Sciences Elective Code: B

PLU-160 Pipelining for Maintenance Trades (3.00)
Covers plumbing and shop safety, plumbing and pipelining theory, plan and print reading, plumbing code, basic pipe sizing, and identification and use of various piping materials. Emphasizes plumbing installation, joining methods and repair methods in accordance with Uniform Plumbing Code, along with local and state amendments, in a hands-on lab setting. Credits: 3, Hours: (2/2/0/0), Prereq: MAT-233; Arts & Sciences Elective Code: B

PLU-932 Internship (1.00-2.00)
Focuses on providing the student practical experience in a plumbing related work environment. Includes employer/supervisor evaluations and instructor visits/observation. Credits: 1-2, Hours: (0/0/4/8), Arts & Sciences Elective Code: B

PNN: Practical Nursing

PNN-228 Foundations of Nursing I (6.00)
Focuses on the care of older adults with health alterations that require medical interventions. Emphasizes knowledge, competencies and skills needed to provide safe and evidence-based care for the patient with health alterations. Encourages students to apply the nursing process as a decision-making framework to assist in developing effective clinical judgment skills. Integrates pathophysiology, pharmacology and nutrition in the selected disease state. Integrates evidence-based practice, patient-centered care, safety, cultural sensitivity, interdisciplinary collaboration and professionalism throughout the course. Provides students with the opportunity to apply course concepts, demonstrate skills, and care for older adult patients in supervised laboratory and/or simulation experiences. Emphasizes patient safety, application of the nursing process, and development of communication skills within the scope of practice of the PN. Credits: 6, Hours: (5/2/0/0), Prereq: BIO-151, minimum C- in

PNN-229 Foundations of Nursing II (4.00)
Focuses on the care of adult patients with health alterations that require medical and/or surgical intervention. Provides a decision-making framework, through the nursing process, to assist students in developing effective clinical judgment skills. Integrates pathophysiology, pharmacology and nutrition in the selected disease state, with concepts of evidence-based practice, patient-centered care, safety and professionalism. Credits: 4, Hours: (3.25/1.5/0/0), Prereq: PNN-228, PNN-721; Arts & Sciences Elective Code: B

PNN-280 Pharmacology I (2.00)
Provides first semester nursing students enrolled in the Associate Degree and Practical Nursing programs a foundation for pharmacological nursing. Utilizes the nursing process as the framework for presenting concepts and principles of pharmacology and drug administration. Focuses on basic pharmacological calculation concepts for safe medication administration. Credits: 2, Hours: (2/0/0/0), Prereq: HSC-289; Arts & Sciences Elective Code: B

PNN-282 Pharmacology II (2.00)
Provides second semester nursing students enrolled in the Practical and Associate Degree Nursing programs with additional pharmacological tools. Builds on pharmacological nursing using the nursing process as the framework introduced in Pharmacology I. Discusses actions, interactions, adverse effects, nursing implications for drugs for multiple body systems and differences across the lifespan. Progresses with dosage calculation through advanced pharmacological calculations for safe medication administration. Credits: 2, Hours: (2/0/0/0), Prereq: PNN-290; Arts & Sciences Elective Code: B

PNN-290 Health Assessment Across the Lifespan (2.00)
Introduces health history taking, physical assessment and documentation required for professional nursing practice. Integrates focused and comprehensive health assessments, utilizing professional behavior, communication and collaborative teamwork, with collection and analysis of data, which is essential in planning safe and effective care. Emphasizes critical thinking and clinical reasoning skills, health assessment as a systematic and organized examination that provides accurate data in which to form evidenced-based health promotion, education and priority patient centered nursing plans of care. Credits: 2, Hours: (1.5/1/0/0), Prereq: HSC-189; Arts & Sciences Elective Code: B

PNN-293 Health Assessment Across the Lifespan (3.00)
Introduces health history taking, physical assessment and documentaion required for professional nursing practice. Integrates focused and comprehensive health assessments, utilizing professional behavior, communication and collaborative teamwork, with collection and analysis of data, which is essential in planning safe and effective care. Emphasizes critical thinking and clinical reasoning skills, health assessment as a systematic and organized examination that provides accurate data in which to form evidenced-based health promotion, education and priority patient centered nursing plans of care. Credits: 3, Hours: (2.5/1/0/0), Prereq: Minimum B- in HSC-189; Arts & Sciences Elective Code: B

PNN-446 Nursing Care of the Growing Family (4.00)
Builds on the concepts of previous nursing courses with an emphasis on nursing care with men's and women's health during the reproductive years, including antepartum, intrapartum, postpartum and newborn periods. Focuses on health promotion, disease prevention and common alterations in health. Discusses care of the well and hospitalized child and family. Includes lab experiences with simulation and in a community based setting. Credits: 4, Hours: (3.75/5/0/0), Prereq: PNN-228, PNN-721; Arts & Sciences Elective Code: B

PNN-721 Foundations of Nursing Clinical I (2.00)
Introduces the application of nursing care concepts in a clinical setting. Provides a decision-making framework in developing effective clinical judgment skills. Applies basic assessment and patient care concepts, including patient centered care, cultural sensitivity, informatics, safe practice and professionalism. Credits: 2, Hours: (0/6/0/0), Prereq: minimum B- in HSC-189; Coreq: none; Arts & Sciences Elective Code: B; Comments:
POL: Political Science

POL-110 Introduction to Political Science (3.00)
Studies selected concepts, processes, behaviors, institutions and ideologies central to the study of politics. Introduces related topics such as political culture, terrorism and doctrines, including authoritarianism, communism, liberalism and totalitarianism, among others. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: A

POL-111 American National Government (3.00)
Studies American policy based on a close examination of the processes of decision making. Emphasis is placed on voting behavior and citizen interaction within the system. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: A

POL-121 International Relations (3.00)
Analyzes governments in the more developed countries (MDCs) and in the less developed countries (LDCs) and the interaction of these governments in their political, economic and security dimensions. Also analyzes the sources of policy and their theoretical foundations. Problems are examined through current world concerns. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: A

POL-125 Comparative Government and Politics (3.00)
Studies the systems of government of several countries taking into consideration citizen participation and policy-making processes. Includes basic theories, methods and concepts of comparative study. Examines similarities and differences of political structures including political parties and executive and legislative institutions. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: A

POL-150 Introduction to U. S. Foreign Policy (3.00)
Studies institutions and processes which structure and shape United States foreign policymaking. Surveys historical, military, diplomatic and economic interactions with countries and international governmental and non-governmental organizations. Examines issues such as terrorism, trade, human rights, espionage, intelligence and homeland security. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: A

POL-924 Honors Project (1.00)
Allows a qualified honors student to pursue a special concentration of study under the guidance of an honors faculty member. Requires completion of an Honors Project Learning Contract. Credits: 1, Hours: (1/0/0/0), Arts & Sciences Elective Code: A; Comments: Requires approval of supervising professor and dean

PRL: Paralegal

PRL-103 Introduction to Law (3.00)
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 of laws and regulations of legal professions. Introduces the substantive law and skill areas students will encounter in subsequent legal courses. Examines the relationship between different kinds of legal systems and between social sciences and law. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: A

PRL-116 Fundamentals of Legal Research and Writing (3.00)
Focuses on using a law library and internet-based legal resources to solve legal problems including research strategies, analysis and application of law, and communication of research results orally and in written legal memoranda. Presents legal document preparation software, and the ethical duty of honesty and candor. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: A

PRL-117 Advanced Legal Research and Writing (3.00)
Provides instruction in internet-based legal resources and explores multiple methods to address complex legal research problems. Explores utilizing research results in appellate briefs and other advocacy legal documents. Instructs students in the use of legal document preparation software and the ethical duty of honesty and candor. Provides instruction on navigating Iowa's judicial website including the electronic filing system (EDMS). Credits: 3, Hours: (3/0/0/0), Prereq: PRL-116; Arts & Sciences Elective Code: A

PRL-121 Investigation for Paralegals (3.00)
Presents an overview of the fact-gathering process for paralegals including principles and techniques of investigation, sources of public and private information, methods for preserving information, and analyzing the probativeness, sufficiency and admissibility of facts for trial. Explores the Rules of Evidence and their application to the investigation process. Teaches the ethical duty of confidentiality and attorney-client privilege as it relates to investigations. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: A

PRL-133 Torts (3.00)
Provides instruction on the principles of tort law. Explores differences between intentional torts, negligence, and strict liability. Emphasizes the use and interpretation of primary and secondary sources of law to understand similarities and differences of torts. Explores and discusses the common use of the contingency fee agreement in tort law. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: A

PRL-138 Bankruptcy Law (3.00)
Examines the Bankruptcy Act, applicable rules, and relevant judicial decisions. Covers the use of internet-based resources for bankruptcy. Includes use of the N.D. Iowa Bankruptcy website and its various practical functions, including CM/ECF filing. Examines the various legal roles involved in bankruptcy, specifically the role and duties of the trustee. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: A

PRL-143 Business Organization Law (3.00)
Provides instruction in the law of legal entities used in conducting business. Explores the similarities and differences between sole proprietorships, partnerships, corporations, limited liability companies, and other types of business organizations. Examines the process necessary for the creation and existence of various business organizations. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: A

PRL-146 Secured Transactions (3.00)
Covers the Uniform Commercial Code and its application to secured transactions and negotiable instruments. Examines Chapter 9 of the Uniform Commercial Code. Examines the role security interests have in business transactions and situations in which security interests would be used. Offers methods used for the enforcement of security interests. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: A

PRL-151 Real Estate Law (3.00)
Studies the law of real property. Examines common types of real estate transactions and conveyances. Explores the history of the real property system used in the United States. Offers available methods to finance real estate transactions. Explores title examination and title insurance. Teaches the ethical duty of competence. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: A

PRL-161 Family Law (3.00)
Introduces the laws of marriage and divorce. Explores the historical context of divorce in the United States. Addresses the divorce process including child custody, child support, spousal support, property division, and jurisdiction. Explores paternity, adoption, and juvenile matters, and the ethical duty of conflict of interest. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: A

PRL-166 Estate Planning/Administration (3.00)
Provides instruction in the methods available for lifetime and testamentary estate planning. Provides instruction in the estate probate process. Examines the role of the Probate Court in the administration of estates. Examines the tax benefits and consequences associated with estate planning. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: A

PRL-174 Contracts (3.00)
Teaches the principles of contract law. Explores the required elements necessary for the creation of a contract to be enforceable. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: A

PNN-228, PNN-721; Arts & Sciences Elective Code: A
of enforceable contracts and remedies available for breach of contract. Integrates the preparation and interpretation of contracts. Examines provisions of the Uniform Commercial Code relevant to contract law. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: A

**PRL-176 Civil Litigation (3.00)**
Teaches the rules, processes and paralegal skills for preparing cases for civil trials, including the preparation of complaints, discovery and motions. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: A

**PRL-186 Employment Law Topics (3.00)**
Studies the legal aspects of the employer-employee relationship. Examines federal labor laws, civil rights laws, privacy and harassment laws, and the Americans With Disabilities Act. Examines human resource management issues related to employment. Addresses the role of various administrative agencies in their regulation of employment. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: A

**PRL-187 Workers' Compensation (3.00)**
Focuses on the law of Workers' Compensation. Explores how disputed workplace injuries are resolved. Examines the administrative proceedings required to receive compensation for workplace injuries and offers available remedies for workplace injuries. Addresses limitations of the Worker's Compensation system. Includes the role of the paralegal in representing claimants and respondents in Workers' Compensation actions. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: A

**PRL-192 Criminal Law and Procedure for the Paralegal (3.00)**
Introduces the basic principles of criminal law and criminal procedure. Examines common law and statutory law. Covers the Iowa Rules of Criminal Procedure and examines differences between Iowa and other jurisdictions. Identifies the processes required to prepare a criminal case for trial. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: A

**PRL-928 Independent Study (1.00)**
Provides basic readings, papers and basic research or other projects under the individual guidance of a staff member. Credits: 1, Hours: (1/0/0/0), Arts & Sciences Elective Code: A

**PRL-932 Internship (3.00)**
Provides an opportunity to use and refine paralegal skills in a work setting with the guidance of legal professionals. Integrates monthly seminars throughout the internship semester to share and gain perspective on experiences. Credits: 3, Hours: (0/0/0/0), Prereq: PRL-101; Arts & Sciences Elective Code: A

**PSY: Psychology**

**PSY-111 Introduction to Psychology (3.00)**
Introduces the scientific study of mental processes and behavior with emphasis on the nervous system, learning and memory, cognition, sensation and perception, motivation and emotion, personality, intelligence, stress, psychopathological disorders and therapy, and social influence. Stresses roles of both theory and empirical evidence in describing, explaining and predicting behavior. Encourages critical thinking about research methods and ethics. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: A

**PSY-121 Developmental Psychology (3.00)**
Introduces physical, cognitive and psychosocial development from a lifespan perspective covering conception until death. Provides an introduction to major theories and classic and contemporary research, and examines normative development as impacted by genes, maturation, experience, cohort, gender, race, social class and culture. Discusses topics including developmental research methods; genetics; prenatal development; infancy; childhood; adolescence; early, middle and later adulthood; and be-reavement. Credits: 3, Hours: (3/0/0/0), Prereq: PSY-111; Arts & Sciences Elective Code: A

**PSY-241 Abnormal Psychology (3.00)**
Describes emotional, cognitive and behavioral disorders using the current edition of the DSM for classification and diagnosis of disorders. Explores assessment, causes and treatments of disorders from a biopsychosocial perspective. Reviews historical and current theoretical perspectives of abnormality, research methods, and legal and ethical issues. Credits: 3, Hours: (3/0/0/0), Prereq: PSY-111; Arts & Sciences Elective Code: A

**PSY-251 Social Psychology (3.00)**
Explores how an individual's thinking, feelings and behavior are affected by others. Covers research methods, ethics, and classic as well as contemporary research topics on social beliefs and judgments, self and person perception, attitude formation and change, prejudice, aggression and conflict, helping and prosocial behavior, interpersonal attraction, gender-related behavior, conformity and deviation, persuasion, and group influence. Credits: 3, Hours: (3/0/0/0), Prereq: PSY-111; Arts & Sciences Elective Code: A

**PSY-261 Human Sexuality (3.00)**
Provides an introduction to psychological, biological, cultural and legal aspects of human sexuality. Examines scientific approaches to the study of sexual beliefs and judgments, self and person perception, attitude formation and change, prejudice, aggression and conflict, helping and prosocial behavior, interpersonal attraction, gender-related behavior, conformity and deviation, persuasion, and group influence. Credits: 3, Hours: (3/0/0/0), Prereq: PSY-111; Arts & Sciences Elective Code: A

**PSY-924 Honors Project (3.00)**
Allows a qualified honors student to pursue a special concentration of study under the guidance of a faculty member. Requires completion of an honors project contact. Credits: 1, Hours: (1/0/0/0), Arts & Sciences Elective Code: A; Comments: Requires approval of supervising professor and dean

**PTA: Physical Therapist Assistant**

**PTA-101 Introduction to PTA (2.00)**
Provides an overview of the physical therapy profession and the national organization, APTA. Discusses the role of the PTA including legal and ethical practice, as well as evidence-based practice. Explores reactions to disability and considers communication strategies. Discusses the patient care process and the treatment of diverse populations. Includes concepts of learning self and peer assessments and service learning setting. Requires three mandatory face-to-face sessions with the remainder of the course work completed online. Credits: 2, Hours: (2/0/0/0), Arts & Sciences Elective Code: B

**PTA-103 PTA Patient Assessment (2.00)**
Explores the concept of patient assessment, beginning with the patient interview and including a variety of tests and measures that are performed by the physical therapist assistant. Addresses infection control and documentation. Includes discussion, laboratory practice and performance testing for selected tests and measures. Credits: 2, Hours: (1/2/0/0), Arts & Sciences Elective Code: B

**PTA-110 Fundamentals for PTA (3.00)**
Introduces patient care activities for the PTA, including positioning and draping, posture and body mechanics. Covers pre-ambulation activities, including exercise and functional activities, fitting of assistive devices, gait training, and negotiation of architectural barriers. Includes a 32-hour off-campus clinical experience. Credits: 3, Hours: (2/2/0/0), Prereq: PTA-103, PTA-120, PTA-140; Arts & Sciences Elective Code: B

**PTA-120 Kinesiology (3.00)**
Provides a basic understanding of normal human body movement as it relates to movement and functional independence. Covers lifetime development of each body system, and the functional implications of changes in these body systems. Discusses the psychosocial issues typical at each stage of the lifespan and useful teaching strategies for physical therapy interventions. Includes a 15-hour off-campus service learning experience. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: B

**PTA-140 Functional Motor Development (3.00)**
Presents normal human development as it relates to movement and functional independence. Covers lifetime development of each body system, and the functional implications of changes in these body systems. Discusses the psychosocial issues typical at each stage of the lifespan and useful teaching strategies for physical therapy interventions. Includes a 15-hour off-campus service learning experience. Credits: 3, Hours: (3/0/0/0), Prereq: BIO-168, BIO-173, PTA-120; Arts & Sciences Elective Code: B

**PTA-150 Pathophysiology (3.00)**
Presents clinical disorders and diseases commonly treated in physical therapy. Covers pathology, etiology, diagnosis, signs, symptoms and prognosis. Credits: 3, Hours: (3/0/0/0), Prereq: BIO-168, BIO-173, PTA-120; Arts & Sciences Elective Code: B

**PTA-160 PTA Procedures I (3.00)**
Introduces assessment skills and exercise procedures performed by the PTA. Covers theory and application of goniometry, manual muscle testing, palpation and various other assessment techniques with a focus on the neck, trunk, and upper extremities. Explores basic exercise procedures as they relate to the results of the assessment procedures. Includes laboratory demonstration and practice of each skill. Credits: 3, Hours: (2/2/0/0), Prereq: BIO-168, BIO-173, PTA-103, PTA-110, PTA-120, PTA-150, PTA-192, PTA-193; Arts & Sciences Elective Code: B
PTA-161 PTA Procedures II (3.00)
Introduces assessment skills and exercise procedures performed by the PTA. Covers theory and application of goniometry, manual muscle testing, palpation and other assessment techniques with focus on the lower extremities. Explores basic exercise procedures as they relate to the results of the assessment procedures. Includes laboratory demonstration and practice of each skill. Credits: 3; Hours: (2/2/0/0), Prereqs: BIO-168, BIO-173, PTA-103, PTA-110, PTA-120, PTA-150, PTA-192, PTA-193; Coreq: PTA-160; Arts & Sciences Elective Code: B

PTA-192 PTA Modalities I (2.00)
Prepares the student to use modalities for patient/client management. Presents the science of modalities along with mechanisms of action, physiological processes, indications and contraindications for each modality. Covers patient preparation and assessment, the healing process, pain assessment, superficial and deep heat, cold, intermittent compression pumps/edema management strategies, therapeutic massage, and spinal traction. Includes physiological mechanisms, indications, contraindications, precautions as well as application techniques for each modality. Credits: 2; Hours: (1/2/0/0), Coreq: PTA-120; Arts & Sciences Elective Code: B

PTA-193 PTA Modalities II (3.00)
Continues study of modalities used for patient/client management. Discusses mechanisms of pain management and incorporates them into patient interventions. Covers ultrasound, diathermy, biofeedback, electrical stimulation (pain, edema, wound care and muscle dysfunction), wound care techniques and hydrotherapy. Includes physiological mechanisms, indications, contraindications, precautions as well as application techniques for each modality. Credits: 3; Hours: (2/2/0/0), Prereq: PTA-103, PTA-192; Arts & Sciences Elective Code: B

PTA-215 Orthopedic Issues (4.00)
Introduces management of orthopedic conditions encountered by the physical therapist assistant in the clinical setting. Reviews anatomy, tissue injury and repair. Covers common conditions per joint, precautions for diagnoses and the impact on treatment planning. Focuses on general intervention strategies, treatment progression and therapeutic techniques used in the management of orthopedic conditions. Credits: 4; Hours: (3/2/0/0), Prereq: minimum C in PTA-301; Arts & Sciences Elective Code: B

PTA-232 Rehab for Medical Conditions (4.00)
Provides application of patient management skills to a variety of general medical conditions. Covers therapeutic exercise directed to specific impairments, activity limitations and participation restrictions as well as special considerations for a variety of diagnoses. Includes application of course concepts to clinical problem solving, patient progression and patient and family education. Credits: 4; Hours: (3/2/0/0), Prereq: minimum C in PTA-301; Arts & Sciences Elective Code: B

PTA-241 Neurology for PTA (4.00)
Provides information, discussion and treatment considerations with neurologically-based diagnoses. Addresses clinical manifestations and treatment considerations of common neurological disorders, with special emphasis on stroke, traumatic brain injury, and spinal cord injury. Applies typical treatment techniques, exercise programs, and treatment progression to lab scenarios with diagnoses covered. Credits: 4; Hours: (3/2/0/0), Prereq: minimum C in PTA-301; Arts & Sciences Elective Code: B

PTA-250 PTA Career Essentials (2.00)
Discusses basic career principles, including levels of authority and responsibility, supervision, performance appraisals, policies and procedures and ethical and legal guidelines. Reviews rules and regulations governing PTA practice in Iowa, and the licensure application and preparation process. Discusses quality assurance, chart audits, variabities of reimbursement systems and their impact on health care delivery. Covers resume writing, interviewing and employment skills, as well as self and peer assessment as a tool for career development and lifelong learning. Integrates two hands-on face-to-face sessions with the remainder of the course material covered online. Credits: 2; Hours: (2/0/0/0), Prereq: PTA-215, PTA-232, PTA-241, PTA-301, PTA-302; Coreq: PTA-432; Arts & Sciences Elective Code: B; Comments: Involves a component of independent study as well as classroom activities

PTA-301 PTA Clinic I (2.00)
Includes application of new concepts and skills learned in previous PTA coursework to hands-on patient care in selected clinical settings. Includes classroom component reviewing concepts of supervision requirements, ethics and legal guidelines, reimbursement and communication as it relates to clinical practice. Credits: 2; Hours: (1.5/0/4.5/0), Prereq: BIO-168, BIO-173, PTA-103, PTA-110, PTA-120, PTA-150, PTA-192, PTA-193; Coreq: PTA-160, PTA-161; Arts & Sciences Elective Code: B

PTA-302 PTA Clinic II (2.00)
Includes application of new concepts and skills learned in previous PTA coursework to direct patient care in selected clinical settings. Includes classroom component reviewing concepts of supervision requirements, ethics and legal guidelines, reimbursement and communication as it relates to clinical practice. Credits: 2; Hours: (1.5/0/4.5/0), Prereq: PTA-301; Arts & Sciences Elective Code: B

PTA-432 PTA Clinic III (6.00)
Provides a full-time, on-site clinical experience in which students care for patients under the supervision of a licensed PT or PTA. Develops proficiency in students who apply previously learned concepts and skills to patient interactions and interventions. Expands clinical problem solving and critical thinking skills related to patient care. Credits: 6; Hours: (0/0/18/0), Prereq: minimum C in PTA-215, PTA-232, PTA-241, PTA-301, PTA-302; Coreq: PTA-250; Arts & Sciences Elective Code: B

PTA-433 PTA Clinic IV (6.00)
Provides a full-time, off-site clinical experience for students to care for patients under the supervision of a licensed PT or PTA. Develops student proficiency in patient treatment interventions and interactions through continued application of previously learned concepts and skills. Prepares students for entry-level practice through advanced clinical problem solving and critical thinking related to patient care. Credits: 6; Hours: (0/0/18/0), Prereq: minimum C in PTA-215, PTA-232, PTA-241, PTA-301, PTA-302; Coreq: PTA-250; Arts & Sciences Elective Code: B

PTA-924 Honors Project (1)
Allows a qualified honors student to pursue a special concentration of study under the guidance of a faculty member. Requires completion of an honors project contract. May be taken more than once. Credits: 1; Hours: (1/0/0/0), Arts & Sciences Elective Code: A; Comments: Requires approval of supervising professor and dean

PWL: Powerline

PWL-326 Electrical Distribution Systems (2.00)
Encourages understanding and application of overhead and underground three-phase electrical distribution system principles, applications and components. Covers selection of proper conductors, cables and transformers and the importance of distribution system protection, insulation, coordination and overvoltage protection. Provides a comprehensive understanding of the emerging Smart Grid “Intelligent Power System” integration to wind, sun and steam power generation. Covers energy storage, advanced power electronics at the T&D distribution levels, networked control systems, automation, system optimization and real-time control. Credits: 2; Hours: (1/2/0/0), Arts & Sciences Elective Code: B

PWL-331 Power Cable Materials and Installation (2.00)
Covers the design, selection and installation of conductors, insulators, shields and jackets. Emphasizes splicing and terminating standards and practices. Studies cable condition assessment, reliability, ampacity and surge protection. Covers high voltage and substations. Credits: 2; Hours: (1/2/0/0), Arts & Sciences Elective Code: B

RCP: Respiratory Therapy

RCP-120 Cardiopulmonary Assessment (1.00)
Provides the student with the necessary competencies to conduct a general head-to-toe integumentary assessment as well as a more detailed cardiovascular and chest/pulmonary assessment, enabling the student to identify and document any abnormalities. Credits: 1; Hours: (0.5/1/0/0), Prereq: minimum C in BIO-161; Arts & Sciences Elective Code: B

RCP-210 Introduction to Respiratory Care (2.50)
Provides the theory, equipment operation and application with laboratory exercises in airway management techniques, humidity therapy and bland aerosol therapy. Credits: 2.5; Hours: (1.5/2/0/0), Prereq: minimum C in BIO-186 and either CHM-110 or CHM-165; Arts & Sciences Elective Code: B

RCP-220 Respiratory Care I (3.00)
Provides the theory, equipment operation and application with laboratory exercises in oxygen and other gas therapy; and aerosol drug therapy, with an introduction to respiratory pharmacology and airway clearance modalities. Credits: 3; Hours: (2/2/0/0), Prereq: ENG-105, HSC-107,
HSC-210, RCP-210, minimum C- in HSC-115; Arts & Sciences Elective Code: B

RCP-300 Respiratory Physiology (4.00)
Provides the essential concepts of cardiopulmonary anatomy and physiology with an emphasis on pulmonary homeostasis. Credits: 4; Hours: (4/0/0/0), Prereq: BIO-161, MAT-102, and minimum C- in HSC-115; Arts & Sciences Elective Code: B

RCP-370 Respiratory Pathology I (2.00)
Provides an introduction to the study of disease with an emphasis on terminology and basic disease processes. Examines common infectious diseases, acute and chronic respiratory diseases, and cardiovascular disorders. Concentrates on etiology, pathophysiology, signs and symptoms. Provides an overview of respiratory care for the surgical patient, as well as specific management of traumatic chest injury and head trauma. Credits: 2; Hours: (2/0/0/0), Prereq: minimum C- in BIO-186, RCP-300; Arts & Sciences Elective Code: B

RCP-380 Respiratory Pathology II (2.50)
Offers an in-depth study of pulmonary disorders relating the respiratory therapist’s role in diagnosis, treatment, pharmacologic management and support; provides practice in gathering appropriate information and making prompt and correct patient care decisions. Credits: 2.5; Hours: (2.5/0/0/0), Prereq: SPC-101 or SPC-112 or COM-222, minimum C- in RCP-370 and RCP-420; Arts & Sciences Elective Code: B

RCP-420 Pulmonary Function Testing (2.00)
Provides theory and operation of equipment in pulmonary function testing with interpretation of test results. Laboratory exercises include gathering data from bedside spirometry, measuring weaning parameters, as well as standard pulmonary function laboratory testing. Credits: 2; Hours: (1/1/1/5), Prereq: minimum C- in RCP-220, RCP-300; Arts & Sciences Elective Code: B

RCP-470 Cardiac Monitoring (1.50)
Surveys the theory and application of specialized diagnostic procedures, equipment and monitoring techniques in cardiac medicine. Includes ECG and monitoring head, basic interpretation and dysrhythmia recognition, thermodilution cardiac output and oxymetry-mixed venous oxygen measurements, pulmonary artery catheters, hemodynamics and clinical application. Credits: 1.5; Hours: (1.5/0/0/0), Prereq: minimum C- in RCP-220, RCP-300, RCP-420, RCP-510 and either BIO-161, BIO-168/BIO-173 or BIO-177/BIO-180; Arts & Sciences Elective Code: B

RCP-480 Advanced Cardiac Care (2.50)
Provides theory and laboratory practice in managing specific life-threatening cardiac dysrhythmias resulting from myocardial infarction. Includes review of basic life support, use of mechanical aids to establish an airway and maintain ventilation, ECG monitoring and recognition of life-threatening dysrhythmias, cardiac defibrillation, establishing an intravenous drug access, and initiating appropriate cardiac drug therapy. Credits: 2.5; Hours: (2/1/0/0), Prereq: minimum C- in RCP-470 and RCP-736; Arts & Sciences Elective Code: B

RCP-510 Respiratory Care II (6.00)
Explores the theory, equipment operation and application with laboratory exercises in adult and pediatric/neonatal mechanical ventilation, IPPB and arterial blood gas analysis. Examines the effect of mechanical ventilation on acid base balance. Laboratory emphasis on the operation and application of adult and pediatric/neonatal ventilators. Credits: 6; Hours: (4/4/0/0), Prereq: minimum C- in CHM-110, RCP-220; Arts & Sciences Elective Code: B

RCP-610 Perinatology (2.50)
Explores fetal growth and development, assessment of the high-risk newborn and respiratory care of the perinatal/pediatric patient. Reviews specific medical/surgical pathology in the newborn and pediatric patient. Credits: 2.5; Hours: (2/1/0/0), Prereq: minimum C- in RCP-370 and RCP-510; Arts & Sciences Elective Code: B

RCP-730 Respiratory Care Clinic I (2.50)
Provides students with clinical practice in order to demonstrate proficiency in physical assessment, oxygen therapy, airway care and IPPB skills. Students observe and practice mechanical ventilation and arterial blood gas analysis skills. Credits: 2.5; Hours: (0/1/0/0), Prereq: minimum C- in RCP-210; Arts & Sciences Elective Code: B

RCP-736 Respiratory Care Clinic II (6.00)
Demonstrates proficiency in RC Clinic I skills and ventilation and arterial blood gas analysis. Provides practice in pediatric respiratory care, hemodynamic monitoring and proficiency in pulmonary function testing. Integrates observation of diagnostic techniques in ECG, cardiac catheterization lab and bronchoscopy lab. Credits: 6; Hours: (5/0/16.5), Prereq: RCP-420, RCP-510, RCP-730; Arts & Sciences Elective Code: B

RCP-740 Respiratory Care Clinic III (6.50)
Provides students an opportunity to maintain proficiency in RC Clinics I and II skills, demonstrate proficiency in pediatric/perinatal respiratory care, practice clinical education techniques and observe management skills. Credits: 6.5; Hours: (0/1/18), Prereq: minimum C- in RCP-736; Arts & Sciences Elective Code: B

RCP-850 Respiratory Care III (2.50)
Surveys the theory and application of specialized diagnostic procedures, equipment and monitoring techniques in pulmonary medicine and critical care. Includes bronchoscopy, oximetry, capnography and transcutaneous monitoring. Explores the elements of pulmonary rehabilitation with laboratory exercises in breathing retraining. Examines the theory and operation of pleural drainage systems. Credits: 2.5; Hours: (2/1/0/0), Prereq: minimum C- in RCP-370 and RCP-510; Arts & Sciences Elective Code: B

RCP-890 Respiratory Care Applications (2.00)
Culminates the learning activities of the previous five semesters of study in respiratory care. Integrates the theory and application of respiratory care to focus on case management, clinical problem solving and clinical simulation. Case discussions will selectively cover the spectrum of cardiopulmonary disorders for both pediatric and adult patients. Credits: 2; Hours: (1/2/0/0), Prereq: minimum C- in RCP-380, RCP-470, RCP-610 and RCP-736; Arts & Sciences Elective Code: B

RCP-924 Honors Project (1)
Allows a qualified honors student to pursue a special concentration of study under the guidance of a faculty member. Requires completion of an honors project contract. May be taken more than once. Credits: 1; Hours: (1/0/0/0), Arts & Sciences Elective Code: A; Comments: Requires approval of supervising professor and dean

RDG: Reading

RDG-075 Personal Achievement Reading (1.00)
Develops reading comprehension skills and strategies. Introduces habits used by skilled readers utilizing actual texts from currently enrolled classes. Incorporates effective study skills for course quizzes and tests. Practices strategies through a lab environment. Credits: 1; Hours: (0/2/0/0), Arts & Sciences Elective Code: D

RDG-095 College Reading (3.00)
Introduces college-level reading skills, including identifying and analyzing factual statements, topics, and supporting details; recognizing, using, developing and outlining relationships; and learning critical reading strategies. Credits: 3; Hours: (3/0/0/0), Arts & Sciences Elective Code: D

RDG-130 Effective Reading Strategies (3.00)
Provides instruction in study skills and reading improvement for college readers. Develops flexibility in students’ reading rates and strategies for improving comprehension of standard college texts. Provides practice with library, test taking, time management and vocabulary skills. Recommended to be taken in conjunction with another college-level course. Also recommended: Also recommended: an ACCUPLACER score of 45 or above, or ACT score of 16 or above. Credits: 3; Hours: (3/0/0/0), Arts & Sciences Elective Code: A

REL: Religion

REL-101 Survey of World Religions (3.00)
Introduces the study of religions and religious phenomena through an examination of several historical and contemporary religions from around the world. Includes a study of some of the following: American Indian traditions, Hinduism, Buddhism, Judaism, Christianity, Islam, Shintoism, ancient and contemporary feminist spiritualities, gnosticism, shamanism, Confucianism and Taoism. Credits: 3; Hours: (3/0/0/0), Arts & Sciences Elective Code: A

REL-120 Judaism, Christianity and Islam (3.00)
Introduces the beliefs, values, and practices of Judaism, Christianity and Islam. Both historical and contemporary phenomena are used to develop an understanding of the diversity and complexity of the religious dimension of human life. Credits: 3; Hours: (3/0/0/0), Arts & Sciences Elective Code: A

REL-125 Introduction to Islam (3.00)
Introduces the beliefs, values and practices of Islam. Both historical and contemporary phenomena are used to develop an understanding of the diversity and complexity of the Muslim religion. Attention is also given to critical issues within Islam in the modern world. Credits: 3,
SDV: Student Development

SDV-052 Supported Education (1.00-3.00)
Provides academic support, accommodations and strategies needed to successfully complete the Kirkwood course of study. Develops an individualized education plan and accommodation plans designed to develop effective study skills and self-advocacy skills. Monitors students’ progress in Kirkwood courses. Format is primarily individualized instruction. Credits: 1-3, Hours: (0/2-6/0), Arts & Sciences Elective Code: D

SDV-057 Teacher Proficiency Test Preparation (1.00)
Provide individualized instruction to prepare student to pass the Teacher Preparation Proficiency test. Credits: 1, Hours: (0/2/0), Arts & Sciences Elective Code: D

SDV-077 Supported Education - VITAL (3.00)
Provides academic support, accommodations and strategies VITAL students need to successfully complete the Kirkwood course of study. Develops an individualized education plan and accommodations plan designed to develop effective study skills and self-advocacy skills. Monitors students’ progress in Kirkwood courses. Format is primarily individualized instruction. Credits: 3, Hours: (0/6/0), Arts & Sciences Elective Code: D; Comments: Concurrent enrollment in VITAL.

SDV-080 Supported Education: Transition (1.00)
Provides instruction and hands-on skill development to students enrolled in a High School Transition Program. Consists of academic classroom instruction, life skills, accommodations and strategies for success in the Transition Program, including campus and community experiences. Credits: 1, Hours: (1/0/0), Arts & Sciences Elective Code: D

SDV-083 College Survival Skills (1.00)
Transitions TRIO Student Support Service eligible students into the post-secondary environment. Covers available support services and campus resources, appropriate social and study skills, and how to adapt to and navigate college. Credits: 1, Hours: (0/2/0), Arts & Sciences Elective Code: D

SDV-101 How To Be Successful In College (3.00)
Provides classroom and group instruction on career needs needed to be a successful college student. The course includes academic skill building and covers topics such as study responsibility, how to read a syllabus, policies and procedures of the college, and effective goal setting to achieve student success. Credits: 3, Hours: (3/0/0), Arts & Sciences Elective Code: A

SDV-105 How College Works (3.00)
Explores individual strengths, strategies for solidifying personal responsibility, college readiness/academic success strategies, career readiness/vocational goals for students as they identify a college program or major. Emphasizes differences between high school and college expectations. Identifies appropriate career areas. Offers aids in taking and using placement tests for college admission and personal financial management. Credits: 3, Hours: (3/0/0), Arts & Sciences Elective Code: A

SDV-109 College 101 (3.00)
Directs students’ attention to the college academic culture and connects them to resources that will aid in their success. Focuses on developing academic success skills. Includes study and classroom performance strategies, personal development, academic and career planning, and participation in the college culture. This course is designed for incoming freshmen. Credits: 3, Hours: (3/0/0), Arts & Sciences Elective Code: A

SDV-119 Information Literacy (1.00)
Introduces students to the library research process. Students will learn to systematically and efficiently locate, evaluate and use information through hands-on practice. Credits: 1, Hours: (1/0/0), Arts & Sciences Elective Code: A

SDV-135 Job Seeking Skills (1.00)
Assists students who will be seeking an internship, part-time or full-time employment. The areas that will be covered include how to research the job market and companies, writing resumes and cover letters, improving job interviewing techniques, and how to utilize Kirkwood’s job search assistance services. Credits: 1, Hours: (1/0/0), Arts & Sciences Elective Code: B

SDV-170 Career Decision Making (3.00)
Provides an understanding of the career development process, and assists students in making satisfactory career choices. Includes self-assessment, career information research, decision making and job search strategies. Credits: 3, Hours: (3/0/0), Arts & Sciences Elective Code: A

SDV-175 Tools for Life Seminar (3.00)
Furthers the understanding of the interrelationships among individuals, the college, the family,
work and society. Develops leadership, study habits, communication skills and decision-making abilities, especially in education and career areas. Students consider learning as a process. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: A

**SDV-178 Stress Management (1.00)**  
Studies causes and symptoms of stress (positive and negative), stress management, stress reduction, self-talk and self-esteem. Credits: 1, Hours: (0.5/1/0/0), Arts & Sciences Elective Code: A

**SDV-190 Mental Health First Aid (1.00)**  
Prepares students to assist people who may be developing mental health problems or experiencing mental health crises. Builds mental health literacy by encouraging the identification, understanding and response to signs of mental illness. Creates greater confidence in managing crisis situations, providing help to others, advising people to seek professional help, improving concordance with health professionals about treatments, and decreasing stigmatizing attitudes. Credits: 1, Hours: (1/0/0/0), Arts & Sciences Elective Code: A

**SDV-207 Liberal Arts Passport (1.00)**  
Introduces a diverse assortment of opportunities within the Liberal Arts field. Offers a learning experience that develops a community on campus, explores potential interests, and engages with multiple forms of scholarship in a given field. Integrates a reflective writing process in the form of short responses to chosen events. Credits: 1, Hours: (1/0/0/0), Arts & Sciences Elective Code: A

**SDV-928 Independent Study (1.00-3.00)**  
Broadens students' knowledge of personal skills, talents, interests and strengths. Focuses on researching career information and individually exploring a variety of career options, with assistance from the instructor. Students develop action plans for the future. Credits: 1-3, Hours: (1-3/0/0/0), Arts & Sciences Elective Code: A; Comments: Permission of instructor

**SOC: Sociology**

**SOC-110 Introduction to Sociology (3.00)**  
Surveys the basic principles, concepts, research strategies and empirical findings representative of the field today. The course examines the range of sociological thought, identifies areas of specialization within the discipline and establishes a basis for further study in the field. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: A

**SOC-115 Social Problems (3.00)**  
Examines social problems as consequences of given types of social organization. Students examine research and theory to build an understanding of the definition, existence and persistence of social problems, as well as collective efforts to resolve those problems. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: A

**SOC-120 Marriage and Family (3.00)**  
Explores contemporary family institutions by studying the family as an ideological, demographic, historic, economic and legal entity. The marital life cycle is documented through current research. Marital dissolution and remarriage are also examined. The course emphasizes the continuities and discontinuities in the family experience of individuals and the society as a whole. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: A

**SOC-200 Minority Group Relations (3.00)**  
Examines majority-minority group relations utilizing sociological theory and research. Addresses diverse populations with special attention placed on race, ethnicity, gender and other disadvantaged categories in American society. Students will apply basic concepts central to inter-group relations and their implications. Students will consider the consequences of inequality. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: A

**SOC-220 Sociology of Aging (3.00)**  
Examines the trends of an aging society including demographic, economic and social trends that can meet with far-reaching social consequences affecting the present and future. Acquaints students with the typical aging process, including the social and psychological challenges related to that process. Offers study on national and global issues regarding late life development. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: A

**SOC-265 Introduction to Lesbian, Gay, Bisexual & Transgender Studies (3.00)**  
Introduces students to Lesbian, Gay, Bisexual and Transgender (LGBT) studies. Explores the impact of social, cultural, historical and political factors on LGBT individuals and communities. Studies the social construction of LGBT persons and cultures across time and place, theoretical debates regarding sexual orientation, identity formation, LGBT people of color, gender roles and gender identity, homophobia, and HIV/AIDS. Includes contemporary LGBT issues in families, education, religion, media and the law. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: A

**SOC-284 Sociology of the Environment (3.00)**  
Explores the application of the sociological perspective to local, national and global environmental issues, with a particular focus on sustainability. Studies theories and methodologies that guide environmental research and ethical issues. Examines the way complex social structures and processes define, create and interact with the natural environment. Includes research on land use, population, waste disposal, public health, environmental justice, the environmental movement and public policy. Provides students with an opportunity to learn and apply grant writing skills. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: A

**SOC-924 Honors Project (1.00)**  
Allows a qualified honors student to pursue a special concentration of study under the guidance of a faculty member. Requires that student meet honors eligibility criteria. Requires completion for an honors project contract. Credits: 1, Hours: (1/0/0/0), Arts & Sciences Elective Code: A; Comments: Requires approval of supervising professor and dean

**SPC: Speech**

**SPC-101 Fundamentals of Oral Communication (3.00)**  
Studies basic communication theory and practice including communication process, interpersonal relationships, small group interaction and public speaking. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: A

**SPC-112 Public Speaking (3.00)**  
Studies the fundamentals of public speaking, emphasizing the process of speech preparation and delivery. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: A

**SPC-122 Interpersonal Communication (3.00)**  
Highlights the role of communication and focuses on becoming effective communicators in personal and professional relationships. Examines how the concepts of self and human behavior influence both interpersonal and intrapersonal communication. Introduces activities and techniques to improve one-on-one and small group communication skills, especially listening, nonverbal communication and conflict resolution. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: A

**SPC-132 Group Communication (3.00)**  
Examines the theory and techniques used in discussion and group processes. Develops leadership and group skills through frequent practical application in varying group sizes and opportunities. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: A

**SPC-924 Honors Project (1.00)**  
Allows a qualified honors student to pursue a special concentration of study under the guidance of an honors faculty member. Requires completion of an honors project learning contract. May be taken more than once. Credits: 1,
Course Descriptions

Hours: (1/0/0/0), Arts & Sciences Elective Code: A; Comments: Requires approval of supervising professor and dean

SPC-928 Independent Study (1.00-3.00)
Readings and research opportunities under the guidance of a faculty member. Credits: 1-3, Hours: (1-3/0/0/0), Arts & Sciences Elective Code: A; Comments: Permission of instructor

SUR: Surgical Technology

SUR-126 Surgical Technology I (4.50)
Provides an orientation to the surgical technology profession and operating room theories. Introduces surgical technology, standards of conduct, laws and ethics, hospital administration, teamwork, physical environment, safety standards, principles of asepsis, microbiology, cleaning, disinfection, sterilization, emergencies, instrumentation, wound healing, sutures and perioperative management duties. Credits: 4.5, Hours: (4.5/0/0/0), Arts & Sciences Elective Code: B

SUR-128 Surgical Technology I Lab (2.00)
Applies principles learned in Surgical Technology I in a hands-on laboratory setting. Focuses on basic competencies surgical technologists need to proficiently perform in the operating room setting. Demonstrates basic concepts of aseptic technique, scrubbing, gowning, gloving, transporting, and positioning the surgical patient, surgical preparation and draping. Studies creating and maintaining a sterile field, providing optimal patient care in the surgical setting and basic instrumentation. Credits: 2, Hours: (0/4/0/0), Arts & Sciences Elective Code: B

SUR-182 Microbiology for Surgical Technologists (1.00)
Includes the structures and function of microorganisms, characteristics of pathogenic and non-pathogenic bacteria, infection processes, specifics of the immune response, and principles and applications of asepsis for the Surgical Technologist. Credits: 1, Hours: (1/0/0/0), Prereq: SUR-126, SUR-128; Arts & Sciences Elective Code: B

SUR-225 Surgical Technology II (4.00)
Provides basic case preparation and surgical procedures necessary to begin operating room experience. Credits: 4, Hours: (3/2/0/0), Prereq: SUR-126; Arts & Sciences Elective Code: B

SUR-322 Surgical Technology II (3.00)
Builds on knowledge of basic surgical techniques. Studies the role of the surgical technologist in basic surgical procedures. Presents surgical applications in diagnostic, general and OB/GYN procedures, with emphasis on anatomy, physiology, pathophysiology, instrumentation, equipment, procedural steps and patient safety. Credits: 3, Hours: (3/0/0/0), Prereq: SUR-126, SUR-128; Arts & Sciences Elective Code: B

SUR-323 Surgical Technology II Lab (1.00)
Applies principles learned in Surgical Technology II in a hands-on laboratory setting. Focuses on simulating the three phases of case management and applying them to each surgical specialty. Credits: 1, Hours: (0/2/0/0), Prereq: SUR-126, SUR-128; Arts & Sciences Elective Code: B

SUR-340 Surgical Specialties I (1.00)
Builds on the knowledge of basic surgical techniques. Develops the role of the surgical technologist in basic surgical procedures. Presents oral, maxillofacial, plastic, reconstructive, and ophthalmic surgical applications, emphasizing anatomy, physiology, pathophysiology, instrumentation, equipment, procedural steps and patient safety. Credits: 1, Hours: (1/0/0/0), Prereq: SUR-126, SUR-128; Arts & Sciences Elective Code: B

SUR-341 Surgical Specialties II (3.00)
Completely the basic surgical procedures learning with applications in orthopedics, ENT, urology, neurosurgery, cardiovascular and peripheral vascular. Emphasizes anatomy, physiology, pathophysiology, instrumentation, equipment, procedural steps and patient safety. Credits: 3, Hours: (3/0/0/0), Prereq: SUR-126, SUR-128, SUR-322; Coreq: SUR-340, SUR-520; Arts & Sciences Elective Code: B

SUR-420 Pharmacology for the Surgical Technologist (2.00)
Enhances fundamental math skills and provides a summary of basic pharmacology, terminology, drug regulation and drug administration. Examines drugs frequently used in the surgical setting, along with an overview of anesthetics administration and general practice. Credits: 2, Hours: (2/0/0/0), Prereq: SUR-126, SUR-128; Coreq: SUR-322, SUR-323; Arts & Sciences Elective Code: B

SUR-421 Surgical Technology Pharmacology (1.00)
Provides information needed to calculate and handle drugs in the operating room. Provides an overview of the administration and general practice of anesthesia in surgery. Credits: 1, Hours: (1/0/0/0), Coreq: SUR-225; Arts & Sciences Elective Code: B

SUR-440 Biomedical Sciences for Surgical Technology (2.00)
Provides a broad base of knowledge for entry-level surgical technologists. Focuses on computers, electricity, lasers, robotics and other fundamental technologies essential to the profession. Credits: 2, Hours: (2/0/0/0), Prereq: SUR-126, SUR-128; Coreq: SUR-322, SUR-323; Arts & Sciences Elective Code: B

SUR-520 Surgical Technology Practicum I (2.00)
Provides hands-on, first-level clinical experience in the operating room. Credits: 2, Hours: (0/0/6/0), Prereq: SUR-126, SUR-128; Coreq: SUR-341; Arts & Sciences Elective Code: B

SUR-523 Surgical Technology Practicum II (3.00)
Provides an extensive hands-on clinical experience in all entry-level skills for Surgical Technologists. Credits: 9, Hours: (0/0/27/0), Prereq: SUR-341, SUR-520; Arts & Sciences Elective Code: B

SUR-924 Honors Project (1)
Allows a qualified honors student to pursue a special concentration of study under the guidance of a faculty member. Requires completion of an honors project contract. May be taken more than once. Credits: 1, Hours: (1/0/0/0), Arts & Sciences Elective Code: A; Comments: Requires approval of supervising professor and dean

UTL: Utilities

UTL-260 High Pressure Boilers (2.00)
Covers the principles of high pressure boiler operation. Includes steam boiler types, package and field erected boilers, steam systems, feed water systems, fuel systems, pumps, regulators, traps, superheating, de-superheating and pressure reducing systems. Credits: 2, Hours: (2/0/0/0), Arts & Sciences Elective Code: B

UTL-270 Boiler and Chiller Inspection and Maintenance (1.00)
Covers the techniques, procedures and practices for boiler and chiller inspection and maintenance. Includes preventive and predictive maintenance procedures; maintenance of boiler room and heating equipment; water quality maintenance; fire protection and structure; and maintenance of centrifugal, reciprocating, OPAC and modular chillers. Credits: 1, Hours: (1/0/0/0), Arts & Sciences Elective Code: B

VIN: Viticulture

VIN-105 Introduction to Wine Science (3.00)
Introduces students to grape varieties grown in the Midwest and used in wine production. Explores the process used to make wine from start to finish through a combination of lecture and lab experiences. Credits: 3, Hours: (2/2/0/0), Arts & Sciences Elective Code: B

VIN-106 Introduction to Viticulture (3.00)
Introduces the common Midwestern grapes used in wine production. Covers establishing and properly managing a producing vineyard through a combination of lecture and lab experience. Credits: 3, Hours: (2/2/0/0), Arts & Sciences Elective Code: B

WAT: Water Environmental Technology

WAT-210 Wastewater Treatment: Industrial (4.00)
Describes common methods and systems used to treat wastes generated by industrial processes. Learning activities include a review of applicable federal and state regulations and pretreatment requirements. Credits: 4, Hours: (4/0/0/0), Prereq: WAT-307; Arts & Sciences Elective Code: B

WAT-300 Water Analysis (3.00)
Introduces basic laboratory safety and gravimetric, spectrophotometric electrochemical, titrimetric and microbiological methods. Students learn the procedures for regulatory sampling and safety, and specific analytical procedures for total residue, fluoride, pH, ammonia, acidity, alkalinity, calcium, chloride, hardness and coliform analysis. Along with reading assignments from the text, the course is enhanced with up-to-date photographs, interactive exercises and online links. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: B
### Course Descriptions

**WAT-301 Basic Mechanical Maintenance and Pumps (3.00)**
Covers maintenance and repair procedures for pumps typically found in water/wastewater treatment facilities. Students learn basic concepts of hydraulics, pump curves and energy consumption. General safety concerns are also emphasized. Credits: 3, Hours: (3/0/0/0), Arts & Sciences Elective Code: B

**WAT-304 Water Treatment I (4.00)**
Explores the rudiments of water treatment. Students learn regulatory monitoring, iron manganese removal, filtration, coagulation, flocculation, fluoridation and disinfection. Along with reading assignments from the text, the course is enhanced with audio, up-to-date photographs, interactive exercises and online links. Credits: 4, Hours: (4/0/0/0), Arts & Sciences Elective Code: B

**WAT-305 Water Distribution Systems (4.00)**
Provides a working knowledge of potable water distribution systems. Students learn about water storage facilities, operation and maintenance of water mains, water quality issues, disinfection and safety. Along with reading assignments from the text, the course is enhanced with audio, up-to-date photographs, interactive exercises and online links. Credits: 4, Hours: (4/0/0/0), Arts & Sciences Elective Code: B

**WAT-306 Wastewater Collection Systems (4.00)**
Provides a working knowledge of wastewater collection systems. Students learn wastewater collection systems safety procedures, sewer inspection and testing, pipeline and maintenance, underground repair, lift stations, equipment maintenance and sewer rehabilitation. Along with reading assignments from the text, the course is enhanced with up-to-date photographs, audio, interactive exercises and links. Credits: 4, Hours: (4/0/0/0), Arts & Sciences Elective Code: B

**WAT-307 Wastewater Treatment I (4.00)**
Explores the rudiments of wastewater treatment. Students learn water pollution control, preliminary and primary treatment, fixed film processes and suspended growth systems. Along with reading assignments from the text, the course is enhanced with up-to-date photographs, audio, interactive exercises and online links. Credits: 4, Hours: (4/0/0/0), Arts & Sciences Elective Code: B

**WAT-308 Wastewater Analysis (3.00)**
Using the Internet, students obtain the skills and knowledge to properly monitor the treatment process to conform to compliance regulations. Topics include BOD, COD, ammonia, grease and oil, chlorine and solids analysis. The academic portion of the course, self-study exercises and quizzes are all done over the Internet. The course includes hands-on labs at Kirkwood or proficiency that an operator can complete on the job. Students are able to enroll at any time, set their own schedule for online studies and interact with the instructor outside of the classroom. Credits: 3, Hours: (2/2/0/0), Arts & Sciences Elective Code: B

**WAT-311 Wastewater Treatment II (4.00)**
Describes wastewater treatment methods and concepts that are found in more advanced wastewater treatment facilities such as activated sludge, anerobic digestion, effluent disposal and reclamation, and nitrogen and phosphorous removal methods. Credits: 4, Hours: (4/0/0/0), Prereq: WAT-307; Arts & Sciences Elective Code: B

**WAT-312 Water Treatment II (4.00)**
Describes treatment methods and concepts that are found at advanced water treatment facilities such as softening, demineralization, trihalo methane, taste and odor control, corrosion control and disposal of process wastes. Credits: 4, Hours: (4/0/0/0), Prereq: WAT-304; Arts & Sciences Elective Code: B

**WAT-400 Permits and Administration (1.00)**
Examines many of the supervisory and managerial issues faced by a water/wastewater professional. Students focus on operations management and permit procedures, as well as people skills. Credits: 1, Hours: (1/0/0/0), Arts & Sciences Elective Code: B

**WEL-924 Honors Project (1)**
Allows a qualified honors student to pursue a special concentration of study under the guidance of a faculty member. Requires completion of an honors project contract. May be taken more than once. Credits: 1, Hours: (1/0/0/0), Arts & Sciences Elective Code: A; Comments: Requires approval of supervising professor and dean

**WEL-932 Internship (3.00)**
Offers a supervised training period in a water or wastewater treatment plant. The student participates in the routine daily operation and maintenance of the host water or wastewater treatment facility. Credits: 3, Hours: (0/6/0/0), Arts & Sciences Elective Code: B

**WEL: Welding**

**WEL-153 Virtual Reality Welding (1.00)**
Demonstrates various techniques using the Lincoln VTECH Virtual Reality Welder. Applies correct techniques and practices used in welding processes. Credits: 1, Hours: (1/0/0/0), Arts & Sciences Elective Code: B

**WEL-208 Introduction to Fabrication (2.00)**
Provides students with hands-on fabrication basics used by welding industries. Covers layout, reading blueprints, applied math, cost estimation, jigs and fixtures, and introduction to shearing, bending, drilling, sawing and other manufacturing process associated with welding fabrication. Credits: 2, Hours: (0/4/0/0), Prereq: MAT-764, WEL-110, WEL-184; Arts & Sciences Elective Code: B

**WEL-228 Introduction to Welding, Safety & Health of Welders: SENSE1 (1.00)**
Provides an orientation to the welding profession, including basic safety and health within the welding profession. Aligns to SENSE Level 1, Module 1 and Module 2 - Key Indicators 1-6. Credits: 1, Hours: (1/0/0/0), Arts & Sciences Elective Code: B

**WEL-233 Print Reading and Welding Symbol Interpretation: SENSE1 (3.00)**
Provides instruction in interpreting elements of welding prints (drawings or sketches), focusing on measurement, American Welding Society welding symbols, and fabrication requirements. Focuses on preparing, assembling and tacking welding parts according to drawings or sketches, using proper materials and tools. Aligns to SENSE Level 1 Module 3: Drawing and Welding Symbol Interpretation, Key Indicators 1 and 2. Credits: 3, Hours: (3/0/0/0), Prereq: MAT-765; Arts & Sciences Elective Code: B

**WEL-244 Gas Metal Arc Welding Short Circuit Transfer: SENSE1 (2.00)**
Focuses on proper welding 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. Prepares students to take an AWS welder certification test, which is recommended for its successful completion. Aligns with SENSE Level 1 Module 5 - Key Indicators 1-7, as well as Module 2 - Indicator 7, Module 3 - Key Indicator 3, and Module 9 - Key Indicator 2. Credits: 2, Hours: (1/2/0/0), Prereq: WEL-228; Arts & Sciences Elective Code: B

**WEL-245 Gas Metal Arc Welding Spray Transfer: SENSE1 (2.00)**
Focuses on proper welding 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. Prepares students to take an AWS welder certification test, which is recommended for its successful completion. 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. Credits: 2, Hours: (1/2/0/0), Prereq: WEL-228; Arts & Sciences Elective Code: B

**WEL-251 Gas Tungsten Arc Welding for Carbon Steel: SENSE1 (2.00)**
Focuses on proper welding safety, machine setup and welding techniques for Gas Tungsten Arc Welding. Prepares students to perform American Welding Society compliant welds on carbon steel in flat, horizontal, vertical and overhead positions. Qualifies students to take an AWS welder certification test, which is recommended for successful completion of 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. Credits: 2, Hours: (1/2/0/0), Prereq: WEL-228; Arts & Sciences Elective Code: B

**WEL-252 Gas Tungsten Arc Welding for Aluminum: SENSE1 (1.00)**
Focuses on proper welding safety, machine setup and welding techniques for gas tungsten arc welding. Prepares students to perform American Welding Society compliant welds on aluminum in flat and horizontal positions. Qualifies students to take an AWS welder certification test, which is recommended for successful completion of this course. Aligns to SENSE Level 1, 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. Credits: 1, Hours: (0/2/0/0), Prereq: WEL-228, WEL-251; Coreq: WEL-253; Arts & Sciences Elective Code: B

**WEL-253 Gas Tungsten Arc Welding for Austenitic Stainless Steel: SENSE1 (1.00)**
Focuses on proper welding safety, machine setup and welding techniques for Gas Tungsten Arc
WEL-254 Welding Inspection and Testing Principles: SENSE1 (1.00)
Prepares students to visually examine test welds and thermally cut surfaces per multiple welding codes, standards and specifications. Aligns to SENSE Level I, Module 9: Welding Inspection and Testing Principles. Credits: 1; Hours: (1/0/0/0), Prereq: WEL-223; Arts & Sciences Elective Code: B

WEL-262 Thermal Cutting Processes I - Manual and Mechanized OxyFuel Cutting: SENSE1 (2.00)
Focuses on proper safety, equipment setup and cutting techniques for manual and mechanized OxyFuel cutting on carbon steel. Prepares students to perform American Welding Society compliant cutting operations in the flat position. Instructs students in performing scarfing and gouging operations to remove base and weld metal in flat and horizontal positions on carbon steel. Aligns to SENSE Level I Module 8 - Units 1 and 2, as well as Module 2 - Key Indicator 7 and Module 9 - Key Indicator 1. Credits: 2; Hours: (1/2/0/0), Prereq: WEL-228; Arts & Sciences Elective Code: B

WEL-263 Thermal Cutting Processes II - Plasma and Carbon Steel Arc: SENSE1 (2.00)
Focuses on proper safety, equipment setup and cutting techniques for plasma and carbon steel arc cutting on carbon steel, austenitic stainless steel and aluminum. Prepares students to perform American Welding Society compliant cutting operations in the flat position. Instructs students in performing scarfing and gouging operations to remove base and weld metal in flat and horizontal positions. 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. Credits: 2; Hours: (1/2/0/0), Prereq: WEL-228; Arts & Sciences Elective Code: B

WEL-267 Welding for Maintenance Trades (3.00)
Focuses on safety, setup and layout of measurements and weldments. Includes student demonstration of proper techniques for repair/maintenance welds. Credits: 3; Hours: (1/4/0/0), Arts & Sciences Elective Code: B

WEL-270 Automotive Welding Principles (1.00)
Covers welding safety and basic, all-position MIG welding of fillet and groove welds using 22 through 12 gauge steel. Students learn to heat components for extraction and cutting of metals using the oxy-acetylene and plasma cutting processes. Included are proper techniques for extracting broken bolts and flame cutting nuts from bolts. Credits: 1; Hours: (.5/1/0/0), Arts & Sciences Elective Code: B

WEL-274 Shielded Metal Arc Welding I: SENSE1 (3.00)
Focuses on safety, amperage settings, polarity and the proper selection of electrodes for the shielded metal arc welding process. Prepares students to perform American Welding Society compliant welds on carbon steel, using visual and destructive methods for determining weld quality. Aligns to SENSE Level 1 Module 4 - Key Indicator 7-1 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. Credits: 3; Hours: (1/4/0/0), Prereq: WEL-228; Arts & Sciences Elective Code: B

WEL-275 Shielded Metal Arc Welding II: SENSE1 (3.00)
Focuses on safety, amperage settings, polarity and the proper selection of electrodes for the Shielded Metal Arc Welding (informally known as stick welding) process. Prepares students to perform American Welding Society compliant welds on carbon steel in vertical up and overhead configurations, using visual and destructive methods for determining weld quality. 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. Credits: 3; Hours: (1/4/0/0), Prereq: WEL-228; Arts & Sciences Elective Code: B

WEL-280 Flux Cored Arc Welding (Self-Shielded): SENSE1 (2.00)
Focuses on proper weld safety, machine setup and welding techniques for Flux Cored Arc Welding Self-Shielded. Prepares students to perform American Welding Society compliant welds on carbon steel in flat, horizontal, vertical and overhead positions. Qualifies students to take an AWS welder certification test, which is recommended for its successful completion. 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. Credits: 2; Hours: (1/2/0/0), Prereq: WEL-228; Arts & Sciences Elective Code: B

WEL-281 Flux Cored Arc Welding (Gas-Shielded): SENSE1 (2.00)
Focuses on proper weld safety, machine setup and welding techniques for Flux Cored Arc Welding (Gas Shielded). Prepares students to perform American Welding Society compliant welds on carbon steel in flat, horizontal, vertical and overhead positions. Qualifies students to take an AWS welder certification test, which is recommended for its successful completion. 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. Credits: 2; Hours: (1/2/0/0), Prereq: WEL-228 and either WEL-244 or WEL-245; Arts & Sciences Elective Code: B

WEL-286 Advanced Shielded Metal Arc Welding Principles and Practices (6.00)
Prepares students to utilize the SMAW process to weld all position fillet and groove welds on carbon steel plate using stainless steel electrodes. Examines production of SMAW pipe welds in the 2G, 5G and 6G positions. Aligns with SENSE 2, Units 1 through 11. Credits: 6; Hours: (1/10/0/0), Prereq: minimum C in WEL-275 and AWS SENSE 1 credential; Arts & Sciences Elective Code: B

WEL-287 Layout and Fitup (3.00)
Introduces layout and fit-up tools and techniques. Focuses on the utilization of metal forming, cutting and machining tools. Reinforces safety and measurement tools. Aligns with SENSE 2, Units 1 through 6. Credits: 3; Hours: (1/4/0/0), Prereq: WEL-286, AWS SENSE 1, and OSHA Forklift credentials; Arts & Sciences Elective Code: B

WEL-288 Documents Governing Welding and Welding Inspection (1.00)
Introduces welding codes, standards and specifications. Aligns with SENSE 2, Units 1 and 2. Credits: 1; Hours: (1/0/0/0), Prereq: AWS SENSE 1 credential; Coreq: WEL-289; Arts & Sciences Elective Code: B

WEL-289 Weld Inspection and Testing Principles: SENSE 2 (2.00)
Applies welding inspection principles and practices, including evaluation of destructive and non-destructive test results. Aligns with SENSE 2, Units 1 through 3. Credits: 2; Hours: (0/4/0/0), Prereq: WEL-254 and AWS SENSE 1 credential; Coreq: WEL-288; Arts & Sciences Elective Code: B

WEL-290 Advanced Flux Cored Arc Welding Principles and Practices (3.00)
Prepares students to produce FCAW-S/FCAW-G welds on carbon steel in the 2G and 5G pipe positions. Aligns with SENSE 2, Units 1 through 10. Credits: 3; Hours: (1/4/0/0), Prereq: AWS SENSE 1 credential; Arts & Sciences Elective Code: B

WEL-291 Advanced Gas Metal Arc Welding Pipe Principles and Practices (3.00)
Prepares students to use the GMAW-S process to produce all position fillet and groove welds on aluminum plate. Includes GMAW 2F, 2G and 5G welds on carbon steel pipe. Aligns with SENSE 2, Units 1 through 12. Credits: 3; Hours: (1/4/0/0), Prereq: minimum C in WEL-244 and AWS SENSE 1 credential; Arts & Sciences Elective Code: B

WEL-293 Advanced Gas Tungsten Arc Welding Principles and Practices (6.00)
Prepares students to produce all position GTAW welds on carbon steel, aluminum and stainless steel sheet. Includes all position fillet welds, along with 2G and 5G groove welds on carbon steel, stainless steel and aluminum tubing. Aligns with SENSE 2, Units 1 through 18. Credits: 6; Hours: (1/14/0/0), Prereq: AWS SENSE 1 credential; Arts & Sciences Elective Code: B

WEL-331 Welding Fundamentals (2.00)
Covers basic welding techniques with oxygen-acetylene and electric welders. Designed for the general tradesperson working in the areas of mechanics and automotive technology. Students are introduced to a variety of welding situations including cutting, brazing and various welding positions on lighter gauges of metal and basic fabrication. Credits: 2; Hours: (1/2/0/0), Arts & Sciences Elective Code: B

WEL-333 Auto Collision Welding (2.00)
Introduces basic welding techniques that can be applied to auto collision repair. Students learn to weld light gauge sheet metal with the GMAW process. Instruction emphasizes the require-
prereq: All required health & safety as an authorized climber.

Credits: 2, Hours: 4.00

WEL-400 Welding for Maintenance Trades (4.00)
Covers welding/shop safety, welding theory, welding blueprint reading, repair welding and several different welding technologies. Emphasizes GMAW, SMAW, STAW, OAC and plasma-arc cutting methods, in a hands-on lab setting. Credits: 4, Hours: (2/4/0/0), Prereq: MAT-233; Arts & Sciences Elective Code: B

WEL-710 Robotic Welding (3.00)
Covers the fundamental operating principles, weld process controls and optimization strategies for robotic Gas Metal Arc Welding. Introduces key principles, variables and applications universal to the robotic GMAW process through lecture, demonstration and hands-on exercises. Credits: 3, Hours: (1/4/0/0), Arts & Sciences Elective Code: B

WEL-800 Welding Capstone (4.00)
Serves as the capstone course for the welding program. Requires students to design and construct projects using several approved welding processes to demonstrate the ability to analyze welding problems and to make decisions that use the most economical and practical welding processes. Concentrates on the advanced study of materials and methods, including joint work, adhering to specifications, fabrication of equipment, and completion of special projects. Credits: 4, Hours: (0/8/0/0), Prereq: WEL-286, WEL-287, WEL-290, WEL-291, AWS SENSE 1 credential; Arts & Sciences Elective Code: B

WEL-924 Honors Project (1.00)
Allows a qualified honors student to pursue a special concentration of study under the guidance of a faculty member. Requires completion of an honors project contract. May be taken more than once. Credits: 1, Hours: (1/0/0/0), Arts & Sciences Elective Code: B; Comments: Requires approval of supervising professor and dean

WEL-928 Independent Study (1.00-3.00)
Provides readings, papers and basic research or other projects under the individual guidance of a staff member. Credits: 1, Hours: (1/0/0/0), Arts & Sciences Elective Code: A; Comments: Permission of instructor, dean

WEL-932 Internship (3.00-4.00)
Provides employment in an approved welding-related position. Includes instructor visits/evaluations and employer performance evaluations. Credits: 3-6, Hours: (0/0/0/152-284), Arts & Sciences Elective Code: B

WTT: Wind Energy and Turbine Tech

WTT-101 Wind Turbine Orientation (1.00)
Offers summer internship option. Discusses the on-campus utility-scale wind turbine and allows tours of the internal structure. Offers designation as an authorized climber. Credits: 2, Hours: (.5/1/0/0), Prereq: All required health & safety certificates; Coreq: WTT-932; Arts & Sciences Elective Code: B

WTT-102 Introduction to Wind Energy (2.00)
Introduces the renewable energy industry with a focus on wind energy systems. Studies wind turbines, basic safety procedures, proper tool use and the electrical power delivery infrastructure. Credits: 2, Hours: (2/0/0/0), Arts & Sciences Elective Code: B

WTT-111 Wind Turbine Technical Foundations I (4.00)
Introduces electrical and mechanical subsystems on the on-campus utility-scale wind turbine. Includes electrical and hydraulic schematic reading, turbine control systems, communication and network topology, wiring and electrical power distribution, and hydraulic systems. Explores technical fundamentals of wind turbines and allows regular climbs of the on-campus wind turbine to reinforce learned concepts, and gain confidence and competence as tower climbers. Credits: 4, Hours: (3/2/0/0), Prereq: WTT-102, all required health and safety certificates; Arts & Sciences Elective Code: B

WTT-112 Wind Turbine Technical Foundations II (4.00)
Builds upon technical concepts and introduces additional wind turbine subsystems. Covers turbine emergency systems, generators and inverters, battery charging, blade pitch systems, and auxiliary turbine systems. Solidifies safety knowledge and skills through scheduled safety refresher training and rescue drills including wind turbine climbs. Credits: 4, Hours: (2.5/3/0/0), Prereq: WTT-111; Arts & Sciences Elective Code: B

WTT-450 Wind Turbine Maintenance (4.00)
Provides maintenance techniques and extensive testing resources used to maintain the wind turbine generator. Explores scheduling, preventive maintenance and lubrication specifications. Focuses on best practices to minimize wasted man-hours and materials, as well as cost savings and overall efficiency. Credits: 4, Hours: (1.75/4.5/0/0), Prereq: WTT-502; Arts & Sciences Elective Code: B

WTT-502 Wind Turbine Troubleshooting (4.00)
Builds upon Wind Turbine Technical Foundations I and II. Covers basic troubleshooting methodology and applies it through classroom exercises. Emphasizes electrical troubleshooting including safety, Personal Protective Equipment (PPE), tools, equipment, and Lock-Out Tag-Out (LOTO) procedures. Includes restoration of a faulted wind turbine via lab experience. Offers regular climbs of the on-campus wind turbine. Explores real-world fault conditions. Credits: 4, Hours: (1.75/4.5/0/0), Prereq: WTT-112; Arts & Sciences Elective Code: B

WTT-932 Internship (4.00-5.00)
Provides on-the-job work experience to apply acquired skills and knowledge. Teaches technical skills, turbine maintenance management and business relations. Credits: 5, Hours: (0/0/0/320), Prereq: WTT-101, all required health and safety certificates; Arts & Sciences Elective Code: B

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