



# JACKSON COLLEGE CATALOG 2017-2018



## JACKSON COLLEGE PHONE NUMBERS

|  |                |
|--|----------------|
| Admissions .....   | 517.796.8425   |
| Advising .....   | 517.796.8425   |
| Bookstore .....  | 517.796.8440   |
| Career Coach/Employer Liaison .....                          | 517.990.1381   |
| Cashier.....   | 517.796.8420   |
| Center for Student Success .....                             | 517.796.8415   |
| Deans  |                |
| Associate Dean (Athletics, Housing<br>and Student Life ..... | 517.796.8628   |
| Dean of Arts and Sciences .....                              | 517.990.1341   |
| Dean of Occupational Education .....                         | 517.796.8502   |
| Distance Learning.....                                       | 517.796.8408   |
| Events and College Relations.....                            | 517.796.8473   |
| Fieldhouse .....   | 517.796.8455   |
| Financial Aid.....   | 517.796.8410   |
| Housing .....  | 517.796.8626   |
| Human Resources.....   | 517.796.8460   |
| Jackson College Clyde LeTarte<br>Center, Hillsdale .....     | 517.437.3343   |
| Jackson College Flight Center,<br>Jackson .....              | 517.787.7012   |
| Jackson College Foundation.....                              | 517.787.0244   |
| Jackson College @ LISD TECH,<br>Adrian .....                 | 517.265.5515   |
| Library .....  | 517.796.8622   |
| Nursing Admissions.....                                      | 517.796.8424   |
| Office of Multicultural Affairs.....                         | 517.796.8470   |
| Potter Center Ticket Office.....                             | 517.796.8600   |
| President's Office .....                                     | 517.796.8443   |
| Registrar/Records/Transcripts.....                           | 517.796.8425   |
| Registration .....   | 517.796.8425   |
| Security.....  | 517.796.8620   |
| Student Ombudsman .....                                      | 517.990.1349   |
| Switchboard (Central Campus) .....                           | 517.787.0800   |
| Tutoring (Central Campus).....                               | 517.796.8415   |
| Toll Free Number .....                                       | 1.888.522.7344 |
| Veteran Affairs .....  | 517.796.8425   |
| Vice President, Student Services .....                       | 517.796.8409   |
| W.J. Maher Campus .....                                      | 517.768.7097   |

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Jackson College is accredited by the Higher Learning Commission (hlcommission.org), a regional accreditation agency recognized by the U.S. Department of Education.

The Higher Learning Commission  
230 South LaSalle Street, Suite 7-500  
Chicago, IL 60604-1411  
(800) 621-7440 • hlcommission.org

## Welcome to Jackson College!

If you are reading this forward, chances are that you've come to a point in your life where you are seeking something different... something more. Perhaps you've been hoping to pursue a career that you've dreamed about since you were in elementary school...or perhaps you've wanted to achieve something that would make your family proud...or perhaps you've needed to change the path your life was on....or perhaps you've wanted to learn a new skill in order to pursue a new job, or maybe you just want to prove something to yourself. Regardless of the specific reason, something brought you this catalog and this message ... and I'm grateful for that.

The truth is, all of us at Jackson College, our Board of Trustees, our faculty, staff and our administration have been working so very hard to prepare this College – its facilities, its curriculum, its support systems – all of it, for you. You see, we believe in you and in the dream that you wish to pursue.

Perhaps Jackson College just seems like any other college to you, but I assure you that it is not. I have been privileged to serve as its president for more than 16 years and I have chosen to stay, working with so many amazing people, who are committed to helping others just like you on their educational journey. Having worked at other colleges and universities, I can tell you firsthand that Jackson College is unique. It is innovative. It is compassionate. It is hopeful. And in all that we do, we are committed to your success.

I encourage you to come and visit with us. We'll connect you with one of our talented student success navigators who will be with you for the entire time that you are enrolled at Jackson College. Think of these people as your advocate, your guide or your coach, making sure that you have a meaningful, challenging, and productive experience here.

Thanks in advance for looking us over, and I hope you'll join me here at Jackson College – I think you will be amazed that you did.

Sincerely,

**Daniel J. Phelan**

*President*



## Hello and welcome from Jackson College! We hope your new future begins here!

At Jackson College, student success is our first priority. Jackson College offers the opportunity for learning, excitement and new experiences for all students. Our student success navigators are here to help you along the way! They will be your partners in success during your journey at Jackson College – reach out to them with any questions, and they will help guide your path! At Jackson College, you will find staff and administration eager to help you, and teaching faculty who are experts in their field and can share their important knowledge with you.

Many resources are available to help you succeed; please take advantage of them; they are here for your benefit. The College offers a wide range of services designed to help you achieve your goals:

- Tutoring at the Center for Student Success;
- Academic advising;
- Financial aid and related support services;
- Library, computers, breakout rooms and study lounges;
- Service learning and career placement;
- Student Life activities; honors programs; athletics;
- Special instructional strategies; and
- Campus View housing.

This academic catalog lists the many programs and classes available at the College. Explore the many opportunities available and seek out which one you think will best fit your personal strengths and talents. With more than 70 academic programs and transfer opportunities, there are options to fit nearly everyone.

We want our Jackson College students to be successful at every level. You can find detailed information about the institution on our web site. If you cannot find the answer that you are looking for, do not hesitate to contact one of our student success navigators at any location. If you are new to College and uncertain about what is necessary or what it's all about, please don't hesitate to ask.

The faculty and staff join me in welcoming you to Jackson College!

Sincerely,

**Kristi Hottenstein**

*Vice President of Student Services*



## BUSINESS AND COMPUTER TECHNOLOGY PATHWAY

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## Welcome to Jackson College

This is the 2017-18 Jackson College academic catalog. This catalog contains information on the various academic study programs available at the College. Programs are arranged into Pathways, designed to create a clear path to an academic degree or certificate, concentration or skill set. Program requirements are listed within each area for the many credentials available. Here you may learn about career opportunities and individual course descriptions.

This catalog is designed as one source and guide on your academic journey. Please contact Student Services and your student success navigator at your location to review academic programs and requirements in this catalog to ensure you are on the right path.

More information about policies, locations, admissions procedures, resources and more is available on the Jackson College website, [www.jccmi.edu](http://www.jccmi.edu).

**Note:** *The information in this printed College catalog reflects the current curricula. However, these are subject to change at any time by the action of the Board of Trustees or the administration. The most current information regarding the catalog can be found online at [www.jccmi.edu](http://www.jccmi.edu).*



## Bachelor's Degree Options and Requirements

All bachelor's degrees will meet the General Education Outcomes (GEO) requirements (see General Education Philosophy on page 8) as approved by the College Board of Trustees. No course substitutions will be allowed unless considered a higher level of an approved course.

**To earn a bachelor's degree, students must meet these requirements:**

1. A minimum cumulative grade point average of 2.0 overall. (Some programs have additional grade and course requirements. Follow the guide sheet for your program and meet with a navigator for complete information.) Important: Only courses with a 2.0 or better will transfer to most four-year colleges and universities.
2. A minimum grade of 2.0 in each course that applies toward a degree.
3. Completion of specific courses in a degree.
4. A minimum of 120 credits.
5. A minimum of 30 credits earned at Jackson College.
6. Courses identified as remedial or developmental cannot be used as credits toward degrees or certificates. As of fall 2011, developmental courses are identified with a three-digit number beginning with a 0, such as 030, 080, 095, and only courses considered to be college level (100-level or higher) can be used to fulfill degree requirements. Additional courses excluded from credits toward degrees and certificates are continuing education courses (prefix CCE, CED, CEU, CFO, CJT, CSS, ESL, LTL) and courses offered through the College's workforce training programs (prefixes JTI, PDI).
7. A completed Application for Graduation for the degree submitted by the deadline date to Registration & Records, located in Student Services, Central Campus, or to any Jackson College center. Students have five academic years to apply for graduation from the time they complete their last course. Applications are available at all locations, or the web site ([www.jccmi.edu/registration-records/graduation/Registration/graduation.htm](http://www.jccmi.edu/registration-records/graduation/Registration/graduation.htm)). Official audits are processed by the Registration & Records Office.
8. Completion of the degree requirements from any catalog of entry issued during continuous enrollment. Students who are not continuously enrolled and have completed degree requirements must meet the requirements of the

catalog in effect at the time of graduation application. Students re-entering who have not completed degree requirements must follow the catalog in effect at time of their re-entry date.

9. Coursework completed within a reasonable time period. This may require repeating certain essential courses, even though a passing grade was previously earned. An essential course involves material that affects skill development and successful performance and/or contains content likely to change significantly over time, as determined by appropriate academic departments.
10. Multiple degrees may be conferred in the same graduation period.

## Associate Degree Options and Requirements

Jackson College offers four types of associate degrees. Each degree includes general education courses as well as specific program courses. Students should select an associate degree based on their plan of study or career goal. A Seminar in Life Pathways (SEM 140) course, a gateway to Jackson College, will be required of all students, with the exception of some second-admit programs.

### ASSOCIATE IN ARTS (AA) ASSOCIATE IN SCIENCE (AS)

Students intending to transfer to another college or university usually select one of these degree programs. Students choose from courses that prepare them for a variety of professions and academic disciplines. Note: Students are not required to earn a degree prior to transferring but may transfer credits back to Jackson College to complete graduation requirements.

### ASSOCIATE IN GENERAL STUDIES (AGS)

This degree is for students who want to plan their own program of study not defined by a specific job or career. The degree's flexibility allows the creation of a unique learning experience, such as combining the student's Jackson College experience with other academic institutions or community organizations, to prepare for or create a specialized career option.

### ASSOCIATE IN APPLIED SCIENCE (AAS)

This degree prepares students for entry into a technical or skilled occupational career immediately following Jackson College.

## Associate Degrees

All associate degrees will meet the General Education Outcomes (GEO) requirements (see General Education Philosophy on page 8) as approved by the College Board of Trustees. No course substitutions will be allowed unless considered a higher level of an approved course.

### To earn an associate degree, students must meet these requirements:

1. A minimum cumulative grade point average of 2.0 overall. (Some programs have additional grade and course requirements. Follow the guide sheet for your program and meet with a student success navigator for complete information.) Important: Only courses with a 2.0 or better will transfer to most four-year colleges and universities.
2. A minimum grade of 2.0 in each course that applies toward a degree.
3. Completion of specific courses in a degree.
4. A minimum of 60 credits.
5. A minimum of 15 credits earned at Jackson College.
6. Courses identified as remedial or developmental cannot be used as credits toward degrees or certificates. As of fall 2011, developmental courses are identified with a three-digit number beginning with a 0, such as 030, 080, 095, and only courses considered to be college level (100-level or higher) can be used to fulfill degree requirements. Additional courses excluded from credits toward degrees and certificates are continuing education courses (prefix CCE, CED, CEU, CFO, CJT, CSS, ESL, LTL) and courses offered through JC's workforce training programs (prefixes JTI, PDI).
7. A completed Application for Graduation for the associate degree submitted by the deadline date to Registration & Records, located in Student Services, Central Campus or to any Jackson College center. Students have five academic years to apply for graduation from the time they completed their last course at Jackson College. Applications are available at all locations, or the Jackson College web site ([www.jccmi.edu/StudentServices/Registration/graduation.htm](http://www.jccmi.edu/StudentServices/Registration/graduation.htm)). Official audits are processed by the Registration & Records Office.
8. Completion of the degree requirements from any catalog of entry issued during continuous enrollment. Students who are not continuously enrolled and have completed degree requirements must meet the requirements of the

catalog in effect at the time of graduation application. Students re-entering who have not completed degree requirements must follow catalog in effect at time of their re-entry date.

9. Coursework completed within a reasonable time period. This may require repeating certain essential courses, even though a passing grade was previously earned. An essential course involves material that affects skill development and successful performance and/or contains content likely to change significantly over time, as determined by appropriate academic departments.
10. A minimum of 12 additional credits beyond those credits completed for one degree are required to earn a second associate degree.
11. Multiple degrees may be conferred in the same graduation period.

## Certificates

Jackson College offers certificates that comprise 30 to 59 credits of course work. They concentrate on specific skills, with fewer general education courses than an associate degree. All certificates will contain a minimum requirement of ENG 131, MAT 130, and SEM 140.

### To earn a certificate, students must meet these requirements:

1. A minimum cumulative grade point average of 2.0 overall. (Some programs have additional grade and course requirements. Follow the guide sheet for your program and meet with a student success navigator for complete information.) Important: Only courses with a 2.0 or better will transfer to most four-year colleges and universities.
2. A minimum grade of 2.0 in each course that applies toward a degree.
3. Completion of specific courses in a degree.
4. A minimum of 30 credits.
5. A minimum of 15 credits earned at Jackson College.
6. Courses identified as remedial or developmental cannot be used as credits toward degrees or certificates. As of fall 2011, developmental courses are identified with a three-digit number beginning with a 0, such as 030, 080, 095, and only courses considered to be college level (100-level or higher) can be used to fulfill degree



requirements. Additional courses excluded from credits toward degrees and certificates are continuing education courses (prefix CCE, CED, CEU, CFO, CJT, CSS, ESL, LTL) and courses offered through the College's workforce training programs (prefixes JTI, PDI).

7. A completed Application for Graduation for the certificate submitted by the deadline date to Registration & Records, located in Student Services, Central Campus or to any Jackson College center. Students have five academic years to apply for graduation from the time they completed their last course. Applications are available at all locations, or the web site ([www.jccmi.edu/registration-records/graduation/Registration/graduation.htm](http://www.jccmi.edu/registration-records/graduation/Registration/graduation.htm)). Official audits are processed by the Registration & Records Office.
8. Completion of the certificate requirements from any catalog of entry during continuous enrollment. Students who are not continuously enrolled and have completed certificate requirements must meet the requirements of the catalog in effect at the time of graduation application. Students re-entering who have not completed the certificate requirements must follow the catalog in effect at the time of their re-entry date.
9. Coursework completed within a reasonable time period. This may require repeating certain essential courses, even though a passing grade was previously earned. An essential course involves material that affects skill development and successful performance and/or contains content likely to change significantly over time, as determined by appropriate academic departments.
10. A minimum of six additional hours, beyond those credits completed for one certificate, are required to earn a second certificate.
11. Multiple certificates may be conferred in the same graduation period.

3. Serve as building blocks toward certificates or associate degrees.
4. Require students to minimally show the proficiency of ENG 085, ENG 090 and MAT 030.
5. Not be eligible for federal aid (i.e. federal Pell Grants, Stafford Loans).
6. Will not have academic honors denoted on transcript.
7. Will not be included in commencement.

**To earn a concentration, students must meet these requirements:**

1. A minimum cumulative grade point average of 2.0 overall. (Some programs have additional grade and course requirements. Follow the guide sheet for your program and meet with a student success navigator for complete information.) Important: Only courses with a 2.0 or better will transfer to most four-year colleges and universities.
2. A minimum grade of 2.0 in each course that applies toward a degree.
3. Completion of specific courses in the concentration.
4. A minimum of 16 credits.
5. A minimum of 15 credits earned at Jackson College.
6. A completed Application for Graduation for the concentration submitted by the deadline date to Registration and Records, located in Student Services, Central Campus or to any Jackson College center. Students have five academic years to apply for graduation from the time they completed their last course. Applications are available at all locations, or the Jackson College web site ([www.jccmi.edu/registration-records/graduation/Registration/graduation.htm](http://www.jccmi.edu/registration-records/graduation/Registration/graduation.htm)). Official audits are processed by the Registration & Records Office.
7. Completion of the concentration requirements from any catalog of entry during continuous enrollment. Students who are not continuously enrolled and have completed the concentration requirements must meet the requirements of the catalog in effect at the time of graduation application. Students re-entering who have not completed the concentration requirements must follow the catalog in effect at the time of their re-entry date.

## Concentrations

Jackson College offers concentrations that are a coordinated set of courses whose purpose is to enable students to efficiently achieve a specific occupational goal. Each concentration will:

1. Require no fewer than 16 and no more than 29 credit hours.
2. Provide a set of skills and knowledge to benefit students within specific career areas.

8. Coursework completed within a reasonable time period. This may require repeating certain essential courses, even though a passing grade was previously earned. An essential course involves material that affects skill development and successful performance and/or contains content that is likely to significantly change over time, as determined by appropriate academic departments.
9. Multiple concentrations may be conferred in the same graduation period.

## Skill Sets

Jackson College offers skill sets that are strategically planned groupings of courses to meet the flexibility needed by external demands of employers and the existing job market. Each of these credentials will:

1. Require 15 credits or fewer.
2. Provide a set of skills and knowledge to benefit students within specific career areas.
3. Require students to minimally show the proficiency of ENG 085 and MAT 030.
4. Not be eligible for federal aid (i.e. federal Pell Grants, Stafford Loans).
5. Will not have academic honors denoted on transcript.
6. Will not be included in commencement.

Other sources of funding may be available.

### To earn a skill set, students must meet these requirements:

1. A minimum cumulative grade point average of 2.0 overall. (Some programs have additional grade and course requirements. Follow the guide sheet for your program and meet with a student success navigator for complete information.) Important: Only courses with a 2.0 or better will transfer to most four-year colleges and universities.
2. A minimum grade of 2.0 in each course that applies toward a degree.
3. Completion of specific courses in the skill set.
4. All credits in the skill set must be earned at Jackson College.
5. A completed Application for Graduation for the skill

set submitted by the deadline date to Registration & Records, located in Student Services, Central Campus or to any Jackson College campus. Students have five academic years to apply for graduation from the time they completed their last course. Applications are available at all locations, or the Jackson College web site ([www.jccmi.edu/StudentServices/Registration/graduation.htm](http://www.jccmi.edu/StudentServices/Registration/graduation.htm)). Official audits are processed by the Registration & Records Office.

6. Completion of the skill set requirements from any catalog of entry during continuous enrollment. Students who are not continuously enrolled and have completed the skill set requirements must meet the requirements of the catalog in effect at the time of graduation application. Students re-entering who have not completed the skill set requirements must follow the catalog in effect at the time of their re-entry date.
7. Coursework completed within a reasonable time period. This may require repeating certain essential courses, even though a passing grade was previously earned. An essential course involves material that affects skill development and successful performance and/or contains content that is likely to significantly change over time, as determined by appropriate academic departments.
8. Multiple skill sets may be conferred in the same graduation period.

## General Education Philosophy

### A message to students from Jackson College faculty

General education facilitates the development of an informed and educated person who recognizes and respects the diversity of communities, thinks critically, and is proficient at fundamental skills. General education engages students in active learning by providing opportunities to observe, analyze and evaluate, and to apply these skills critically to problems. General education fosters the development of responsible, ethical human beings dedicated to improving their own lives and the lives of others through work, family life, social and political action, cultural awareness and service to others.

Because Jackson College's vision includes a variety of educational, cultural and economic goals, the general education requirements involve both traditional intellectual pursuits and practical skill development. As the general education requirements are designed to ensure breadth



and depth of knowledge, they are met through carefully designed programs of study. Programs of study help students meet these goals by addressing each of the skill areas identified in the General Education Outcomes (GEO). Each of Jackson College's courses are reviewed and assessment is required to be considered for GEO standards. No course substitutions will be allowed unless considered a higher level of an approved course. These are skills that the Jackson College Board of Trustees has determined students should develop or enhance while enrolled in the College.

### THE GENERAL EDUCATION OUTCOMES ARE:

1. Write clearly, concisely and intelligibly.
2. Speak clearly, concisely and intelligibly.
3. Demonstrate computational skills and mathematical reasoning.
4. Demonstrate scientific reasoning.
5. Understand human behavior and social systems, and the principles which govern them.
6. Understand and appreciate aesthetic experience and artistic creativity.
7. Understand and respect the diversity and interdependence of the world's peoples and cultures.

## Substitutions and Waivers

Students who encounter hardships while pursuing a planned educational program may request consideration of alternative courses through a substitution and/or waiver process, except for GEO requirements. Each request must be reviewed and recommended by the department chair of the course under review and approved by the academic dean and registrar. Substitution and waiver guidelines and forms are available from department chairs, student success navigators, and the Registration & Records Office. The Board of Trustees supports General Education Outcomes (GEO 1-7) to ensure all students receive a well-rounded general education. GEO substitutions are limited to coursework considered a higher level of the approved courses. Approved GEOs can be found in the Associate in Arts, Associate in Science and Associate in General Studies degree requirements.

## Student Assessment at Jackson College

Assessment is a vital part of the academic life at Jackson College. The purpose of assessment is to measure student progress in the knowledge, skills and attitudes they exhibit from their studies. Assessment is conducted during class time, at the conclusion of programs of study, and at important stages of the academic cycle on a year by year basis. Students are expected to complete a variety of assessments during their college career. These include course examinations, portfolios, attitude surveys, journals and demonstrations of skills used in occupational fields. A standardized test is administered in selected classes to measure overall student success in the achievement of basic foundational skills. Other assessments are made after students leave Jackson College that help faculty know the long-range effects of their teaching on student employment and the success of students who transfer to other colleges and universities. Teachers identify course learning objectives and communicate them to students in their course syllabi, in classroom materials, or in teacher-led discussions about course goals. Learning objectives are closely aligned with the General Education Outcomes. Feedback from student performance on the learning objectives provides faculty with an assessment of the teaching and learning that occurs.

## SEM 140 Seminar in Life Pathways

First semester students enrolled in ENG 080, ENG 085, ENG 090, ENG 091, MAT 019, MAT 030, MAT 033, and/or MAT 039 must also enroll in a first-year course, Seminar in Life Pathways (SEM 140), a gateway course to Jackson College. This course is designed to help all students develop the skills, inner qualities and external behaviors needed to take charge of their academic and career success. Students will be guided through an extensive process in making career choices and selecting an academic program of study at Jackson College and beyond.

With the exception of second-admit programs, SEM 140 is required of all students.

**Beginning in Fall 2017, students enrolled in SEM 140 Seminar in Life Pathways are expected to bring their own laptop or similar device to every class for their use in the course.** For technical specifications and to learn about the possibility of using financial aid to purchase an appropriate device, refer to the Jackson College website at [www.jccmi.edu/tbz](http://www.jccmi.edu/tbz).

## Academic Skills Requirements

The associate degree and certificate requirements at Jackson College include proficiency in the academic skills of reading and writing. Similarly, associate degrees and most certificates include proficiency in mathematics. To ensure development of students' abilities in these skills, the College offers an academic skills development program.

The first phase of the program occurs upon entry to the College when students' competencies are assessed via ACT/SAT scores and/or college-administered placement assessments. For current admissions test score levels, see the web page ([www.jccmi.edu/studentservices/family/course\\_placement.htm](http://www.jccmi.edu/studentservices/family/course_placement.htm)). Some programs may require a higher mathematics score. Students with prior successful college coursework may also be exempt. Jackson College accepts recent course placement scores from other Michigan colleges.

**Writing:** All Jackson College students seeking a degree or certificate are required to pass the college-level writing course, ENG 131: Writing Experience I, or demonstrate proficiency in writing. Upon completion of the writing placement assessment, students whose results indicate a need for further development in writing must enroll in ENG 090 or ENG 091 and successfully complete the writing post-assessment before proceeding to the required college-level writing course.

**Reading:** All Jackson College students obtaining a degree or certificate are required to demonstrate proficiency in reading. Upon completion of the reading placement assessment, students whose results indicate a need for further development in reading must enroll in ENG 080 or ENG 085.

**Mathematics:** All Jackson College students seeking a degree or certificate are required to pass a mathematics course best suited to their program of study or demonstrate math proficiency. Upon completion of the mathematics placement assessment, students whose results indicate a need for further development in mathematics must enroll in MAT 030 and complete the course with at least a 2.0 grade.

**Guidelines:** ENG 080, ENG 085, ENG 090, ENG 091, ENG 101, ENG 102, ENG 109, ENG 110, MAT 019, MAT 020, MAT 030, MAT 031, MAT 033, and MAT 039 academic credit and grades earned are included in calculating the student's grade point average. The credits for these courses, however, constitute additional graduation requirements beyond the total number of credits required for an associate degree or certificate.

## Important Information for Transfer Students

You may be able to earn as much as half your bachelor's degree program (freshmen and sophomore years) at Jackson College. A bachelor's degree at most four-year colleges and universities requires 124 semester credit hours, and most colleges accept 60-64 credits from Jackson College. Some allow students to transfer more credits but still require about 60 hours to be taken at their institution.

You can decide whether to earn an associate degree before transferring. Transfer students who wish to earn a degree usually pursue an Associate in Arts or an Associate in Science. Colleges with completion or fast-track degree programs for working adults may allow students to transfer all the credits earned from an Associate in Applied Science degree. Others may accept up to 90 credits earned at the College and require an additional 30 credit hours. In other programs, it may be to the student's advantage to complete the Michigan Transfer Agreement.

Earning a degree from Jackson College does not automatically qualify students to enter as a junior at the transfer institution. Four-year institutions reserve the right to evaluate each course completed at Jackson College for transfer credit.

### The transferability of courses depends on:

- The intended transfer college.
- The program of study, i.e., the major and/or minor(s).
- The grade received in the Jackson College course (2.0 is minimum acceptable grade point).
- Whether the transfer college has an equivalent course.
- The level of the course (e.g. an intermediate algebra course may be acceptable for one program, but not for others that require higher levels of mathematics).

Students are encouraged to keep the syllabi and course materials (including quizzes/tests, notes from courses, and names/authors of texts) of all courses they intend to transfer. Transfer courses are formally articulated with about 20 four-year colleges and universities in Michigan and recognized by other colleges and universities throughout the United States.

### TOOLS TO HELP TRANSFER STUDENTS

Each transfer institution has its own requirements for admission, majors, general education, and second admit programs. Requirements are stated in the transfer college's catalog, or you can find additional information on the Jackson College website. General guidelines are available to help



students choose courses that transfer to their preferred college. Program guide sheets are available that list Jackson College courses that meet general education and specific program requirements at various senior institutions. Guide sheets are available in Student Services on Central Campus, Jackson College @ LISD TECH, Clyde LeTarte Center, Hillsdale, the W.J. Maher Campus, and on the web site.

### TRANSFER PROCEDURE - A CHECKLIST

Review the following checklist at least a year prior to transferring; Jackson College suggests starting in your first semester.

1. See a student success navigator.
2. Decide on the school to which you intend to transfer. Colleges/universities vary in requirements.
3. Decide on a program of study or major. Jackson College student success navigators provide program guide sheets outlining which courses to take. Also, request a catalog from your intended transfer college.
4. Visit transfer colleges/universities and talk with staff and students.
5. Apply for transfer admission well in advance of the anticipated date of transfer. Applications are available from the transfer institution.
6. Request official transcripts to be mailed to each college or university you plan to attend. Transcripts are only accepted if they are mailed directly by the College and have the official seal. Request transcripts from the Registration & Records Office.
7. Complete the appropriate financial aid application materials. Financial assistance is not awarded until the student is accepted by the institution. Request financial aid transcripts from each previous institution attended, regardless of whether or not you ever applied for financial aid from that college or university.

### SPECIAL NOTE ON FOREIGN LANGUAGE REQUIREMENTS

Some four-year colleges and universities require competency in a foreign language equivalent to two years of college study. Students transferring to an institution requiring competency in a foreign language should consider meeting this requirement before transferring.

### SECOND ADMIT PROGRAMS

Some programs at four-year institutions require more than the general college admissions requirements. For instance, even though a student may be accepted by Michigan State University, he/she will need to fulfill additional requirements before being accepted into the College of Education. To find out about entry standards and application deadlines, check with the specific academic department (e.g. education, business and engineering) at the transfer institution or check their college catalog.

### PRE-PROFESSIONAL PROGRAMS

Students interested in pursuing curricula such as law, medicine, dentistry and other advanced degrees may choose to enroll in pre-professional programs at Jackson College (pre-law, premedical, pre-dental, etc.). Follow the sequence of courses recommended by the transfer institution. Entrance tests required for professional degrees – GMAT, GRE, MCAT, LSAT and others – are usually taken prior to the senior year in college. Jackson College students should check on the availability of preparation coursework at the transfer institution.

## Michigan Transfer Agreement

The Michigan Association of Collegiate Registrars and Admissions Officers (MACRAO) Articulation Agreement facilitates the transfer of students from community colleges to four-year colleges and universities in Michigan. By carefully choosing courses, students may obtain an associate degree from Jackson College and complete the Michigan Transfer Agreement (MTA). However, students do not need to obtain a degree to earn the MTA designation. If students meet all the requirements of the agreement, they should contact the Registration & Records Office and request the MTA designation on their transcripts.

More information can be found at <http://www.macrao.org/Publications/MTA.asp>

### Requirements of The Michigan Transfer Agreement

- Minimum 30 credits
- Minimum grade 2.0 for each course

**Note:** This list reflects only current courses. The Registrar's Office maintains a historical listing of courses that are accepted as part of MTA.

**TAKE 30 CREDITS FROM:  
ENGLISH COMPOSITION AND COMMUNICATIONS**

*(2 courses, 1 of which must be Composition)*

English (ENG) 131, 132, 201\*, 232

Communications (COM) 231, 240, 250

*\*Please note: ENG 201 Advanced Composition (3 credits) is a by-invitation-only English course that may be substituted for ENG 132.*

**QUANTITATIVE REASONING**

*(at least 1 course)*

Mathematics (MAT) 130, 133, 135, 139, 141, 151, 154, 251, 254

**NATURAL SCIENCE**

*(at least 2 courses from two disciplines; 1 must be laboratory science) Courses that are not lab science are marked with an \*.*

Biology (BIO) 110, 132, 140\*, 158, 161, 162, 220, 231, 232, 253, 254

Chemistry (CEM) 131, 132, 141, 142

Geology (GEL) 109, 160

Natural Science (NSC) 131

Physics (PHY) 131, 150\*, 151, 231, 232, 251, 252

**SOCIAL SCIENCE**

*(at least 2 courses from two disciplines)*

Anthropology (ANT) 131

Criminal Justice (CRJ) 111, 117

Economics (ECN) 231, 232

Geography (GEO) 131, 132

History (HIS) 211, 231, 232, 235

Psychology (PSY) 140, 152, 245, 251, 252, 290

Political Science (PLS) 141

Sociology (SOC) 117, 152, 231, 236, 246

**HUMANITIES**

*(at least 2 courses from two disciplines)*

Art (ART) 111, 112

English (ENG) 210, 236, 246, 247, 249, 252, 254, 255, 256, 257

French (FRN) 131, 132

German (GER) 131, 132

History (HIS) 120, 131, 132

Humanities (HUM) 131

Music (MUS) 130, 131, 132, 151, 152

Philosophy (PHL) 231, 232, 243

Spanish (SPN) 131, 132, 231, 232

Theatre (THR) 116



## PATHWAYS

At Jackson College, academic areas are organized into six pathways to address a variety of career and training options, as well as those seeking transfer to complete their undergraduate bachelor's degrees. These pathways are:

- Business and Computer Technology
- Health Sciences
- Human Services
- Liberal Arts
- Science, Technology, Engineering and Mathematics
- Skilled Trades and Agriculture



## BUSINESS AND COMPUTER TECHNOLOGY PATHWAY

The Business and Computer Technology Pathway includes careers related to all aspects of business and computer technology, including accounting, finance, business administration, marketing, culinary arts, and information processing. These may include eCommerce, entrepreneurship, computer information systems, cyber security, human resources, office administration, sports management and marketing.

### DEGREES/CERTIFICATES:

- Accounting\*
- Administrative Assistant
- Business Administration\*
- Computer Programming Specialist
- Culinary Arts & Hospitality Management\*
- Cyber Security
- Entrepreneurship
- Executive Assistant
- Management
- Marketing
- Microsoft® Office® User Specialist
- Networking Specialist
- Sports Management
- Web Technology: eCommerce

*\*Denotes specialized accreditation through ACBSP – Accreditation Council for Business Schools and Programs*

### TRANSFER PROGRAMS

The first two years of a student's college education usually consists of general education courses, introductory courses in a major and/or program of study and selected electives. See an academic advisor for a transfer guide sheet to the college/university of your choice. The guide sheet identifies Jackson College courses that transfer in your program of study.

Jackson College has published this catalog for information purposes only and its contents do not constitute a contract between this institution and prospective or enrolled students. The information contained in this general College catalog reflects the current curricula, policies and regulations of the College. However, these are subject to change at any time by action of the Board of Trustees or the administration. The information is generally believed to be accurate, but the College disclaims liability for inadvertent errors or omissions.



## Accounting – Associate in Applied Science (ACCT.AAS)

Accountants and auditors prepare, analyze and verify financial reports and taxes and monitor information systems that furnish this information to managers in business, industry and government.

The accounting/finance major prepares students for initial employment and develops competencies for those already in the field. Students develop skills in the posting and recording of financial data, use of computers, preparation of financial statements and reports, interpretation of financial information, and develop effective supervisory and communicative techniques and skills.

Typical job opportunities and places of employment are: junior accountant with public accounting firms, banks and other financial institutions, educational institutions and other profit and not-for-profit organizations.

|                                       |     |
|---------------------------------------|-----|
| Minimum credits.....                  | 60  |
| Minimum cumulative GPA .....          | 2.0 |
| Minimum grade in all courses .....    | 2.0 |
| Minimum Jackson College credits ..... | 15  |

### GENERAL EDUCATION REQUIREMENTS (23-25 credits)

#### GEO 1: Write clearly, concisely and intelligibly (3 credits)

*Take the following:*

ENG 131 Writing Experience I

#### GEO 2: Speak clearly, concisely and intelligibly (3 credits)

*Take the following:*

COM 240 Interpersonal Communication

#### GEO 3: Demonstrate computational skills and mathematical reasoning (4 credits)

*Take the following:*

MAT 133 Introduction to Probability & Statistics

#### GEO 4: Demonstrate scientific reasoning (4-5 credits)

*Choose one of the following:*

##### NSC 131 Contemporary Science (Preferred)

- BIO 110 Introductory Biology
- BIO 132 Human Biology
- BIO 158 Environmental Science
- BIO 161 General Biology I
- BIO 162 General Biology II
- BIO 220 Microbiology
- BIO 253 Human Anatomy and Physiology I
- CEM 131 Fundamentals of Chemistry
- CEM 141 General Chemistry I

- GEL 109 Earth Science
- GEL 160 Introduction to Geology
- PHY 131 Conceptual Physics
- PHY 151 Astronomy
- PHY 231 College Physics I
- PHY 251 Modern University Physics I

#### GEO 5: Understand human behavior and social systems, and the principles which govern them (3 credits)

*Choose one of the following:*

- ECN 231 Macroeconomics
- ECN 232 Microeconomics

#### GEO 6: Understand aesthetic experience and artistic creativity (3 credits)

*Choose one of the following:*

##### HUM 131 Cultural Connections (Preferred)

- ART 111 Art History: Prehistoric to 1400
- ART 112 Art History: Renaissance to Present
- ENG 210 Introduction to Film
- ENG 246 Short Story & Novel
- ENG 247 Poetry & Drama
- ENG 249 African-American Literature
- ENG 252 Shakespeare
- ENG 254 Children's Literature
- ENG 255 American Literature – 19th Century
- ENG 256 American Literature – 20th Century
- MUS 131 Understanding Music
- THR 116 Introduction to Theatre

#### GEO 7: Understand and respect the diversity and interdependence of the world's peoples and cultures (3-4 credits)

*Choose one of the following:*

- ANT 131 Cultural Anthropology
- COM 250 Intercultural Communications
- ENG 236 Women in a Changing Society
- ENG 242 Sports in Film and Literature
- ENG 249 African-American Literature
- ENG 257 World Literature
- FRN 131 French I
- GEO 132 World Regions
- GER 131 German I
- HIS 125 African-American History
- HIS 211 Minority Groups in America
- HUM 131 Cultural Connections
- MUS 130 Music of Non-Western Cultures
- PHL 243 World Religions
- PLS 262 International Relations
- SOC 236 Women in a Changing Society
- SOC 246 Marriage and Family
- SPN 131 Spanish I
- WRL 102 Portuguese Conversation I
- WRL 103 Portuguese Conversation II
- WRL 104 Mandarin I

## ACCOUNTING RELATED REQUIREMENTS (9 credits)

Take the following:

- BUA 100 Contemporary Business
- BUA 220 Principles of Management
- BUA 250 Business Law I

## ACCOUNTING CORE REQUIREMENTS (23 credits)

Take the following:

- ACC 115 Payroll Accounting
- ACC 214 Income Tax Accounting
- ACC 130 QuickBooks Pro **OR**
- CIS 121 Microsoft® Excel®
- ACC 231 Principles of Accounting
- ACC 232 Principles of Accounting II
- ACC 234 Managerial Accounting
- ACC 240 Intermediate Accounting
- ACC 245 Internship/Externship

## ACCOUNTING ELECTIVES

Select electives from courses in ACC, BUA, CIS, ECM, ECN or ENT, if necessary to meet 60 credits required for this degree.

Online note: Some students find online ACC courses to be challenging. It is recommended that online accounting students have strong computer skills including proficiency using e-mail, the Internet, experience using Microsoft® Word®, Excel® and skills with attaching files.

## Accounting – Certificate (ACCT.CERT)

This certificate program prepares students for bookkeeping and related occupations. Job opportunities exist for audit clerks, general accounting clerks, credit card clerks in hotels and restaurants, general ledger bookkeepers and many more. Learn to keep accounting records and compile reports using computers and calculators; prepare payrolls, tax reports; compute, type, and mail monthly statements; keep general ledgers; and perform many other accounting functions.

|                                      |     |
|--------------------------------------|-----|
| Minimum credits.....                 | 30  |
| Minimum cumulative GPA.....          | 2.0 |
| Minimum grade in all courses .....   | 2.0 |
| Minimum Jackson College credits..... | 15  |

## GENERAL EDUCATION REQUIREMENTS (7 credits)

Take the following:

- ENG 131 Writing Experience I
- MAT 133 Introduction to Probability & Statistics

## ACCOUNTING CORE REQUIREMENTS (12-13 credits)

Take the following:

- ACC 115 Payroll Accounting
- ACC 231 Principles of Accounting I
- ACC 232 Principles of Accounting II
- CIS 121 Microsoft® Excel® Comprehensive **OR**
- ACC 130 QuickBooks® Pro

## ELECTIVES

Select electives from courses in ACC, BUA or ECN, if necessary to meet 30 credits required for the certificate.

Online note: Some students find online ACC courses to be challenging. It is recommended that online accounting students have strong computer skills including proficiency using e-mail, the Internet, experience using Microsoft® Word®, Excel® and skills with attaching files.

## Administrative Assistant – Associate in Applied Science (ADAS.AAS)

This degree provides a solid foundation for students seeking higher-level support positions in office settings where increased responsibilities require technical skills in business communications, interpersonal relations, desktop publishing, presentation software, accounting and database software. Office and support staff personnel are in great demand everywhere today. Employment opportunities for secretaries and administrative assistants are expected to grow in the coming years. Students completing this program could be hired for above entry-level positions such as office information assistants, office systems supervisors, administrative office systems assistants, administrative secretaries and executive assistants.

|                                      |     |
|--------------------------------------|-----|
| Minimum credits.....                 | 63  |
| Minimum cumulative GPA.....          | 2.0 |
| Minimum grade in all courses .....   | 2.0 |
| Minimum Jackson College credits..... | 15  |

## GENERAL EDUCATION REQUIREMENTS (23-25 CREDITS)

### GEO 1: Write clearly, concisely and intelligibly (3 credits)

*Take the following:*

ENG 131 Writing Experience I

### GEO 2: Speak clearly, concisely and intelligibly (3 credits)

*Choose one of the following:*

COM 231 Communication Fundamentals

COM 240 Interpersonal Communication

### GEO 3: Demonstrate computational skills and mathematical reasoning (4 credits)

*Take the following:*

MAT 131 Intermediate Algebra or higher

### GEO 4: Demonstrate scientific reasoning (4-5 credits)

*Choose one of the following:*

BIO 110 Introductory Biology

BIO 132 Human Biology

BIO 158 Environmental Science

BIO 161 General Biology I

BIO 162 General Biology II

BIO 220 Microbiology

BIO 253 Human Anatomy and Physiology I

CEM 131 Fundamentals of Chemistry

CEM 141 General Chemistry I

GEL 109 Earth Science

GEL 160 Introduction to Geology

NSC 131 Contemporary Science

PHY 131 Conceptual Physics

PHY 151 Astronomy

PHY 231 College Physics I

PHY 251 Modern University Physics I

### GEO 5: Understand human behavior and social systems, and the principles which govern them (3-4 credits)

*Choose one of the following:*

**PSY 140 Introduction to Psychology (Preferred)**

ECN 231 Macroeconomics

ECN 232 Microeconomics

PLS 141 American National Government

SOC 231 Principles of Sociology

### GEO 6: Understand aesthetic experience and artistic creativity (3 credits)

*Choose one of the following:*

ART 111 Art History: Prehistoric to 1400

ART 112 Art History: Renaissance to Present

ENG 210 Introduction to Film

ENG 246 Short Story & Novel

ENG 247 Poetry & Drama

ENG 249 African-American Literature

ENG 252 Shakespeare

ENG 254 Children's Literature

ENG 255 American Literature – 19th Century

ENG 256 American Literature – 20th Century

HUM 131 Cultural Connections

MUS 131 Understanding Music

THR 116 Introduction to Theatre

### GEO 7: Understand and respect the diversity and interdependence of the world's peoples and cultures (3-4 credits)

*Choose one of the following:*

ANT 131 Cultural Anthropology

COM 250 Intercultural Communications

ENG 236 Women in a Changing Society

ENG 242 Sports in Film and Literature

ENG 249 African-American Literature

ENG 257 World Literature

FRN 131 French I

GEO 132 World Regions

GER 131 German I

HIS 125 African-American History

HIS 211 Minority Groups in America

HUM 131 Cultural Connections

MUS 130 Music of Non-Western Cultures

PHL 243 World Religions

PLS 262 International Relations

SOC 236 Women in a Changing Society

SOC 246 Marriage and Family

SPN 131 Spanish I

WRL 102 Portuguese Conversation I

WRL 103 Portuguese Conversation II

WRL 104 Mandarin I

## ADMINISTRATIVE ASSISTANT RELATED REQUIREMENTS (10 CREDITS)

*Take the following:*

ACC 216 Financial Accounting Concepts **OR**

ACC 231 Principles of Accounting I

BUA 130 Customer Service

ENG 232 Technical & Business Writing **OR**

ENG 132 Writing Experience II

## ADMINISTRATIVE ASSISTANT CORE REQUIREMENTS (31 CREDITS)

*Take the following:*

CIS 110 Beginning Keyboarding/Typing

CIS 111 Intermediate Keyboarding/Typing

CIS 117 Microsoft® Outlook® Workshop

CIS 118 Microsoft® Publisher® Windows®

CIS 119 Microsoft® PowerPoint®

CIS 120 Microsoft® Word® Comprehensive



|     |     |                                   |
|-----|-----|-----------------------------------|
| CIS | 121 | Microsoft® Excel® Comprehensive   |
| CIS | 122 | Microsoft® Access® Comprehensive  |
| CIS | 147 | Web Page Design I (Dreamweaver®)  |
| CIS | 201 | Advanced Information Technologies |
| CIS | 210 | Office Administration Systems     |
| CIS | 245 | Internship/Externship             |

## Business Administration – Associate in Applied Science (BUAD.AAS)

This is a broad-based program of business studies. This program allows the student to customize a program of study that meets the specific employment and/or transfer needs of the student.

|                                       |     |
|---------------------------------------|-----|
| Minimum credits.....                  | 60  |
| Minimum cumulative GPA.....           | 2.0 |
| Minimum grade in all courses .....    | 2.0 |
| Minimum Jackson College credits ..... | 15  |

### GENERAL EDUCATION REQUIREMENTS (23-25 CREDITS)

#### GEO 1: Write clearly, concisely and intelligibly (3 credits)

*Take the following:*

|     |     |                      |
|-----|-----|----------------------|
| ENG | 131 | Writing Experience I |
|-----|-----|----------------------|

#### GEO 2: Speak clearly, concisely and intelligibly (3 credits)

*Take the following:*

|     |     |                             |
|-----|-----|-----------------------------|
| COM | 240 | Interpersonal Communication |
|-----|-----|-----------------------------|

#### GEO 3: Demonstrate computational skills and mathematical reasoning (4 credits)

*Choose one of the following:*

|     |     |  |
|-----|-----|--|
| MAT | 133 | Introduction to Probability & Statistics (Preferred) |
| MAT | 130 | Quantitative Reasoning                               |

#### GEO 4: Demonstrate scientific reasoning (4-5 credits)

*Choose one of the following:*

|     |     |                                  |
|-----|-----|----------------------------------|
| NSC | 131 | Contemporary Science (Preferred) |
| BIO | 110 | Introductory Biology             |
| BIO | 132 | Human Biology                    |
| BIO | 158 | Environmental Science            |
| BIO | 161 | General Biology I                |
| BIO | 162 | General Biology II               |
| BIO | 220 | Microbiology                     |
| BIO | 253 | Human Anatomy and Physiology I   |
| CEM | 131 | Fundamentals of Chemistry        |
| CEM | 141 | General Chemistry I              |
| GEL | 109 | Earth Science                    |

|     |     |                             |
|-----|-----|-----------------------------|
| GEL | 160 | Introduction to Geology     |
| PHY | 131 | Conceptual Physics          |
| PHY | 151 | Astronomy                   |
| PHY | 231 | College Physics I           |
| PHY | 251 | Modern University Physics I |

#### GEO 5: Understand human behavior and social systems, the principles which govern them and their implications for the present and future (3 credits)

*Choose one of the following:*

|     |     |                |
|-----|-----|----------------|
| ECN | 231 | Macroeconomics |
| ECN | 232 | Microeconomics |

#### GEO 6: Understand aesthetic experience and artistic creativity (3 credits)

*Choose one of the following:*

##### HUM 131 Cultural Connections (Preferred)

|     |     |                                     |
|-----|-----|-------------------------------------|
| ART | 111 | Art History: Prehistoric to 1400    |
| ART | 112 | Art History: Renaissance to Present |
| ENG | 210 | Introduction to Film                |
| ENG | 246 | Short Story & Novel                 |
| ENG | 247 | Poetry & Drama                      |
| ENG | 249 | African-American Literature         |
| ENG | 252 | Shakespeare                         |
| ENG | 255 | American Literature – 19th Century  |
| ENG | 256 | American Literature – 20th Century  |
| MUS | 131 | Understanding Music                 |
| THR | 116 | Introduction to Theatre             |

#### GEO 7: Understand and respect the diversity and interdependence of the world's peoples and cultures (3-4 credits)

*Choose one of the following:*

|     |     |                               |
|-----|-----|-------------------------------|
| ANT | 131 | Cultural Anthropology         |
| COM | 250 | Intercultural Communications  |
| ENG | 236 | Women in a Changing Society   |
| ENG | 242 | Sports in Film and Literature |
| ENG | 249 | African-American Literature   |
| ENG | 257 | World Literature              |
| FRN | 131 | French I                      |
| GEO | 132 | World Regions                 |
| GER | 131 | German I                      |
| HIS | 125 | African-American History      |
| HIS | 211 | Minority Groups in America    |
| HUM | 131 | Cultural Connections          |
| MUS | 130 | Music of Non-Western Cultures |
| PHL | 243 | World Religions               |
| PLS | 262 | International Relations       |
| SOC | 236 | Women in a Changing Society   |
| SOC | 246 | Marriage and Family           |
| SPN | 131 | Spanish I                     |
| WRL | 102 | Portuguese Conversation I     |
| WRL | 103 | Portuguese Conversation II    |
| WRL | 104 | Mandarin I                    |
| WRL | 105 | Mandarin II                   |

**BUSINESS ADMINISTRATION RELATED REQUIREMENTS (10 CREDITS)***Take the following:*

- ACC 231 Principles of Accounting I **OR**  
 ACC 216 Financial Accounting Concepts
- CIS 101 Introduction to Computer Systems **OR**  
 CIS 201 Advanced Information Technologies
- ENG 232 Technical & Business Writing

**BUSINESS ADMINISTRATION CORE REQUIREMENTS (12 CREDITS)***Take the following:*

- BUA 100 Contemporary Business  
 BUA 220 Principles of Management  
 BUA 230 Principles of Marketing  
 BUA 250 Business Law I

**BUSINESS ADMINISTRATION ELECTIVES (13-15 CREDITS)***Select electives from the following list to meet the 60-credit degree requirement.*

- ACC 115 Payroll Accounting  
 ACC 214 Income Tax Accounting  
 ACC 216 Financial Accounting Concepts  
 ACC 231 Principles of Accounting I  
 ACC 232 Principles of Accounting II  
 ACC 234 Managerial Accounting  
 ACC 240 Intermediate Accounting  
 BUA 111 Personal Finance  
 BUA 120 Human Relations in Business  
 BUA 121 Leadership  
 BUA 122 Successful Small Business  
 BUA 130 Customer Service  
 BUA 131 Effective Selling  
 BUA 221 Human Resource Management  
 BUA 231 Advertising, Promotion & Public Relations  
 BUA 245 Internship/Externship  
 BUA 251 Business Law II  
 ECN 231 Macroeconomics  
 ECN 232 Microeconomics  
 ENT 101 Entrepreneurship: Creating Your Own Job  
 ENT 102 Entrepreneurial Marketing: Finding Your Niche  
 ENT 169 Business Plan  
 PSY 140 Introduction to Psychology

**Business Administration – Certificate (BUAD.CERT)**

The Business Administration Certificate will develop your awareness in all of the functional aspects of the business world. You can use your ability to get along with people, develop your leadership potential, and use your oral and written communication skills. Jobs may be found in insurance companies, hospitals, health care facilities, educational institutions, transportation/distribution centers, government agencies and manufacturing firms in a variety of departments. This program also consists of the foundational courses needed for an associate degree.

|                                      |     |
|--------------------------------------|-----|
| Minimum credits.....                 | 30  |
| Minimum cumulative GPA.....          | 2.0 |
| Minimum grade in all courses .....   | 2.0 |
| Minimum Jackson College credits..... | 15  |

**GENERAL EDUCATION REQUIREMENTS (10 CREDITS)***Take the following:*

- ENG 131 Writing Experience I  
 ENG 232 Technical & Business Writing

- MAT 133 Introduction to Probability & Statistics (Preferred) OR**  
 MAT 130 Quantitative Reasoning

**BUSINESS ADMINISTRATION RELATED REQUIREMENTS (7 CREDITS)***Take the following:*

- ACC 231 Principles of Accounting I **OR**  
 ACC 216 Financial Accounting Concepts
- CIS 101 Introduction to Computer Systems **OR**  
 CIS 201 Advanced Information Technologies

**BUSINESS CORE REQUIREMENTS (12 CREDITS)***Take the following:*

- BUA 100 Contemporary Business  
 BUA 220 Principles of Management  
 BUA 230 Principles of Marketing  
 BUA 250 Business Law I

**ELECTIVES**

Select electives from courses in ACC, BUA, ECN and ENT in order to meet 30 credits required for certificate.

## Computer Programming Specialist – Associate in Applied Science (CPSP.AAS)

Programmers write the detailed sets of instructions computers understand and act on. Emphasis is placed on computer information systems, programming language, concepts and designs, logic and theory. Job opportunities may include applications programmer, computer operator, information office systems manager, operations scheduler, systems analyst or programmer.

|                                      |     |
|--------------------------------------|-----|
| Minimum credits.....                 | 60  |
| Minimum cumulative GPA.....          | 2.0 |
| Minimum grade in all courses.....    | 2.0 |
| Minimum Jackson College credits..... | 15  |

### GENERAL EDUCATION REQUIREMENTS (23-25 CREDITS)

#### GEO 1: Write clearly, concisely and intelligibly (3 credits)

*Take the following:*

ENG 131 Writing Experience I

#### GEO 2: Speak clearly, concisely and intelligibly (3 credits)

*Choose one of the following:*

COM 231 Communication Fundamentals

COM 240 Interpersonal Communication

#### GEO 3: Demonstrate computational skills and mathematical reasoning (4 credits)

*Take the following:*

MAT 139 College Algebra

#### GEO 4: Demonstrate scientific reasoning (4-5 credits)

*Choose one of the following:*

PHY 131 Conceptual Physics (Preferred)

PHY 231 College Physics I (Preferred)

PHY 251 Modern University Physics (Preferred)

BIO 110 Introductory Biology

BIO 132 Human Biology

BIO 158 Environmental Science

BIO 161 General Biology I

BIO 162 General Biology II

BIO 220 Microbiology

BIO 253 Human Anatomy and Physiology I

CEM 131 Fundamentals of Chemistry

CEM 141 General Chemistry I

GEL 109 Earth Science

GEL 160 Introduction to Geology

NSC 131 Contemporary Science

PHY 151 Astronomy

#### GEO 5: Understand human behavior and social systems, and the principles which govern them (3-4 credits)

*Choose one of the following:*

ECN 231 Macroeconomics

ECN 232 Microeconomics

HIS 120 Ancient History

HIS 131 Western Civilization to 1555

HIS 132 Western Civilization 1555 to Present

HIS 231 Development of the US through the Civil War

HIS 232 Development of the US from the Civil War

HIS 235 20th Century History

PLS 141 American National Government

PSY 140 Introduction to Psychology

PSY 152 Social Psychology

PSY 245 Infancy and Childhood

PSY 251 Abnormal Psychology

PSY 252 Developmental Psychology

PSY 290 Human Sexuality

SOC 152 Social Psychology

SOC 231 Principles of Sociology

#### GEO 6: Understand aesthetic experience and artistic creativity (3 credits)

*Choose one of the following:*

ART 111 Art History: Prehistoric to 1400

ART 112 Art History: Renaissance to Present

ENG 210 Introduction to Film

ENG 246 Short Story and Novel

ENG 247 Poetry and Drama

ENG 249 African-American Literature

ENG 252 Shakespeare

ENG 254 Children's Literature

ENG 255 American Literature – 19th Century

ENG 256 American Literature – 20th Century

HUM 131 Cultural Connections

MUS 131 Understanding Music

MUS 132 History of American Popular Music

PHL 231 Introduction to Philosophy

THR 116 Introduction to Theatre

#### GEO 7: Understand and respect the diversity and interdependence of the world's peoples and cultures (3-4 credits)

*Choose one of the following:*

ANT 131 Cultural Anthropology

COM 250 Intercultural Communications

ENG 236 Women in a Changing Society

ENG 242 Sports in Film and Literature

ENG 249 African-American Literature

ENG 257 World Literature

FRN 131 French I

GEO 132 World Regions

GER 131 German I

HIS 125 African-American History



|     |     |                               |
|-----|-----|-------------------------------|
| HIS | 211 | Minority Groups in America    |
| HUM | 131 | Cultural Connections          |
| MUS | 130 | Music of Non-Western Cultures |
| PHL | 243 | World Religions               |
| PLS | 262 | International Relations       |
| SOC | 236 | Women in a Changing Society   |
| SOC | 246 | Marriage and Family           |
| SPN | 131 | Spanish I                     |

### COMPUTER PROGRAMMING SPECIALIST RELATED REQUIREMENTS (10 CREDITS)

*Take the following:*

|     |     |                                |
|-----|-----|--------------------------------|
| BUA | 120 | Human Relations in Business    |
| CNS | 101 | Network Fundamentals/Network + |
| CNS | 131 | Linux Administration           |

### COMPUTER PROGRAMMING SPECIALIST CORE REQUIREMENTS (26 CREDITS)

*Take the following:*

|     |     |                                  |
|-----|-----|----------------------------------|
| CIS | 101 | Introduction to Computer Systems |
| CIS | 122 | Microsoft® Access® Comprehensive |
| CIS | 143 | HTML                             |
| CIS | 158 | Programming Logic                |
| CIS | 160 | Programming in Visual Basic.NET  |
| CIS | 165 | JAVA Programming                 |
| CIS | 170 | Programming in C++               |
| CIS | 244 | Web Programming                  |
| CIS | 273 | Systems Concepts and Design      |

## Computer Programming Specialist – Certificate (CPSP.CERT)

Job opportunities with a certificate in computer programming specialist may include an entry-level position as a computer operator, application specialist, and system support or website developer.

|                                      |     |
|--------------------------------------|-----|
| Minimum credits.....                 | 33  |
| Minimum cumulative GPA.....          | 2.0 |
| Minimum grade in all courses .....   | 2.0 |
| Minimum Jackson College credits..... | 15  |

### GENERAL EDUCATION REQUIREMENTS (7 CREDITS)

*Take the following:*

|     |     |                      |
|-----|-----|----------------------|
| ENG | 131 | Writing Experience I |
| MAT | 139 | College Algebra      |

### COMPUTER PROGRAMMING SPECIALIST CORE REQUIREMENTS (26 CREDITS)

*Take the following:*

|     |     |                                  |
|-----|-----|----------------------------------|
| CIS | 101 | Introduction to Computer Systems |
| CIS | 122 | Microsoft® Access® Comprehensive |
| CIS | 143 | HTML                             |
| CIS | 158 | Programming Logic                |
| CIS | 160 | Programming in Visual Basic.NET  |
| CIS | 165 | JAVA Programming                 |
| CIS | 170 | Programming in C++               |
| CIS | 244 | Web Programming                  |
| CIS | 273 | System Concepts and Design       |

## Computer Service Technician (A+/Network+) – Skill Set (CPST.SSET)

The computer service technician credential prepares students to work as a computer service professional. A+/Network+ is the recognized industry standard for computer service technicians. This training is the “journeyman’s card” for professionals in microcomputer maintenance. The computer service technician validates technical competency in networking administration and support. Those holding A+/Network+ should demonstrate critical knowledge of media and topologies, protocols and standards, network implementation and network support. CompTIA (Computing Technology Industry Association) is the certifying agent, a non-profit industry group which determines competencies. CompTIA assures the quality of those who successfully pass the A+ and Network+ Certification exams. Jackson College provides this program to prepare students to pass both exams. The exam is administered by CompTIA’s agents.

|                                      |     |
|--------------------------------------|-----|
| Minimum credits.....                 | 15  |
| Minimum cumulative GPA.....          | 2.0 |
| Minimum grade in all courses .....   | 2.0 |
| Minimum Jackson College credits..... | 15  |

### REQUIRED COURSES (15 CREDITS)

*Take the following:*

|     |     |   |
|-----|-----|---|
| CIS | 101 | Introduction to Computer Systems          |
| CIS | 174 | PC Repair/A+ Hardware Component           |
| CIS | 175 | PC Repair/A+ Software Component           |
| CIS | 176 | A+ Certification Exam Preparation         |
| CIS | 179 | Network+ Certification Exam Preparation   |
| CNS | 101 | Network+/Networking Fundamental Component |

## Computer Support Specialist – Associate in Applied Science (CSST.AAS)

Students completing this program are prepared to assume a variety of positions in a computerized office setting. The program recognizes the increasingly important role of the personal computer in modern business and is designed to assist students in developing skills in the use of personal computer applications. Depending upon the curriculum students choose, career choices may include computer support specialist, computer applications specialist, information office manager, end-user support technician, information systems associate, personal computer (PC) coordinator, or software specialist.

|                                      |     |
|--------------------------------------|-----|
| Minimum credits.....                 | 64  |
| Minimum cumulative GPA.....          | 2.0 |
| Minimum grade in all courses .....   | 2.0 |
| Minimum Jackson College credits..... | 16  |

### GENERAL EDUCATION REQUIREMENTS (23-25 CREDITS)

#### GEO 1: Write clearly, concisely and intelligibly (3 credits)

*Take the following:*

ENG 131 Writing Experience I

#### GEO 2: Speak clearly, concisely and intelligibly (3 credits)

*Choose one of the following:*

COM 231 Communication Fundamentals

COM 240 Interpersonal Communication

#### GEO 3: Demonstrate computational skills and mathematical reasoning (4 credits)

*Take the following:*

MAT 131 Intermediate Algebra or higher

#### GEO 4: Demonstrate scientific reasoning (4-5 credits)

*Choose one of the following:*

BIO 110 Introductory Biology

BIO 132 Human Biology

BIO 158 Environmental Science

BIO 161 General Biology I

BIO 162 General Biology II

BIO 220 Microbiology

BIO 253 Human Anatomy and Physiology I

CEM 131 Fundamentals of Chemistry

CEM 141 General Chemistry I

GEL 109 Earth Science

GEL 160 Introduction to Geology

|     |     |                             |
|-----|-----|-----------------------------|
| NSC | 131 | Contemporary Science        |
| PHY | 131 | Conceptual Physics          |
| PHY | 151 | Astronomy                   |
| PHY | 231 | College Physics I           |
| PHY | 251 | Modern University Physics I |

#### GEO 5: Understand human behavior and social systems, and the principles which govern them (3 credits)

*Choose one of the following:*

PSY 140 Introduction to Psychology (Preferred)

ECN 231 Macroeconomics

ECN 232 Microeconomics

PLS 141 American National Government

SOC 231 Principles of Sociology

#### GEO 6: Understand aesthetic experience and artistic creativity (3 credits)

*Choose one of the following:*

ART 111 Art History: Prehistoric to 1400

ART 112 Art History: Renaissance to Present

ENG 210 Introduction to Film

ENG 246 Short Story & Novel

ENG 247 Poetry & Drama

ENG 249 African-American Literature

ENG 252 Shakespeare

ENG 254 Children's Literature

ENG 255 American Literature – 19th Century

ENG 256 American Literature – 20th Century

HUM 131 Cultural Connections

MUS 131 Understanding Music

THR 116 Introduction to Theatre

#### GEO 7: Understand and respect the diversity and interdependence of the world's peoples and cultures (3-4 credits)

*Choose one of the following:*

ANT 131 Cultural Anthropology

COM 250 Intercultural Communications

ENG 236 Women in a Changing Society

ENG 242 Sports in Film and Literature

ENG 249 African-American Literature

ENG 257 World Literature

FRN 131 French I

GEO 132 World Regions

GER 131 German I

HIS 125 African-American History

HIS 211 Minority Groups in America

HUM 131 Cultural Connections

MUS 130 Music of Non-Western Cultures

PHL 243 World Religions

PLS 262 International Relations

SOC 236 Women in a Changing Society

SOC 246 Marriage and Family

SPN 131 Spanish I

**COMPUTER SUPPORT SPECIALIST RELATED REQUIREMENTS (3 CREDITS)***Take the following:*

BUA 130 Customer Service

**COMPUTER SUPPORT SPECIALIST CORE REQUIREMENTS (38 CREDITS)***Take the following:*

CIS 119 Microsoft® PowerPoint®  
 CIS 120 Microsoft® Word® Comprehensive  
 CIS 121 Microsoft® Excel® Comprehensive  
 CIS 122 Microsoft® Access® Comprehensive  
 CIS 143 HTML  
 CIS 158 Programming Logic  
 CIS 174 PC Repair/A+ Hardware Component  
 CIS 175 PC Repair/A+ Software Component  
 CIS 201 Advanced Computer Technologies  
 CIS 245 Internship/Externship  
 CNS 101 Network+/Networking Fundamentals  
 CNS 121 Microsoft Networking Client I  
 CNS 131 Linux Administration

## Computer Support Specialist – Certificate (CSST.CERT)

Students completing this certificate are prepared to assume a variety of positions in a computerized office setting. The certificate contains most of the core computer classes in the Computer Support Specialist Associate Degree. Students completing this certificate may find jobs as a computer support specialist, computer applications specialist, information office manager, end-user support technician, information systems associate, personal computer (PC) coordinator, or software specialist. Students can also continue on for the associate degree or may complete this certificate to improve current job skills.

Minimum credits.....36  
 Minimum cumulative GPA.....2.0  
 Minimum grade in all courses.....2.0  
 Minimum Jackson College credits.....15

**GENERAL EDUCATION REQUIREMENTS (7 CREDITS)***Take the following:*

ENG 131 Writing Experience I  
 MAT 131 Intermediate Algebra or higher

**COMPUTER SUPPORT SPECIALIST CORE REQUIREMENTS (29 CREDITS)***Take the following:*

CIS 119 Microsoft® PowerPoint®  
 CIS 120 Microsoft® Word® Comprehensive  
 CIS 121 Microsoft® Excel® Comprehensive  
 CIS 122 Microsoft® Access® Comprehensive  
 CIS 143 HTML  
 CIS 174 PC Repair/A+ Hardware Component  
 CIS 175 PC Repair/A+ Software Component  
 CIS 201 Advanced Information Technologies  
 CNS 101 Networking Fundamentals/Network +  
 CNS 131 Linux Administration

## Culinary Management and Hospitality – Bachelor of Applied Science

Building on the foundation of culinary arts and hospitality associate degree, students will broaden their education with business and management courses for full-service careers in today's food service and hospitality industries. While a passion for the art of cooking is important, good management and interpersonal skills are essential. Students may also earn chef certification through the American Culinary Federation (ACF) as well as the NRAEF ManageFirst and the ServSafe National Certification.

Minimum credits.....140  
 Minimum cumulative GPA.....2.0  
 Minimum grade in all courses.....2.0  
 Minimum Jackson College credits.....30

**GENERAL EDUCATION REQUIREMENTS (43 CREDITS)****GEO 1: Write clearly, concisely and intelligibly (6 credits)***Take the following:*

ENG 131 Writing Experience I  
 ENG 232 Technical and Business Writing

**GEO 2: Speak clearly, concisely and intelligibly (9 credits)***Take the following:*

COM 231 Communication Fundamentals  
 COM 240 Interpersonal Communication  
 COM 250 Intercultural Communication

**GEO 3: Demonstrate computational skills and mathematical reasoning (4 credits)***Take the following:*

MAT 130 Quantitative Reasoning or higher



**GEO 4: Demonstrate scientific reasoning (4 credits):***Take the following*

CEM 131 Fundamentals of Chemistry

**GEO 5: Understand human behavior and social systems, and the principles which govern them (3 credits)***Take the following*

PLS 141 American National Government

**GEO 6: Understand aesthetic experience and artistic creativity (3 credits)***Take the following*

ART 111 Art History: Prehistoric to 1400

**GEO 7: Understand and respect the diversity and interdependence of the world's peoples and cultures (11 credits):***Take the following*

HUM 131 Cultural Connections

SPN 131 Elementary Spanish I

SPN 132 Elementary Spanish II

**RELATED REQUIREMENTS (32 CREDITS)***Take the following:*

ACC 216 Financial Accounting Concepts

ACC 300 Financial Management in Hospitality

BUA 130 Customer Service

BUA 220 Principles of Management

BUA 230 Principles of Marketing

BUA 420 Project Management and Leadership

CIS 101 Introduction to Computer Systems

STM 101 Introduction to Sustainability

PSY 344 Organizational Psychology

BUA 315 Innovation, Branding, and Strategic Marketing

**CORE REQUIREMENTS (65 CREDITS)***Take the following:*

CUL 100 Introduction to Hospitality

CUL 101 ServSafe Fundamentals

CUL 115 Baking and Pastry

CUL 118 Nutrition for Food Service and Culinary Professional

CUL 120 Culinary Skills

CUL 121 Introduction to Food Productions

CUL 150 Food Service Management

CUL 175 International Cuisine

CUL 224 Food and Beverage Cost Control

CUL 227 Contemporary Cuisine

CUL 231 à la Carte Kitchen

CUL 245 Internship I

CUL 250 Principles of Beverage Service

CUL 345 Internship II

CUL 445 Internship III

CUL 455 Capstone Externship and Practicum

HTM 300 Introduction to Tourism

HTM 305 Facilities Management

HTM 313 Hospitality Ethics

HTM 320 Club and Special Event Management

HTM 325 Gaming and Conventions Sales

HTM 330 Hospitality Sales and Marketing

## Culinary Arts & Hospitality Management – Associate in Applied Science (CUAR.AAS)

This program prepares students for a career as a professional culinarian in a restaurant, hospitality or institutional setting. Culinary arts professionals have a variety of responsibilities that may include supervising and coordinating the activities of food service workers or dining room employees, planning menus, estimating daily or weekly needs, ordering and maintaining inventories of supplies and equipment, and keeping records of meals served. The program also provides a foundation for continued culinary arts studies at a four-year college, the chef certification through the American Culinary Federation (ACF), as well as the NRAEF ManageFirst and the ServSafe National Certification.

|                                      |     |
|--------------------------------------|-----|
| Minimum credits.....                 | 71  |
| Minimum cumulative GPA.....          | 2.0 |
| Minimum grade in all courses .....   | 2.0 |
| Minimum Jackson College credits..... | 15  |

**GENERAL EDUCATION REQUIREMENTS (23-25 CREDITS)****GEO 1: Write clearly, concisely and intelligibly (3 credits)***Take the following:*

ENG 131 Writing Experience

**GEO 2: Speak clearly, concisely and intelligibly (3 credits)***Choose one of the following:*

COM 231 Communication Fundamentals

COM 240 Interpersonal Communication

**GEO 3: Demonstrate computational skills and mathematical reasoning (4 credits)***Take the following:*

MAT 130 Quantitative Reasoning or higher

**GEO 4: Demonstrate scientific reasoning (4-5 credits)***Choose one of the following:*

BIO 110 Introductory Biology

BIO 132 Human Biology

BIO 158 Environmental Science

|     |     |                                |
|-----|-----|--------------------------------|
| BIO | 161 | General Biology I              |
| BIO | 162 | General Biology II             |
| BIO | 220 | Microbiology                   |
| BIO | 253 | Human Anatomy and Physiology I |
| CEM | 131 | Fundamentals of Chemistry      |
| CEM | 141 | General Chemistry I            |
| GEL | 109 | Earth Science                  |
| GEL | 160 | Introduction to Geology        |
| NSC | 131 | Contemporary Science           |
| PHY | 131 | Conceptual Physics             |
| PHY | 151 | Astronomy                      |
| PHY | 231 | College Physics I              |
| PHY | 251 | Modern University Physics I    |

**GEO 5: Understand human behavior and social systems, and the principles which govern them (3-4 credits)**

*Choose one of the following:*

|     |     |                              |
|-----|-----|------------------------------|
| ECN | 231 | Macroeconomics               |
| ECN | 232 | Microeconomics               |
| PLS | 141 | American National Government |
| PSY | 140 | Introduction to Psychology   |
| SOC | 231 | Principles of Sociology      |

**GEO 6: Understand aesthetic experience and artistic creativity (3 credits)**

*Choose one of the following:*

|     |     |                                     |
|-----|-----|-------------------------------------|
| ART | 111 | Art History: Prehistoric to 1400    |
| ART | 112 | Art History: Renaissance to Present |
| ENG | 210 | Introduction to Film                |
| ENG | 246 | Short Story and Novel               |
| ENG | 247 | Poetry and Drama                    |
| ENG | 249 | African-American Literature         |
| ENG | 252 | Shakespeare                         |
| ENG | 254 | Children's Literature               |
| ENG | 255 | American Literature – 19th Century  |
| ENG | 256 | American Literature – 20th Century  |
| HUM | 131 | Cultural Connections                |
| MUS | 131 | Understanding Music                 |
| THR | 116 | Introduction to Theatre             |

**GEO 7: Understand and respect the diversity and interdependence of the world's peoples and cultures (3-4 credits)**

*Choose one of the following:*

|     |     |                               |
|-----|-----|-------------------------------|
| ANT | 131 | Cultural Anthropology         |
| COM | 250 | Intercultural Communications  |
| ENG | 236 | Women in a Changing Society   |
| ENG | 242 | Sports in Film and Literature |
| ENG | 249 | African-American Literature   |
| ENG | 257 | World Literature              |
| FRN | 131 | French I                      |
| GEO | 132 | World Regions                 |
| GER | 131 | German I                      |
| HIS | 125 | African-American History      |
| HIS | 211 | Minority Groups in America    |

|     |     |                               |
|-----|-----|-------------------------------|
| HUM | 131 | Cultural Connections          |
| MUS | 130 | Music of Non-Western Cultures |
| PHL | 243 | World Religions               |
| PLS | 262 | International Relations       |
| SOC | 236 | Women in a Changing Society   |
| SOC | 246 | Marriage and Family           |
| SPN | 131 | Spanish I                     |

**CULINARY ARTS AND HOSPITALITY MANAGEMENT RELATED REQUIREMENTS (10-11 CREDITS)**

*Take the following:*

|     |     |  |
|-----|-----|--|
| CIS | 101 | Computer Information Systems <b>OR</b> |
| CIS | 201 | Advanced Information Technologies      |

|     |     |                               |
|-----|-----|-------------------------------|
| ACC | 216 | Financial Accounting Concepts |
|-----|-----|-------------------------------|

*Choose one of the following:*

|     |     |  |
|-----|-----|--|
| ACC | 231 | Principles of Accounting I                 |
| ACC | 232 | Principles of Accounting II                |
| ACC | 234 | Managerial Accounting                      |
| ACC | 240 | Intermediate Accounting                    |
| BUA | 100 | Contemporary Business                      |
| BUA | 120 | Human Relations in Business                |
| BUA | 121 | Leadership                                 |
| BUA | 122 | Successful Small Business                  |
| BUA | 130 | Customer Service                           |
| BUA | 131 | Effective Selling                          |
| BUA | 220 | Principles of Management                   |
| BUA | 221 | Human Resource Management                  |
| BUA | 230 | Principles of Marketing                    |
| BUA | 231 | Advertising, Promotion, & Public Relations |
| BUA | 245 | Internship/Externship                      |
| BUA | 250 | Business Law I                             |
| BUA | 251 | Business Law II                            |

**CULINARY ARTS AND HOSPITALITY MANAGEMENT CORE REQUIREMENTS (38 CREDITS)**

*Take the following:*

|     |     |   |
|-----|-----|---|
| CUL | 100 | Introduction to Hospitality                           |
| CUL | 101 | ServSafe Fundamentals                                 |
| CUL | 115 | Baking and Pastry II                                  |
| CUL | 118 | Nutrition for Food Service and Culinary Professionals |
| CUL | 120 | Culinary Skills                                       |
| CUL | 121 | Introduction to Food Production Techniques            |
| CUL | 150 | Food Service Management                               |
| CUL | 175 | International Cuisine                                 |
| CUL | 224 | Food and Beverage Cost Control                        |
| CUL | 231 | à la Carte Kitchen                                    |
| CUL | 250 | Principles of Beverage Service                        |
| CUL | 227 | Contemporary Cuisine                                  |
| CUL | 230 | Quantity Food Production                              |
| CUL | 245 | Internship I  |

## Culinary Arts – Certificate (CUAR.CERT)

Culinary arts professionals have a variety of responsibilities that may include supervising and coordinating the activities of food service workers or dining room employees, planning menus, estimating daily or weekly needs, ordering and maintaining inventories of supplies and equipment, and keeping records of meals served. The certificate will prepare students for entry-level employment in areas of cooking, baking or food service management.

|                                      |     |
|--------------------------------------|-----|
| Minimum credits.....                 | 37  |
| Minimum cumulative GPA.....          | 2.0 |
| Minimum grade in all courses .....   | 2.0 |
| Minimum Jackson College credits..... | 15  |

### GENERAL EDUCATION REQUIREMENTS (7 CREDITS)

*Take the following:*

|     |     |                                  |
|-----|-----|----------------------------------|
| ENG | 131 | Writing Experience               |
| MAT | 130 | Quantitative Reasoning or higher |

### CULINARY ARTS RELATED REQUIREMENTS (3 CREDITS)

*Choose one of the following*

|     |     |                                   |
|-----|-----|-----------------------------------|
| CIS | 101 | Computer Information Systems      |
| CIS | 201 | Advanced Information Technologies |

### CULINARY ARTS CORE REQUIREMENTS (27 CREDITS)

*Take the following:*

|     |     |   |
|-----|-----|---|
| CUL | 100 | Introduction to Hospitality Management                |
| CUL | 101 | ServSafe Fundamentals                                 |
| CUL | 115 | Baking and Pastry II                                  |
| CUL | 118 | Nutrition for Food Service and Culinary Professionals |
| CUL | 120 | Introduction to Culinary Skills                       |
| CUL | 121 | Introduction to Food Preparation Techniques           |
| CUL | 227 | Contemporary Cuisine                                  |
| CUL | 231 | à la Carte Kitchen                                    |

## Culinary Arts – Concentration (CUAR.CON)

The rapidly growing hospitality industry offers various management careers in food and beverage, hotel and culinary arts. A balance of classroom, laboratory, and work experience opportunities combine in this program to provide management preparation for this challenging industry. The culinary arts concentration is primarily designed to prepare students for entry-level positions as chefs.

|                                      |     |
|--------------------------------------|-----|
| Minimum credits.....                 | 19  |
| Minimum cumulative GPA.....          | 2.0 |
| Minimum grade in all courses .....   | 2.0 |
| Minimum Jackson College credits..... | 15  |

### REQUIRED COURSES (19 CREDITS)

*Take the following:*

|     |     |   |
|-----|-----|---|
| CUL | 100 | Introduction to Hospitality                           |
| CUL | 101 | ServSafe Fundamentals                                 |
| CUL | 115 | Baking and Pastry II                                  |
| CUL | 118 | Nutrition for Food Service and Culinary Professionals |
| CUL | 120 | Culinary Skills                                       |
| CUL | 121 | Introduction to Food Production Techniques            |
| CUL | 231 | à la Carte Kitchen                                    |

## Culinary Arts – Skill Set (CUAR.SSET)

Provides hands-on training in hot and cold cooking, culinary skills, sanitation, purchasing, professional baking and cost controls. The culinary arts skill set prepares students for entry-level positions in the food service industry. The 13-credit-hour program includes classes in sanitation and safety, introduction to hospitality, culinary skills and baking.

|                                      |     |
|--------------------------------------|-----|
| Minimum credits.....                 | 13  |
| Minimum cumulative GPA.....          | 2.0 |
| Minimum grade in all courses .....   | 2.0 |
| Minimum Jackson College credits..... | 12  |

### REQUIRED COURSES (13 CREDITS)

*Take the following:*

|     |     |                                  |
|-----|-----|----------------------------------|
| CUL | 100 | Introduction to Hospitality      |
| CUL | 101 | ServSafe Fundamentals            |
| CUL | 115 | Baking and Pastry                |
| CUL | 120 | Culinary Skills                  |
| CUL | 121 | Introduction to Food Productions |

## Cyber Security – Associate in Applied Science (CYSE.AAS)

People involved with cyber security ensure that an organization's computer networks, computer systems and digital information stays safe from cyber attacks. Their responsibilities are continuously expanding as our society and economy relies more and more on our digital assets. This program provides the foundations of cyber security, an emphasis on the methods attackers use to infiltrate computer systems, and the means to mitigate or defeat these attacks. The courses in this program help prepare the student for a variety of industry and vendor certifications. For more information about specific certifications speak with the instructors.

|                                      |     |
|--------------------------------------|-----|
| Minimum credits.....                 | 66  |
| Minimum cumulative GPA.....          | 2.0 |
| Minimum grade in all courses .....   | 2.0 |
| Minimum Jackson College credits..... | 15  |

### GENERAL EDUCATION REQUIREMENTS (23-25 CREDITS)

#### GEO 1: Write clearly, concisely and intelligibly (3 credits)

*Take the following:*

ENG 131 Writing Experience

#### GEO 2: Speak clearly, concisely and intelligibly (3 credits)

*Take the following:*

COM 240 Interpersonal Communication

#### GEO 3: Demonstrate computational skills and mathematical reasoning (4 credits)

*Take the following:*

MAT 131 Intermediate Algebra or higher

#### GEO 4: Demonstrate scientific reasoning (4-5 credits)

*Choose one of the following:*

BIO 110 Introductory Biology  
 BIO 132 Human Biology  
 BIO 158 Environmental Science  
 BIO 161 General Biology I  
 BIO 162 General Biology II  
 BIO 220 Microbiology  
 BIO 253 Human Anatomy and Physiology I  
 CEM 131 Fundamentals of Chemistry  
 CEM 141 General Chemistry I  
 GEL 109 Earth Science  
 GEL 160 Introduction to Geology  
 NSC 131 Contemporary Science  
 PHY 131 Conceptual Physics

PHY 151 Astronomy  
 PHY 231 College Physics I  
 PHY 251 Modern University Physics I

#### GEO 5: Understand human behavior and social systems, and the principles which govern them (3-4 credits)

*Choose one of the following:*

ECN 231 Macroeconomics  
 ECN 232 Microeconomics  
 HIS 131 Western Civilization to 1555  
 HIS 132 Western Civilization 1555 to Present  
 HIS 231 Development of the US through the Civil War  
 HIS 232 Development of the US from the Civil War  
 HIS 235 20th Century History  
 PLS 141 American National Government  
 PSY 140 Introduction to Psychology  
 SOC 231 Principles of Sociology

#### GEO 6: Understand aesthetic experience and artistic creativity (3 credits)

*Choose one of the following:*

ART 111 Art History: Prehistoric to 1400  
 ART 112 Art History: Renaissance to Present  
 ENG 210 Introduction to Film  
 ENG 246 Short Story & Novel  
 ENG 247 Poetry & Drama  
 ENG 249 African-American Literature  
 ENG 252 Shakespeare  
 ENG 254 Children's Literature  
 ENG 255 American Literature - 19th Century  
 ENG 256 American Literature - 20th Century  
 HUM 131 Cultural Connections  
 MUS 131 Understanding Music  
 THR 116 Introduction to Theatre

#### GEO 7: Understand and respect the diversity and interdependence of the world's peoples and cultures (3-4 credits)

*Choose one of the following:*

ANT 131 Cultural Anthropology  
 COM 250 Intercultural Communications  
 ENG 236 Women in a Changing Society  
 ENG 242 Sports in Film and Literature  
 ENG 249 African-American Literature  
 ENG 257 World Literature  
 FRN 131 French I  
 GEO 132 World Regions  
 GER 131 German I  
 HIS 125 African-American History  
 HIS 211 Minority Groups in America  
 HUM 131 Cultural Connections  
 MUS 130 Music of Non-Western Cultures  
 PHL 243 World Religions  
 PLS 262 International Relations



- SOC 236 Women in a Changing Society  
 SOC 246 Marriage and Family  
 SPN 131 Spanish I

### CYBER SECURITY CORE REQUIREMENTS (28 CREDITS)

*Take the following:*

- CNS 101 Network Fundamentals/Network+  
 CNS 102 Routing Protocols and Concepts  
 CNS 103 LAN Switching and Wireless  
 CNS 104 Accessing the WAN  
 CNS 121 Microsoft® Networking Client I  
 CNS 123 Microsoft® Networking Server I  
 CNS 131 Linux Administration I  
 CNS 201 Network Security/Security+  
 CNS 231 Firewalls and Intrusion Detection

### CYBER SECURITY REQUIREMENTS (12 CREDITS)

*Take the following:*

- CNS 221 Securing Microsoft® Networks  
 CNS 233 Hacker Techniques and Incident Handling  
 CNS 234 Ethical Hacking and Penetration Testing  
 CNS 235 Packet Analysis and Network Forensics

### COMPUTER NETWORK AND SECURITY ELECTIVES (3 CREDITS)

*Take 3 credits from the following:*

- CIS 158 Programming Logic  
 CIS 160 Programming in Visual Basic.NET  
 CIS 165 JAVA Programming  
 CIS 170 Programming in C++  
 CIS 174 PC Repair/A+ Hardware Components  
 CIS 175 PC Repair/A+ Software Components  
 CNS 122 Microsoft® Networking Client II  
 CNS 124 Microsoft® Networking Server II  
 CNS 125 Microsoft® Directory Service  
 CNS 128 PowerShell Scripting or Network Administrators  
 CNS 132 Linux Administration II  
 CNS 141 Wireless Networking  
 CNS 232 Computer Forensics I

## Entrepreneurship – Associate in Applied Science (ENTR.AAS)

Entrepreneurship is a discipline that can be applied to virtually any endeavor. Entrepreneurs start their own businesses and non-profit organizations, but they also identify opportunities and develop innovative solutions within the

established organizations for which they work (these types of entrepreneurs are often known as "intrapreneurs"). Given our rapidly changing world, every sector of the economy is looking for people who can analyze market potential and devise strategies to creatively meet the needs of clients. Many of the world's most successful people are entrepreneurs who have been able to devise and implement these creative strategies.

An associate degree or certificate in entrepreneurship is highly adaptable and can be coupled with expertise in another discipline, allowing students to focus in areas which match their passions, skills and opportunities in the marketplace.

|                                      |     |
|--------------------------------------|-----|
| Minimum credits.....                 | 60  |
| Minimum cumulative GPA.....          | 2.0 |
| Minimum grade in all courses .....   | 2.0 |
| Minimum Jackson College credits..... | 15  |

### GENERAL EDUCATION REQUIREMENTS (23-25 CREDITS)

#### GEO 1: Write clearly, concisely and intelligibly (3 credits)

*Take the following:*

- ENG 131 Writing Experience I

#### GEO 2: Speak clearly, concisely and intelligibly (3 credits)

*Take the following:*

- COM 240 Interpersonal Communication

#### GEO 3: Demonstrate computational skills and mathematical reasoning (4 credits)

*Take the following:*

- MAT 133 Introduction to Probability & Statistics

#### GEO 4: Demonstrate scientific reasoning (4-5 credits)

*Choose one of the following:*

##### NSC 131 Contemporary Science (Preferred)

- BIO 110 Introductory Biology  
 BIO 132 Human Biology  
 BIO 158 Environmental Science  
 BIO 220 Microbiology  
 CEM 131 Fundamentals of Chemistry  
 CEM 141 General Chemistry I  
 GEL 109 Earth Science  
 GEL 160 Introduction to Geology  
 PHY 131 Conceptual Physics  
 PHY 151 Astronomy  
 PHY 251 Modern University Physics I

#### GEO 5: Understand human behavior and social systems, and the principles which govern them (3 credits)

*Choose one of the following:*

- ECN 231 Macroeconomics  
 ECN 232 Microeconomics

**GEO 6: Understand aesthetic experience and artistic creativity (3 credits)***Choose one of the following:***HUM 131 Cultural Connections (Preferred)**

|     |     |   |
|-----|-----|---|
| ART | 111 | Art History: Prehistory to 1400         |
| ART | 112 | Art History: Renaissance to the Present |
| ENG | 210 | Introduction to Film                    |
| ENG | 242 | Sports in Film and Literature           |
| ENG | 246 | Short Story and Novel                   |
| ENG | 247 | Poetry and Drama                        |
| ENG | 249 | African-American Literature             |
| ENG | 252 | Shakespeare                             |
| ENG | 254 | Children's Literature                   |
| ENG | 255 | American Literature – 19th Century      |
| ENG | 256 | American Literature – 20th Century      |
| MUS | 131 | Understanding Music                     |
| MUS | 132 | History of American Popular Music       |
| PHL | 231 | Introduction to Philosophy              |
| THR | 116 | Introduction to Theatre                 |

**GEO 7: Understand and respect the diversity and interdependence of the world's people and cultures (3 credits)***Choose one of the following:***PLS 262 International Relations (Preferred)**

|     |     |                                   |
|-----|-----|-----------------------------------|
| ENG | 236 | Women in a Changing Society       |
| FRN | 131 | Elementary French I or higher     |
| GER | 131 | Elementary German I or higher     |
| HIS | 125 | African-American History          |
| HUM | 131 | Cultural Connections              |
| MUS | 132 | History of American Popular Music |

**ENTREPRENEURSHIP RELATED REQUIREMENTS (17 CREDITS)***Take the following:*

|     |     |   |
|-----|-----|---|
| ACC | 216 | Financial Accounting Concepts <b>OR</b> |
| ACC | 231 | Principles of Accounting I              |

|     |     |                |
|-----|-----|----------------|
| BUA | 121 | Leadership     |
| BUA | 250 | Business Law I |

|     |     |  |
|-----|-----|--|
| CIS | 101 | Introduction to Computer Systems <b>OR</b> |
| CIS | 201 | Advanced Information Technologies          |

|     |     |                                |
|-----|-----|--------------------------------|
| CIS | 133 | Brand Identity Design          |
| STM | 101 | Introduction to Sustainability |

**ENTREPRENEURSHIP CORE REQUIREMENTS (9 CREDITS)***Take the following:*

|     |     |   |
|-----|-----|---|
| ENT | 101 | Entrepreneurship: Creating Your Own Job       |
| ENT | 102 | Entrepreneurial Marketing: Finding Your Niche |
| ENT | 169 | Business Plan                                 |

**ELECTIVES (11 CREDITS TOTAL)**

Select electives from courses in ACC, AFT, ALT, ART, AUT, BIO, BUA, CCT, CEM, CIS, CNS, CPS, CRJ, CUL, DMS, ECM, ECN, EDU, EGR, ELT, ENG, GEL, HOC, HPF, MAT, MFG, MIC, MOA, MUS, NSC, PHY, PLS, PTC, PSY, SOC, THR, VID, or WLD to meet the 60 credits required for this degree.

**Entrepreneurship – Certificate (ENTR.CERT)**

This program begins applying the analytical skills which will assist students in creatively solving problems and meeting the needs of constituents either in their own company or in another organization in which they serve. Students can adapt these skills to whatever field(s) of endeavor they decide to pursue.

|                                      |     |
|--------------------------------------|-----|
| Minimum credits.....                 | 30  |
| Minimum cumulative GPA.....          | 2.0 |
| Minimum grade in all courses.....    | 2.0 |
| Minimum Jackson College credits..... | 15  |

**GENERAL EDUCATION REQUIREMENTS (10 CREDITS)***Take the following:*

|     |     |  |
|-----|-----|--|
| COM | 240 | Interpersonal Communication              |
| ENG | 131 | Writing Experience I                     |
| MAT | 133 | Introduction to Probability & Statistics |

**ENTREPRENEURSHIP CORE REQUIREMENTS (17 CREDITS)***Take the following:*

|     |     |   |
|-----|-----|---|
| ACC | 216 | Financial Accounting Concepts <b>OR</b> |
| ACC | 231 | Principles of Accounting I              |

|     |     |  |
|-----|-----|--|
| CIS | 101 | Introduction to Computer Systems <b>OR</b> |
| CIS | 201 | Advanced Information Technologies          |

|     |     |   |
|-----|-----|---|
| CIS | 133 | Brand Identity Design                         |
| ENT | 101 | Entrepreneurship: Creating Your Own Job       |
| ENT | 102 | Entrepreneurial Marketing: Finding Your Niche |
| ENT | 169 | Business Plan                                 |

**ELECTIVES (3 CREDITS)**

Select electives from courses in ACC, AFT, ALT, ART, AUT, BIO, BUA, CCT, CEM, CIS, CNS, CPS, CRJ, CUL, DMS, ECM, ECN, EDU, EGR, ELT, ENG, GEL, HOC, HPF, MAT, MFG, MIC, MOA, MUS, NSC, PHY, PLS, PTC, PSY, SOC, THR, VID, or WLD to meet the 30 credits required for this degree.

## Entrepreneurship – Skill Set

### (ENTR.SSET)

This program is designed to assist the student in making informed decisions regarding the many benefits and costs of starting your own business and finding the right business opportunity “fit.” In addition, you will prepare a completed business plan presentation.

|                                      |     |
|--------------------------------------|-----|
| Minimum credits.....                 | 12  |
| Minimum cumulative GPA.....          | 2.0 |
| Minimum grade in all courses .....   | 2.0 |
| Minimum Jackson College credits..... | 10  |

### ENTREPRENEUR RELATED REQUIREMENTS (3 CREDITS)

*Take the following:*

CIS 101 Introduction to Computer Systems

### ENTREPRENEUR CORE REQUIREMENTS (9 CREDITS)

*Take the following:*

ENT 101 Entrepreneurship: Creating Your Own Job  
 ENT 102 Entrepreneurial Marketing: Finding Your Niche  
 ENT 169 Business Plan

## Executive Assistant – Associate in Applied Science

### (EXAS.AAS)

Executive assistants are professional-level positions who provide support for senior management and executives (VPs, CEOs, CFOs, etc.) of almost every business type, including industrial, retail, medical, legal, finance, education, hospitality, chain stores/restaurants, stock market, non-profits and more. They use expert computer skills to organize and manage their boss's reports and time commitments, often deal with confidential information, and have authority in the executive's absence thereby requiring exceptional critical thinking and interpersonal skills. Executive support positions have to possess proven multi-faceted skills so an internship or work experience may enhance one's employability and success.

|                                      |     |
|--------------------------------------|-----|
| Minimum credits.....                 | 64  |
| Minimum cumulative GPA.....          | 2.0 |
| Minimum grade in all courses .....   | 2.0 |
| Minimum Jackson College credits..... | 17  |

### GENERAL EDUCATION REQUIREMENTS (23-24 CREDITS)

**GEO 1: Write clearly, concisely and intelligibly (3 credits)**

*Take the following:*

ENG 131 Writing Experience I

**GEO 2: Speak clearly, concisely and intelligibly (3 credits)**

*Take the following:*

COM 240 Interpersonal Communication

**GEO 3: Demonstrate computational skills and mathematical reasoning (4 credits)**

*Choose one of the following:*

MAT 133 Introduction to Probability & Statistics (Preferred)

MAT 130 Quantitative Reasoning

**GEO 4: Demonstrate scientific reasoning (4-5 credits)**

*Choose one of the following:*

BIO 110 Introductory Biology

BIO 132 Human Biology

BIO 158 Environmental Science

BIO 161 General Biology I

BIO 162 General Biology II

BIO 220 Microbiology

BIO 253 Human Anatomy and Physiology I

CEM 131 Fundamentals of Chemistry

CEM 141 General Chemistry I

GEL 109 Earth Science

GEL 160 Introduction to Geology

NSC 131 Contemporary Science

PHY 131 Conceptual Physics

PHY 151 Astronomy

PHY 231 College Physics I

PHY 251 Modern University Physics I

**GEO 5: Understand human behavior and social systems, and the principles which govern them (3 credits)**

*Choose one of the following:*

ECN 231 Macroeconomics

ECN 232 Microeconomics

**GEO 6: Understand aesthetic experience and artistic creativity (3 credits)**

*Choose one of the following:*

ART 111 Art History: Prehistoric to 1400

ART 112 Art History: Renaissance to Present

ENG 210 Introduction to Film

ENG 246 Short Story & Novel

ENG 247 Poetry & Drama

ENG 249 African-American Literature

ENG 252 Shakespeare

ENG 255 American Literature – 19th Century

ENG 256 American Literature – 20th Century  
 HUM 131 Cultural Connections  
 MUS 131 Understanding Music  
 THR 116 Introduction to Theatre

**GEO 7: Understand and respect the diversity and interdependence of the world's peoples and cultures (3 credits)**

*Take the following:*

COM 250 Intercultural Communications

**EXECUTIVE ASSISTANT RELATED REQUIREMENTS (7 CREDITS)**

*Take the following:*

ACC 216 Financial Accounting Concepts **OR**

ACC 231 Principles of Accounting I

ENG 232 Technical & Business Writing

**EXECUTIVE ASSISTANT CORE REQUIREMENTS (34 CREDITS)**

*Take the following:*

BUA 100 Contemporary Business

BUA 121 Leadership

BUA 130 Customer Service

BUA 220 Principles of Management

BUA 230 Principles of Marketing

BUA 245 Internship/Externship

CIS 101 Introduction to Computer Systems

CIS 120 Microsoft® Word® Comprehensive – Windows

CIS 121 Microsoft® Excel® Comprehensive – Windows

CIS 125 Microsoft® Expressions® Web

CIS 201 Advanced Information Technologies

CIS 210 Office Administration Systems

**GENERAL EDUCATION REQUIREMENTS (10 CREDITS)**

*Take the following:*

ENG 131 Writing Experience I

ENG 232 Technical & Business Writing

*Choose one of the following:*

**MAT 133 Introduction to Probability and Statistics (Preferred)**

MAT 130 Quantitative Reasoning

**MANAGEMENT RELATED REQUIREMENTS (4 CREDITS)**

*Choose one of the following:*

ACC 231 Principles of Accounting I

ACC 216 Financial Accounting Concepts

**MANAGEMENT CORE REQUIREMENTS (12 CREDITS)**

*Take the following:*

BUA 100 Contemporary Business

BUA 130 Customer Service **OR**

BUA 120 Human Relations

BUA 220 Principles of Management

BUA 221 Human Resource Management

**ELECTIVES**

Select electives from classes in ACC, BUA, CIS or ECN in order to meet 30 credits required for certificate.

**Marketing – Certificate**

**(MRKT.CERT)**

Individuals considering a marketing career should be good listeners, enjoy current events and look forward to the business challenges that come with changing cultural habits. Also important are the abilities to think creatively, communicate effectively and manage time wisely to meet deadlines.

Minimum credits.....33  
 Minimum cumulative GPA.....2.0  
 Minimum grade in all courses .....2.0  
 Minimum Jackson College credits.....15

**Management – Certificate**

**(MGMT.CERT)**

People with management skills are employed in every industry in the career world. This program will build on your natural ability to get along with people and help develop your leadership potential. The focus in this program is on the principles, theories and application of planning, organizing, leading, staffing and evaluating results. Having good communication skills and the ability to make reliable decisions without supervision are essential to beginning a career in management.

Minimum credits.....30  
 Minimum cumulative GPA.....2.0  
 Minimum grade in all courses .....2.0  
 Minimum Jackson College credits.....15



## GENERAL EDUCATION REQUIREMENTS (10 CREDITS)

Take the following:

- ENG 131 Writing Experience I  
ENG 232 Technical & Business Writing

Choose one of the following:

- MAT 133 Introduction to Probability and Statistics (Preferred)**  
MAT 130 Quantitative Reasoning

## MARKETING CORE REQUIREMENTS (12 CREDITS)

Take the following:

- BUA 100 Contemporary Business  
BUA 130 Customer Service  
BUA 230 Principles of Marketing  
BUA 231 Advertising, Promotion & Public Relations

## MARKETING RELATED REQUIREMENTS (11 CREDITS)

Take the following:

- CIS 201 Advanced Information Technology **OR**  
ECM 201 Advanced Information Technology
- CIS 126 Digital Design Fundamentals  
CIS 133 Brand Identity Design  
CIS 138 Image Editing Applications  
ECM 220 eBusiness: SEO / Management / Measurement

## Microsoft® Networking – Concentration (MSNW.CON)

|                                      |     |
|--------------------------------------|-----|
| Minimum credits.....                 | 26  |
| Minimum cumulative GPA.....          | 2.0 |
| Minimum grade in all courses .....   | 2.0 |
| Minimum Jackson College credits..... | 15  |

## REQUIRED COURSES (26 CREDITS)

Take the following:

- CIS 174 PC Repair / A+ Hardware Component  
CIS 175 PC Repair / A+ Software Component  
CIS 176 A+ Certification Exam Preparation  
CNS 101 Network+/Networking Fundamentals  
CNS 102 Routing Protocols and Concepts  
CNS 121 Microsoft® Networking Client I  
CNS 122 Microsoft® Networking Client II  
CNS 201 Network Security/Security+  
CNS 231 Firewalls and Intrusion Detection

## Microsoft® Office® Specialist – Certificate (MSOS.CERT)

Students completing this program are prepared to assume a variety of positions in an automated office setting. The program recognizes the increasingly important role of the personal computer in modern business and is designed to assist students in developing their skills in the use of graphing, personal management, project management and electronic presentations. The Microsoft® Office® Specialist program provides a framework for measuring student proficiency with Microsoft® Office® applications and prepares students for the industry recognized Microsoft® exams for measuring an individual's mastery of Office® applications. Students completing the program could be hired at entry-level positions such as secretaries, help desk technicians, administrative assistants and stenographers. Students can continue and pursue an associate degree for the administrative assistant program.

|                                      |     |
|--------------------------------------|-----|
| Minimum credits.....                 | 38  |
| Minimum cumulative GPA.....          | 2.0 |
| Minimum grade in all courses .....   | 2.0 |
| Minimum Jackson College credits..... | 15  |

## GENERAL EDUCATION REQUIREMENTS (13 CREDITS)

Take the following:

- COM 231 Communication Fundamentals **OR**  
COM 240 Interpersonal Communication

- ENG 131 Writing Experience I

- ENG 132 Writing Experience II **OR**  
ENG 232 Technical & Business Writing

- MAT 131 Intermediate Algebra or higher

## MICROSOFT® OFFICE® SPECIALIST CORE REQUIREMENTS (25 CREDITS)

Take the following:

- CIS 110 Beginning Keyboarding/Typing  
CIS 117 Microsoft® Outlook® Workshop  
CIS 118 Microsoft® Publisher® Windows®  
CIS 119 Microsoft® PowerPoint®  
CIS 120 Microsoft® Word® Comprehensive  
CIS 121 Microsoft® Excel® Comprehensive  
CIS 122 Microsoft® Access® Comprehensive  
CIS 147 Web Page Design I (Dreamweaver®)  
CIS 201 Advanced Computer Information Technologies  
CIS 210 Office Administration Systems

## Microsoft® Office® Specialist – Concentration (*MSOS.CON*)

These courses are part of the Microsoft® Certified Applications Specialist credential tests. Students who pass the “expert” Word® and Excel® exams and the “specialist” Access® and PowerPoint® exams will receive “Master” recognition from the Microsoft® Corporation. Other levels of Microsoft® Office® certification are available from Microsoft® as students begin passing exams. The successful completion of Microsoft® Office® sponsored exams are in addition to the successful completion of Jackson College’s courses for credit. For specific information on Microsoft® certification, students should talk with the program advisor. Students completing the program could be hired at entry-level positions such as office clerks, receptionists, or help desk technicians. Students completing this concentration can continue on with the Computer Support Specialist certificate and associate degree or the Microsoft Office® Specialist Certificate and Administrative Assistant associate degree.

|                                      |     |
|--------------------------------------|-----|
| Minimum credits.....                 | 18  |
| Minimum cumulative GPA.....          | 2.0 |
| Minimum grade in all courses .....   | 2.0 |
| Minimum Jackson College credits..... | 15  |

### REQUIRED COURSES (18 CREDITS)

*Take the following:*

|     |     |                                   |
|-----|-----|-----------------------------------|
| CIS | 110 | Beginning Keyboarding/Typing      |
| CIS | 117 | Microsoft® Outlook® Workshop      |
| CIS | 119 | Microsoft® PowerPoint®            |
| CIS | 120 | Microsoft® Word® Comprehensive    |
| CIS | 121 | Microsoft® Excel® Comprehensive   |
| CIS | 122 | Microsoft® Access® Comprehensive  |
| CIS | 147 | Web Page Design I (Dreamweaver®)  |
| CIS | 201 | Advanced Information Technologies |

## Networking Specialist – Associate in Applied Science (*NESP.AAS*)

Networking involves the hardware, software and communication channels necessary to allow computers to talk to each other. Most organizations use computer networks and need networking specialists to maintain their networks. Several other occupations may utilize networking skills, such as office assistants, accountants or managers. Students will study the various components of networking and how to secure them. These courses help prepare students to take industry certification exams from CompTIA, Cisco, Microsoft and others. For specific information on these certifications, please talk to the instructors.

|                                      |     |
|--------------------------------------|-----|
| Minimum credits.....                 | 66  |
| Minimum cumulative GPA.....          | 2.0 |
| Minimum grade in all courses .....   | 2.0 |
| Minimum Jackson College credits..... | 15  |

### GENERAL EDUCATION REQUIREMENTS (23-25 CREDITS)

#### GEO 1: Write clearly, concisely and intelligibly (3 credits)

*Take the following:*

ENG 131 Writing Experience I

#### GEO 2: Speak clearly, concisely and intelligibly (3 credits)

*Take the following:*

COM 240 Interpersonal Communication

#### GEO 3: Demonstrate computational skills and mathematical reasoning (4 credits)

*Take the following:*

MAT 131 Intermediate Algebra or higher

#### GEO 4: Demonstrate scientific reasoning (4-5 credits)

*Choose one of the following:*

|     |     |                                |
|-----|-----|--------------------------------|
| BIO | 110 | Introductory Biology           |
| BIO | 132 | Human Biology                  |
| BIO | 158 | Environmental Science          |
| BIO | 161 | General Biology I              |
| BIO | 162 | General Biology II             |
| BIO | 220 | Microbiology                   |
| BIO | 253 | Human Anatomy and Physiology I |
| CEM | 131 | Fundamentals of Chemistry      |
| CEM | 141 | General Chemistry I            |
| GEL | 109 | Earth Science                  |
| GEL | 160 | Introduction to Geology        |
| NSC | 131 | Contemporary Science           |

|     |     |                             |
|-----|-----|-----------------------------|
| PHY | 131 | Conceptual Physics          |
| PHY | 151 | Astronomy                   |
| PHY | 231 | College Physics I           |
| PHY | 251 | Modern University Physics I |

**GEO 5: Understand human behavior and social systems, and the principles which govern them (3-4 credits)**

*Choose one of the following:*

|     |     |   |
|-----|-----|---|
| ECN | 231 | Macroeconomics                              |
| ECN | 232 | Microeconomics                              |
| HIS | 131 | Western Civilization to 1555                |
| HIS | 132 | Western Civilization 1555 to Present        |
| HIS | 231 | Development of the US through the Civil War |
| HIS | 232 | Development of the US from the Civil War    |
| HIS | 235 | 20th Century History                        |
| PLS | 141 | American National Government                |
| PSY | 140 | Introduction to Psychology                  |
| SOC | 231 | Principles of Sociology                     |

**GEO 6: Understand aesthetic experience and artistic creativity (3 credits)**

*Choose one of the following:*

|     |     |                                     |
|-----|-----|-------------------------------------|
| ART | 111 | Art History: Prehistoric to 1400    |
| ART | 112 | Art History: Renaissance to Present |
| ENG | 210 | Introduction to Film                |
| ENG | 246 | Short Story & Novel                 |
| ENG | 247 | Poetry & Drama                      |
| ENG | 249 | African-American Literature         |
| ENG | 252 | Shakespeare                         |
| ENG | 254 | Children's Literature               |
| ENG | 255 | American Literature – 19th Century  |
| ENG | 256 | American Literature – 20th Century  |
| HUM | 131 | Cultural Connections                |
| MUS | 131 | Understanding Music                 |
| THR | 116 | Introduction to Theatre             |

**GEO 7: Understand and respect the diversity and interdependence of the world's peoples and cultures (3-4 credits)**

*Choose one of the following:*

|     |     |                               |
|-----|-----|-------------------------------|
| ANT | 131 | Cultural Anthropology         |
| COM | 250 | Intercultural Communications  |
| ENG | 236 | Women in a Changing Society   |
| ENG | 242 | Sports in Film and Literature |
| ENG | 249 | African-American Literature   |
| ENG | 257 | World Literature              |
| FRN | 131 | French I                      |
| GEO | 132 | World Regions                 |
| GER | 131 | German I                      |
| HIS | 125 | African-American History      |
| HIS | 211 | Minority Groups in America    |
| HUM | 131 | Cultural Connections          |
| MUS | 130 | Music of Non-Western Cultures |
| PHL | 243 | World Religions               |

|     |     |                             |
|-----|-----|-----------------------------|
| PLS | 262 | International Relations     |
| SOC | 236 | Women in a Changing Society |
| SOC | 246 | Marriage and Family         |
| SPN | 131 | Spanish I                   |

**NETWORKING CORE REQUIREMENTS (28 CREDITS)**

*Take the following:*

|     |     |                                   |
|-----|-----|-----------------------------------|
| CNS | 101 | Network Fundamentals/Network+     |
| CNS | 102 | Routing Protocols and Concepts    |
| CNS | 103 | LAN Switching and Wireless        |
| CNS | 104 | Accessing the WAN                 |
| CNS | 121 | Microsoft® Networking Client I    |
| CNS | 123 | Microsoft® Networking Server I    |
| CNS | 131 | Linux Administration I            |
| CNS | 201 | Network Security/Security+        |
| CNS | 231 | Firewalls and Intrusion Detection |

**NETWORK ADMINISTRATION REQUIREMENTS (12 CREDITS)**

*Take the following:*

|     |     |   |
|-----|-----|---|
| CNS | 122 | Microsoft® Networking Client II                 |
| CNS | 124 | Microsoft® Networking Server IV                 |
| CNS | 125 | Microsoft® Directory Service                    |
| CNS | 128 | PowerShell Scripting for Network Administrators |

**COMPUTER NETWORK AND SECURITY ELECTIVES (3 CREDITS)**

*Take 3 credits from the following:*

|     |     |   |
|-----|-----|---|
| CIS | 158 | Programming Logic                       |
| CIS | 160 | Programming in Visual Basic.NET         |
| CIS | 165 | JAVA Programming                        |
| CIS | 170 | Programming in C++                      |
| CIS | 174 | PC Repair/A+ Hardware Components        |
| CIS | 175 | PC Repair/A+ Software Components        |
| CNS | 221 | Securing Microsoft Networks             |
| CNS | 132 | Linux Administration II                 |
| CNS | 141 | Wireless Networking                     |
| CNS | 232 | Computer Forensics I                    |
| CNS | 233 | Hacker Techniques and Incident Handling |
| CNS | 234 | Ethical Hacking and Penetration Testing |
| CNS | 235 | Packet Analysis and Network Forensics   |

## Networking Specialist – Certificate (NESP.CERT)

Networking involves the hardware, software and communication channels necessary to allow computers to talk to each other. Students will study various components of computer networking. Each 200-level networking class helps prepare students with the skills and knowledge to take vendor-sponsored certification exams. Students who pass the related core exams will be CompTIA Network+ certified and recognized as a Microsoft® Certified Systems Administrator (MCSA). Students who pass the appropriate related elective exam can also achieve the premier certifications of Microsoft® Certified System Engineer (MCSE) and Certified Cisco Network Administrator (CCNA). Nearly all organizations of any size use computer networks to leverage their core competencies. These organizations need trained networking specialists to install, maintain and troubleshoot their networks. The CompTIA and Microsoft® certifications are recognized as industry standards and are required by many employers.

|                                      |     |
|--------------------------------------|-----|
| Minimum credits.....                 | 32  |
| Minimum cumulative GPA.....          | 2.0 |
| Minimum grade in all courses .....   | 2.0 |
| Minimum Jackson College credits..... | 15  |

### GENERAL EDUCATION REQUIREMENTS (7 CREDITS)

*Take the following:*

|         |                                |
|---------|--------------------------------|
| ENG 131 | Writing Experience I           |
| MAT 131 | Intermediate Algebra or higher |

### NETWORKING SPECIALIST CORE REQUIREMENTS (25 CREDITS)

*Take the following:*

|         |                                   |
|---------|-----------------------------------|
| CNS 101 | Network Fundamentals/Network+     |
| CNS 102 | Routing Protocols and Concepts    |
| CNS 103 | LAN Switching and Wireless        |
| CNS 104 | Accessing the WAN                 |
| CNS 121 | Microsoft® Networking Client I    |
| CNS 122 | Microsoft® Networking Client II   |
| CNS 201 | Network Security/Security+        |
| CNS 231 | Firewalls and Intrusion Detection |

## Network+/Security+ – Concentration (NWSC.CON)

There is compelling evidence that neither technologies nor policies alone offer effective protection against security threats. Theft and destruction of intellectual property takes

place despite the presence of firewalls, encryption and corporate edicts. Industry and governments around the world must have a well-trained workforce to effectively combat hackers, attacks and security threats. This concentration is designed to prepare students to work as an information technology professional with a knowledge of information security within computer networks. Both the CompTIA (Computing Technology Industry Association) Network+ and Security+ certifications are recognized as basic industry standards and are required by many employers. Jackson College provides this program to prepare students to pass both exams. The exams are administered by CompTIA agents.

|                                      |     |
|--------------------------------------|-----|
| Minimum credits.....                 | 19  |
| Minimum cumulative GPA.....          | 2.0 |
| Minimum grade in all courses .....   | 2.0 |
| Minimum Jackson College credits..... | 15  |

### REQUIRED COURSES (19 CREDITS)

*Take the following:*

|         |                                   |
|---------|-----------------------------------|
| CNS 101 | Network+/Networking Fundamentals  |
| CNS 102 | Routing Protocols and Concepts    |
| CNS 121 | Microsoft® Networking Client I    |
| CNS 122 | Microsoft® Networking Client II   |
| CNS 201 | Network Security/Security+        |
| CNS 231 | Firewalls and Intrusion Detection |

## Sports Management – Associate in Applied Science (SMGT.AAS)

A program that prepares individuals to apply business, coaching, and physical education principles to the organization, administration and management of athletic programs and teams, fitness/rehabilitation facilities and health clubs, sport recreation services and related services. Includes instruction in: program planning and development, business and financial management principles, sales, marketing and recruitment, event promotion, scheduling and management, facilities management, public relations, legal aspects of sports, and applicable health and safety standards.

|                                      |     |
|--------------------------------------|-----|
| Minimum credits.....                 | 60  |
| Minimum cumulative GPA.....          | 2.0 |
| Minimum grade in all courses .....   | 2.0 |
| Minimum Jackson College credits..... | 15  |



## GENERAL EDUCATION REQUIREMENTS (27-29 CREDITS)

### GEO 1: Write clearly, concisely and intelligibly (3 credits)

*Take the following:*

ENG 131 Writing Experience I

### GEO 2: Speak clearly, concisely and intelligibly (3 credits)

*Take the following:*

COM 250 Intercultural Communications

### GEO 3: Demonstrate computational skills and mathematical reasoning (4 credits)

*Choose one of the following:*

MAT 133 Introduction to Probability & Statistics (Preferred)

MAT 130 Quantitative Reasoning

### GEO 4: Demonstrate scientific reasoning (8-10 credits)

*Choose two of the following:*

BIO 132 Human Biology

CEM 141 General Chemistry I

GEL 109 Earth Science

NSC 131 Contemporary Science

PHY 151 Astronomy

PHY 251 Modern University Physics I

### GEO 5: Understand human behavior and social systems, and the principles which govern them (3 credits)

*Choose one of the following:*

ECN 231 Macroeconomics

ECN 232 Microeconomics

### GEO 6: Understand aesthetic experience and artistic creativity (3 credits)

*Take the following:*

ENG 242 Sports in Film & Literature

### GEO 7: Understand and respect the diversity and interdependence of the world's peoples and cultures (3 credits)

*Take the following:*

HUM 131 Cultural Connections

## SPORTS MANAGEMENT RELATED REQUIREMENTS (14 CREDITS)

*Take the following:*

ACC 231 Principles of Accounting I

CIS 101 Introduction to Computer Systems **OR**

CIS 201 Advanced Information Technologies

PHL 236 Ethics

PSY 140 Introduction to Psychology

## SPORTS MANAGEMENT CORE REQUIREMENTS (19 CREDITS)

*Take the following:*

BUA 220 Principles of Management

HPF 173 Sports Matters

PSY 232 Sports Psychology

SMT 100 Introduction to Sports Management

SMT 230 Principles of Sports Marketing

SMT 245 Internship **OR**

SMT 255 Capstone

## Web Technology eCommerce Consultant – Certificate (WTEC.CERT)

Upon completion, students will be skilled to consult with clients regarding their desires for an eCommerce site, as well as manage inventory through integrated database technology.

Minimum credits..... 40

Minimum cumulative GPA..... 2.0

Minimum grade in all courses ..... 2.0

Minimum Jackson College credits..... 15

## GENERAL EDUCATION REQUIREMENTS (7 CREDITS)

*Take the following:*

ENG 131 Writing Experience I

*Choose one of the following:*

MAT 133 Introduction to Probability & Statistics (Preferred)

MAT 130 Quantitative Reasoning

## eCOMMERCE CONSULTANT CORE REQUIREMENTS (33 CREDITS)

*Take the following:*

CIS 101 Introduction to Computer Systems

CIS 122 Microsoft® Access® Comprehensive-Windows®

CIS 125 Microsoft® Expressions® Web

CIS 133 Digital Image Design

CIS 135 Open Source Web Design

CIS 138 Image Editing Applications

CIS 143 HTML

CIS 158 Programming Logic

CIS 244 Web Programming

CIS 246 Web Integration with Database

ECM 101 eCommerce Fundamentals

ECM 201 Advanced Information Technologies

ECM 220 eBusiness II: SEO/Management

ENT 101 Entrepreneurship: Creating Your Own Job

## Web Technology eCommerce Designer – Skill Set (WTED.SSET)

Upon completion students will be skilled to use open source or boxed software to build an eCommerce website considerate of legal requirements, eCommerce concepts, and technology requirements.

|                                      |     |
|--------------------------------------|-----|
| Minimum credits.....                 | 5   |
| Minimum cumulative GPA.....          | 2.0 |
| Minimum grade in all courses .....   | 2.0 |
| Minimum Jackson College credits..... | 5   |

### eCOMMERCE DESIGNER CORE REQUIREMENTS (5 CREDITS)

*Take the following:*

|     |     |                             |
|-----|-----|-----------------------------|
| EMC | 101 | eCommerce Fundamentals      |
| CIS | 125 | Microsoft® Expressions® Web |
| CIS | 135 | Open Source Web Design      |

.....

## Web Technology eCommerce Entrepreneur – Concentration (WTEE.CON)

Upon completion students will be skilled to assess the opportunities available to launch an entrepreneurial venture, as well as develop a plan to incorporate an eCommerce website.

|                                      |     |
|--------------------------------------|-----|
| Minimum credits.....                 | 20  |
| Minimum cumulative GPA.....          | 2.0 |
| Minimum grade in all courses .....   | 2.0 |
| Minimum Jackson College credits..... | 15  |

### eCOMMERCE ENTREPRENEUR CORE REQUIREMENTS (20 CREDITS)

*Take the following:*

|     |     |   |
|-----|-----|---|
| CIS | 125 | Microsoft® Expressions® Web                   |
| CIS | 135 | Open Source Web Design                        |
| CIS | 143 | HTML  |
| ECM | 101 | eCommerce Fundamentals                        |
| ECM | 201 | Advanced Information Technologies             |
| ECM | 220 | eBusiness II: SEO/Management                  |
| ENT | 101 | Entrepreneurship: Creating Your Own Job       |
| ENT | 102 | Entrepreneurial Marketing: Finding Your Niche |
| ENT | 169 | Business Plan                                 |

## Web Technology eCommerce Manager – Skill Set (WTEM.SSET)

Upon completion students will be skilled to manage an eCommerce site's search engine optimization, share product files across platforms, and utilize mobile technologies and advertising campaigns to ensure optimal efficiency of the site.

|                                      |     |
|--------------------------------------|-----|
| Minimum credits.....                 | 9   |
| Minimum cumulative GPA.....          | 2.0 |
| Minimum grade in all courses .....   | 2.0 |
| Minimum Jackson College credits..... | 9   |

### eCOMMERCE MANAGER CORE REQUIREMENTS (9 CREDITS)

*Take the following:*

|     |     |                                   |
|-----|-----|-----------------------------------|
| ECM | 101 | eCommerce Fundamentals            |
| ECM | 201 | Advanced Information Technologies |
| ECM | 220 | eBusiness II: SEO/Management      |

## Web Technology eCommerce Specialist – Concentration (WTES.CON)

Upon completion, students will be skilled to design an eCommerce site, manage its traffic and maximize the appearance of the site in search engine results.

|                                      |     |
|--------------------------------------|-----|
| Minimum credits.....                 | 15  |
| Minimum cumulative GPA.....          | 2.0 |
| Minimum grade in all courses .....   | 2.0 |
| Minimum Jackson College credits..... | 15  |

### eCOMMERCE SPECIALIST CORE REQUIREMENTS (15 CREDITS)

*Take the following:*

|     |     |                                   |
|-----|-----|-----------------------------------|
| CIS | 125 | Microsoft® Expressions® Web       |
| CIS | 133 | Digital Image Design              |
| CIS | 135 | Open Source Web Design            |
| CIS | 138 | Image Editing Applications        |
| CIS | 143 | HTML                              |
| ECM | 101 | eCommerce Fundamentals            |
| ECM | 201 | Advanced Information Technologies |
| ECM | 220 | eBusiness II: SEO/Management      |



## HEALTH SCIENCES PATHWAY

To meet the ever-expanding demand for qualified health sciences professionals, Jackson College's Health Sciences Pathway offers a wide array of associate degree and certificate programs as well as concentrations and skill-sets. These programs combine classroom instruction, laboratory experience and clinical practice to assure that students obtain the most current and the highest level skills in their chosen health profession. Students interested in health sciences programs may obtain admission requirement information from their student success navigator. If additional information is desired, contact the director for the program of interest.

Students in the Health Sciences Pathway that require clinical rotations at health care facilities may be required to submit to a drug test. If the student tests positive for illicit drugs, the student will be removed from the program. Criminal background checks may also be performed and may prevent admission if failed.

### Degrees/Certificates

- Allied Health General Studies
- Cardiac Sonography (Second Admit Program)
- Emergency Medical Service, Paramedic
- General Sonography (Second Admit Program)
- Health Administration/Insurance Specialist
- Medical Assistant
- Medical Insurance Coder/Biller
- Nursing, ADN (RN) (Second Admit Program)
- Nursing, LPN to RN (Second Admit Program)
- Nursing, Practical (LPN) (Second Admit Program)
- Radiography (Second Admit Program)
- Respiratory Care (Second Admit Program)
- Vascular Sonography (Second Admit Program)
- Concentrations and Skill Sets

# Allied Health General Studies – Associate in Applied Science (AHGS.AAS)

The Allied Health General Studies program is specifically designed for those who have already earned some form of certification or licensure in an allied health profession and are looking to obtain an associate degree in order to further their education or employment opportunities. Certification or licensure, which must be submitted to determine eligibility, may meet up to 30 credits toward the allied health core requirements. Educational focus options are described below which will provide the opportunity to meet the 33-credit core requirement.

|                                      |     |
|--------------------------------------|-----|
| Minimum credits.....                 | 60  |
| Minimum cumulative GPA.....          | 2.0 |
| Minimum grade in all courses .....   | 2.0 |
| Minimum Jackson College credits..... | 15  |

## GENERAL EDUCATION REQUIREMENTS (24 CREDITS)

### GEO 1: Write clearly, concisely and intelligibly (3 credits)

*Take the following:*

ENG 131 Writing Experience I

### GEO 2: Speak clearly, concisely and intelligibly (3 credits)

*Choose one of the following:*

COM 231 Communication Fundamentals

COM 240 Interpersonal Communication

COM 250 Intercultural Communication

### GEO 3: Demonstrate computational skills and mathematical reasoning (4 credits)

*Take the following:*

MAT 130 Quantitative Reasoning or higher

### GEO 4: Demonstrate scientific reasoning (4-8 credits)

*Choose one of the following: If in the Science Focus Track the requirement may be met with an elective course.*

*Please check for any prerequisite requirements.*

BIO 132 Human Biology (Preferred) OR

BIO 253 Human Anatomy and Physiology I **AND**

BIO 254 Human Anatomy and Physiology II

### GEO 5: Understand human behavior and social systems, and the principles that govern them (4 credits)

*Take the following:*

PSY 140 Introduction to Psychology

### GEO 6: Understand aesthetic experience and artistic creativity (3 credits)

*Choose one of the following:*

**HUM 131 Cultural Connections (Preferred)**

ART 111 Art History: Prehistoric to 1400

ART 112 Art History: Renaissance to Present

ENG 210 Introduction to Film

ENG 246 Short Story & Novel

ENG 247 Poetry and Drama

ENG 249 African-American Literature

ENG 252 Shakespeare

ENG 254 Children's Literature

ENG 255 American Literature – 19th Century

ENG 256 American Literature – 20th Century

MUS 131 Understanding Music

THR 116 Introduction to Theatre

### GEO 7: Understand and respect the diversity and interdependence of the world's peoples and cultures (3 credits)

*Choose one of the following:*

**COM 250 Intercultural Communication (Preferred)**

**HIS 211 Minority Groups in America (Preferred)**

**PHL 243 World Religions (Preferred)**

**SPN 131 Spanish I or higher (Preferred)**

ANT 131 Cultural Anthropology

ENG 236 Women in Changing Society

ENG 249 African-American Literature

ENG 257 World Literature

FRN 131 French I or higher

GEO 132 World Regions

GER 131 German I or higher

HIS 125 African-American History

PLS 262 International Relations

MUS 130 Music of Non-Western Cultures

SOC 236 Women in Changing Society

SOC 246 Marriage and Family

## ALLIED HEALTH RELATED REQUIREMENTS (3 CREDITS)

MOA 120 Medical Terminology

## ALLIED HEALTH CORE REQUIREMENTS (33 CREDITS)

**\*\*33 credits must come from approved certification/licensure and additional courses listed under Additional Requirements.**



## CERTIFICATION/LICENSURE EQUIVALENTS

- CMA(AAMA), RMA(AMT), Paramedic, Pharmacy Technician, and LPN = 30 credits
- Medical Coder/Biller (CPC) = 18 credits
- CMAS(AMT) or equivalent as approved = 12 credits
- Nurse Aide Certification (CNA) = 6 credits
- Phlebotomy or EKG Tech certification (credentialing body must be approved) = 6 credits

\*\*Other allied health certifications may be approved on a case by case basis. Please see program director for approval.\*\*

## ADDITIONAL REQUIREMENTS TO MEET ALLIED HEALTH CORE REQUIREMENTS OF 33 CREDITS

### Health Management Focus

This focus would be for someone who is looking to gain more experience in health management to complement their current medical background. This may also be ideal for someone who may be continuing with a Bachelor's of Health Management or Human Relations. You may choose any of the following to ensure you meet credit requirements. Please be aware that there may be prerequisite requirements for the courses listed below.

ACC 216 Financial Accounting Concepts **OR**  
ACC 231 Principles of Accounting

BIO 140 Public Health and Disease  
PHL 236 Ethics  
BUA 220 Principles of Management  
BUA 120 Human Relations in Business  
BUA 121 Leadership  
BUA 221 Human Resource Management  
SPN 131 Elementary Spanish I  
SPN 132 Elementary Spanish II

### Science Focus

This focus would be for someone who would like to obtain further education in the sciences. You may choose any of the following to ensure you meet credit requirements. Please be aware that there may be prerequisite requirements for the courses listed below.

BIO 140 Public Health and Disease  
BIO 161 General Biology I  
BIO 162 General Biology II  
BIO 220 Microbiology

BIO 253 Human Anatomy and Physiology I  
BIO 254 Human Anatomy and Physiology II  
CEM 132 Fundamentals of Organic & Biological Chemistry  
CEM 142 General Chemistry II  
CEM 241 Organic Chemistry I  
CEM 242 Organic Chemistry II

### Psychology / Human Behavior Focus

This focus would be for someone who may want to obtain further education in the areas of psychology and social sciences. You may choose any of the following ensure you meet credit requirements. Please be aware that there may be prerequisite requirements for the courses listed below.

PSY 152 Social Psychology  
PSY 161 Introduction to Counseling  
PSY 222 Applied Behavior Analysis  
PSY 225 Introduction to Group Therapy  
PSY 245 Infancy and Childhood  
PSY 251 Abnormal Psychology  
PSY 252 Developmental Psychology  
BUA 120 Human Relations in Business  
SOC 117 Criminology  
SOC 231 Principles of Sociology  
SOC 235 Minority Groups in America  
SOC 236 Women in a Changing Society  
SOC 246 Marriage and Family

### Entrepreneurship Focus

This focus would be for someone looking to gain the skills and knowledge needed to open their own health related business, such as an assisted living facility. Please be aware that there may be prerequisite requirements for the courses listed below.

ACC 216 Financial Accounting Concepts **OR**  
ACC 231 Principles of Accounting  
  
BUA 220 Principles of Management  
ENT 101 Entrepreneurship: Creating Your Own Job  
ENT 102 Entrepreneurial Marketing: Finding Your Niche  
ENT 169 Business Plan

## Cardiac Sonography – Associate in Applied Science (CSON.AAS)

A cardiac sonographer (echocardiographer) is the allied health professional who, after an extensive and comprehensive educational process, is qualified to perform an echocardiogram (ultrasound of the heart). The primary role of the cardiac sonographer is to obtain diagnostic recordings and measurements from the ultrasound image of the heart, including hemodynamic information. This individual assumes great responsibility for the performance of this exam. The techniques for obtaining the required images and recordings require great skill. A thorough understanding of cardiac anatomy, physiology, hemodynamics, and pathophysiology is required.

The cardiac sonography program is an online program accredited by the Commission for Accreditation of Allied Health Education Programs (CAAHEP) in the United States. It is a program leading to an Associate in Applied Science degree. The curriculum consists of integrated didactic and clinical coursework with a minimum of 1,136 supervised clinical hours with an approved clinical education affiliate. This program is designed to prepare the student for employment as a cardiac sonographer with positions located in hospitals, medical clinics, and other diagnostic imaging facilities. Upon successful completion, students are eligible to apply to the ARDMS (American Registry for Diagnostic Medical Sonographers) for board examinations that will award them the RDCS (Registered Diagnostic Cardiac Sonographer) credential.

There are special admission requirements to the sonography programs, and it is the student's responsibility to understand the requirements and adhere to them. Entry into a program is competitive and based on a "point system." Point values are based on grades earned in prerequisite coursework and the interview process.

Applications are processed according to the following:

- Applications must be received by the Allied Health Office by August 31.
- Questionnaires will be mailed to eligible applicants.
- Completed questionnaires must be returned by the stated due date.
- Diagnostic Medical Sonography Admission Committee conducts interviews.

- Students are notified by mail of application/interview results.
- Accepted students begin winter semester.

General education prerequisites and related requirement courses must be completed before admission to the program.

|  |     |
|--|-----|
| Minimum credits.....   | 68  |
| Minimum cumulative GPA.....  | 2.0 |
| Minimum grade in all courses .....                                 | 2.0 |
| Minimum grade in BIO 132 OR BIO 253/254, HOC 130 AND MOA 120 ..... | 3.0 |
| Minimum Jackson College credits.....                               | 33  |

### GENERAL EDUCATION REQUIREMENTS (21-29 CREDITS)

#### GEO 1: Write clearly, concisely and intelligibly (3 credits)

*Take the following:*

ENG 131 Writing Experience I

#### GEO 2: Speak clearly, concisely and intelligibly (3 credits)

*Choose one of the following:*

COM 231 Communication Fundamentals

COM 240 Interpersonal Communication

#### GEO 3: Demonstrate computational skills and mathematical reasoning (4 credits)

*Take the following:*

MAT 131 Intermediate Algebra or higher

#### GEO 4: Demonstrate scientific reasoning (4-8 credits)

*Choose one of the following:*

BIO 132 Human Biology OR

BIO 253 Human Anatomy and Physiology I AND

BIO 254 Human Anatomy and Physiology II

#### GEO 5: Understand human behavior and social systems, and the principles which govern them (4 credits)

*Take the following:*

PSY 140 Introduction to Psychology

#### GEO 6: Understand aesthetic experience and artistic creativity (3 credits)

*Choose one of the following:*

HUM 131 Cultural Connections (Preferred)

ENG 249 African-American Literature (Preferred)

ART 111 Art History: Prehistoric to 1400

ART 112 Art History: Renaissance to Present

ENG 210 Introduction to Film

|     |     |                                    |
|-----|-----|------------------------------------|
| ENG | 246 | Short Story & Novel                |
| ENG | 247 | Poetry & Drama                     |
| ENG | 252 | Shakespeare                        |
| ENG | 254 | Children's Literature              |
| ENG | 255 | American Literature – 19th Century |
| ENG | 256 | American Literature – 20th Century |
| MUS | 131 | Understanding Music                |
| THR | 116 | Introduction to Theatre            |

**GEO 7: Understand and respect the diversity and interdependence of the world's peoples and cultures (3 credits)**

*Program courses meet this requirement*

### **CARDIAC SONOGRAPHY RELATED REQUIREMENTS (14 CREDITS)**

*Take the following:*

|     |     |   |
|-----|-----|---|
| DMS | 100 | Introduction to Diagnostic Imaging          |
| DMS | 104 | Introduction to Sonographic Instrumentation |
| HOC | 130 | Introduction to Health Occupations          |
| MOA | 120 | Medical Terminology                         |
| PHY | 145 | Introduction to Basic Physics               |

### **CARDIAC SONOGRAPHY CORE REQUIREMENTS (33 CREDITS)**

*Take the following:*

|     |     |                                     |
|-----|-----|-------------------------------------|
| DMS | 140 | Sonographic Orientation & Technique |
| DMS | 141 | Adult Echo I                        |
| DMS | 142 | Echo Clinical I                     |
| DMS | 144 | Cardiovascular Principles           |
| DMS | 148 | Echo Clinical II                    |
| DMS | 206 | Sonographic Instrumentation         |
| DMS | 240 | Adult Echo II                       |
| DMS | 244 | Echo Clinical III                   |

## **EKG Technician – Skill Set (EKTE.SSET)**

The EKG Technician Skill Set prepares students for professional certification and employment in a variety of settings, such as hospital-based cardiology clinics, cardiac rehabilitation centers, doctor's offices, and emergency rooms. This is a great option for the student who would like to have patient contact without being involved in performing invasive procedures. Students may also choose to use this as a building block to enhance the skills that will be learned in another allied health or nursing degrees or to add to an already completed degree.

|                                      |     |
|--------------------------------------|-----|
| Minimum credits.....                 | 11  |
| Minimum cumulative GPA.....          | 2.0 |
| Minimum grade in all courses .....   | 2.0 |
| Minimum Jackson College credits..... | 11  |

### **REQUIRED COURSES (11 CREDITS)**

|     |     |                                    |
|-----|-----|------------------------------------|
| HOC | 130 | Introduction to Health Occupations |
| HOC | 135 | Electrocardiography Technician     |

|     |     |                                     |
|-----|-----|-------------------------------------|
| MOA | 141 | Body Structure & Function <b>OR</b> |
| LPN | 141 | Body Structure & Function <b>OR</b> |
| BIO | 132 | Human Biology <b>OR</b>             |
| BIO | 254 | Human Anatomy and Physiology II     |

### **ADDITIONAL REQUIREMENT**

EMS 110 Advanced First Aid & American Heart CPR **OR** current Healthcare Provider CPR and Basic First Aid certification

## **Electronic Health Records Specialist – Skill Set (EHRS.SSET)**

This skill set provides students with skills necessary to work with Electronic Health Records (EHR). This skill set is ideal for those currently working in the health field and looking to implement EHR or those looking to enter into another health related program. Students will be eligible to sit for the Certified Electronic Health Record Specialist exam upon completion of the EHR course.

|  |     |
|--|-----|
| Minimum credits.....                       | 9   |
| Minimum cumulative GPA.....                | 2.0 |
| Minimum grade in all courses .....         | 2.0 |
| Minimum Jackson College credit.....        | 9   |
| MACRAO / Michigan Transfer Agreement ..... | No  |

### **PREREQUISITE REQUIREMENTS**

ENG 085 or higher. MAT 030 or higher.

### **ELECTRONIC HEALTH RECORDS SPECIALIST REQUIREMENTS (9 CREDITS)**

*Take the following:*

|     |     |                           |
|-----|-----|---------------------------|
| MOA | 112 | Medical Law and Ethics    |
| MOA | 120 | Medical Terminology       |
| HOC | 150 | Electronic Health Records |

# Emergency Medical Technology – Associate in Applied Science (EMMT.AAS)

The emergency medical technology program prepares students for employment as advanced emergency medical care givers. Content areas are covered in lectures; practical skills are developed in laboratory settings; and, clinical applications are divided between prehospital and hospital rotations. A 250-hour, non-paid externship experience with a local ambulance company is the capstone course for completion of the program requirement.

The curriculum meets the requirements of the Michigan Department of Michigan Department of Community Health and needs to be taken in sequence. Each course prepares the student for the respective level of the state licensing examination.

Students are evaluated in three areas: content, practical skills and clinical performance. Students achieving an 80 percent or higher will receive a certificate of completion and be eligible for the state licensure. Practical skills are graded on a pass/fail basis, and students must pass all practical exams to successfully complete each course. Clinical performance is evaluated by attendance and feedback from ambulance and hospital personnel along with the clinical facilitator. Attendance policies are regulated by the state. Upon successfully completing all college requirements, a student will qualify for an Associate in Applied Science.

|  |       |
|--|-------|
| Minimum credits.....                   | 76.75 |
| Minimum cumulative GPA.....            | 2.0   |
| Minimum grade in all courses .....     | 2.0   |
| Minimum grade in all EMS courses ..... | 2.5   |
| Minimum Jackson College credits.....   | 15    |

## GENERAL EDUCATION REQUIREMENTS (28-29 CREDITS)

### GEO 1: Write clearly, concisely and intelligibly (3 credits)

*Take the following:*

ENG 131 Writing Experience I

### GEO 2: Speak clearly, concisely and intelligibly (3 credits)

*Choose one of the following:*

COM 231 Communication Fundamentals

COM 240 Interpersonal Communication

### GEO 3: Demonstrate computational skills and mathematical reasoning (4 credits)

*Take the following:*

MAT 130 Quantitative Reasoning or higher

### GEO 4: Demonstrate scientific reasoning (8-10 credits)

*Choose one of the following groups:*

MOA 141 Body Structure and Function **OR**

LPN 141 Body Structure and Function **AND**

BIO 132 Human Biology **OR**

BIO 253 Human Anatomy and Physiology I **AND**

BIO 254 Human Anatomy and Physiology II

### GEO 5: Understand human behavior and social systems, and the principles which govern them (4 credits)

*Take the following:*

PSY 140 Introduction to Psychology

### GEO 6: Understand aesthetic experience and artistic creativity (3 credits)

*Choose one of the following:*

ART 111 Art History: Prehistoric to 1400

ART 112 Art History: Renaissance to Present

ENG 210 Introduction to Film

ENG 246 Short Story & Novel

ENG 247 Poetry & Drama

ENG 249 African-American Literature

ENG 252 Shakespeare

ENG 254 Children's Literature

ENG 255 American Literature - 19th Century

ENG 256 American Literature - 20th Century

HUM 131 Cultural Connections

MUS 131 Understanding Music

THR 116 Introduction to Theatre

### GEO 7: Understand and respect the diversity and interdependence of the world's peoples and cultures (3-4 credits)

*Choose one of the following:*

ANT 131 Cultural Anthropology

COM 250 Intercultural Communications

ENG 236 Women in a Changing Society

ENG 242 Sports in Film and Literature

ENG 249 African-American Literature

ENG 257 World Literature

FRN 131 French I

GEO 132 World Regions

GER 131 German I

HIS 125 African-American History



|     |     |                               |
|-----|-----|-------------------------------|
| HIS | 211 | Minority Groups in America    |
| HUM | 131 | Cultural Connections          |
| MUS | 130 | Music of Non-Western Cultures |
| PHL | 243 | World Religions               |
| PLS | 262 | International Relations       |
| SOC | 236 | Women in a Changing Society   |
| SOC | 246 | Marriage and Family           |
| SPN | 131 | Spanish I                     |

### EMERGENCY MEDICAL TECHNOLOGY REQUIREMENTS (44.75 - 48.75 CREDITS)

*Take the following:*

|     |     |                                  |
|-----|-----|----------------------------------|
| EMS | 122 | EMT Basic Technology <b>OR</b>   |
| EMS | 150 | EMT Intermediate Technology      |
| EMS | 160 | Paramedic Advanced Practice: I   |
| EMS | 161 | Paramedic Skill Lab: I           |
| EMS | 162 | Paramedic Pharmacology: I        |
| EMS | 163 | Paramedic Cardiology: I          |
| EMS | 164 | Pediatric Advanced Life Support  |
| EMS | 166 | Paramedic Clinical: I            |
| EMS | 170 | Paramedic Advanced Practice: II  |
| EMS | 171 | Paramedic Skill Lab: II          |
| EMS | 172 | Paramedic Pharmacology: II       |
| EMS | 173 | Paramedic Cardiology: II         |
| EMS | 174 | Paramedic Advanced Practice: III |
| EMS | 176 | Paramedic Clinical: II           |
| EMS | 245 | Paramedic Clinical Internship    |

## Emergency Medical Technology – Basic – Concentration (EMMT.CON)

The Basic Emergency Medical Technician course is a Michigan Department of Community Health approved course. This program provides the information and experience necessary to prepare the student to sit for the National Registry Basic EMT Certification exam. Topics include: legal responsibilities, anatomy, physiology, patient assessment, management of various emergency situations, extrication, and current standards for EMTs in the field. Students will also participate in scenario-based education and computer-based testing and scenarios to reinforce skills learned within these areas. Students must complete a minimum of four 12-hour experiences in the hospital emergency room setting and with a pre-hospital life support agency. Laboratory and clinical experiences are included.

|                                      |     |
|--------------------------------------|-----|
| Minimum credits.....                 | 54  |
| Minimum cumulative GPA.....          | 2.0 |
| Minimum grade in all courses .....   | 2.0 |
| Minimum grade in EMS 122.....        | 2.5 |
| Minimum Jackson College credits..... | 15  |

### GENERAL EDUCATION REQUIREMENTS (7 CREDITS)

*Take the following:*

|     |     |                                  |
|-----|-----|----------------------------------|
| ENG | 131 | Writing Experience I             |
| MAT | 130 | Quantitative Reasoning or higher |

### CORE REQUIREMENTS (47 CREDITS)

*Take the following:*

|     |     |                                     |
|-----|-----|-------------------------------------|
| BIO | 253 | Human Anatomy & Physiology I        |
| BIO | 254 | Human Anatomy & Physiology II       |
| CEM | 131 | Fundamentals of Chemistry <b>OR</b> |
| CEM | 141 | General Chemistry I                 |
| EMS | 122 | EMT Basic Technology                |
| EMS | 164 | Pediatric Advanced Life Support     |
| EMS | 170 | Paramedic Advanced Practice: II     |
| EMS | 171 | Paramedic Skill Lab: II             |
| EMS | 172 | Paramedic Pharmacology: II          |
| EMS | 173 | Paramedic Cardiology: II            |
| EMS | 174 | Paramedic Advanced Practice: III    |
| EMS | 176 | Paramedic Clinical: II              |
| EMS | 245 | Paramedic Clinical Internship       |

## Emergency Medical Technology – Basic – Skill Set (EMMT.SSET)

The Basic Emergency Medical Technician course is a Michigan Department of Community Health approved course. This program provides the information and experience necessary to prepare the student to sit for the National Registry Basic EMT Certification exam. Topics include: legal responsibilities, anatomy, physiology, patient assessment, management of various emergency situations, extrication, and current standards for EMTs in the field. Students will also participate in scenario-based education and computer-based testing and scenarios to reinforce skills learned within these areas. Students must complete a minimum of four 12-hour experiences in the hospital emergency room setting and with a pre-hospital life support agency. Laboratory and clinical experiences are included.

|                                      |     |
|--------------------------------------|-----|
| Minimum credits.....                 | 12  |
| Minimum cumulative GPA.....          | 2.0 |
| Minimum grade in all courses .....   | 2.0 |
| Minimum grade in EMS 122.....        | 2.5 |
| Minimum Jackson College credits..... | 12  |

## REQUIRED COURSES (12 CREDITS)

### Take the following:

EMS 122 EMT Basic Technology

## General Sonography – Associate in Applied Science (GSON.AAS)

A sonographer is the allied health professional who, for diagnostic purposes, uses high frequency sound waves to create cross sectional images of the patient's anatomy. Sonographers work in professional harmony with both the radiologist and the clinical physician. Sonographers are required to demonstrate a great deal of independent judgment.

The general sonography program is an online program accredited by the Commission for Accreditation of Allied Health Educational Programs (CAAHEP) in the United States. It is a program leading to an Associate in Applied Science degree. The curriculum consists of integrated educational and clinical course work with a minimum of 1,350 supervised clinical hours in an approved clinical education affiliate. The program prepares the students for employment in two specialties (abdomen/superficial structures and obstetrics/gynecology) within the field of general sonography; positions are located within hospitals, medical clinics, and other diagnostic imaging institutions. Upon successful completion, students are eligible to apply for the American Registry for Diagnostic Medical Sonography (ARDMS) exams in Physics and Instrumentation, Abdomen and Obstetrics/Gynecology.

There are special admissions requirements to the sonography programs, and it is the student's responsibility to understand the requirements and adhere to them. Entry into a program is competitive and based on a "point system." Point values are based on grades earned in prerequisite coursework and the interview process.

Applications are processed according to the following:

- Applications must be received by the Allied Health Office by January 31.
- Diagnostic Medical Sonography Admission Committee conducts consultations.
- Students are notified by mail of application/consultations results.
- Accepted students begin spring semester.

General education prerequisites and related requirement courses must be completed before admission to the program.

|   |     |
|---|-----|
| Minimum credits.....  | 75  |
| Minimum cumulative GPA.....   | 2.0 |
| Minimum grade in BIO 132 OR BIO 253/254, HOC 130<br>AND MOA 120 ..... | 3.0 |
| Minimum grade in all courses .....                                    | 2.0 |
| Minimum Jackson College credits.....                                  | 15  |

## GENERAL EDUCATION REQUIREMENTS (21 CREDITS)

### GEO 1: Write clearly, concisely and intelligibly (3 credits)

#### Take the following:

ENG 131 Writing Experience I

### GEO 2: Speak clearly, concisely and intelligibly (3 credits)

#### Choose one of the following:

COM 231 Communication Fundamentals

COM 240 Interpersonal Communication

### GEO 3: Demonstrate computational skills and mathematical reasoning (4 credits)

#### Take the following:

MAT 131 Intermediate Algebra or higher

### GEO 4: Demonstrate scientific reasoning (4-8 credits)

#### Choose one of the following:

BIO 132 Human Biology OR

BIO 253 Human Anatomy and Physiology I AND

BIO 254 Human Anatomy and Physiology II

### GEO 5: Understand human behavior and social systems, and the principles which govern them (4 credits)

#### Take the following:

PSY 140 Introduction to Psychology

**GEO 6: Understand aesthetic experience and artistic creativity (3 credits)***Choose one of the following:*

- HUM 131 Cultural Connections (Preferred)**  
**ENG 249 African-American Literature (Preferred)**  
 ART 111 Art History: Prehistoric to 1400  
 ART 112 Art History: Renaissance to Present  
 ENG 210 Introduction to Film  
 ENG 246 Short Story & Novel  
 ENG 247 Poetry & Drama  
 ENG 252 Shakespeare  
 ENG 254 Children's Literature  
 ENG 255 American Literature – 19th Century  
 ENG 256 American Literature – 20th Century  
 MUS 131 Understanding Music  
 THR 116 Introduction to Theatre

**GEO 7: Understand and respect the diversity and interdependence of the world's peoples and cultures***Program courses meet this requirement.***GENERAL SONOGRAPHY RELATED REQUIREMENTS (14 CREDITS)***Take the following:*

- DMS 100 Introduction to Diagnostic Imaging  
 DMS 104 Introduction to Sonographic Instrumentation  
 HOC 130 Introduction to Health Occupations  
 MOA 120 Medical Terminology  
 PHY 145 Introduction to Basic Physics

**GENERAL SONOGRAPHY CORE REQUIREMENTS (40 CREDITS)***Take the following:*

- DMS 101 Sonographic Orientation  
 DMS 105 Sonographic Techniques  
 DMS 122 Clinical Experience I  
 DMS 200 Abdomen and Small Parts Sonography  
 DMS 201 Obstetric and Gynecologic Sonography  
 DMS 206 Sonographic Instrumentation  
 DMS 212 Comprehensive Sonography  
 DMS 223 Clinical Experience II  
 DMS 224 Clinical Experience III

## Health Administration/ Insurance Specialist – Associate in Applied Science (HAIS.AAS)

The Health Administration/Insurance Specialist program is a continuation of the Medical Insurance Coder Biller Certificate. This program provides students with additional coding and billing training and practicum experience, along with instruction and skills in health administration. Students of this program may find positions in insurance coding or billing, medical/health administration, or may choose to use this degree as a bridge to a bachelor's level health administration degree.

|   |     |
|---|-----|
| Minimum credits.....  | 65  |
| Minimum cumulative GPA.....   | 2.0 |
| Minimum grade in all courses .....  | 2.0 |
| Minimum grades in ACC 115, BUA 221, MIC 101, MIC 141,<br>MIC 150, MIC 201, MIC 211, MIC 242 ..... | 2.5 |
| Minimum Jackson College credits.....  | 15  |
| MACRAO / Michigan Transfer Agreement .....  | No  |

**GENERAL EDUCATION REQUIREMENTS (24 CREDITS)****GEO 1: Write clearly, concisely and intelligibly (3 credits)***Choose one of the following:*

- ENG 131 Writing Experience I  
 ENG 132 Writing Experience II

**GEO 2: Speak clearly, concisely and intelligibly (3 credits)***Choose one of the following:*

- COM 231 Communication Fundamentals  
 COM 240 Interpersonal Communications  
 COM 250 Intercultural Communications

**GEO 3: Demonstrate computational skills and mathematical reasoning (4 credits)***Take the following:*

- MAT 130 Quantitative Reasoning or higher

**GEO 4: Demonstrate scientific reasoning (4-8 credits)***Choose one of the following. Please check for any prerequisite requirements.***BIO 132 Human Biology (Preferred) OR**

- BIO 253 Human Anatomy and Physiology **AND**  
 BIO 254 Human Anatomy and Physiology II

**GEO 5: Understand human behavior and social systems, and the principles that govern them (4 credits)***Take the following:*

PSY 140 Introduction to Psychology

**GEO 6: Understand aesthetic experience and artistic creativity (3 credits)***Choose one of the following:***HUM 131 Cultural Connections (Preferred)**

ART 111 Art History: Prehistoric to 1400

ART 112 Art History: Renaissance to Present

ENG 210 Introduction to Film

ENG 246 Short Story &amp; Novel

ENG 247 Poetry and Drama

ENG 249 African-American Literature

ENG 252 Shakespeare

ENG 254 Children's Literature

ENG 255 American Literature – 19th Century

ENG 256 American Literature – 20th Century

MUS 131 Understanding Music

THR 116 Introduction to Theatre

**GEO 7: Understand and respect the diversity and interdependence of the world's peoples and cultures (3 credits)***Choose one of the following:***COM 250 Intercultural Communication (Preferred)****HIS 211 Minority Groups in America (Preferred)****PHL 243 World Religions (Preferred)****SPN 131 Spanish I or higher (Preferred)**

ANT 131 Cultural Anthropology

ENG 236 Women in Changing Society

ENG 249 African-American Literature

ENG 257 World Literature

FRN 131 French I or higher

GEO 132 World Regions

GER 131 German I or higher

HIS 125 African-American History

PLS 262 International Relations

MUS 130 Music of Non-Western Cultures

SOC 236 Women in Changing Society

SOC 246 Marriage and Family

**HEALTH ADMINISTRATION/INSURANCE SPECIALIST RELATED REQUIREMENTS (17 CREDITS)***Take the following:*

ACC 115 Payroll Accounting

BIO 140 Public Health and Disease

BUA 221 Human Resources Management

CIS 201 Advanced Information Technologies **OR**

CIS 210 Office Administration Systems

MOA 120 Medical Terminology

MOA 240 Medical Office Procedures **OR**

ENG 232 Technical and Business Writing

**HEALTH ADMINISTRATION/INSURANCE SPECIALIST CORE REQUIREMENTS (24 CREDITS)***Take the following:*

MOA 112 Medical Law and Ethics

MIC 101 ICD-CM Coding

MIC 141 Principles of Medical Coding and Billing

MIC 150 CPT Coding

MIC 201 Billing Systems **OR**

HOC 150 Electronic Health Records

MIC 211 Advanced Coding

MIC 242 Advanced Medical Billing

MIC 255 Coder/Biller Capstone **OR**

MOA 255 HAIS Practicum (See program director for practicum eligibility requirements)

**Medical Assistant – Associate in Applied Science (MEDA.AAS)**

The Medical Assistant Associate in Applied Science program prepares the student for an entry-level position as a medical assistant in a medical office, clinic, hospital or other health care facility. Clinical (diagnostic and treatment), administrative (communication and business) skills and transdisciplinary knowledge and skills are included in the course work. A non-paid externship experience with a licensed health care practitioner is the culmination of the program.



The certificate in medical assistant program is accredited by the Commission on Accreditation of Allied Health Education Programs ([www.caahep.org](http://www.caahep.org)) upon the recommendation of the Medical Assisting Education Review Board (MAERB), Commission on Accreditation of Allied Health Education Programs, 1362 Park Street, Clearwater, FL 33756. Phone: 727.210.2350.

Upon completion, the student becomes eligible for the AAMA Medical Assistant Certification exam to be a Certified Medical Assistant [CMA (AAMA)]. The medical assistant certificate program and completion of the general education requirements listed qualifies the student for an Associate in Applied Science – Medical Assistant. Students are welcome to enter this program in any semester, but must meet prerequisite course and grade level requirements to proceed in the program and qualify for MED 252 Medical Assistant Clinical Practicum.

|  |     |
|--|-----|
| Minimum credits.....   | 63  |
| Minimum cumulative GPA.....  | 2.0 |
| Minimum grade in all courses .....   | 2.0 |
| Minimum grade required in MED 115, MED 116,<br>MED 215, MED 216, MOA 240, MOA 241, MED 251<br>AND MED 252..... | 2.5 |
| Minimum Jackson College credits.....   | 15  |

## GENERAL EDUCATION REQUIREMENTS (21-25 CREDITS)

### GEO 1: Write clearly, concisely and intelligibly (3 credits)

*Choose one of the following:*

- ENG 131 Writing Experience I
- ENG 132 Writing Experience II

### GEO 2: Speak clearly, concisely and intelligibly (3 credits)

*Choose one of the following:*

- COM 250 Intercultural Communications (Preferred)**
- COM 231 Communication Fundamentals
- COM 240 Interpersonal Communications

### GEO 3: Demonstrate computational skills and mathematical reasoning (4 credits)

*Take the following:*

- MAT 130 Quantitative Reasoning or higher

### GEO 4: Demonstrate scientific reasoning (4-8 credits)

*Choose one of the following:*

- BIO 132 Human Biology **OR**
- BIO 253 Human Anatomy and Physiology I **AND**
- BIO 254 Human Anatomy and Physiology II

### GEO 5: Understand human behavior and social systems, and the principles which govern them (4 credits)

*Take the following:*

- PSY 140 Introduction to Psychology

### GEO 6: Understand aesthetic experience and artistic creativity (3 credits)

*Choose one of the following:*

- HUM 131 Cultural Connections (Preferred)**
- ENG 249 African-American Literature (Preferred)**
- ART 111 Art History: Prehistoric to 1400
- ART 112 Art History: Renaissance to Present
- ENG 210 Introduction to Film
- ENG 246 Short Story & Novel
- ENG 247 Poetry & Drama
- ENG 252 Shakespeare
- ENG 254 Children's Literature
- ENG 255 American Literature – 19th Century
- ENG 256 American Literature – 20th Century
- MUS 131 Understanding Music
- THR 116 Introduction to Theatre

### GEO 7: Understand and respect the diversity and interdependence of the world's peoples and cultures

*Program courses meet this requirement.*

## MEDICAL ASSISTANT RELATED REQUIREMENTS (3 CREDITS)

*Take the following:*

- BIO 140 Public Health and Disease

## MEDICAL ASSISTANT CORE REQUIREMENTS (35 CREDITS)

*Take the following:*

- HOC 150 Electronic Health Records
- MED 115 Foundations of Clinical Practice
- MED 116 Physical Exams & Diagnostic Testing
- MED 215 Specialty Exams and Treatments
- MED 216 Surgical Procedures and Lab Testing
- MED 251 Medical Assistant Capstone
- MED 252 Medical Assistant Clinical Practicum
- MOA 112 Medical Law & Ethics
- MOA 120 Medical Terminology
- MOA 240 Medical Office Procedures
- MOA 241 Principles of Medical Coding and Billing

## Medical Assistant – Certificate (*MEDA.CERT*)

The Medical Assistant Certificate program prepares the student for an entry-level position as a medical assistant in a medical office, clinic, hospital or other health care facility. Clinical (diagnostic and treatment), administrative (communication and business) skills and transdisciplinary knowledge and skills are included in the course work. A nonpaid externship experience with a licensed health care practitioner is the culmination of the program.

Upon successful completion of this program, the student is eligible for a professional credential by passing the American Association of Medical Assistant (AAMA) examination to become a Certified Medical Assistant [CMA (AAMA)]. The certificate program is accredited by the Commission on Accreditation of Allied Health Education Programs ([www.caahep.org](http://www.caahep.org)) upon the recommendation of the Medical Assisting Education Review Board (MAERB), Commission on Accreditation of Allied Health Education Programs, 1362 Park Street, Clearwater, FL 33756. Phone: 727.210.2350.

Students are welcome to enter this program in any semester, but must meet prerequisite course and grade level requirements to proceed in the program and qualify for MED 252 Medical Assistant Clinical Practicum.

|   |     |
|---|-----|
| Minimum credits.....  | 50  |
| Minimum cumulative GPA.....   | 2.0 |
| Minimum grade in all courses .....  | 2.0 |
| Minimum grade in MED 115, MED 116, MED 215, MED 216,<br>MOA 240, MOA 241, MED 251 and MED 252 ..... | 2.5 |
| Minimum Jackson College credits.....  | 15  |

### GENERAL EDUCATION REQUIREMENTS (15 CREDITS)

*Take the following:*

ENG 131 Writing Experience I **OR**  
ENG 132 Writing Experience II

MAT 130 Quantitative Reasoning or higher  
PSY 140 Introduction to Psychology

BIO 132 Human Biology **OR**

BIO 253 Human Anatomy and Physiology I **AND**  
BIO 254 Human Anatomy and Physiology II

### MEDICAL ASSISTANT CORE REQUIREMENTS (35 CREDITS)

*Take the following:*

HOC 150 Electronic Health Records  
MED 115 Foundations of Clinical Practice  
MED 116 Physical Exams & Diagnostic Testing  
MED 215 Specialty Exams and Treatments  
MED 216 Surgical Procedures and Lab Testing  
MED 251 Medical Assistant Capstone  
MED 252 Medical Assistant Clinical Practicum  
MOA 112 Medical Law and Ethics  
MOA 120 Medical Terminology  
MOA 240 Medical Office Procedures  
MOA 241 Principles of Medical Coding and Billing

## Medical Insurance Coder/ Biller – Certificate (*MICB.CERT*)

The Medical Insurance Coder/Biller Certificate program prepares the student to work in a medical office, clinic, surgical center, emergency center, or hospital. Emphasis is placed on: interpersonal, written and oral communication; business math; medical terminology; use of computers; medical financial management, disease conditions, diagnostic and procedure coding and billing.

|  |     |
|--|-----|
| Minimum credits.....   | 38  |
| Minimum cumulative GPA.....  | 2.0 |
| Minimum grade in all courses .....   | 2.0 |
| Minimum grades in MIC 101, MIC 141, MIC 150,<br>MIC 201, MIC 211 and MIC 242 ..... | 2.5 |
| Minimum Jackson College credits.....   | 15  |

### GENERAL EDUCATION REQUIREMENTS (7 CREDITS)

*Take the following:*

ENG 131 Writing Experience I **OR**  
ENG 132 Writing Experience II

MAT 130 Quantitative Reasoning or higher

### MEDICAL INSURANCE CODER/BILLER RELATED REQUIREMENTS (7 CREDITS)

*Take the following:*

MOA 120 Medical Terminology

*Choose one of the following:*

MOA 141 Body Structure & Function **OR**  
LPN 141 Body Structure & Function **OR**  
BIO 132 Human Biology **OR**

- BIO 253 Human Anatomy and Physiology I **AND**  
 BIO 254 Human Anatomy & Physiology II

### MEDICAL INSURANCE CODER/BILLER CORE REQUIREMENTS (24 CREDITS)

*Take the following:*

- MOA 112 Medical Law and Ethics  
 MIC 101 ICD-CM Coding  
 MIC 141 Principles of Medical Coding and Billing  
 MIC 150 CPT Coding
- MIC 201 Billing Systems **OR**  
 HOC 150 Electronic Health Records
- MIC 211 Advanced Coding  
 MIC 242 Advanced Medical Billing  
 MIC 255 Coder/Biller Capstone

## Medical Office Support – Concentration (MEOS.CON)

The Medical Office Support Concentration prepares students to provide administrative support in various health care settings such as hospitals, medical offices or outpatient clinics, insurance companies, and other private and public sector health care settings. This is the perfect option for the student who would like to have patient contact without being involved in performing invasive or clinical procedures or for the student who would like to enter the workforce while continuing their education in another allied health or nursing program.

|                                      |     |
|--------------------------------------|-----|
| Minimum credits.....                 | 26  |
| Minimum cumulative GPA.....          | 2.0 |
| Minimum grade in all courses .....   | 2.0 |
| Minimum grades in MOA 120.....       | 2.5 |
| Minimum Jackson College credits..... | 12  |

### GENERAL EDUCATION REQUIREMENTS (3 CREDITS)

*Take the following:*

- ENG 131 Writing Experience I

### MEDICAL OFFICE SUPPORT RELATED REQUIREMENTS (3 CREDITS)

*Take the following:*

- HOC 150 Electronic Health Records

### MEDICAL OFFICE SUPPORT CORE REQUIREMENTS (19 CREDITS)

*Take the following:*

- MED 115 Introduction to Clinical Procedures  
 MOA 112 Medical Law and Ethics  
 MOA 120 Medical Terminology
- MOA 141 Body Structure & Function **OR**  
 LPN 141 Body Structure & Function **OR**  
 BIO 132 Human Biology **OR**  
 BIO 254 Human Anatomy & Physiology II

- MOA 240 Medical Office Procedures

- MOA 241 Principles of Medical Coding and Billing **OR**  
 MIC 141 Principles of Medical Coding and Billing

### RECOMMENDED COURSES – NOT REQUIRED FOR DEGREE

- ACC 115 Payroll Accounting  
 ACC 216 Financial Accounting Concepts  
 BIO 140 Public Health and Disease  
 BUA 121 Leadership  
 CIS 210 Office Administration Systems  
 PSY 140 Introduction to Psychology  
 SPN 111 Conversational Spanish I  
 SPN 112 Conversational Spanish II

## Nursing

Nursing is a dynamic and changing field with broader employment opportunities than ever before. It is expected to have one of the largest number of new job openings in the next decade. Many future nurses will be employed in home health, long-term or ambulatory care, although nursing careers are still available in traditional settings such as hospitals, medical offices and clinics. Program options reflect the variety of career paths available to future nursing professionals.

### PROGRAM CHOICES

- Nursing, ADN – Associate in Applied Science
- Nursing, LPN to ADN – Associate in Applied Science
- Practical Nurse – Certificate

Note: Students who wish to begin a bachelor's degree in nursing, and transfer to a four-year college or university, should contact the university where they are planning to transfer to during their first semester.

## Nursing – Associate in Applied Science (*NURS.AAS*)

The Associate in Applied Science, Nursing (ADN) program consists of integrated lectures, labs and clinicals conducted in approved clinical education affiliates. The program prepares students to demonstrate competency in providing nursing care in a variety of health care settings and for employment in the field of registered nursing. Candidates successfully completing the ADN program are eligible to apply for the licensing examination (NCLEX-RN) required for licensure as a registered professional nurse (RN).

Students must apply for admission to the nursing program, and must do so within the application deadlines. Admission to the nursing program is highly competitive and is not guaranteed. There are special admission requirements to the nursing program, and it is the student's responsibility to understand the requirements and adhere to them. Students must meet all admission requirements. Admission into the program is based on a competitive point system, a pre-admission standardized exam and completion of prerequisite courses. The selection process is subject to change. You must work with an academic advisor to plan your prerequisite course sequence and to make application to the nursing program. The advisor will explain the point system on the "ADN Selection Process - Worksheet."

Students are required to take the Kaplan NCLEX-RN Review Program as part of the curriculum in order to graduate. Multiple standardized exams are also required at various points in the program. Most clinical sites are subject to Act 303 of the Public Acts of 2002, amended April 1, 2006, of the State of Michigan which restricts persons with certain criminal convictions from having access to vulnerable populations. Therefore, the agreements that Jackson College has with these organizations require that as a condition of admission, all students will be subject to a fingerprint-based criminal background check, including an FBI check. Exclusions for convictions can range from one year to permanent exclusion. Questions should be directed to the security department.

In addition, all students must pass a drug screen to enter any nursing program, as well as complete immunizations (as required for health care providers), meet technical standards, and complete a physical form. Following graduation, applicants for licensure as a nurse are also asked about criminal convictions and substance abuse, and this can impact the individual's ability to become licensed.

### Prerequisites are:

- ENG 131 Writing Experience I
- MAT 133 Introduction to Probability & Statistics
- PSY 140 Introduction to Psychology
- BIO 253 Human Anatomy and Physiology I AND BIO 254 Human Anatomy and Physiology II
- BIO 220 Microbiology

Applications are accepted for fall or winter admission. See a student success navigator for application deadlines. It is highly recommended that chemistry be taken prior to Human Anatomy & Physiology. All sciences and Pharmacology must be taken within the last eight years. Nursing courses **MUST** be taken in sequence, with the exception of Pharmacology. Students are required to take and pass the HESI RN Admission Assessment (A2) prior to admission.

|   |     |
|---|-----|
| Minimum credits.....                        | 66  |
| Minimum cumulative GPA.....                 | 2.0 |
| Minimum grade in all courses .....          | 2.0 |
| Minimum grades in BIO 253 and BIO 254 ..... | 3.0 |
| Minimum Jackson College credits.....        | 37  |

### GENERAL EDUCATION REQUIREMENTS (22 CREDITS)

#### **GEO 1: Write clearly, concisely and intelligibly (3 credits)**

*Take one of the following:*

ENG 131 Writing Experience I

#### **GEO 2: Speak clearly, concisely and intelligibly**

*Program courses meet this requirement.*

#### **GEO 3: Demonstrate computational skills and mathematical reasoning (4 credits)**

*Take the following:*

MAT 133 Introduction to Probability & Statistics or higher

*\*Note: MAT 133 is preferred for maximum application points.*

#### **GEO 4: Demonstrate scientific reasoning (8 credits)**

*Take the following:*

BIO 253 Human Anatomy and Physiology I

BIO 254 Human Anatomy and Physiology II

#### **GEO 5: Understand human behavior and social systems, and the principles which govern them (4 credits)**

*Take the following:*

PSY 140 Introduction to Psychology



**GEO 6: Understand aesthetic experience and artistic creativity (3 credits)***Choose one of the following:***HUM 131 Cultural Connections (Preferred)****ENG 249 African-American Literature (Preferred)**

ART 111 Art History: Prehistoric to 1400

ART 112 Art History: Renaissance to Present

ENG 210 Introduction to Film

ENG 246 Short Story &amp; Novel

ENG 247 Poetry &amp; Drama

ENG 252 Shakespeare

ENG 254 Children's Literature

ENG 255 American Literature – 19th Century

ENG 256 American Literature – 20th Century

MUS 131 Understanding Music

THR 116 Introduction to Theatre

**GEO 7: Understand and respect the diversity and interdependence of the world's peoples and cultures***Program courses meet this requirement.***NURSING RELATED REQUIREMENTS  
(7 CREDITS)***Take the following:*

BIO 220 Microbiology

NRS 116 Pharmacology

**NURSING CORE REQUIREMENTS (37 CREDITS)***Take the following:*

NRS 110 Nursing Fundamentals

NRS 111 Nursing Skills

NRS 119 Health Assessment

NRS 210 Medical Surgical I

NRS 211 Women and Neonate Concepts

NRS 212 Behavioral Health

NRS 213 Pediatrics

NRS 214 Medical Surgical II

NRS 215 Pathophysiology

NRS 230 Medical Surgical III

NRS 240 Nursing Capstone

\*NRS 116 if not completed prior to admission into the program, MUST be taken during Semester I – concurrent with NRS 110 and 111.

\*\*It is highly recommended that general education courses be taken before the nursing course sequence if at all possible.

NOTE: Nursing courses are assigned various labs and clinicals. Be sure to follow directions. The schedule is subject to change on short notice. Specific clinical sites and times cannot be guaranteed.

The nursing department reserves the right to change the curriculum, policies and program requirements.

The nursing program requirements are highly demanding and time consuming. Following admission, full-time employment is not recommended.

## Nursing – LPN To ADN – Associate in Applied Science (TNUR.AAS)

The Associate in Applied Science, Nursing – LPN to ADN program consists of integrated lectures, labs and clinicals conducted in approved clinical education affiliate settings. The program is designed to educate students to provide competent nursing care in a variety of health care settings and for employment in the field of registered nursing. Candidates who successfully complete the LPN to ADN programs are eligible to apply for the licensing examination (NCLEX-RN) required for licensure as a registered professional nurse (RN).

There are special admission requirements to the LPN to ADN nursing program and it is the student's responsibility to understand the requirements and adhere to them. Students must apply for the program within published time frames. Students must meet with an academic advisor who will explain the program and admission process. Admission is not guaranteed and spaces are limited. The selection process is subject to change. Students must meet all admission requirements.

Candidates entering the LPN to ADN program must have a valid Michigan unencumbered LPN license and must pass the following competency exams: National League for Nursing (NLN) Foundations of Nursing, HESI RN Admission Assessment (A2), and Pharmacology NLN exam. If you have taken a pharmacology course within the last eight (8) years, you may not need to take the exam.

Most clinical sites are subject to Act 303 of the Public Acts of 2002, amended April 1, 2006, of the State of Michigan, which restricts persons with certain criminal convictions from having access to vulnerable populations. Therefore, the agreements that Jackson College has with these organizations require that as a condition of admission, all students will be subject to a fingerprint-based criminal background check, including an FBI check. Exclusions for convictions can range from one year to permanent exclusion. Questions should be directed to the security department.

In addition, all students must pass a drug screen to enter any nursing program, as well as complete immunizations (as required for health care providers), meet technical standards, and complete a physical form. Following graduation, applicants for licensure as a nurse are also asked about criminal convictions and substance abuse, and this can impact the individual's ability to become licensed.

|                                      |     |
|--------------------------------------|-----|
| Minimum credits.....                 | 60  |
| Minimum cumulative GPA.....          | 2.0 |
| Minimum grades in all courses.....   | 2.0 |
| Minimum grade in BIO 253.....        | 3.0 |
| Minimum Jackson College credits..... | 23  |

It is highly recommended that chemistry be taken prior to Human Anatomy & Physiology (BIO 253 & 254). All sciences and NRS 116 must be taken within the last eight years. Nursing courses **MUST** be taken in sequence, with the exception of Pharmacology. Students are required to take the NCLEX review course as part of the curriculum in order to graduate. An academic advisor must be consulted to apply to the program. The nursing program requirements are highly demanding and time consuming. Following admission, full-time employment is not recommended.

## GENERAL EDUCATION REQUIREMENTS (22 CREDITS)

### GEO 1: Write clearly, concisely and intelligibly (3 credits)

*Choose one of the following:*

ENG 131 Writing Experience I

### GEO 2: Speak clearly, concisely and intelligibly

*Program courses meet this requirement.*

### GEO 3: Demonstrate computational skills and mathematical reasoning (4 credits)

*Take the following:*

MAT 133 Introduction to Probability & Statistics or higher

*\*Note: MAT 133 is preferred for maximum application points.*

### GEO 4: Demonstrate scientific reasoning (8 credits)

*Take the following:*

BIO 253 Human Anatomy and Physiology I

BIO 254 Human Anatomy and Physiology II

### GEO 5: Understand human behavior and social systems, and the principles which govern them (4 credits)

*Take the following:*

PSY 140 Introduction to Psychology

### GEO 6: Understand aesthetic experience and artistic creativity (3 credits)

*Choose one of the following:*

HUM 131 Cultural Connections (Preferred)

ENG 249 African-American Literature (Preferred)

ART 112 Art History: Renaissance to Present

ENG 210 Introduction to Film

ENG 246 Short Story & Novel

ENG 247 Poetry & Drama

ENG 252 Shakespeare

ENG 254 Children's Literature

ENG 255 American Literature – 19th Century

ENG 256 American Literature – 20th Century

MUS 131 Understanding Music

THR 116 Introduction to Theatre

### GEO 7: Understand and respect the diversity and interdependence of the world's peoples and cultures.

*Program courses meet this requirement.*

## NURSING (LPN TO ADN) RELATED REQUIREMENTS (7 CREDITS)

*Take the following:*

BIO 220 Microbiology

NRS 116 Pharmacology\*

## NURSING (LPN TO ADN) CORE REQUIREMENTS (23 CREDITS)

*Take the following:*

NRS 214 Medical Surgical II

NRS 215 Pathophysiology

NRS 220 Transition to Professional Nursing

NRS 221 Care of Women and Neonate Bridge

NRS 222 Behavioral Health Bridge

NRS 223 Pediatric Bridge

NRS 230 Medical Surgical III

NRS 240 Nursing Capstone

\*Students may test out of NRS 116. Please contact nursing department for more information.

\*\*It is highly recommended that general education courses be taken before the nursing course sequence if at all possible.

NOTE: Nursing courses are assigned various labs and clinicals. Be sure to follow directions each semester you register. The schedule is subject to change on short notice. Specific clinical sites and times cannot be guaranteed. The nursing department reserves the right to change the curriculum and program requirements.

## Practical Nursing – Certificate (*PNCE.CERT*)

This program prepares students to provide direct nursing care, under supervision, to individuals in a variety of health care settings. The program consists of integrated lectures, labs, clinical experiences, and simulations. Students who successfully complete the curriculum receive the certificate in practical nursing and are eligible to take the state licensing examination (NCLEX-PN) required for licensure as a practical nurse (LPN).

Students must apply for admission to the nursing program, and must do so within the application deadlines. Admission to the nursing program is highly competitive and is not guaranteed. There are special admission requirements to the nursing program, and it is the student's responsibility to understand the requirements and adhere to them. Students must meet all admission requirements. Admission into the program is based on a competitive point system, a pre-admission standardized exam (HESI RN Admission Assessment [A2]), and completion of prerequisite courses. The selection process is subject to change. Students must work with a student success navigator to plan the prerequisite course sequence and to make application to the nursing program. The advisor will explain the point system on the "Practical Nursing Selection Process-Worksheet."

The three-semester practical nursing program begins in March of each year and concludes the following May. There is a short break from mid-July to late August between Semester I and Semester II. Practical nursing classes are on a different course calendar than other classes. All science classes must be taken within the last eight years. Practical nursing courses must be taken in sequence. Students are required to take a licensure preparation course at Jackson College as part of their curriculum in order to graduate.

Most clinical sites are subject to Act 303 of the Public Acts of 2002, amended April 1, 2006, of the State of Michigan, which restricts persons with certain criminal convictions from having access to vulnerable populations. Therefore, the agreements that Jackson College has with these organizations require that as a condition of admission, all students will be subject to a fingerprint-based criminal background check, including an FBI check. Exclusions for convictions can range from one year to permanent exclusion. Questions should be directed to the security department.

In addition, all students must pass a drug screen to enter any nursing program at Jackson College, as well as complete immunizations (as required for health care providers), meet technical standards, and complete a physical form. Following graduation, applicants for licensure as a nurse are also asked about criminal convictions and substance abuse, and this can impact the individual's ability to become licensed.

### Prerequisites are:

- ENG 131 Writing Experience I
- MAT 133 Introduction to Probability & Statistics
- NRS 116 Pharmacology
- PNC 100 Body Structure & Function OR  
BIO 253 Human Anatomy and Physiology I
- BIO 254 Human Anatomy and Physiology II

Minimum Credits: .....40  
Minimum Cumulative GPA: .....2.0  
Minimum grade in all pre-requisite and nursing courses\*...2.0  
Minimum Jackson College credits:.....26

\*Check the points system in the PN selection process worksheet regarding values of points for designated grades. Admission is competitive and based on grades.

## GENERAL EDUCATION REQUIREMENTS (7 CREDITS)

### Take the following:

ENG 131 Writing Experience I  
MAT 133 Introduction to Probability & Statistics or higher

**\*Note: MAT 133 is preferred for maximum application points.**

## PRACTICAL NURSING RELATED REQUIREMENTS (7 CREDITS)

### Take the following:

PNC 100 Body Structure & Function  
NRS 116 Pharmacology

## PRACTICAL NURSING CORE REQUIREMENTS (26 CREDITS)

### Take the following:

PNC 110 Foundations of Nursing  
PNC 111 Foundations Skills Lab  
PNC 120 Medical-Surgical Nursing I  
PNC 130 Medical-Surgical Nursing II  
PNC 140 Medical-Surgical Nursing III  
PNC 150 Maternal /Newborn Concepts  
PNC 160 Pediatric Concepts  
PNC 170 Entry Into Practice

## Pharmacy Technician – Concentration (*PHTE.CON*)

The Pharmacy Technician Concentration prepares the student for the skills necessary for a pharmacy technician position in a retail pharmacy or hospital. Emphasis is placed on: customer service, dosage calculations, knowledge and accuracy in dispensing and control of drugs. Upon successful completion, students are prepared to take the Pharmacy Technician Certification Board Exam (PTCE), a national certification exam.

|  |     |
|--|-----|
| Minimum credits.....                     | 25  |
| Minimum cumulative GPA.....              | 2.0 |
| Minimum grade in all courses .....       | 2.0 |
| Minimum grades in HOC 140, HOC 210 ..... | 2.5 |
| Minimum Jackson College credits.....     | 15  |

### GENERAL EDUCATION REQUIREMENTS (7 CREDITS)

*Take the following:*

ENG 131 Writing Experience I **OR**  
ENG 132 Writing Experience II

MAT 131 Intermediate Algebra or higher

### PHARMACY TECHNICIAN RELATED REQUIREMENTS (10 CREDITS)

*Take the following:*

BUA 130 Customer Service

CIS 101 Introduction to Information Technologies **OR**  
CIS 201 Advanced Information Technologies

MOA 141 Body Structure & Function **OR**  
LPN 141 Body Structure & Function **OR**  
BIO 132 Human Biology **OR**

BIO 253 Human Anatomy and Physiology I **AND**  
BIO 254 Human Anatomy & Physiology II

### PHARMACY TECHNICIAN CORE REQUIREMENTS (8 CREDITS)

*Take the following:*

HOC 140 Pharmacy Technician Concepts and Calculations  
HOC 210 Pharmacy Technician Exam Preparation  
NRS 145 Normal/Therapeutic Nutrition

## Phlebotomy Technician – Skill Set (*PHLB.SSET*)

The Phlebotomy Technician Skill Set prepares students for professional certification and employment in a variety of settings, such as medical offices, hospitals, or medical and diagnostic laboratories. Students may also choose to use this as a building block to enhance the skills that will be learned in another allied health or nursing degree or to add to an already completed degree.

**Prerequisite requirements:** ENG 085 or higher. MAT 020 or higher.

|                                      |     |
|--------------------------------------|-----|
| Minimum credits.....                 | 11  |
| Minimum cumulative GPA.....          | 2.0 |
| Minimum grade in all courses .....   | 2.0 |
| Minimum Jackson College credits..... | 11  |

### PHLEBOTOMY TECHNICIAN RELATED REQUIREMENTS (7 CREDITS)

*Take the following:*

HOC 150 Electronic Health Records

MOA 141 Body Structure & Function **OR**  
LPN 141 Body Structure & Function **OR**  
BIO 132 Human Anatomy **OR**  
BIO 254 Human Anatomy & Physiology II

### PHLEBOTOMY TECHNICIAN CORE REQUIREMENT (4 CREDITS)

*Take the following:*

HOC 145 Phlebotomy Technician

### ADDITIONAL REQUIREMENT

First Aid & Healthcare Provider CPR

.....

## Radiography – Associate in Applied Science (*RADIAAS*)

A radiographer is the allied health professional who uses ionizing radiation to image patients in hospitals and various health clinical settings. Radiographers perform general x-ray imaging of the body and may also go on to perform advanced imaging procedures such as CT, MRI, mammography and more.



It is a two-year program leading to an Associate in Applied Science degree. The curriculum consists of integrated didactic and clinical course work in an approved clinical education affiliate. The program is designed to prepare the student for employment in the field of diagnostic radiography. Positions are located within hospitals, medical clinics and other diagnostic imaging institutions. Upon successful completion, students are eligible to write the American Registry of Radiological Technologists (ARRT) exams. Satisfactory completion of the ARRT board certifying exams allows the radiographer to use the initials of R.T. (R), Registered Technologist (Radiography).

There are special admission requirements to the radiography programs, and it is the student's responsibility to understand the requirements and adhere to them. Entry into a program is competitive and based on a "point system." Point values are based on grades earned in prerequisite coursework and the interview process.

Applications are processed according to the following:

- Applications must be received by the Allied Health Office by January 31.
- Radiography Admission Committee conducts interviews.
- Students are notified by mail of application/interview results.
- Accepted students begin spring semester.

BIO 132 OR BIO 253 AND BIO 254, DMS 100, HOC 130 AND MOA 120 must be successfully completed before applying to the program.

|  |     |
|--|-----|
| Minimum credits.....   | 82  |
| Minimum cumulative GPA.....  | 2.0 |
| Minimum grade in BIO 132 OR BIO 253/254, DMS 100,<br>HOC 130 AND MOA 120 ..... | 3.0 |
| Minimum grade in all courses .....   | 2.0 |
| Minimum Jackson College credits.....   | 15  |

## GENERAL EDUCATION REQUIREMENTS (21 CREDITS)

### GEO 1: Write clearly, concisely and intelligibly (3 credits)

*Take the following:*

ENG 131 Writing Experience I

### GEO 2: Speak clearly, concisely and intelligibly (3 credits)

*Choose one of the following:*

COM 231 Communication Fundamentals

COM 240 Interpersonal Communication

### GEO 3: Demonstrate computational skills and mathematical reasoning (4 credits)

*Take the following:*

MAT 131 Intermediate Algebra or higher

### GEO 4: Demonstrate scientific reasoning (4-8 credits)

*Choose from the following:*

BIO 132 Human Biology **OR**

BIO 253 Human Anatomy and Physiology I **AND**

BIO 254 Human Anatomy and Physiology II

### GEO 5: Understand human behavior and social systems, and the principles which govern them (4 credits)

*Take the following:*

PSY 140 Introduction to Psychology

### GEO 6: Understand aesthetic experience and artistic creativity (3 credits)

*Choose one of the following:*

**HUM 131 Cultural Connections (Preferred)**

**ENG 249 African-American Literature (Preferred)**

ART 111 Art History: Prehistoric to 1400

ART 112 Art History: Renaissance to Present

ENG 210 Introduction to Film

ENG 246 Short Story & Novel

ENG 247 Poetry & Drama

ENG 252 Shakespeare

ENG 254 Children's Literature

ENG 255 American Literature – 19th Century

ENG 256 American Literature – 20th Century

MUS 131 Understanding Music

THR 116 Introduction to Theatre

**GEO 7: Understand and respect the diversity and interdependence of the world's peoples and culture**  
Program courses meet this requirement.

## RADIOGRAPHY RELATED REQUIREMENTS (9 CREDITS)

*Take the following:*

DMS 100 Introduction to Diagnostic Imaging

HOC 130 Introduction to Health Occupations

MOA 120 Medical Terminology

## RADIOGRAPHY CORE REQUIREMENTS (52 CREDITS)

*Take the following:*

|         |                                    |
|---------|------------------------------------|
| RAD 120 | Radiographic Orientation           |
| RAD 121 | Radiographic Positioning I         |
| RAD 125 | Radiographic Positioning II        |
| RAD 126 | Clinical Practicum I               |
| RAD 162 | Clinical Practicum II              |
| RAD 211 | Clinical Practicum III             |
| RAD 214 | Clinical Practicum IV              |
| RAD 219 | Clinical Practicum V               |
| RAD 160 | Fundamentals of Radiologic Science |
| RAD 161 | Radiographic Exposure              |
| RAD 209 | Cross-Sectional Imaging            |
| RAD 212 | Special Radiographic Studies       |
| RAD 213 | Radiobiology                       |
| RAD 218 | Radiographic Pathology             |

## Respiratory Care – Associate in Applied Science (RECA.AAS)

Respiratory care is an allied health profession whose practitioners focus on diagnosis and treatment of cardiopulmonary disorders and diseases. A respiratory care practitioner can be instrumental in assisting a physician in the diagnosis, treatment and prevention of a wide spectrum of disorders affecting the heart and lungs, and specializes in the application of scientific knowledge and theory to practical, clinical problems of respiratory care. A respiratory care practitioner is qualified to assume primary clinical responsibility for all respiratory care modalities, including responsibilities involved in supervision of respiratory technician functions.

This is a two-year program leading to an Associate in Applied Science degree. The curriculum consists of integrated didactic and clinical course work in approved clinical education affiliates. The program is designed to prepare the student for employment in the field of respiratory care. Positions are located within hospitals, long-term care facilities and other outpatient settings.

Upon successful completion, students are eligible to write the National Board for Respiratory Care (NBRC) exams. Satisfactory completion of the NBRC board certifying exams allow the respiratory care practitioner to use the initials of RRT, Registered Respiratory Therapist.

There are special admission requirements to the respiratory care program, and it is the student's responsibility to understand the requirements and adhere to them. Admission to the program is not guaranteed; entry into the program is

competitive and based on a "point system." The order of acceptance of qualified applicants will be based on points achieved.

Applications are processed according to the following:

- Applications must be received by the Allied Health Office by August 31.
- Students are notified by mail of application results.
- Accepted students begin winter semester.
- BIO 132 OR BIO 253 AND BIO 254 (3.0 minimum), MAT 130 (3.0 minimum), ENG 131, and MOA 120 must be successfully completed before admission to the program.

|  |     |
|--|-----|
| Minimum credits.....   | 79  |
| Minimum cumulative GPA.....  | 2.0 |
| Minimum grade in all courses .....                                   | 2.0 |
| Minimum grade in BIO 132 OR BIO 253 AND BIO 254<br>AND MAT 130 ..... | 3.0 |
| Minimum Jackson College credits.....                                 | 15  |

## GENERAL EDUCATION REQUIREMENTS (18 CREDITS)

### GEO 1: Write clearly, concisely and intelligibly (3 credits)

*Take the following:*

ENG 131 Writing Experience I

### GEO 2: Speak clearly, concisely and intelligibly (3 credits)

Program courses meet this requirement.

### GEO 3: Demonstrate computational skills and mathematical reasoning (4 credits)

*Take the following:*

MAT 130 Quantitative Reasoning or higher

### GEO 4: Demonstrate scientific reasoning (4-8 credits)

*Choose one of the following:*

BIO 132 Human Biology OR

BIO 253 Human Anatomy and Physiology I AND

BIO 254 Human Anatomy and Physiology II

### GEO 5: Understand human behavior and social systems, and the principles which govern them (4 credits)

*Take the following:*

PSY 140 Introduction to Psychology

**GEO 6: Understand aesthetic experience and artistic creativity (3 credits)***Choose one of the following:*

|            |            |  |
|------------|------------|--|
| <b>HUM</b> | <b>131</b> | <b>Cultural Connections (Preferred)</b>        |
| <b>ENG</b> | <b>249</b> | <b>African-American Literature (Preferred)</b> |
| ART        | 111        | Art History: Prehistoric to 1400               |
| ART        | 112        | Art History: Renaissance to Present            |
| ENG        | 210        | Introduction to Film                           |
| ENG        | 246        | Short Story & Novel                            |
| ENG        | 247        | Poetry & Drama                                 |
| ENG        | 252        | Shakespeare                                    |
| ENG        | 254        | Children's Literature                          |
| ENG        | 255        | American Literature – 19th Century             |
| ENG        | 256        | American Literature – 20th Century             |
| MUS        | 131        | Understanding Music                            |
| THR        | 116        | Introduction to Theatre                        |

**GEO 7: Understand and respect the diversity and interdependence of the world's peoples and cultures**

Program courses meet this requirement.

**RESPIRATORY CARE RELATED REQUIREMENTS (7 CREDITS)***Take the following:*

|     |     |                           |
|-----|-----|---------------------------|
| CEM | 131 | Fundamentals of Chemistry |
| MOA | 120 | Medical Terminology       |

**RESPIRATORY CARE CORE REQUIREMENTS (54 CREDITS)***Take the following:*

|     |     |   |
|-----|-----|---|
| RES | 100 | Respiratory Care Techniques I                 |
| RES | 104 | Cardiopulmonary Assessment I                  |
| RES | 110 | Respiratory Care Techniques II                |
| RES | 114 | Cardiopulmonary Pathophysiology I             |
| RES | 115 | Clinical Practice I                           |
| RES | 120 | Respiratory Care Techniques III               |
| RES | 124 | Respiratory Pharmacology                      |
| RES | 125 | Clinical Practice II                          |
| RES | 126 | Cardiopulmonary Pathophysiology II            |
| RES | 204 | Diagnostic Theory                             |
| RES | 205 | Clinical Practice III                         |
| RES | 207 | Advanced Cardiopulmonary Anatomy & Physiology |
| RES | 210 | Perinatal & Pediatric Respiratory Care        |
| RES | 220 | Respiratory Seminar                           |
| RES | 225 | Clinical Practice IV                          |

**Vascular Sonography – Associate in Applied Science (VSON.AAS)**

A vascular sonographer is a highly skilled allied health professional who performs arterial and venous diagnostic procedures using high frequency sound waves. A vascular sonographer operates a variety of complex diagnostic and monitoring equipment, as well as numerous ancillary devices.

The vascular sonographer performs carotid duplex scanning, lower and upper extremity Doppler examinations, venous duplex scans, abdominal vascular exams, evaluates test results, monitors physiological states of the patient, conducts patient education, and maintains accurate records and protocols during and after procedures. A thorough understanding of hemodynamics and pathophysiology is required.

The vascular sonography program is an online program accredited by the Commission for Accreditation of Allied Health Education Programs (CAAHEP) in the United States. It is a program leading to an Associate in Applied Science degree. The curriculum consists of integrated educational and clinical course work with a minimum of 1,152 supervised clinical hours with an approved clinical education affiliate.

The program is designed to prepare the student for employment in the field of vascular sonography. Vascular positions are located within hospitals, medical clinics, and other diagnostic imaging health institutions. Upon successful completion, students are eligible to apply for certification exams through the American Registry for Diagnostic Medical Sonography and, if successful, use the credentials RVT (Registered Vascular Technologist).

There are special admission requirements to the sonography programs, and it is the student's responsibility to understand the requirements and adhere to them. Entry into a program is competitive and based on a "point system." Point values are based on grades earned in prerequisite coursework and the interview process.

Applications are processed according to the following:

- Applications must be received by the Allied Health Office by May 31.
- Diagnostic Medical Sonography Admission Committee conducts consultations.
- Students are notified by mail of application consultation results.
- Accepted students begin fall semester.

General education prerequisites and related requirement courses must be completed before admission to the program.

|  |     |
|--|-----|
| Minimum credits.....   | 70  |
| Minimum cumulative GPA.....  | 2.0 |
| Minimum grade in all courses .....                                 | 2.0 |
| Minimum grade in BIO 132 OR BIO 253/254, HOC 130 AND MOA 120 ..... | 3.0 |
| Minimum Jackson College credits.....                               | 15  |

## GENERAL EDUCATION REQUIREMENTS (21 CREDITS)

### GEO 1: Write clearly, concisely and intelligibly (3 credits)

*Take the following:*

ENG 131 Writing Experience I

### GEO 2: Speak clearly, concisely and intelligibly (3 credits)

*Choose one of the following:*

COM 231 Communication Fundamentals

COM 240 Interpersonal Communication

### GEO 3: Demonstrate computational skills and mathematical reasoning (4 credits)

*Take the following:*

MAT 131 Intermediate Algebra or higher

### GEO 4: Demonstrate scientific reasoning (4-8 credits)

*Choose one of the following:*

BIO 132 Human Biology **OR**

BIO 253 Human Anatomy and Physiology I **AND**

BIO 254 Human Anatomy and Physiology II

### GEO 5: Understand human behavior and social systems, and the principles which govern them (4 credits)

*Take the following:*

PSY 140 Introduction to Psychology

### GEO 6: Understand aesthetic experience and artistic creativity (3 credits)

*Choose one of the following:*

**HUM 131 Cultural Connections (Preferred)**

**ENG 249 African-American Literature (Preferred)**

ART 111 Art History: Prehistoric to 1400

ART 112 Art History: Renaissance to Present

ENG 210 Introduction to Film

ENG 246 Short Story & Novel

ENG 247 Poetry & Drama

ENG 252 Shakespeare

ENG 254 Children's Literature

ENG 255 American Literature – 19th Century

ENG 256 American Literature – 20th Century

MUS 131 Understanding Music

THR 116 Introduction to Theatre

### GEO 7: Understand and respect the diversity and interdependence of the world's peoples and cultures

Program courses meet this requirement.

## VASCULAR SONOGRAPHY RELATED REQUIREMENTS (15 CREDITS)

*Take the following:*

DMS 100 Introduction to Diagnostic Imaging

DMS 104 Introduction to Sonographic Instrumentation

HOC 130 Introduction to Health Occupations

MOA 120 Medical Terminology

PHY 145 Introduction to Basic Physics

## VASCULAR SONOGRAPHY CORE REQUIREMENTS (34 CREDITS)

*Take the following:*

DMS 107 Sonographic Orientation – Vascular

DMS 151 Peripheral Arterial I

DMS 152 Peripheral Arterial II

DMS 155 Peripheral Venous

DMS 161 Vascular Clinical I

DMS 206 Sonographic Instrumentation

DMS 251 Cerebrovascular Imaging

DMS 254 Transcranial Doppler Imaging and Capstone

DMS 265 Vascular Clinical II

DMS 266 Vascular Clinical III

## Vascular Sonography – Certificate (VASO.CERT)

Minimum credits.....50

Minimum cumulative GPA..... 2.0

Minimum grade in all courses ..... 2.0

Minimum grade in BIO 132 OR BIO 253/254, HOC 130

AND MOA 120 ..... 3.0

Minimum Jackson College credits..... 15

## GENERAL EDUCATION REQUIREMENTS (11 CREDITS)

*Take the following:*

ENG 131 Writing Experience I

MAT 131 Intermediate Algebra or higher level

BIO 132 Human Biology **OR**

BIO 253 Human Anatomy and Physiology I **AND**

BIO 254 Human Anatomy and Physiology II

## VASCULAR SONOGRAPHY RELATED REQUIREMENTS (5 CREDITS)

*Take the following:*

DMS 104 Introduction to Sonographic Instrumentation

PHY 145 Introduction to Basic Physics

## VASCULAR SONOGRAPHY CORE REQUIREMENTS (34 CREDITS)

*Take the Following:*

DMS 107 Sonographic Orientation – Vascular

DMS 151 Peripheral Arterial I

DMS 152 Peripheral Arterial II

DMS 155 Peripheral Venous

DMS 161 Vascular Clinical I

DMS 206 Sonographic Instrumentation

DMS 251 Cerebrovascular Imaging

DMS 254 Transcranial Doppler Imaging and Capstone

DMS 265 Vascular Clinical II

DMS 266 Vascular Clinical III

## Vascular Sonography – Arterial Imaging – Skill Set (VSOA.SSET)

The Vascular Enhancement Skill Set will build upon existing sonography skills and prepare students for employment opportunities. Employment of individuals with an enhanced skill set in lower extremity arterial physiological and duplex imaging is usually through privately run practices (cardiologists) or a hospital imaging department.

Prerequisite requirements: All students must hold sonography credentials (ARDMS and/or CCI) or a graduate of a CAAHEP-accredited program with one year of clinical education in the general and/or cardiac specialty vascular specialty.

|  |     |
|--|-----|
| Minimum credits .....                        | 5   |
| Minimum grade in all core requirements ..... | 3.0 |
| Minimum grade in related requirements .....  | 4.0 |
| Minimum Jackson College credits .....        | 5   |

### VASCULAR SONOGRAPHY ENHANCEMENT CORE REQUIREMENTS (3 CREDITS)

*Take the following:*

DMS 151 Peripheral Arterial I

### VASCULAR SONOGRAPHY RELATED REQUIREMENT (2 CREDITS)

*Take the following:*

DMS 162 Vascular Lab Practice

### ADDITIONAL REQUIREMENT

First Aid & Healthcare Provider CPR, Proof of Vaccination(s)

## Vascular Sonography – Carotid Duplex – Skill Set (VSOC.SSET)

The Vascular Enhancement Skill Set will build upon existing sonography skills and prepare students for employment opportunities. Employment of individuals with an enhanced skill set in carotid duplex imaging is usually through privately run practices (cardiologists) or a hospital imaging department.

Prerequisite requirements: All students must hold sonography credentials (ARDMS and/or CCI) or be a graduate of a CAAHEP-accredited program with one year of clinical education in the general and/or cardiac specialty vascular specialty.

|  |     |
|--|-----|
| Minimum credits .....                        | 5   |
| Minimum grade in all core requirements ..... | 3.0 |
| Minimum grade in related requirements .....  | 4.0 |
| Minimum Jackson College credits .....        | 5   |

### VASCULAR SONOGRAPHY ENHANCEMENT CORE REQUIREMENTS (3 CREDITS)

*Take the following:*

DMS 251 Cerebrovascular I

### VASCULAR SONOGRAPHY RELATED REQUIREMENT (2 CREDITS)

*Take the following:*

DMS 162 Vascular Lab Practice

### ADDITIONAL REQUIREMENT

First Aid & Healthcare Provider CPR, Proof of Vaccination(s)

## Vascular Sonography – Venous Duplex – Skill Set (VSOV.SSET)

The Vascular Enhancement Skill Set will build upon existing sonography skills and prepare students for employment opportunities. Employment of individuals with a skill set in lower extremity venous duplex-evaluate for obstruction is usually through privately run practices (cardiologists) or a hospital imaging department.

Prerequisite requirements: All students must hold sonography credentials (ARDMS and/or CCI) OR a graduate of a CAAHEP-accredited program with one year of clinical education in the general and/or cardiac specialty vascular specialty.

|  |     |
|--|-----|
| Minimum credits .....                        | 5   |
| Minimum grade in all core requirements ..... | 3.0 |
| Minimum grade in related requirements .....  | 4.0 |
| Minimum Jackson College credits .....        | 5   |

### VASCULAR SONOGRAPHY ENHANCEMENT CORE REQUIREMENTS (3 CREDITS)

*Take the following:*

DMS 155 Peripheral Venous

### VASCULAR SONOGRAPHY RELATED REQUIREMENT (2 CREDITS)

*Take the following:*

DMS 162 Vascular Lab Practice

### ADDITIONAL REQUIREMENT

First Aid & Healthcare Provider CPR, Proof of Vaccination(s)





## HUMAN SERVICES PATHWAY

Do you enjoy helping other people? Are you sympathetic to people in unfortunate situations? Are you friendly, open, understanding and cooperative? Is it important for you to do something that makes things better for other people? Would you enjoy teaching people to improve their lives? Do you like to help friends with problems? This could be your career path!

Those interested in the Human Services Pathway must keep in mind that this field is a very broad one. Through an interdisciplinary knowledge base, this career path is concerned with meeting human needs. The focus is on prevention as well as remediation of problems, with the main goal of improving the overall quality of life for others. Careers in this path are related to economic, political, and social systems. Individuals in the human service field might find themselves in a variety of careers, including psychology, counseling, social work, government, law and law enforcement, or education. Human services careers are perfect for people who are at their best when they are helping others.

### DEGREES/CERTIFICATES

- Corrections
- Law Enforcement

## Corrections – Associate in Applied Science (CORR.AAS)

Corrections officers are charged with safekeeping any person who has been arrested, is awaiting trial or is in a correctional institution. Officers maintain order within the institution, enforce rules and regulations and often supplement counseling that inmates receive from mental health professionals. In addition to being prison/jail guards, corrections officers can work in other related positions, such as juvenile facilities.

|                                      |     |
|--------------------------------------|-----|
| Minimum credits.....                 | 63  |
| Minimum cumulative GPA.....          | 2.0 |
| Minimum grade in all courses .....   | 2.0 |
| Minimum Jackson College credits..... | 15  |

### GENERAL EDUCATION REQUIREMENTS (23-25 CREDITS)

#### GEO 1: Write clearly, concisely and intelligibly (3 credits)

*Take the following:*

ENG 131 Writing Experience I

#### GEO 2: Speak clearly, concisely and intelligibly (3 credits)

*Choose one of the following:*

COM 231 Communication Fundamentals

COM 240 Interpersonal Communication

#### GEO 3: Demonstrate computational skills and mathematical reasoning (4 credits)

*Take the following:*

MAT 133 Introduction to Probability and Statistics

#### GEO 4: Demonstrate scientific reasoning (4 credits)

*Choose one of the following:*

BIO 110 Introductory Biology

BIO 132 Human Biology

BIO 158 Environmental Science

BIO 161 General Biology I

BIO 162 General Biology II

BIO 220 Microbiology

BIO 253 Human Anatomy and Physiology I

CEM 131 Fundamentals of Chemistry

CEM 141 General Chemistry

GEL 109 Earth Science

GEL 160 Introduction to Geology

NSC 131 Contemporary Science

PHY 131 Conceptual Physics

PHY 151 Astronomy

PHY 231 College Physics I

PHY 251 Modern University Physics I

#### GEO 5: Understand human behavior and social systems, and the principles which govern them (3 credits)

*Take the following:*

PLS 141 American National Government

#### GEO 6: Understand aesthetic experience and artistic creativity (3 credits)

*Choose one of the following:*

ART 111 Art History: Prehistoric to 1400

ART 112 Art History: Renaissance to Present

ENG 210 Introduction to Film

ENG 246 Short Story & Novel

ENG 247 Poetry & Drama

ENG 249 African-American Literature

ENG 252 Shakespeare

ENG 254 Children's Literature

ENG 255 American Literature – 19th Century

ENG 256 American Literature – 20th Century

HUM 131 Cultural Connections

MUS 131 Understanding Music

THR 116 Introduction to Theatre

#### GEO 7: Understand and respect the diversity and interdependence of the world's peoples and cultures (3-4 credits)

*Choose one of the following:*

ANT 131 Cultural Anthropology

COM 250 Intercultural Communications

ENG 236 Women in a Changing Society

ENG 242 Sports in Film and Literature

ENG 249 African-American Literature

ENG 257 World Literature

FRN 131 French I

GEO 132 World Regions

GER 131 German I

HIS 125 African-American History

HIS 211 Minority Groups in America

HUM 131 Cultural Connections

MUS 130 Music of Non-Western Cultures

PHL 243 World Religions

PLS 262 International Relations

SOC 236 Women in a Changing Society

SOC 246 Marriage and Family

SPN 131 Spanish I

### CORRECTIONS RELATED REQUIREMENTS (16 CREDITS)

*Take the following:*

CIS 101 Introduction to Computer Systems **OR**

CIS 201 Advanced Information Technologies

ENG 232 Technical & Business Writing

PSY 140 Introduction to Psychology

PSY 251 Abnormal Psychology

SOC 231 Principles of Sociology

## CORRECTIONS CORE REQUIREMENTS (15 CREDITS)

Take the following:

- CRJ 119\* Client Growth & Development
- CRJ 120\* Human Relations for Corrections
- CRJ 121\* Introduction to Corrections
- CRJ 124\* Institution Populations
- CRJ 127\* Corrections Law

## CORRECTIONS ELECTIVES (9 CREDITS)

Choose nine credits from the following:

- CRJ 101 Criminal Law
- CRJ 104 Criminal Justice Psychology
- CRJ 108 Criminal Justice Fieldwork – Security
- CRJ 111 Introduction to Criminal Justice
- CRJ 112 Crime & Delinquency

- CRJ 117 Criminology **OR**
- SOC 117 Criminology

- CRJ 125 Parole & Probation
- CRJ 203 Field Studies

\*Recommended for prospective State of Michigan correctional officers. Each corrections course must be completed with a 2.0 to meet the requirement of the Michigan Correctional Officers Training Council "Desired" background for students to be successful in particular courses (this is for courses that do not have specific prerequisites, but desired experience or knowledge) includes a willingness to help others, good interpersonal communication, and critical thinking skills.

## Corrections – Certificate (CORR.CERT)

This certificate program offers an opportunity to begin a study of all of the components of corrections. Students will explore institutions, private security, and the general safe keeping of all individuals detained. It provides a starting point to continue with an associate degree or become employed in many sectors. Employment includes prison guards, jail correction officers, juvenile facility youth specialist (both public and private) and private security.

|                                      |     |
|--------------------------------------|-----|
| Minimum credits.....                 | 35  |
| Minimum cumulative GPA.....          | 2.0 |
| Minimum grade in each course.....    | 2.0 |
| Minimum Jackson College credits..... | 15  |

## GENERAL EDUCATION REQUIREMENTS (20 CREDITS)

Take the following:

- COM 231 Communication Fundamentals **OR**
- COM 240 Interpersonal Communication
- ENG 131 Writing Experience I
- ENG 232 Technical & Business Writing
- MAT 133 Introduction to Probability and Statistics
- PLS 141 American National Government
- PSY 140 Introduction to Psychology

## CORRECTIONS CORE REQUIREMENTS (15 CREDITS)

- CRJ 119\* Client Growth & Development
- CRJ 120\* Human Relations for Corrections
- CRJ 121\* Introduction to Corrections
- CRJ 124\* Institution Populations
- CRJ 127\* Corrections Law

\*Recommended for prospective State of Michigan correctional officers. Each corrections course must be completed with a 2.0 to meet the requirement of the Michigan Correctional Officers Training Council.

## Corrections Officer – Skill Set (CORR.SSET)

Corrections officers are charged with safekeeping any person who has been arrested, is awaiting trial or is in a correctional institution. Officers maintain order within the institution and enforce rules and regulations. This skill set meets the minimum education requirement for the State of Michigan to be employed as a corrections officer. Other options for employment would include private security, juvenile facilities or corrections officer in a jail setting.

|                                      |     |
|--------------------------------------|-----|
| Minimum credits.....                 | 15  |
| Minimum GPA.....                     | 2.0 |
| Minimum grade in each course.....    | 2.0 |
| Minimum Jackson College credits..... | 15  |

## REQUIRED COURSES (15 CREDITS)

Take the following:

- CRJ 119 Client Growth & Development
- CRJ 120 Human Relations for Corrections
- CRJ 121 Introduction to Corrections
- CRJ 124 Institution Populations
- CRJ 127 Corrections Law

## Corrections Officer – (State Of Michigan)

The information set forth summarizes the requirements of the Michigan Department of Corrections for prospective corrections officers. These requirements, effective October 2000, are for informational purposes only and are subject to change by the Michigan Department of Corrections. Students should contact the Michigan Department of Corrections or the Michigan Department of Civil Service for information regarding its current requirements for correctional officers 517.334.7569 or 1.888.820.7129.

### QUALIFICATIONS FOR CORRECTIONS OFFICER

- Minimum requirements: Possession of a high school diploma or GED and a minimum 18 years of age.
- To be eligible for consideration as a corrections officer, certain education and exam requirements must be satisfied. Most applicants must have an educational background that includes at least 15 semester (or 23 term) college credit hours in corrections, criminal justice, psychology, sociology, family relations, guidance and counseling, pastoral counseling, social work or law enforcement. These credits must be earned prior to submitting an application.
- Possession of 30 semester (or 45 term) college credit hours in any academic or degree prerequisite area meets the educational requirements. These credits must be earned prior to submitting an application.
- Any bachelor's degree or two years of satisfactory corrections officer employment at the state or federal prison level fulfills the education requirements. Before being hired, an applicant must pass a physical fitness test given by the Michigan Department of Corrections which consists of: completing 13 sit-ups in 30 seconds, 17 push-ups in 60 seconds, and walking up and down steps, ranging up to 11 3/4 inches, for six minutes.

In addition, an applicant must have acceptable vision, hearing, and general good physical health, and pass a drug screen.\*

An individual who has been convicted of a felony or domestic violence cannot be hired. Consideration cannot be given to an applicant who is on misdemeanor probation, has outstanding warrants, or has a controlled substance (drug)

related conviction in any jurisdiction, including drug-related military discharges. In addition, an applicant who has been convicted of any other misdemeanor shall not be eligible for employment until one year after satisfactory completion of any sentence imposed, including probation.

How to apply: Applications are available at [www.michigan.gov/mdcs](http://www.michigan.gov/mdcs). For further information, please call 517.636.0780 or 1.888.820.7129.

## Law Enforcement – Associate in Applied Science (LAEN.AAS)

Careers in law enforcement, including police officers and deputy sheriffs, are ever changing. Police officers help prevent crimes, investigate crimes and control traffic. Detectives and special agents gather facts and evidence for criminal cases. In Michigan, students must complete police academy training to be eligible for employment as a police officer. In many cases, police agencies require a minimum of an associate degree for new employees.

|                                      |     |
|--------------------------------------|-----|
| Minimum credits.....                 | 63  |
| Minimum cumulative GPA.....          | 2.0 |
| Minimum grade in all courses .....   | 2.0 |
| Minimum Jackson College credits..... | 15  |

### GENERAL EDUCATION REQUIREMENTS (26-28 CREDITS)

#### GEO 1: Write clearly, concisely and intelligibly (6 credits)

##### Take the following:

- ENG 131 Writing Experience I  
ENG 132 Writing Experience II

#### GEO 2: Speak clearly, concisely and intelligibly (3 credits)

##### Choose one of the following:

- COM 231 Communication Fundamentals  
COM 240 Interpersonal Communication

#### GEO 3: Demonstrate computational skills and mathematical reasoning (4 credits)

##### Take the following:

- MAT 133 Introduction to Probability and Statistics

**GEO 4: Demonstrate scientific reasoning (4-5 credits)***Choose one of the following:*

BIO 110 Introductory Biology  
 BIO 132 Human Biology  
 BIO 158 Environmental Science  
 BIO 161 General Biology I  
 BIO 162 General Biology II  
 BIO 220 Microbiology  
 BIO 253 Human Anatomy and Physiology I  
 CEM 131 Fundamentals of Chemistry  
 CEM 141 General Chemistry  
 GEL 109 Earth Science  
 GEL 160 Introduction to Geology  
 NSC 131 Contemporary Science  
 PHY 131 Conceptual Physics  
 PHY 151 Astronomy  
 PHY 231 College Physics I  
 PHY 251 Modern University Physics I

**GEO 5: Understand human behavior and social systems, and the principles which govern them (3 credits)***Take the following:*

PLS 141 American National Government

**GEO 6: Understand aesthetic experience and artistic creativity (3 credits)***Choose one of the following:*

ART 111 Art History: Prehistoric to 1400  
 ART 112 Art History: Renaissance to Present  
 ENG 210 Introduction to Film  
 ENG 246 Short Story & Novel  
 ENG 247 Poetry & Drama  
 ENG 249 African-American Literature  
 ENG 252 Shakespeare  
 ENG 255 American Literature – 19th Century  
 ENG 256 American Literature – 20th Century  
 HUM 131 Cultural Connections  
 MUS 131 Understanding Music  
 THR 116 Introduction to Theatre

**GEO 7: Understand and respect the diversity and interdependence of the world's peoples and cultures (3-4 credits)***Choose one of the following:*

ANT 131 Cultural Anthropology  
 COM 250 Intercultural Communications  
 ENG 236 Women in a Changing Society  
 ENG 242 Sports in Film and Literature  
 ENG 249 African-American Literature  
 ENG 257 World Literature  
 FRN 131 French I

GEO 132 World Regions  
 GER 131 German I  
 HIS 125 African-American History  
 HIS 211 Minority Groups in America  
 HUM 131 Cultural Connections  
 MUS 130 Music of Non-Western Cultures  
 PHL 243 World Religions  
 PLS 262 International Relations  
 SOC 236 Women in a Changing Society  
 SOC 246 Marriage and Family  
 SPN 131 Spanish I

**LAW ENFORCEMENT RELATED REQUIREMENTS (16 CREDITS)***Take the following:*

CIS 101 Introduction to Computer Systems **OR**  
 CIS 201 Advanced Information Technologies

ENG 232 Technical & Business Writing  
 PSY 140 Introduction to Psychology  
 PSY 251 Abnormal Psychology  
 SOC 231 Principles of Sociology

**LAW ENFORCEMENT CORE REQUIREMENTS (12 CREDITS)***Take the following:*

CRJ 101 Criminal Law  
 CRJ 111 Introduction to Criminal Justice  
 CRJ 114 Police Administration & Operations  
  
 CRJ 117 Criminology **OR**  
 SOC 117 Criminology

**LAW ENFORCEMENT ELECTIVES (9 CREDITS)***Choose 9 credits from the following:*

CRJ 102 Criminal Investigation  
 CRJ 104 Criminal Justice Psychology  
 CRJ 108 Criminal Justice Fieldwork – Security  
 CRJ 112 Crime & Delinquency  
 CRJ 113 Introduction to Criminalistics  
 CRJ 116 Fire Investigation I  
 CRJ 121 Introduction to Corrections  
 CRJ 203 Field Studies



## Law Enforcement – Certificate (*LAEN.CERT*)

A certificate in law enforcement offers individuals an opportunity to pursue initial study in their areas of interest. Credits earned may be applied toward an associate degree.

|                                      |     |
|--------------------------------------|-----|
| Minimum credits.....                 | 35  |
| Minimum cumulative GPA.....          | 2.0 |
| Minimum grade in all courses .....   | 2.0 |
| Minimum Jackson College credits..... | 15  |

### GENERAL EDUCATION REQUIREMENTS (17 CREDITS)

*Take the following:*

|     |     |  |
|-----|-----|--|
| ENG | 131 | Writing Experience I                       |
| ENG | 232 | Technical & Business Writing               |
| MAT | 133 | Introduction to Probability and Statistics |
| PLS | 141 | American National Government               |
| PSY | 140 | Introduction to Psychology                 |

### LAW ENFORCEMENT CORE REQUIREMENTS (18 CREDITS)

*Take the following:*

|     |     |                                    |
|-----|-----|------------------------------------|
| CRJ | 101 | Criminal Law                       |
| CRJ | 102 | Criminal Investigation             |
| CRJ | 111 | Introduction to Criminal Justice   |
| CRJ | 112 | Crime & Delinquency                |
| CRJ | 114 | Police Administration & Operations |

|     |     |             |    |
|-----|-----|-------------|----|
| CRJ | 117 | Criminology | OR |
| SOC | 117 | Criminology |    |

## Criminal Justice – Bachelor's Degree Option with Siena Heights University

Students can work with staff from Jackson College and Siena Heights University to earn a Bachelor of Arts degree in criminal justice. Tailored to build on the associate degrees in law enforcement or corrections, students can transfer up to 90 credits from Jackson College and complete at least 30 hours credit from Siena Heights with a minimum of 18 hours of criminal justice classes. All the courses for the bachelor's degree in criminal justice are available at the Central Campus through the Siena Heights University degree completion center.

## Criminal Justice – Bachelor's Degree Option with Ferris State University

Students can work with staff from Jackson College and Ferris State University to earn a Bachelor of Science degree in criminal justice/law enforcement. Students may complete their associate degree in law enforcement from Jackson College, then continue their third year with several Ferris State courses taught on the JC Campus. The final year would be a transfer to Ferris State in Big Rapids to complete their bachelor's degree which includes a police academy program. Students would graduate with a Bachelor of Science Degree and a MCOLES certification. (Michigan Commission on Law Enforcement Standards) The MCOLES certification qualifies the student to work as a law enforcement officer in the State of Michigan.



## LIBERAL ARTS PATHWAY

Careers in the Liberal Arts Pathway are related to the humanities and performing, visual, literary, and media arts. These include 3-D design and animation, art, broadcasting, communication, dance, digital photography, English (journalism, writing and literature), film, graphic design, history, music, pre-law, and world languages.

Are you a creative thinker? Are you imaginative, innovative and original? Do you like to communicate ideas? Do you like making crafts, drawing, playing a musical instrument, taking photos or writing stories? This may be the career path for you!

**Students entering the Liberal Arts Pathway can complete these associate degrees :**

- Associate in Applied Science - 3D Design and Animation
- Associate in Applied Science - Graphic Design
- Associate in Arts
- Associate in General Studies

**Students entering the Liberal Arts Pathway can complete certificates in:**

- Digital Photography
- Graphic Design
- Studio Art

Students in the Liberal Arts Pathway frequently complete their associate degree and then transfer to a four-year college or university to continue their academic degree in their major or program of study. Deciding upon a transfer institution, early on in the Liberal Arts Pathway, will help ensure that requirements are met and that the correct sequence of courses is taken for smooth transfer.

## 3D Design and Animation – Associate in Applied Science

(DDDA.AAS)

Along with the film industry, the gaming production industry is one of the fastest growing markets to begin your career as a digital artist. Traditional hands-on skills and appreciation for the virtual and digital realms are highly desirable. Artists who want experience with challenging creative work that's action-packed, collaborative and exhilarating should inquire here.

|                                      |     |
|--------------------------------------|-----|
| Minimum credits.....                 | 62  |
| Minimum cumulative GPA.....          | 2.0 |
| Minimum grade in all courses .....   | 2.0 |
| Minimum Jackson College credits..... | 15  |

### GENERAL EDUCATION REQUIREMENTS (23-24 CREDITS)

#### GEO 1: Write clearly, concisely and intelligibly (3 credits)

*Take the following:*

ENG 131 Writing Experience I

#### GEO 2: Speak clearly, concisely and intelligibly (3 credits)

*Take the following:*

COM 240 Interpersonal Communication

#### GEO 3: Demonstrate computational skills and mathematical reasoning (4 credits)

*Take the following:*

MAT 130 Quantitative Reasoning or higher

#### GEO 4: Demonstrate scientific reasoning (4-5 credits)

*Choose one of the following:*

BIO 110 Introductory Biology

BIO 132 Human Biology

BIO 253 Human Anatomy & Physiology I

GEL 109 Earth Science

GEL 160 Introduction to Geology

#### GEO 5: Understand human behavior and social systems, and the principles which govern them (3-4 credits)

*Choose one of the following:*

HIS 120 Ancient History

HIS 131 Western Civilization to 1555

PSY 140 Introduction to Psychology

PSY 152 Social Psychology

SOC 231 Principles of Sociology

#### GEO 6: Understand aesthetic experience and artistic creativity (3 credits)

*Choose one of the following:*

ART 111 Art History: Prehistoric to 1400

ART 112 Art History: Renaissance to Present

ENG 210 Introduction to Film

ENG 246 Short Story & Novel

ENG 247 Poetry & Drama

ENG 249 African-American Literature

ENG 252 Shakespeare

ENG 254 Children's Literature

HUM 131 Cultural Connections

MUS 131 Understanding Music

MUS 132 History of American Popular Music

#### GEO 7: Understand and respect the diversity and interdependence of the world's peoples and cultures (3-4 credits)

*Choose one of the following:*

ANT 131 Cultural Anthropology

COM 250 Intercultural Communications

ENG 249 African-American Literature

ENG 257 World Literature

MUS 130 Music of Non-Western Cultures

PLS 262 International Relations

SOC 246 Marriage and Family

### 3D DESIGN AND ANIMATION RELATED REQUIREMENTS (10 CREDITS)

*Take the following:*

ART 103 Drawing I: Foundations

ART 205 Drawing II: Figure & Composition

ENG 232 Technical & Business Writing

*Choose one of the following:*

CIS 131 Methods in 3D Prototyping

CIS 133 Branding & Identity

CIS 138 Image Editing Applications

### 3D DESIGN AND ANIMATION CORE REQUIREMENTS (29 CREDITS)

*Take the following:*

CIS 101 Introduction to Computer Systems OR

CIS 201 Advanced Information Technologies

CIS 134 Graphic Imaging (Adobe® PhotoShop®)

CIS 147 Web Page Design I (Dreamweaver®)

CIS 171 3D Modeling I

CIS 172 Lighting and Texturing

CIS 247 Web Page Design II (Dreamweaver®)

CIS 271 3D Modeling II

CIS 173 Animation I

CIS 272 Computer Gaming Fundamentals

## Associate in Arts (ARTS.AA)

This degree is designed for students who plan to transfer to a four-year college or university to pursue a bachelor's degree. It is selected by students planning to pursue a career in such fields as the arts, business, creative writing, criminal justice, economics, education, history, interdisciplinary humanities, literature, philosophy, political science, psychology, social work, speech communication, and world languages.

Bachelor of Arts degrees in subject areas vary from one college or university to another. Prior to beginning a curriculum, students should contact the transfer institutions that interest them and a Jackson College student success navigator to create a pathway map toward their degree.

*NOTE: Only courses with a 2.0 or better transfer to most four-year colleges and universities. To complete the Michigan Transfer Agreement, students must plan their courses carefully. Completion of the Associate in Arts degree does NOT guarantee the Michigan Transfer Agreement designation.*

|                                      |     |
|--------------------------------------|-----|
| Minimum credits.....                 | 60  |
| Minimum grade in all courses .....   | 2.0 |
| Minimum cumulative GPA .....         | 2.0 |
| Minimum Jackson College credits..... | 15  |

### GENERAL EDUCATION REQUIREMENTS (40-45 CREDITS)

#### **GEO 1: Write clearly, concisely and intelligibly (6 credits)**

*Take the following:*

ENG 131 Writing Experience I

*Choose one of the following:*

ENG 132 Writing Experience II

ENG 201 Advanced Composition

#### **GEO 2: Speak clearly, concisely and intelligibly (3 credits)**

*Choose one of the following:*

COM 231 Communications Fundamentals

COM 240 Interpersonal Communication

#### **GEO 3: Demonstrate computational skills and mathematical reasoning (4-5 credits)**

*Take the following:*

MAT 130 Quantitative Reasoning or higher

#### **GEO 4: Demonstrate scientific reasoning (7-9 credits)**

Choose two of the following from two different disciplines; at least one must be a laboratory science course:

#### **Non-laboratory Science Courses:**

BIO 140 Public Health and Disease

PHY 150 Concepts in Astronomy

#### **Lab Science Courses:**

BIO 110 Introductory Biology

BIO 132 Human Biology

BIO 158 Environmental Science

BIO 161 General Biology I

BIO 162 General Biology II

BIO 220 Microbiology

BIO 231 General Botany

BIO 232 General Zoology

BIO 253 Human Anatomy and Physiology I

CEM 131 Fundamentals of Chemistry

CEM 141 General Chemistry I

GEL 109 Earth Science

GEL 160 Introduction to Geology

NSC 131 Contemporary Science

PHY 131 Conceptual Physics

PHY 151 Astronomy

PHY 231 College Physics I

PHY 251 Modern University Physics I

#### **GEO 5: Understand human behavior and social systems, and the principles which govern them (8-9 credits)**

*Choose two or three of the following from two different disciplines to equal at least 8 credits:*

ECN 231 Macroeconomics

ECN 232 Microeconomics

HIS 120 Ancient History

HIS 131 Western Civilization to 1555

HIS 132 Western Civilization 1555 to Present

HIS 231 Development of the US through the Civil War

HIS 232 Development of the US from the Civil War

HIS 235 20th Century History

PLS 141 American National Government

PSY 140 Introduction to Psychology

PSY 152 Social Psychology

PSY 245 Infancy and Childhood

PSY 251 Abnormal Psychology

PSY 290 Human Sexuality

SOC 152 Social Psychology

SOC 231 Principles of Sociology

#### **GEO 6: Understand aesthetic experience and artistic creativity (9 credits)**

*Choose three of the following from two different disciplines:*

ART 111 Art History: Prehistoric to 1400

ART 112 Art History: Renaissance to Present

ENG 210 Introduction to Film

ENG 242 Sports in Film & Literature

ENG 246 Short Story & Novel

ENG 247 Poetry & Drama

ENG 249 African-American Literature

ENG 252 Shakespeare

ENG 254 Children's Literature

|     |     |                                    |
|-----|-----|------------------------------------|
| ENG | 255 | American Literature – 19th Century |
| ENG | 256 | American Literature – 20th Century |
| HUM | 131 | Cultural Connections               |
| MUS | 131 | Understanding Music                |
| THR | 116 | Introduction to Theatre            |

**GEO 7: Understand and respect the diversity and interdependence of the world's peoples and cultures (3-4 credits)**

*Choose one of the following:*

|     |     |                               |
|-----|-----|-------------------------------|
| ANT | 131 | Cultural Anthropology         |
| ENG | 236 | Women in Changing Society     |
| ENG | 242 | Sports in Literature and Film |
| ENG | 249 | African-American Literature   |
| ENG | 257 | World Literature              |
| FRN | 131 | French I or higher            |
| GEO | 132 | World Regions                 |
| GER | 131 | German I or higher            |
| HIS | 125 | African-American History      |
| HIS | 211 | Minority Groups in America    |
| HUM | 131 | Cultural Connections          |
| MUS | 130 | Music of Non-Western Cultures |
| PHL | 243 | World Religions               |
| PLS | 262 | International Relations       |
| SOC | 236 | Women in Changing Society     |
| SPN | 131 | Spanish I or higher           |

## PROGRAM REQUIREMENTS

Additional courses\*\* must be taken so that total degree equals 60 credits. Visit a student success navigator to obtain a guide sheet and/or to discuss requirements for your selected program of study. Students are encouraged to choose courses that transfer as equivalent credit to four-year colleges and universities. Students are responsible to verify that courses taken meet the requirements for their chosen program of study.

\*\* Courses identified as remedial or developmental cannot be used as credits toward degrees or certificates. These courses currently include: CIS 090, 095; ENG 080, 085, 090, 101, 102, 109, 110; MAT 019, 020, 030, 031, 033, 035; MTH 090, 095, 098, 100, and 110; and, MTT 009.

Additional courses excluded from credits toward degrees and certificates are continuing education courses (prefix CCE, CED, CEU, CFO, CJT, CSS, ESL, LTL) and courses offered through JC's workforce training programs (prefixes JTI, PDI).

## Associate in General Studies (GEST.AGS)

This degree is adapted to a student's needs, interests and capabilities.

NOTE: Only courses with a 2.0 or better transfer to most four-year colleges and universities. If students want to complete the Michigan Transfer Agreement, they need to plan their courses carefully. Completion of the Associate in General Studies degree does not guarantee the Michigan Transfer Agreement designation.

|                                      |     |
|--------------------------------------|-----|
| Minimum credits.....                 | 60  |
| Minimum grade in all courses .....   | 2.0 |
| Minimum cumulative GPA .....         | 2.0 |
| Minimum Jackson College credits..... | 15  |

## GENERAL EDUCATION REQUIREMENTS (35-42 CREDITS)

### GEO 1: Write clearly, concisely and intelligibly (6 credits)

*Take the following:*

|     |     |                      |
|-----|-----|----------------------|
| ENG | 131 | Writing Experience I |
|-----|-----|----------------------|

*Choose one of the following:*

|     |     |                              |
|-----|-----|------------------------------|
| ENG | 132 | Writing Experience II        |
| ENG | 201 | Advanced Composition         |
| ENG | 232 | Technical & Business Writing |

### GEO 2: Speak clearly, concisely and intelligibly (3 credits)

*Choose one of the following:*

|     |     |                             |
|-----|-----|-----------------------------|
| COM | 231 | Communication Fundamentals  |
| COM | 240 | Interpersonal Communication |

### GEO 3: Demonstrate computational skills and mathematical reasoning (4-5 credits)

*Take the following:*

|     |     |                                  |
|-----|-----|----------------------------------|
| MAT | 130 | Quantitative Reasoning or higher |
|-----|-----|----------------------------------|

### GEO 4: Demonstrate scientific reasoning (7-10 credits)

Choose two of the following from two different disciplines; at least one must be a laboratory science course.

#### Non-laboratory Science Courses:

|     |     |                           |
|-----|-----|---------------------------|
| BIO | 140 | Public Health and Disease |
| PHY | 150 | Concepts in Astronomy     |



**Lab Science Courses:**

|     |     |                                |
|-----|-----|--------------------------------|
| BIO | 110 | Introductory Biology           |
| BIO | 132 | Human Biology                  |
| BIO | 158 | Environmental Science          |
| BIO | 161 | General Biology I              |
| BIO | 162 | General Biology II             |
| BIO | 220 | Microbiology                   |
| BIO | 231 | General Botany                 |
| BIO | 232 | General Zoology                |
| BIO | 253 | Human Anatomy and Physiology I |
| CEM | 131 | Fundamentals of Chemistry      |
| CEM | 141 | General Chemistry I            |
| GEL | 109 | Earth Science                  |
| GEL | 160 | Introduction to Geology        |
| NSC | 131 | Contemporary Science           |
| PHY | 131 | Conceptual Physics             |
| PHY | 151 | Astronomy                      |
| PHY | 231 | College Physics I              |
| PHY | 251 | Modern University Physics I    |

**GEO 5: Understand human behavior and social systems, and the principles which govern them (6-8 credits)***Choose two of the following from two different disciplines:*

|     |     |   |
|-----|-----|---|
| ECN | 231 | Macroeconomics                              |
| ECN | 232 | Microeconomics                              |
| HIS | 120 | Ancient History                             |
| HIS | 131 | Western Civilization to 1555                |
| HIS | 132 | Western Civilization 1555 to Present        |
| HIS | 231 | Development of the US through the Civil War |
| HIS | 232 | Development of the US from the Civil War    |
| HIS | 235 | 20th Century History                        |
| PLS | 141 | American National Government                |
| PSY | 140 | Introduction to Psychology                  |
| PSY | 152 | Social Psychology                           |
| PSY | 245 | Infancy and Childhood                       |
| PSY | 251 | Abnormal Psychology                         |
| PSY | 252 | Developmental Psychology                    |
| PSY | 290 | Human Sexuality                             |
| SOC | 152 | Social Psychology                           |
| SOC | 231 | Principles of Sociology                     |

**GEO 6: Understand aesthetic experience and artistic creativity (6 credits)***Choose two of the following from two different disciplines:*

|     |     |                                     |
|-----|-----|-------------------------------------|
| ART | 111 | Art History: Prehistoric to 1400    |
| ART | 112 | Art History: Renaissance to Present |
| ENG | 210 | Introduction to Film                |
| ENG | 242 | Sports in Film and Literature       |
| ENG | 246 | Short Story & Novel                 |
| ENG | 247 | Poetry & Drama                      |
| ENG | 249 | African-American Literature         |
| ENG | 252 | Shakespeare                         |
| ENG | 254 | Children's Literature               |
| ENG | 255 | American Literature – 19th Century  |

|     |     |                                    |
|-----|-----|------------------------------------|
| ENG | 256 | American Literature – 20th Century |
| HUM | 131 | Cultural Connections               |
| MUS | 131 | Understanding Music                |
| THR | 116 | Introduction to Theatre            |

**GEO 7: Understand and respect the diversity and interdependence of the world's peoples and cultures (3-4 credits)***Choose one of the following:*

|     |     |                               |
|-----|-----|-------------------------------|
| ANT | 131 | Cultural Anthropology         |
| ENG | 236 | Women in Changing Society     |
| ENG | 242 | Sports in Literature and Film |
| ENG | 249 | African-American Literature   |
| ENG | 257 | World Literature              |
| FRN | 131 | French I or higher            |
| GEO | 132 | World Regions                 |
| GER | 131 | German I or higher            |
| HIS | 125 | African-American History      |
| HIS | 211 | Minority Groups in America    |
| HUM | 131 | Cultural Connections          |
| PHL | 243 | World Religions               |
| PLS | 262 | International Relations       |
| MUS | 130 | Music of Non-Western Cultures |
| SOC | 236 | Women in Changing Society     |
| SOC | 246 | Marriage and Family           |
| SPN | 131 | Spanish I or higher           |

**PROGRAM REQUIREMENTS**

Additional courses\*\* so that total degree equals 60 credits.

Plan to see an academic advisor to discuss requirements for your selected program of study.

\*\*Courses identified as remedial or developmental cannot be used as credits toward degrees or certificates. These courses currently include: CIS 090, 095; ENG 080, 085, 090, 091, 101, 102, 109, 110; MAT 019, 020, 030, 031, 033, 035; MTH 090, 095, 098, 100, and 110; and, MTT 009.

Additional courses excluded from credits toward degrees and certificates are continuing education courses (prefix CCE, CED, CEU, CFO, CJT, CSS, ESL, LTL) and courses offered through Jackson College's workforce training programs (prefixes JTI, PDI).

## Digital Photography – Certificate (*DIPH.CERT*)

The Digital Photography Certificate will provide students with the foundational skills to expand their photography portfolio and help them develop skills needed to apply to a fine arts degree program or a career in the field.

Typical job opportunities are: sports photographer, school photographer, news photographer, and advertising work, small business owner in photography, designer, illustrator, magazine/catalog photographer, portrait photographer or photo lab technician.

|                                      |     |
|--------------------------------------|-----|
| Minimum credits.....                 | 31  |
| Minimum cumulative GPA.....          | 2.0 |
| Minimum grade in all courses .....   | 2.0 |
| Minimum Jackson College credits..... | 15  |

### GENERAL EDUCATION REQUIREMENTS (10 CREDITS)

*Take the following:*

|     |     |                                  |
|-----|-----|----------------------------------|
| COM | 231 | Communication Fundamentals       |
| ENG | 131 | Writing Experience I             |
| MAT | 130 | Quantitative Reasoning or higher |

### DIGITAL PHOTOGRAPHY CORE REQUIREMENTS (15 CREDITS)

*Take the following:*

|     |     |                        |
|-----|-----|------------------------|
| ART | 101 | Two-Dimensional Design |
|-----|-----|------------------------|

|     |     |                                 |
|-----|-----|---------------------------------|
| ART | 137 | Digital Photography I <b>OR</b> |
| CIS | 137 | Digital Photography I           |

|     |     |                                  |
|-----|-----|----------------------------------|
| ART | 237 | Digital Photography II <b>OR</b> |
| CIS | 237 | Digital Photography II           |

|     |     |                   |
|-----|-----|-------------------|
| CIS | 134 | Graphic Imaging   |
| CIS | 136 | Integrated Design |

### ELECTIVES (6 CREDITS)

*Choose two of the following:*

|     |     |   |
|-----|-----|---|
| ART | 103 | Drawing I: Foundations                  |
| ART | 112 | Art History: Renaissance to Present     |
| ART | 240 | Printmaking                             |
| BUA | 100 | Contemporary Business                   |
| BUA | 230 | Principles of Marketing                 |
| ENT | 101 | Entrepreneurship: Creating Your Own Job |

## Graphic Design – Associate in Applied Science (*GRDE.AAS*)

The graphic design program prepares students for entry-level positions in design organizations. Graphic design graduates find employment in a variety of settings including the publication and printing industries, advertising and marketing organizations, and graphic design department of corporations, government agencies and retailers.

|                                      |     |
|--------------------------------------|-----|
| Minimum credits.....                 | 61  |
| Minimum cumulative GPA.....          | 2.0 |
| Minimum grade in all courses .....   | 2.0 |
| Minimum Jackson College credits..... | 16  |

### GENERAL EDUCATION REQUIREMENTS (23-25 CREDITS)

**GEO 1: Write clearly, concisely and intelligibly (3 credits)**

*Take the following:*

|     |     |                      |
|-----|-----|----------------------|
| ENG | 131 | Writing Experience I |
|-----|-----|----------------------|

**GEO 2: Speak clearly, concisely and intelligibly (3 credits)**

*Take the following:*

|     |     |                             |
|-----|-----|-----------------------------|
| COM | 240 | Interpersonal Communication |
|-----|-----|-----------------------------|

**GEO 3: Demonstrate computational skills and mathematical reasoning (4 credits)**

*Take the following:*

|     |     |                                  |
|-----|-----|----------------------------------|
| MAT | 130 | Quantitative Reasoning or higher |
|-----|-----|----------------------------------|

**GEO 4: Demonstrate scientific reasoning (4 credits)**

*Choose one of the following:*

|     |     |                      |
|-----|-----|----------------------|
| GEL | 109 | Earth Science        |
| NSC | 131 | Contemporary Science |

**GEO 5: Understand human behavior and social systems, and the principles which govern them (3-4 credits)**

*Choose one of the following:*

|     |     |                              |
|-----|-----|------------------------------|
| PLS | 141 | American National Government |
| PSY | 140 | Introduction to Psychology   |
| PSY | 152 | Social Psychology            |
| SOC | 231 | Principles of Sociology      |

**GEO 6: Understand aesthetic experience and artistic creativity (3 credits)**

*Choose one of the following:*

|     |     |                                     |
|-----|-----|-------------------------------------|
| ART | 112 | Art History: Renaissance to Present |
| ENG | 210 | Introduction to Film                |
| MUS | 132 | History of American Popular Music   |

**GEO 7: Understand and respect the diversity and interdependence of the world's peoples and cultures (3 credits)**

*Choose one of the following:*

|     |     |                               |
|-----|-----|-------------------------------|
| ANT | 131 | Cultural Anthropology         |
| COM | 250 | Intercultural Communications  |
| ENG | 236 | Women in a Changing Society   |
| ENG | 249 | African-American Literature   |
| HIS | 125 | African-American History      |
| HIS | 211 | Minority Groups in America    |
| HUM | 131 | Cultural Connections          |
| MUS | 130 | Music of Non-Western Cultures |
| PHL | 243 | World Religions               |
| PLS | 262 | International Relations       |
| SOC | 236 | Women in a Changing Society   |
| SOC | 246 | Marriage and Family           |

**GRAPHIC DESIGN RELATED REQUIREMENTS (9 CREDITS)**

*Choose one of the following:*

|     |     |                        |
|-----|-----|------------------------|
| ART | 101 | Two-Dimensional Design |
| ART | 103 | Drawing                |
| ART | 152 | Painting & Composition |

*Choose from the following (6 credits):*

|     |     |                            |
|-----|-----|----------------------------|
| CIS | 131 | Methods in 3D Prototyping  |
| CIS | 133 | Brand Identity Design      |
| CIS | 138 | Image Editing Applications |

|     |     |                                 |
|-----|-----|---------------------------------|
| CIS | 137 | Digital Photography I <b>OR</b> |
| ART | 137 | Digital Photography I           |

|     |     |   |
|-----|-----|---|
| BUA | 231 | Advertising, Promotion & Public Relations <b>OR</b> |
| ENT | 101 | Entrepreneurship: Creating Your Own Job <b>OR</b>   |
| BUA | 122 | Successful Small Business                           |

**GRAPHIC DESIGN CORE REQUIREMENTS (29 CREDITS)**

*Take the following:*

|     |     |  |
|-----|-----|--|
| CIS | 126 | Digital Design Fundamentals                              |
| CIS | 127 | Introduction to Creative Software (Adobe Creative Cloud) |
| CIS | 128 | Typography & Layout                                      |
| CIS | 132 | Graphic Illustration (Adobe® Illustrator®)               |
| CIS | 134 | Graphic Imaging (Adobe® Photoshop®)                      |
| CIS | 136 | Integrated Design I (Adobe® InDesign®)                   |
| CIS | 147 | Web Page Design I (DreamWeaver)                          |
| CIS | 230 | Practicum in Printing                                    |
| CIS | 234 | Graphic Technology Applications                          |
| CIS | 245 | Internship/Externship                                    |

**Graphic Design – Certificate (GRDE.CERT)**

The process of graphic design uses art and technology for the visual organization of information. The intent is to connect with a specific audience to communicate or expose ideas. This program allows for an understanding of the practical application of graphic design as it exists in both digital and print environments in the industry today. Career opportunities include freelance designer, editorial/publication designer, corporate identity designer, package designer, environmental designer and type designer.

|                                      |     |
|--------------------------------------|-----|
| Minimum credits.....                 | 35  |
| Minimum cumulative GPA.....          | 2.0 |
| Minimum grade in all courses .....   | 2.0 |
| Minimum Jackson College credits..... | 15  |

**GENERAL EDUCATION REQUIREMENTS (7 CREDITS)**

*Take the following:*

|     |     |                                  |
|-----|-----|----------------------------------|
| ENG | 131 | Writing Experience I             |
| MAT | 130 | Quantitative Reasoning or higher |

**GRAPHIC DESIGN CORE REQUIREMENTS (25 CREDITS)**

*Take the following:*

|     |     |  |
|-----|-----|--|
| CIS | 126 | Digital Design Fundamentals                              |
| CIS | 127 | Introduction to Creative Software (Adobe Creative Cloud) |
| CIS | 128 | Typography & Layout                                      |
| CIS | 132 | Graphic Illustration (Adobe® Illustrator®)               |
| CIS | 134 | Graphic Imaging (Adobe® Photoshop®)                      |
| CIS | 136 | Integrated Design I (Adobe® InDesign®)                   |
| CIS | 230 | Practicum in Printing                                    |
| CIS | 234 | Graphic Technology Applications                          |

**GRAPHIC DESIGN RELATED REQUIREMENTS (3 CREDITS)**

*Choose 3 credits from the following:*

|     |     |   |
|-----|-----|---|
| ART | 101 | Two-Dimensional Design <b>OR</b>                    |
| ART | 103 | Drawing <b>OR</b>                                   |
| ART | 152 | Painting & Composition                              |
| CIS | 131 | Methods in 3D Prototyping                           |
| CIS | 133 | Brand Identity Design                               |
| CIS | 138 | Image Editing Applications                          |
| CIS | 137 | Digital Photography I <b>OR</b>                     |
| ART | 137 | Digital Photography I                               |
| BUA | 231 | Advertising, Promotion & Public Relations <b>OR</b> |
| ENT | 101 | Entrepreneurship: Creating Your Own Job <b>OR</b>   |
| BUA | 122 | Successful Small Business                           |

## Graphic Design – Skill Set

### (GRDE.SSET)

With a skill set in graphic design, students learn the minimal computer skills necessary to assist in digital page layout and design for growing opportunities in advertising or the corporate design field.

|                                      |     |
|--------------------------------------|-----|
| Minimum credits.....                 | 12  |
| Minimum cumulative GPA.....          | 2.0 |
| Minimum grade in all courses .....   | 2.0 |
| Minimum Jackson College credits..... | 12  |

### REQUIRED COURSES (12 CREDITS)

#### Take the following:

|     |     |  |
|-----|-----|--|
| CIS | 127 | Introduction to Creative Software (Adobe Creative Cloud) |
| CIS | 132 | Graphic Illustration (Adobe® Illustrator®)               |
| CIS | 134 | Graphic Imaging (Adobe® Photoshop®)                      |
| CIS | 136 | Integrated Design I (Adobe® InDesign®)                   |

## Studio Art – Certificate

### (STAR.CERT)

The Studio Art Certificate provides students with the foundational skills to expand their portfolio and helps equip them for application to fine arts degree programs or a career in the arts. The curriculum encourages individual creativity and expression while emphasizing the development of basic studio skills.

Typical job opportunities are: advertising artist, art consultant, artist, auto detailer/pin-stripper, billboard artist, calligrapher, cartoonist, CD/record cover designer, courtroom sketcher, decorator, display designer, fashion artist/designer, graphic designer, illustrator, magazine/catalog illustration, mural artist, publication design and tattoo artist.

This program also consists of the foundational courses needed for an associate degree.

|                                      |     |
|--------------------------------------|-----|
| Minimum credits.....                 | 31  |
| Minimum cumulative GPA.....          | 2.0 |
| Minimum grade in all courses .....   | 2.0 |
| Minimum Jackson College credits..... | 15  |

## GENERAL EDUCATION REQUIREMENTS (10 CREDITS)

#### Take the following:

|     |     |                                |
|-----|-----|--------------------------------|
| COM | 231 | Communication Fundamentals     |
| ENG | 131 | Writing Experience I           |
| MAT | 131 | Intermediate Algebra or higher |

## STUDIO ART CORE REQUIREMENTS (15 CREDITS)

#### Take the following:

|     |     |                                     |
|-----|-----|-------------------------------------|
| ART | 101 | Two-Dimensional Design              |
| ART | 103 | Drawing I: Foundations              |
| ART | 112 | Art History: Renaissance to Present |
| ART | 121 | Ceramics I                          |
| ART | 201 | Three-Dimensional Design            |

## ELECTIVES (6 CREDITS)

#### Choose two of the following:

|     |     |                                  |
|-----|-----|----------------------------------|
| ART | 111 | Art History: Prehistoric to 1400 |
| ART | 122 | Ceramics II                      |
| ART | 137 | Digital Photography I OR         |
| CIS | 137 | Digital Photography I            |
| ART | 152 | Painting I: Design & Color       |
| ART | 205 | Drawing II: Figure & Composition |
| ART | 240 | Printmaking                      |
| CIS | 134 | Graphic Imaging                  |



## SCIENCE, TECHNOLOGY, ENGINEERING and MATHEMATICS PATHWAY

Are you interested in how things are built and how they work? Whether looking at people, animals, plants, machines, buildings, the earth or the universe, students in Science, Technology, Engineering and Mathematics Pathway (STEM) have an interest in understanding how the world works. And with our rapidly improving technologies, there are always new boundaries to push and new things to learn. As a result, technologies we can barely dream of today will be the reality 10 years from now, and STEM students will be on the leading edge of those changes.

How can this interest be turned into a career? The possibilities are endless:

- Some will use their knowledge and skills to improve the lives of others through medical care.
- Some will use statistical analysis to make better business decisions or understand disease outbreaks.
- Some will be fascinated by the idea of designing the next breakthrough car, building or bridge.
- Some will design robots to find earthquake survivors or mine minerals on asteroids.
- Some will discover more efficient ways to break down crude oil after a pipeline leak.
- Some will focus on "pure science," increasing the knowledge base for the next generation.
- And thousands of other possible futures for STEM students await!

At Jackson College, students in the STEM pathway can choose any of the four areas to follow, eventually leading to an Associate in Science, and Associate in Applied Science (or Certificate) in Environmental Science, a Preprofessional Studies Certificate or a Fundamentals of Engineering Certificate.

Most STEM students will then transfer to a four-year college or university to earn a bachelor's degree and may continue on for a specialty master's or doctoral degree depending on their interest area.

Examples of topics of study and careers for the various STEM areas:

### Science

Astronomy  
Biology  
Biochemistry  
Chemistry  
Environmental Science  
Fisheries & Wildlife  
Geology  
Microbiology  
Neuroscience  
Physics  
Zoology

### Health Care

Audiology  
Dentistry  
Dietetics & Nutrition  
Exercise Science  
Genetic Counseling  
Kinesiology  
Occupational Therapy  
Pharmacist  
Physical Therapy  
Physician  
Public Health  
Speech Pathology  
Veterinarian

### Engineering

Aeronautical  
Architecture  
Automotive  
Biomedical  
Chemical  
Civil  
Electrical  
Industrial  
Mechanical

### Math

Actuary  
Biomathematics  
Finance  
Forensic Accounting  
Health Informatics  
Statistics

### Technology

Computer Engineering  
Cyber Security  
Geographic Information Systems (GIS)  
Information Technology  
Prosthetics  
Robotics



## Associate in Science (SCIE.AS)

This degree is designed for students who plan to transfer to a four-year college or university to pursue a bachelor's degree. It is selected by students planning to pursue a career in engineering, medicine, health sciences and other science-related professions.

NOTE: Only courses with a 2.0 or better transfer to most four-year colleges and universities. To complete the Michigan Transfer Agreement, students must carefully plan their courses. Completion of the Associate in Science degree does NOT guarantee the Michigan Transfer Agreement designation.

|                                      |     |
|--------------------------------------|-----|
| Minimum credits.....                 | 60  |
| Minimum grade in all courses .....   | 2.0 |
| Minimum cumulative GPA.....          | 2.0 |
| Minimum Jackson College credits..... | 15  |

### GENERAL EDUCATION REQUIREMENTS (26-30 CREDITS)

#### GEO 1: Write clearly, concisely and intelligibly (6 credits)

*Take the following:*

ENG 131 Writing Experience I

*Choose one of the following:*

ENG 132 Writing Experience II

ENG 201 Advanced Composition

#### GEO 2: Speak clearly, concisely and intelligibly (3 credits)

*Take the following:*

COM 231 Communication Fundamentals

#### GEO 3: Demonstrate computational skills and mathematical reasoning (4-5 credits)

*Choose one of the following:*

MAT 141 Pre-Calculus

MAT 151 Calculus

MAT 154 Calculus II

#### GEO 4: Demonstrate scientific reasoning (4-5 credits)

*Choose one of the following:*

BIO 110 Introductory to Biology

BIO 132 Human Biology

BIO 158 Environmental Science

BIO 161 General Biology I

BIO 162 General Biology II

BIO 231 General Botany

BIO 232 General Zoology

BIO 220 Microbiology

CEM 141 General Chemistry I

GEL 109 Earth Science

GEL 160 Introduction to Geology

PHY 151 Astronomy

PHY 231 College Physics I

PHY 251 Modern University Physics I

#### GEO 5: Understanding human behavior and social systems, and the principles which govern them (3-4 credits)

*Choose one of the following:*

ECN 231 Macroeconomics

ECN 232 Microeconomics

HIS 131 Western Civilization to 1555

HIS 132 Western Civilization 1555 to Present

HIS 231 Development of the US through the Civil War

HIS 232 Development of the US from the Civil War

HIS 235 20th Century History

PLS 141 American National Government

PSY 140 Introduction to Psychology

SOC 231 Principles of Sociology

#### GEO 6: Understand aesthetic experience and artistic creativity (3 credits)

*Choose one of the following:*

ART 111 Art History: Prehistoric to 1400

ART 112 Art History: Renaissance to Present

ENG 210 Introduction to Film

ENG 242 Sports in Film and Literature

ENG 246 Short Story & Novel

ENG 247 Poetry & Drama

ENG 249 African-American Literature

ENG 252 Shakespeare

ENG 254 Children's Literature

ENG 255 American Literature – 19th Century

ENG 256 American Literature – 20th Century

HUM 131 Cultural Connections

MUS 131 Understanding Music

THR 116 Introduction to Theatre

**GEO 7: Understand and respect the diversity and interdependence of the world's peoples and cultures (3-4 credits)**

*Choose one of the following:*

|     |     |                               |
|-----|-----|-------------------------------|
| ANT | 131 | Cultural Anthropology         |
| ENG | 236 | Women in Changing Society     |
| ENG | 242 | Sports in Film and Literature |
| ENG | 249 | African-American Literature   |
| ENG | 257 | World Literature I            |
| FRN | 131 | French I or higher            |
| GEO | 132 | World Regions                 |
| GER | 131 | German I or higher            |
| HIS | 125 | African-American History      |
| HIS | 211 | Minority Groups in America    |
| HUM | 131 | Cultural Connections          |
| PHL | 243 | World Religions               |
| PLS | 262 | International Relations       |
| MUS | 130 | Music of Non-Western Cultures |
| SOC | 236 | Women in Changing Society     |
| SPN | 131 | Spanish I or higher           |

**NATURAL SCIENCE (16 CREDITS)**

*(At least one course must be from a different discipline than taken in GEO 4.)*

|     |     |  |
|-----|-----|--|
| BIO | 110 | Introductory Biology                             |
| BIO | 132 | Human Biology                                    |
| BIO | 158 | Environmental Science                            |
| BIO | 253 | Human Anatomy and Physiology I                   |
| BIO | 161 | General Biology I                                |
| BIO | 162 | General Biology II                               |
| BIO | 220 | Microbiology                                     |
| BIO | 231 | General Botany                                   |
| BIO | 232 | General Zoology                                  |
| CEM | 131 | Fundamentals of Chemistry                        |
| CEM | 132 | Fundamentals of Organic and Biological Chemistry |
| CEM | 141 | General Chemistry I                              |
| CEM | 142 | General Chemistry II                             |
| CEM | 241 | Organic Chemistry I                              |
| CEM | 242 | Organic Chemistry II                             |
| GEL | 109 | Earth Science                                    |
| GEL | 160 | Introduction to Geology                          |
| MAT | 151 | Calculus I                                       |
| MAT | 154 | Calculus II                                      |
| MAT | 251 | Calculus III                                     |
| MAT | 254 | Differential Equations                           |
| PHY | 131 | Conceptual Physics                               |
| PHY | 151 | Astronomy  |
| PHY | 231 | College Physics I                                |
| PHY | 232 | College Physics II                               |
| PHY | 251 | Modern University Physics I                      |
| PHY | 252 | Modern University Physics II                     |

Courses cannot be counted toward both general education and additional degree requirements:

**PROGRAM REQUIREMENTS**

Additional courses\*\* so that total degree equals 60 credits. Plan to visit a student success navigator to obtain a guide sheet and/or to discuss requirements for your selected program of study. Students are encouraged to choose courses that transfer as equivalent credit to four-year colleges and universities. Students are responsible to see that courses taken meet the requirements for their chosen program of study.

\*\*Courses identified as remedial or developmental cannot be used as credits toward degrees or certificates. These courses currently include: CIS 090, 095; ENG 080, 085, 090, 091, 101, 102, 109, 110; MAT 019, 020, 030, 031, 033, 035; MTH 090, 095, 098, 100, and 110; and, MTT 009. MTH 120 is also excluded from fulfilling the Associate in Science degree requirements.

Additional courses excluded from credits toward degrees and certificates are continuing education courses (prefix CCE, CED, CEU, CFO, CJT, CSS, ESL, LTL) and courses offered through Jackson College's workforce training programs (prefixes JTI, PDI).

**Environmental Science – Associate in Applied Science (ENSC.AAS)**

The Environmental Science Associate Degree prepares students to transfer to, or enroll in, four-year institutions as science majors. People that enter the environmental sciences can expect positions in water quality testing; ecological testing; laboratory science; natural resources and conservation; environmental engineering; renewable energy; outdoor and environmental education; environmental law, policy and regulation; environmental advocacy; international environmental science; environmental science in higher education, environmental management and administration; public relations and communications.

|                                      |     |
|--------------------------------------|-----|
| Minimum credits.....                 | 60  |
| Minimum cumulative GPA.....          | 2.0 |
| Minimum grade in all courses .....   | 2.0 |
| Minimum Jackson College credits..... | 15  |

**GENERAL EDUCATION REQUIREMENTS (26-29 CREDITS)**

**GEO 1: Write clearly, concisely and intelligibly (6 credits)**

*Take the following:*

|     |     |                      |
|-----|-----|----------------------|
| ENG | 131 | Writing Experience I |
|-----|-----|----------------------|

**Choose one of the following**

- ENG 132 Writing Experience II  
 ENG 201 Advanced Composition  
 ENG 232 Technical & Business Writing

**GEO 2: Speak clearly, concisely and intelligibly (3 credits)****Choose one of the following:**

- COM 231 Communication Fundamentals  
 COM 240 Interpersonal Communications

**GEO 3: Demonstrate computational skills and mathematical reasoning (4-5 credits)****Choose one of the following:**

- MAT 133 Introduction to Probability & Statistics  
 MAT 141 Pre-Calculus  
 MAT 151 Calculus I  
 MAT 154 Calculus II

**GEO 4: Demonstrate scientific reasoning (4 credits)****Take the following:**

- BIO 158 Environmental Science

**GEO 5: Understand human behavior and social systems, and the principles which govern them (3-4 credits)****Choose one of the following:**

- ECN 231 Macroeconomics  
 ECN 232 Microeconomics  
 HIS 131 Western Civilization to 1555  
 HIS 132 Western Civilization 1555 to Present  
 HIS 231 Development of the US through the Civil War  
 HIS 232 Development of the US from the Civil War  
 HIS 235 20th Century History  
 PLS 141 American National Government  
 PSY 140 Introduction to Psychology  
 PSY 152 Social Psychology  
 PSY 245 Infancy and Childhood  
 PSY 251 Abnormal Psychology  
 PSY 290 Human Sexuality  
 SOC 152 Social Psychology  
 SOC 231 Principles of Sociology

**GEO 6: Understand aesthetic experience and artistic creativity (3 credits)****Choose one of the following:**

- ART 111 Art History: Prehistoric to 1400  
 ART 112 Art History: Renaissance to Present  
 ENG 210 Introduction to Film  
 ENG 246 Short Story & Novel  
 ENG 247 Poetry & Drama  
 ENG 249 African-American Literature  
 ENG 252 Shakespeare  
 ENG 254 Children's Literature  
 ENG 255 American Literature - 19th Century  
 ENG 256 American Literature - 20th Century

- HUM 131 Cultural Connections  
 MUS 131 Understanding Music  
 THR 116 Introduction to Theatre

**GEO 7: Understand and respect the diversity and interdependence of the world's peoples and cultures (3-4 credits)****Choose one of the following:**

- ANT 131 Cultural Anthropology  
 ENG 236 Women in Changing Society  
 ENG 249 African-American Literature  
 ENG 257 World Literature  
 FRN 131 French I or higher  
 GEO 132 World Regions  
 GER 131 German I or higher  
 HIS 125 African-American History  
 HIS 211 Minority Groups in America  
 HUM 131 Cultural Connections  
 MUS 130 Music of Non-Western Cultures  
 PHL 243 World Religions  
 PLS 262 International Relations  
 SOC 236 Women in Changing Society  
 SPN 131 Spanish I or higher

**ENVIRONMENTAL SCIENCE CORE REQUIREMENTS (23-26 CREDITS)****Take the following (8 credits):**

- BIO 258 Field Ecology  
 PHL 236 Ethics

**Choose two of the following, depending on professional goals or transfer institution requirements:**

- BIO 220 Microbiology  
 BIO 231 General Botany  
 BIO 232 General Zoology  
 GEL 109 Earth Science  
 GEL 160 Introduction to Geology  
 GEO 131 Physical Geography

**Choose two from the following, depending on professional goals or transfer institution requirements:**

- BIO 161 General Biology I  
 BIO 162 General Biology II  
 CEM 141 General Chemistry I  
 CEM 142 General Chemistry II  
 CEM 241 Organic Chemistry I  
 CEM 242 Organic Chemistry II  
 PHY 231 College Physics I  
 PHY 232 College Physics II  
 PHY 251 Modern University Physics I  
 PHY 252 Modern University Physics II

*Options to consider before finalizing degree requirements depending on career goals*

### ENVIRONMENTAL SCIENCE ELECTIVES (5-11 credits)

*Choose from the following:*

- ALT 200 Principles of Alternative Energy
- ART 103 Drawing I
- ART 205 Drawing II
- ART 121 Ceramics I
- ART 152 Painting I: Design & Color
- ART 240 Printmaking
- BUA 121 Leadership
  
- CIS 137 Digital Photography I **OR**
- ART 137 Digital Photography I
  
- CIS 237 Digital Photography II **OR**
- ART 237 Digital Photography II
  
- CIS 201 Advanced Information Technologies
- COM 233 Argumentation & Debate
- ECN 231 Macroeconomics
- ECN 232 Microeconomics
- EDU 100 Pre-teaching Pathway
- EDU 221 Exploring Teaching
- EGR 153 Engineering Drawing
- EMS 110 Advanced First Aid & American Heart CPR
- ENG 261 Creative Writing
- MAT 251 Calculus III
- PHL 232 Logic
- PHL 243 World Religions
- STM 101 Sustainability

## Environmental Science – Certificate (*ENSC.CERT*)

The Environmental Science Certificate prepares students to transfer to, or enroll in, four-year institutions as environmental science majors. The certificate fulfills most of the first-year academic entrance requirements for science programs. Certificate graduates could also find employment as laboratory technicians. While students should verify information with their transfer institutions, these students are advised by science faculty members according to their specific program goals for the best transfer to their four-year institutions or preparation for employment.

|                                      |     |
|--------------------------------------|-----|
| Minimum credits.....                 | 34  |
| Minimum cumulative GPA.....          | 2.0 |
| Minimum grade in all courses .....   | 2.0 |
| Minimum Jackson College credits..... | 15  |

### GENERAL EDUCATION REQUIREMENTS (10-11 CREDITS)

*Take the following:*

- ENG 131 Writing Experience
- MAT 131 Intermediate Algebra or higher

*Choose one of the following, depending on professional goals or transfer institution requirements:*

- PSY 140 Introduction to Psychology
- PHL 232 Logic
- ECN 231 Microeconomics
- ECN 232 Macroeconomics
- PLS 141 American National Government
- COM 231 Communication Fundamentals
- COM 240 Interpersonal Communication
- GEO 131 Physical Geography
- STM 101 Sustainability

### ENVIRONMENTAL SCIENCE CORE REQUIREMENTS (23-24 CREDITS)

*Take the following:*

- BIO 158 Environmental Science
- BIO 258 Field Ecology
- PHL 236 Ethics

*Choose two of the following, depending on professional goals or transfer institution requirements:*

- GEL 109 Earth Science **OR**
- GEL 160 Introduction to Geology

- BIO 220 Microbiology

- BIO 231 General Botany **OR**
- BIO 232 General Zoology

*Choose one of the following, depending on professional goals or transfer institution requirements:*

- BIO 161 General Biology I
- BIO 162 General Biology II
- CEM 141 General Chemistry
- PHY 231 College Physics

# Fundamentals Of Engineering – Certificate

(FUEN.CERT)

The Fundamentals of Engineering Certificate prepares students to transfer to, or enroll in, four-year institutions as engineering majors. The certificate fulfills many of the first two years of academic requirements for engineering programs. Certificate graduates could also find employment as engineering technicians. While students should verify information with their transfer institutions, these students are advised by mathematics and engineering faculty members according to their specific program goals for the best transfer options.

|                                      |     |
|--------------------------------------|-----|
| Minimum credits.....                 | 41  |
| Minimum cumulative GPA.....          | 2.0 |
| Minimum grade in all courses .....   | 2.0 |
| Minimum Jackson College credits..... | 15  |

## GENERAL EDUCATION REQUIREMENTS (6 CREDITS)

*Take the following:*

- ENG 131 Writing Experience I  
ENG 132 Writing Experience II

## FUNDAMENTALS OF ENGINEERING CORE REQUIREMENTS (35 CREDITS)

*Take the following:*

- CPS 177 Programming in C++  
CEM 141 General Chemistry I  
MAT 151 Calculus I  
MAT 154 Calculus II  
MAT 251 Calculus III  
MAT 254 Differential Equations  
PHY 251 Modern University Physics I  
PHY 252 Modern University Physics II

# Pre-Professional Science – Certificate (PPSC.CERT)

The Pre-Professional Science Certificate prepares students to transfer to four-year institutions either as science majors or as pre-professional students (pre-vet, pre-med, pre-dental, physical and occupational therapy, optometry, pharmacy, physician's assistant, etc.). Certificate graduates could also find employment as laboratory technicians. The certificate fulfills most of the first-year academic entrance requirements for pre-professional programs. Students should verify information with their transfer institutions.

|                                      |     |
|--------------------------------------|-----|
| Minimum credits.....                 | 30  |
| Minimum cumulative GPA.....          | 2.0 |
| Minimum grade in all courses .....   | 2.0 |
| Minimum Jackson College credits..... | 15  |

## GENERAL EDUCATION REQUIREMENTS (10-12 CREDITS)

*Take the following:*

- ENG 131 Writing Experience I

*Choose one of the following:*

- MAT 141 Pre-Calculus  
MAT 151 Calculus I

*Choose one of the following:*

- COM 231 Communication Fundamentals  
COM 240 Interpersonal Communication  
ECN 231 Macroeconomics  
ECN 232 Microeconomics  
PHL 232 Logic  
PLS 141 American National Government  
PSY 140 Introduction to Psychology  
SOC 231 Principles of Sociology

## PRE-PROFESSIONAL SCIENCE CORE REQUIREMENTS (20 CREDITS)

*Choose four of the following:*

- BIO 161 General Biology I  
BIO 162 General Biology II  
CEM 141 General Chemistry I  
CEM 142 General Chemistry II  
MAT 133 Statistics

- MAT 151 Calculus I **OR**  
MAT 154 Calculus II

- PHY 231 College Physics I **OR**  
PHY 251 Modern University Physics I

*Choose one of the following:*

- BIO 231 General Botany  
BIO 232 General Zoology  
BIO 253 Human Anatomy and Physiology I  
BIO 254 Human Anatomy and Physiology II  
BIO 220 Microbiology  
CEM 241 Organic Chemistry I





## SKILLED TRADES and AGRICULTURE PATHWAY

Do you like to work with your hands? Do you enjoy figuring out how things work and fixing problems? There is high demand for all technical trades that involve specialized skills and creative thinking. The Skilled Trades and Agriculture Pathway helps prepare you for these high demand jobs. This pathway includes careers in electrical technology, manufacturing, automotive service, energy systems, agriculture and aviation. Every student in these careers begins with the same basic set of skills and problem-solving curriculum. From learning to read prints and schematics, to machining a special part, calculating the cost-savings of a new technology, repairing the latest vehicles, flying aircraft, to determining the proper GPS coordinates for crop planning, Skilled Trades and Agriculture covers it all.

### DEGREES/CERTIFICATES:

- Agriculture Technology
- Advanced Manufacturing
- Alternative Energy
- Automotive Service Technology
- Aviation Technology
- Electrician
- Electronic Technology/ELT
- Electronic Technology/Microcomputer Support

# Advanced Manufacturing – Associate in Applied Science (ADMA.AAS)

The Advanced Manufacturing - Associate in Applied Science degree prepares students for careers in the manufacturing field, or to enroll in the Bachelor of Science in Energy Production and Management. Students that enter this field can expect employment in the areas and job titles such as: welding, mechanical design, production management, process management, project management, system technicians, machinery repair, maintenance technicians, and machine tool design.

|                                      |     |
|--------------------------------------|-----|
| Minimum credits.....                 | 60  |
| Minimum cumulative GPA.....          | 2.0 |
| Minimum grade in all courses .....   | 2.0 |
| Minimum Jackson College credits..... | 20  |

## GENERAL EDUCATION REQUIREMENTS (23-24 CREDITS)

### GEO 1: Write clearly, concisely and intelligibly (3 credits)

*Take the following:*

ENG 131 Writing Experience I

### GEO 2: Speak clearly, concisely and intelligibly (3 credits)

*Take the following:*

COM 231 Communication Fundamentals

### GEO 3: Demonstrate computational skills and mathematical reasoning (4 credits)

*Take the following:*

MAT 130 Quantitative Reasoning or higher

### GEO 4: Demonstrate scientific reasoning (4 credits)

*Take the following:*

PHY 131 Conceptual Physics

### GEO 5: Understand human behavior and social systems, the principles which govern them (3 credits)

*Choose one of the following:*

ECN 231 Macroeconomics

ECN 232 Microeconomics

### GEO 6: Understand aesthetic experience and artistic creativity (3 credits)

*Choose one of the following:*

ART 111 Art History: Prehistoric to 1400

ART 112 Art History: Renaissance to Present

ENG 210 Introduction to Film

ENG 246 Short Story & Novel

ENG 247 Poetry & Drama

ENG 249 African-American Literature

ENG 252 Shakespeare

ENG 254 Children's Literature

ENG 255 American Literature - 19th Century

ENG 256 American Literature - 20th Century

MUS 131 Understanding Music

THR 116 Introduction to Theatre

### GEO 7: Understand and respect the diversity and interdependence of the world's peoples and cultures (3 credits)

*Choose one of the following:*

HUM 131 Cultural Connections

ANT 131 Cultural Anthropology

PLS 262 International Relations

PHL 243 World Religions

## PROGRAM CORE REQUIREMENTS (18 CREDITS)

*Take the following:*

ELT 105 Introduction to Electrical Systems

MFG 105 Blueprint Reading

MFG 164 Basic Fabrication

MFG 200 Basic Measurement and Gages

WLD 100 Fundamentals of Welding

*Choose one of the following:*

ALT 160 Alternative Fuels

ALT 200 Introduction to Alternative Energy

MFG 240 Introduction to Quality Systems

STM 101 Introduction to Sustainability

*Complete all the courses listed for each concentration selected. You must select at least one (1) concentration.*

### INDUSTRIAL SYSTEMS FOCUS (17 credits)

*Take the following:*

ELT 220 Automation and Controls

MFG 170 Hydraulics and Pneumatics

MFG 185 Maintenance and Troubleshooting

MFG 190 Drive Components and Bearings

*Choose one of the following:*

CAD 151 Introduction to Computer Aided Drafting

CEM 141 General Chemistry

ELT 140 Digital Circuits

WLD 110 MIG/TIG Welding

**MANUFACTURING DESIGN FOCUS (17 credits)***Take the following:*

CAD 151 Introduction to Computer Aided Design  
 CAD 251 Advanced CAD  
 MFG 115 Geometric Dimensioning and Tolerancing  
 MFG 160 Metallurgy  
 MFG 261 Strength of Materials for Manufacturing

*Choose one of the following:*

ELT 140 Digital Circuits  
 ELT 220 Automation and Motion Control  
 MAT 141 Pre-Calculus  
 MFG 190 Drive Components and Bearings

**WELDING FOCUS (17 credits)***Take the following:*

CAD 151 Introduction to Computer Aided Drafting  
 MFG 160 Metallurgy  
 WLD 110 MIG/TIG Welding  
 WLD 115 Aluminum/Stainless Steel Welding

## Advanced Manufacturing – Industrial Systems – Certificate (ISAM.CERT)

The Advanced Manufacturing - Industrial Systems - Certificate prepares students for careers in the manufacturing field. Students that enter this field can expect employment in the areas and job titles such as: welding, mechanical design, production management, process management, project management, system technicians, machinery repair, maintenance technicians, and machine tool design.

Minimum credits.....33  
 Minimum cumulative GPA.....2.0  
 Minimum grade in all courses.....2.0  
 Minimum Jackson College credits.....15

**GENERAL EDUCATION REQUIREMENTS (7 CREDITS)***Take the following:*

ENG 131 Writing Experience I  
 MAT 130 Quantitative Reasoning or higher

**PROGRAM CORE REQUIREMENTS (10 CREDITS)***Take the following:*

MFG 105 Blueprint Reading  
 MFG 164 Basic Fabrication  
 WLD 100 Fundamentals of Welding

**INDUSTRIAL SYSTEMS FOCUS (16 credits)***Take the following:*

ELT 105 Introduction to Electrical Systems  
 ELT 220 Automation and Controls  
 MFG 170 Hydraulics and Pneumatics  
 MFG 185 Maintenance and Troubleshooting  
 MFG 190 Drive Components and Bearings

## Advanced Manufacturing – Industrial Systems – Skill Set (ISAM.SSET)

The Advanced Manufacturing - Industrial Systems - Skill Set prepares students for introductory careers in the manufacturing field. Students that enter this field can expect employment in the areas and job titles such as: welding, mechanical design, production management, process management, project management, system technicians, machinery repair, maintenance technicians, and machine tool design.

Minimum credits.....14  
 Minimum cumulative GPA.....2.0  
 Minimum grade in all courses.....2.0  
 Minimum Jackson College credits.....14

Complete the following courses for the selected skill sets. In order to complete a skill set a student must show competency in MAT 020 and ENG 085. MFG 105 has MAT 020 level math embedded in the coursework. Students that have not placed at a MAT 020 competency level will have the opportunity to take the placement test again after completing MFG 105.

**REQUIRED COURSES (14 CREDITS)***Take the following:*

ELT 105 Introduction to Electrical Systems  
 MFG 105 Blueprint Reading  
 MFG 170 Hydraulics and Pneumatics  
 MFG 185 Maintenance and Troubleshooting

## Advanced Manufacturing – Manufacturing Design – Certificate (MDAM.CERT)

The Advanced Manufacturing - Manufacturing Design - Certificate prepares students for careers in the manufacturing field. Students that enter this field can expect employment in the areas and job titles such as: welding, mechanical design, production management, process management, project management, system technicians, machinery repair, maintenance technicians, and machine tool design.

|                                      |     |
|--------------------------------------|-----|
| Minimum credits.....                 | 31  |
| Minimum cumulative GPA.....          | 2.0 |
| Minimum grade in all courses.....    | 2.0 |
| Minimum Jackson College credits..... | 15  |

### GENERAL EDUCATION REQUIREMENTS (7 CREDITS)

*Take the following:*

|         |                                  |
|---------|----------------------------------|
| ENG 131 | Writing Experience I             |
| MAT 130 | Quantitative Reasoning or higher |

### PROGRAM CORE REQUIREMENTS (10 CREDITS)

*Take the following:*

|         |                         |
|---------|-------------------------|
| MFG 105 | Blueprint Reading       |
| MFG 164 | Basic Fabrication       |
| WLD 100 | Fundamentals of Welding |

### MANUFACTURING DESIGN FOCUS (14 credits)

*Take the following:*

|         |   |
|---------|---|
| CAD 151 | Introduction to Computer Aided Design   |
| CAD 251 | Advanced CAD                            |
| MFG 115 | Geometric Dimensioning and Tolerancing  |
| MFG 160 | Metallurgy                              |
| MFG 261 | Strength of Materials for Manufacturing |

## Advanced Manufacturing – Manufacturing Design – Skill Set (MDAM.SSET)

The Advanced Manufacturing - Manufacturing Design - Skill Set prepares students for introductory careers in the manufacturing field. Students that enter this field can expect employment in the areas and job titles such as: welding, mechanical design, production management, process management, project management, system technicians, machinery repair, maintenance technicians, and machine tool design.

|                                      |     |
|--------------------------------------|-----|
| Minimum credits.....                 | 13  |
| Minimum cumulative GPA.....          | 2.0 |
| Minimum grade in all courses.....    | 2.0 |
| Minimum Jackson College credits..... | 13  |

Complete the following courses for the selected skill sets. In order to complete a skill set a student must show competency in MAT 020 and ENG 085. MFG 105 has MAT 020 level math embedded in the coursework. Students that have not placed at a MAT 020 competency level will have the opportunity to take the placement test again after completing MFG 105.

### REQUIRED COURSES (13 CREDITS)

*Take the following:*

|         |  |
|---------|--|
| CAD 151 | Introduction to Computer Aided Design  |
| CAD 251 | Advanced CAD                           |
| MFG 105 | Blueprint Reading                      |
| MFG 115 | Geometric Dimensioning and Tolerancing |

*Choose one of the following*

|         |                         |
|---------|-------------------------|
| ELT 220 | Automation and Controls |
| MFG 164 | Basic Fabrication       |

## Advanced Manufacturing – Welding – Certificate (WLAM.CERT)

The Advanced Manufacturing - Welding - Certificate prepares students for careers in the manufacturing field. Students that enter this field can expect employment in the areas and job titles such as: welding, mechanical design, production management, process management, project management, system technicians, machinery repair, maintenance technicians, and machine tool design.

|                                      |     |
|--------------------------------------|-----|
| Minimum credits.....                 | 31  |
| Minimum cumulative GPA.....          | 2.0 |
| Minimum grade in all courses.....    | 2.0 |
| Minimum Jackson College credits..... | 15  |

### GENERAL EDUCATION REQUIREMENTS (7 CREDITS)

*Take the following:*

|         |                                  |
|---------|----------------------------------|
| ENG 131 | Writing Experience I             |
| MAT 130 | Quantitative Reasoning or higher |

**PROGRAM CORE REQUIREMENTS (10 CREDITS)***Take the following:*

MFG 105 Blueprint Reading  
 MFG 164 Basic Fabrication  
 WLD 100 Fundamentals of Welding

**WELDING FOCUS (14 credits)***Take the following:*

CAD 151 Introduction to Computer Aided Design  
 MFG 160 Metallurgy  
 WLD 110 MIG/TIG Welding  
 WLD 115 Aluminum/Stainless Steel Welding

## Advanced Manufacturing – Welding – Skill Set (WLAM.SSET)

The Advanced Manufacturing - Welding - Skill Set program prepares students for introductory careers in the manufacturing field. Students that enter this field can expect employment in the areas and job titles such as: welding, mechanical design, production management, process management, project management, system technicians, machinery repair, maintenance technicians, and machine tool design.

Minimum credits..... 13  
 Minimum cumulative GPA .....2.0  
 Minimum grade in all courses .....2.0  
 Minimum Jackson College credits..... 13

Complete the following courses for the selected skill sets. In order to complete a skill set a student must show competency in MAT 020 and ENG 085. MFG 105 has MAT 020 level math embedded in the coursework. Students that have not placed at a MAT 020 competency level will have the opportunity to take the placement test again after completing MFG 105.

**REQUIRED COURSES (13 CREDITS)***Take the following:*

MFG 105 Blueprint Reading  
 WLD 100 Fundamentals of Welding  
 WLD 110 MIG/TIG Welding  
 WLD 115 Aluminum/Stainless Steel Welding

## Agriculture Technology – Associate in Applied Science (AGTE.AAS)

The Agriculture Technology Associate in Applied Science program prepares students for careers in skilled agricultural and agri-business areas. This degree will provide students with the diverse skill set necessary to work competently within the various sectors of the agri-food industry, including: agricultural production (plant or livestock), precision farming, agribusiness and finance, sales management, soil or other conservation management, and food processing.

This degree is designed for students who seek employment in agriculture and agribusiness industries upon graduation from Jackson College. This program of study is not intended for those seeking a four-year or advanced degree in agriculture, natural resources or the natural sciences.

Those wishing to transfer to a four-year institution should pursue the Associate of Science degree, following the Agriculture Transfer program map.

Minimum credits.....62  
 Minimum grade in all courses.....2.0  
 Minimum cumulative GPA .....2.0  
 Minimum JC credits..... 15

**GENERAL EDUCATION REQUIREMENTS (27-28)****GEO 1: Write clearly, concisely and intelligibly (3 credits)***Take the following:*

ENG 131 Writing Experience I

**GEO 2: Speak clearly, concisely and intelligibly (3 credits)***Choose one of the following:***COM 250 Intercultural Communications (Preferred)**

COM 231 Communication Fundamentals  
 COM 240 Interpersonal Communication

**GEO 3: Demonstrate computational skills and mathematical reasoning (4 credits)***Take the following:*

MAT 130 Quantitative Reasoning or higher

**GEO 4: Demonstrate scientific reasoning (8 credits)***Take the following:*

AGT 131 Introduction to Crop and Soil Science  
 NSC 120 Fundamentals of Agricultural Science



**GEO 5: Understand human behavior and social systems, and the principles which govern them (3 credits)***Take the following:*

ECN 231 Macroeconomics

**GEO 6: Understand aesthetic experience and artistic creativity (3 credits)***Choose one of the following:*

ART 111 Art History: Prehistoric to 1400

ART 112 Art History: Renaissance to the Present

MUS 131 Understanding Music

**GEO 7: Understand and respect the diversity and interdependence of the world's peoples and cultures (3 credits)***Choose one of the following:*

GEO 132 World Regions

PLS 262 International Relations

SPN 131 Spanish I (or higher)

**AGRICULTURAL TECHNOLOGY CORE REQUIREMENTS (22 CREDITS)***Take the following:*

AGT 111 Agricultural and Bio Safety

AGT 113 Introduction to Food Systems

AGT 201 Integrated Pest Management

AGT 209 Introduction to Precision Farming

AGT 212 Agricultural Policy and Practices

AGT 227 Introduction to Animal Science

AGT 231 Agricultural Finance

AGT 245 Agricultural Internship

STM 101 Introduction to Sustainability

**RELATED REQUIREMENTS (12 CREDITS)***Take the following:*

ACC 216 Financial Accounting Concepts

BUA 220 Principles of Management

SEM 140 Seminar in Life Pathways

ENT 101 Entrepreneurship: Creating Your Own Job **OR**

AGT 245 Agricultural Internship (must be a unique experience than previously given credit for)

## Automotive Service Technology – Associate In Applied Science (AUTO.AAS)

Designed for the student preparing for a career in the automotive field. Classroom activities provide students an opportunity to learn theory and test-taking skills to successfully pass the Michigan and/or ASE certification examinations. Shop activities provide students an opportunity to become proficient in testing, diagnosing and servicing the various systems of the automobile. All eight areas of an automotive certification are thoroughly covered, and when combined with general and related courses, lead to an Associate in Applied Science degree. This provides the background for employment and advancement in various automotive-related occupations such as service technician, service writer, service manager, proving grounds testing technician, shop owner, parts specialist, automotive machinist, alternate fuel vehicle technician, technical sales and motor sports.

As part of the Ford Maintenance and Light Repair network, our Ford corporate-sponsored connection, students have the option to enter into the Ford MLR program. This prepares students to work as a technician in Ford, Lincoln or Mercury dealerships. These students take the same automotive classes as other students with some important differences. Ford MLR students concentrate on electrical systems, climate control, brakes, and suspension and steering. They utilize Ford training materials including service manuals, electrical/vacuum troubleshooting manuals, technical service bulletins, use Ford-approved tools and equipment, work on Ford automobiles/light trucks and use Ford web-based training with exit tests. Upon successful completion of the courses, students are Ford-certified with Service Technician Specialty Training credentials. With these credentials students will receive assistance in obtaining Ford, Lincoln or Mercury dealership placement to work in the areas of certification.

|  |     |
|--|-----|
| Minimum credits.....                     | 68  |
| Minimum cumulative GPA.....              | 2.0 |
| Minimum grade in all courses .....       | 2.0 |
| Minimum Jackson College AUT credits..... | 15  |
| Minimum Jackson College credits.....     | 12  |

**GENERAL EDUCATION REQUIREMENTS (23-25 CREDITS)****GEO 1: Write clearly, concisely and intelligibly (3 credits)***Take the following:*

ENG 131 Writing Experience I

**GEO 2: Speak clearly, concisely and intelligibly (3 credits)**

*Choose one of the following:*

- COM 231 Communication Fundamentals
- COM 240 Interpersonal Communications

**GEO 3: Demonstrate computational skills and mathematical reasoning (4 credits)**

*Take the following:*

- MAT 130 Quantitative Reasoning or higher

**GEO 4: Demonstrate scientific reasoning (4-5 credits)**

*Choose one of the following:*

- BIO 110 Introductory Biology
- BIO 132 Human Biology
- BIO 158 Environmental Science
- BIO 161 General Biology I
- BIO 162 General Biology II
- BIO 220 Microbiology
- BIO 253 Human Anatomy and Physiology I
- CEM 131 Fundamentals of Chemistry
- CEM 141 General Chemistry I
- GEL 109 Earth Science
- GEL 160 Introduction to Geology
- NSC 131 Contemporary Science
- PHY 131 Conceptual Physics
- PHY 151 Astronomy
- PHY 231 College Physics I
- PHY 251 Modern University Physics I

**GEO 5: Understand human behavior and social systems, and the principles which govern them (3-4 credits)**

*Choose one of the following:*

- ECN 231 Macroeconomics
- ECN 232 Microeconomics
- HIS 131 Western Civilization to 1555
- HIS 132 Western Civilization 1555 to Present
- HIS 231 Development of the US through the Civil War
- HIS 232 Development of the US from the Civil War
- HIS 235 20th Century History
- PLS 141 American National Government
- PSY 140 Introduction to Psychology
- SOC 231 Principles of Sociology

**GEO 6: Understand aesthetic experience and artistic creativity (3 credits)**

*Choose one of the following:*

- ART 111 Art History: Prehistoric to 1400
- ART 112 Art History: Renaissance to Present
- ENG 210 Introduction to Film
- ENG 246 Short Story & Novel
- ENG 247 Poetry & Drama
- ENG 249 African-American Literature
- ENG 252 Shakespeare
- ENG 254 Children's Literature

- ENG 255 American Literature – 19th Century
- ENG 256 American Literature – 20th Century
- HUM 131 Cultural Connections
- MUS 131 Understanding Music
- THR 116 Introduction to Theatre

**GEO 7: Understand and respect the diversity and interdependence of the world's peoples and cultures (3-4 credits)**

*Choose one of the following:*

- ANT 131 Cultural Anthropology
- COM 250 Intercultural Communications
- ENG 236 Women in a Changing Society
- ENG 242 Sports in Film and Literature
- ENG 249 African-American Literature
- ENG 257 World Literature
- FRN 131 French I
- GEO 132 World Regions
- GER 131 German I
- HIS 125 African-American History
- HIS 211 Minority Groups in America
- HUM 131 Cultural Connections
- MUS 130 Music of Non-Western Cultures
- PHL 243 World Religions
- PLS 262 International Relations
- SOC 236 Women in a Changing Society
- SOC 246 Marriage and Family
- SPN 131 Spanish I

**AUTOMOTIVE SERVICE TECHNOLOGY CORE REQUIREMENTS (42 CREDITS)**

*Take the following:*

- AUT 101 General Service
- AUT 102 Engine Performance I
- AUT 103 Engine Performance II
- AUT 105 Automotive Brakes
- AUT 106 Suspension & Steering
- AUT 108 Automotive Air Conditioning/Heating
- AUT 112 Electrical Systems I
- AUT 113 Electrical Systems II
- AUT 201 Engine Repair
- AUT 202 Automatic Transmission
- AUT 204 Manual Transmissions & Drivelines
- AUT 210 Internship/Externship
- AUT 234 Undercar Service

**AUTOMOTIVE SERVICE TECHNOLOGY ELECTIVES (3 CREDITS)**

*Choose from the following:*

- AUT 118 Diesel Fundamentals
- AUT 160 Alternate Fuels
- AUT 203 Advanced Engine Performance
- AUT 211 Internship/Externship

|     |     |                           |
|-----|-----|---------------------------|
| AUT | 212 | Internship/Externship     |
| AUT | 214 | Auto Lab Experience       |
| AUT | 240 | Hybrid Technology         |
| AUT | 248 | Diesel Engine Performance |
| WLD | 100 | Fundamentals of Welding   |

## Automotive Service Technology – Certificate

(*AUTO.CERT*)

Designed for the student preparing for a career in the automotive field. Classroom activities provide students an opportunity to learn theory and test-taking skills to successfully pass the Michigan and/or ASE certification examinations. Shop activities provide students an opportunity to become proficient in testing, diagnosing and servicing the various systems of the automobile. All eight areas of an automotive certification are thoroughly covered, and when combined with general and related courses, lead to an Associate in Applied Science degree.

|                                      |     |
|--------------------------------------|-----|
| Minimum credits.....                 | 49  |
| Minimum cumulative GPA.....          | 2.0 |
| Minimum grade in all courses.....    | 2.0 |
| Minimum Jackson College credits..... | 15  |
| Minimum AUT credits.....             | 12  |

### GENERAL EDUCATION REQUIREMENTS (7 CREDITS)

*Take the following:*

|     |     |                                  |
|-----|-----|----------------------------------|
| ENG | 131 | Writing Experience I             |
| MAT | 130 | Quantitative Reasoning or higher |

### AUTOMOTIVE SERVICE TECHNOLOGY CORE REQUIREMENTS (42 CREDITS)

*Take the following:*

|     |     |                                     |
|-----|-----|-------------------------------------|
| AUT | 101 | General Service                     |
| AUT | 102 | Engine Performance I                |
| AUT | 103 | Engine Performance II               |
| AUT | 105 | Automotive Brakes                   |
| AUT | 106 | Suspension & Steering               |
| AUT | 108 | Automotive Air Conditioning/Heating |
| AUT | 112 | Electrical Systems I                |
| AUT | 113 | Electrical Systems II               |
| AUT | 201 | Engine Repair                       |
| AUT | 202 | Automatic Transmission              |
| AUT | 204 | Manual Transmissions & Drivelines   |
| AUT | 210 | Internship/Externship               |
| AUT | 234 | Undercar Service                    |

## Automotive Service Technology - Heavy Duty Truck - Certificate

(*ASTH.CERT*)

Designed for the student preparing for a career in the automotive field. Classroom activities provide students an opportunity to learn theory and test-taking skills to successfully pass the Michigan and/or ASE certification examinations. Shop activities provide students an opportunity to become proficient in testing, diagnosing and servicing the various heavy duty technologies.

|                                      |     |
|--------------------------------------|-----|
| Minimum credits.....                 | 51  |
| Minimum cumulative GPA.....          | 2.0 |
| Minimum grade in all courses.....    | 2.0 |
| Minimum Jackson College credits..... | 15  |
| Minimum AUT credits.....             | 12  |

### GENERAL EDUCATION REQUIREMENTS (7 CREDITS)

*Take the following:*

|     |     |                                  |
|-----|-----|----------------------------------|
| ENG | 131 | Writing Experience I             |
| MAT | 130 | Quantitative Reasoning or higher |

### HEAVY DUTY TRUCK CORE REQUIREMENTS (44 CREDITS)

*Take the following:*

|     |     |   |
|-----|-----|---|
| AUT | 101 | General Service                         |
| AUT | 102 | Engine Performance I                    |
| AUT | 103 | Engine Performance II                   |
| AUT | 112 | Electrical Systems I                    |
| AUT | 113 | Electrical Systems II                   |
| AUT | 118 | Diesel Fundamentals                     |
| AUT | 210 | Internship/Externship                   |
| AUT | 248 | Diesel Performance                      |
| AUT | 251 | Heavy Duty Brakes                       |
| AUT | 263 | Heavy Duty Suspension and Steering      |
| AUT | 268 | Heavy Duty Heating and Air Conditioning |
| ELT | 105 | Introduction to Electrical Systems      |
| MFG | 170 | Hydraulics/Pneumatics                   |
| WLD | 100 | Fundamentals of Welding <b>OR</b>       |
| AUT | 234 | Undercar Service                        |

## Automotive – Air Conditioning & Heating - Skill Set (ACAH.SSET)

This foundational skill set focuses heating and cooling systems so that students have the basic understanding and knowledge to diagnose and repair air conditioning and heating systems. Students may want to further this exposure through additional automotive course work in related concentrations, certificates or an associate degree.

|                                      |     |
|--------------------------------------|-----|
| Minimum credits.....                 | 9   |
| Minimum cumulative GPA.....          | 2.0 |
| Minimum grade in all courses .....   | 2.0 |
| Minimum Jackson College credits..... | 9   |

### REQUIRED COURSES (9 CREDITS)

*Take the following:*

|     |     |                                     |
|-----|-----|-------------------------------------|
| AUT | 108 | Automotive Air Conditioning/Heating |
| AUT | 112 | Electrical Systems I                |
| AUT | 113 | Electrical Systems II               |

## Collision Mechanical & Electrical – Concentration (COME.CON)

Students will be exposed to various automotive processes including electrical systems, mechanical repairs, and general diagnosis. Students will apply learned skills to collision-related repairs. This concentration prepares students for entry-level positions within a collision repair facility.

|                                      |     |
|--------------------------------------|-----|
| Minimum credits.....                 | 24  |
| Minimum cumulative GPA.....          | 2.0 |
| Minimum grade in all courses .....   | 2.0 |
| Minimum Jackson College credits..... | 15  |

### REQUIRED COURSES (24 CREDITS)

*Take the following:*

|     |     |                                   |
|-----|-----|-----------------------------------|
| AUT | 102 | Engine Performance I              |
| AUT | 103 | Engine Performance II             |
| AUT | 105 | Braking Systems                   |
| AUT | 106 | Steering & Suspension             |
| AUT | 108 | Air Conditioning & Heating        |
| AUT | 112 | Electrical Systems I              |
| AUT | 113 | Electrical Systems II             |
| AUT | 204 | Manual Transmissions & Drivelines |

## Automotive – Driveability - Concentration (DRAB.CON)

Students will be exposed to procedures of engine performance and diagnosis of the internal combustion engine. Students will learn how to make a logical diagnosis based on vehicle operation. Focus will be on correct use of specifications, equipment, and interpretation of test results. This concentration prepares students for employment as an auto technician in the auto repair industry.

|                                      |     |
|--------------------------------------|-----|
| Minimum credits.....                 | 21  |
| Minimum cumulative GPA.....          | 2.0 |
| Minimum grade in all courses .....   | 2.0 |
| Minimum Jackson College credits..... | 15  |

### REQUIRED COURSES (21 CREDITS)

*Take the following:*

|     |     |                                     |
|-----|-----|-------------------------------------|
| AUT | 102 | Engine Performance I                |
| AUT | 103 | Engine Performance II               |
| AUT | 108 | Automotive Air Conditioning/Heating |
| AUT | 112 | Electrical Systems I                |
| AUT | 113 | Electrical Systems II               |
| AUT | 210 | Internship/Externship               |

## Automotive – Driveability - Skill Set (DRAB.SSET)

Students will be exposed to driveability diagnosis with a focus on engine performance. Students may want to further this exposure through additional automotive course work in related concentrations, certificates or an associate degree.

|                                      |     |
|--------------------------------------|-----|
| Minimum credits.....                 | 14  |
| Minimum cumulative GPA.....          | 2.0 |
| Minimum grade in all courses .....   | 2.0 |
| Minimum Jackson College credits..... | 14  |

### REQUIRED COURSES (14 CREDITS)

*Take the following:*

|     |     |                       |
|-----|-----|-----------------------|
| AUT | 102 | Engine Performance I  |
| AUT | 103 | Engine Performance II |
| AUT | 112 | Electrical Systems I  |
| AUT | 113 | Electrical Systems II |

## Automotive – Ford Service – Concentration (*FOSE.CON*)

Students will be exposed to the Ford Maintenance and Light Repair program with an emphasis on electrical systems, climate control, brakes, and suspension and steering. MLR students will train on Ford vehicles using Ford-approved tools, training materials and Ford service manuals. This training prepares students for work in a Ford dealership.

|                                      |     |
|--------------------------------------|-----|
| Minimum credits.....                 | 21  |
| Minimum cumulative GPA.....          | 2.0 |
| Minimum grade in all courses .....   | 2.0 |
| Minimum Jackson College credits..... | 15  |

### REQUIRED COURSES (21 CREDITS)

*Take the following:*

|         |                                      |
|---------|--------------------------------------|
| AUT 101 | General Service                      |
| AUT 105 | Brakes                               |
| AUT 106 | Steering & Suspension                |
| AUT 108 | Air Conditioning and Heating Systems |
| AUT 112 | Electrical Systems I                 |
| AUT 113 | Electrical Systems II                |
| AUT 234 | Undercar Service                     |
| AUT 240 | Hybrid Technology                    |

## Automotive – High Speed Diesel Service – Concentration (*HSDS.CON*)

In this program, emphasis is on the principles of diesel operation and fuel systems. The focus will be on diesel engine performance, electronic fuel injection, and diesel fundamentals. This concentration prepares students for employment in the transportation industry with a focus on diesel repair.

|                                      |     |
|--------------------------------------|-----|
| Minimum credits.....                 | 17  |
| Minimum cumulative GPA.....          | 2.0 |
| Minimum grade in all courses .....   | 2.0 |
| Minimum Jackson College credits..... | 15  |

### REQUIRED COURSES (17 CREDITS)

*Take the following:*

|         |                           |
|---------|---------------------------|
| AUT 101 | General Service           |
| AUT 102 | Engine Performance I      |
| AUT 103 | Engine Performance II     |
| AUT 112 | Electrical Systems I      |
| AUT 118 | Diesel Fundamentals       |
| AUT 248 | Diesel Engine Performance |

## Automotive – High Speed Diesel Service – Skill Set

### (*HSDS.SSET*)

This foundational skill set is designed to expose students to basic diesel fundamentals. Students may want to further this exposure through additional automotive course work in related concentrations, certificates or an associate degree.

|                                      |     |
|--------------------------------------|-----|
| Minimum credits.....                 | 4   |
| Minimum cumulative GPA.....          | 2.0 |
| Minimum grade in all courses .....   | 2.0 |
| Minimum Jackson College credits..... | 4   |

### REQUIRED COURSES (4 CREDITS)

*Take the following:*

|         |                           |
|---------|---------------------------|
| AUT 118 | Diesel Fundamentals       |
| AUT 248 | Diesel Engine Performance |

## Automotive – Hybrid Vehicles – Concentration

### (*HYVE.CON*)

Students will be exposed to hybrid electric vehicles. Fundamental information will be reviewed focusing on engine performance, hybrid technology, diagnostics and maintenance. This concentration prepares students for employment in the auto repair industry.

|                                      |     |
|--------------------------------------|-----|
| Minimum credits.....                 | 16  |
| Minimum cumulative GPA.....          | 2.0 |
| Minimum grade in all courses .....   | 2.0 |
| Minimum Jackson College credits..... | 15  |

### REQUIRED COURSES (16 CREDITS)

*Take the following:*

|         |                       |
|---------|-----------------------|
| AUT 102 | Engine Performance I  |
| AUT 103 | Engine Performance II |
| AUT 112 | Electrical Systems I  |
| AUT 113 | Electrical Systems II |
| AUT 240 | Hybrid Technology     |



## Automotive – Hybrid Vehicles – Skill Set (*HYVE.SSET*)

Students will be exposed to hybrid electric vehicles focusing on engine performance and hybrid technology. Students may want to further this exposure through additional automotive course work in related concentrations, certificates or an associate degree.

|                                      |     |
|--------------------------------------|-----|
| Minimum credits.....                 | 9   |
| Minimum cumulative GPA.....          | 2.0 |
| Minimum grade in all courses .....   | 2.0 |
| Minimum Jackson College credits..... | 9   |

### REQUIRED COURSES (9 CREDITS)

*Take the following:*

|         |                      |
|---------|----------------------|
| AUT 102 | Engine Performance I |
| AUT 112 | Electrical Systems I |
| AUT 240 | Hybrid Technology    |

## Automotive – Maintenance & Light Repair – Concentration (*MALR.CON*)

Students will focus on repair and maintenance of the automobile. These skills include suspension and steering systems, electrical systems, heating and cooling systems and braking systems. This concentration prepares students for employment as an auto technician in the auto repair industry.

|                                      |     |
|--------------------------------------|-----|
| Minimum credits.....                 | 19  |
| Minimum cumulative GPA.....          | 2.0 |
| Minimum grade in all courses .....   | 2.0 |
| Minimum Jackson College credits..... | 15  |

### REQUIRED COURSES (19 CREDITS)

*Take the following:*

|         |                                      |
|---------|--------------------------------------|
| AUT 105 | Brakes                               |
| AUT 106 | Suspension & Steering                |
| AUT 108 | Air Conditioning and Heating Systems |
| AUT 112 | Electrical Systems I                 |
| AUT 113 | Electrical Systems II                |
| AUT 210 | Internship/Externship                |

## Automotive – Maintenance & Light Repair – Skill Set (*MALR.SSET*)

This foundational skill set is designed to expose students to repair and maintenance of the automobile. Fundamental skills will include suspension and steering, electrical systems, heating and cooling systems and brakes. Students may want to further this exposure through additional automotive course work in related concentrations, certificates or an associate degree.

|                                      |     |
|--------------------------------------|-----|
| Minimum credits.....                 | 15  |
| Minimum cumulative GPA.....          | 2.0 |
| Minimum grade in all courses .....   | 2.0 |
| Minimum Jackson College credits..... | 5   |

### REQUIRED COURSES (15 CREDITS)

*Take the following:*

|         |                                      |
|---------|--------------------------------------|
| AUT 105 | Brakes                               |
| AUT 106 | Steering & Suspension                |
| AUT 108 | Air Conditioning and Heating Systems |
| AUT 112 | Electrical Systems I                 |
| AUT 113 | Electrical Systems II                |

## Automotive – Powertrain – Concentration (*PWTR.CON*)

Students will be exposed to engine repair, automatic transmissions, manual transmissions and undercar service. This concentration prepares students for employment as an auto technician in the auto repair industry.

|                                      |     |
|--------------------------------------|-----|
| Minimum credits.....                 | 17  |
| Minimum cumulative GPA.....          | 2.0 |
| Minimum grade in all courses .....   | 2.0 |
| Minimum Jackson College credits..... | 15  |

### REQUIRED COURSES (17 CREDITS)

*Take the following:*

|         |                                   |
|---------|-----------------------------------|
| AUT 201 | Engine Repair                     |
| AUT 202 | Automatic Transmission            |
| AUT 204 | Manual Transmissions & Drivelines |
| AUT 210 | Internship/Externship             |
| AUT 234 | Undercar Service                  |

## Automotive – Powertrain – Skill Set (*PWTR.SSET*)

The emphasis in this skill set is on the power developed in the engine and power flow through driveline components. Students will learn the basics of engine repair, automatic transmissions, and manual transmissions. Students may want to further this exposure through additional automotive course work in related concentrations, certificates or an associate degree.

|                                      |     |
|--------------------------------------|-----|
| Minimum credits.....                 | 11  |
| Minimum cumulative GPA.....          | 2.0 |
| Minimum grade in all courses .....   | 2.0 |
| Minimum Jackson College credits..... | 11  |

### REQUIRED COURSES (11 CREDITS)

*Take the following:*

|     |     |                                   |
|-----|-----|-----------------------------------|
| AUT | 201 | Engine Repair                     |
| AUT | 202 | Automatic Transmission            |
| AUT | 204 | Manual Transmissions & Drivelines |

## Automotive – Undercar Services – Concentration (*UCSR.CON*)

Students will receive training in general service with emphasis on welding, pipe bending and torch use. An overview of brakes and suspension and steering is included. This concentration prepares students for employment as an auto technician in the auto repair industry.

|                                      |     |
|--------------------------------------|-----|
| Minimum credits.....                 | 17  |
| Minimum cumulative GPA.....          | 2.0 |
| Minimum grade in all courses .....   | 2.0 |
| Minimum Jackson College credits..... | 15  |

### REQUIRED COURSES (17 CREDITS)

*Take the following:*

|     |     |                               |
|-----|-----|-------------------------------|
| AUT | 101 | General Service               |
| AUT | 105 | Automotive Brakes             |
| AUT | 106 | Suspension & Steering         |
| AUT | 108 | Auto Air Conditioning/Heating |
| AUT | 210 | Internship/Externship         |
| AUT | 234 | Undercar Service              |

## Automotive – Undercar Service – Skill Set (*UCSR.SSET*)

The emphasis in this skill set is on pipe bending and welding. Students may want to further this exposure through additional automotive course work in related concentrations, certificates or an associate degree.

|                                      |     |
|--------------------------------------|-----|
| Minimum credits.....                 | 8   |
| Minimum cumulative GPA.....          | 2.0 |
| Minimum grade in all courses .....   | 2.0 |
| Minimum Jackson College credits..... | 8   |

### REQUIRED COURSES (8 CREDITS)

*Take the following:*

|     |     |                       |
|-----|-----|-----------------------|
| AUT | 105 | Brakes                |
| AUT | 106 | Steering & Suspension |
| AUT | 234 | Undercar Service      |

## Automotive – Wheel Service – Concentration (*WHSR.CON*)

Students will receive training in wheel service skills as part of the overall diagnoses of the automobile. Subjects include brakes, suspension and steering, undercar and electrical systems. This concentration prepares students for employment as an auto technician in the auto repair industry.

|                                      |     |
|--------------------------------------|-----|
| Minimum credits.....                 | 17  |
| Minimum cumulative GPA.....          | 2.0 |
| Minimum grade in all courses .....   | 2.0 |
| Minimum Jackson College credits..... | 15  |

### REQUIRED COURSES (17 CREDITS)

*Take the following:*

|     |     |                       |
|-----|-----|-----------------------|
| AUT | 101 | General Service       |
| AUT | 105 | Automotive Brakes     |
| AUT | 106 | Suspension & Steering |
| AUT | 112 | Electrical Systems I  |
| AUT | 210 | Internship/Externship |
| AUT | 234 | Undercar Service      |

## Automotive – Wheel Service – Skill Set (*WHSE.SSET*)

The emphasis in this skill set is on wheel service and how this system is impacted by brakes and steering and suspension. It provides a foundation basis for students. Students may want to further this exposure through additional automotive course work in related concentrations, certificates or an associate degree.

|                                      |     |
|--------------------------------------|-----|
| Minimum credits.....                 | 6   |
| Minimum cumulative GPA.....          | 2.0 |
| Minimum grade in all courses .....   | 2.0 |
| Minimum Jackson College credits..... | 6   |

### REQUIRED COURSES (6 CREDITS)

*Take the following:*

- AUT 105 Brakes  
AUT 106 Steering & Suspension

## Automotive – Heavy Duty Wheel Service – Concentration (*AHWS.CON*)

Students will receive training in wheel service skills as part of the overall diagnoses of heavy duty trucks. Subjects include brakes, suspension and steering, undercar and electrical systems. This concentration prepares students for employment as a technician in the heavy duty truck repair industry.

|                                      |     |
|--------------------------------------|-----|
| Minimum credits.....                 | 22  |
| Minimum cumulative GPA.....          | 2.0 |
| Minimum grade in all courses .....   | 2.0 |
| Minimum Jackson College credits..... | 15  |

### REQUIRED COURSES (22 CREDITS)

*Take the following:*

- AUT 101 General Service  
AUT 112 Electrical Systems I  
AUT 113 Electrical Systems II  
AUT 210 Internship/Externship  
AUT 251 Heavy Duty Brakes  
AUT 263 Heavy Duty Steering and Suspension

- WLD 100 Fundamentals of Welding **OR**  
AUT 234 Undercar Service

## Automotive – Heavy Duty Wheel Service – Skill Set

(*AHDW.SSET*)

The emphasis in this skill set is on wheel service and how this system is impacted by brakes and steering and suspension. It provides a foundation basis for students. This skill set prepares students for employment as a technician in the heavy duty truck repair industry.

|                                      |     |
|--------------------------------------|-----|
| Minimum credits.....                 | 6   |
| Minimum cumulative GPA.....          | 2.0 |
| Minimum grade in all courses .....   | 2.0 |
| Minimum Jackson College credits..... | 6   |

### REQUIRED COURSES (6 CREDITS)

*Take the following:*

- AUT 251 Heavy Duty Brakes  
AUT 263 Heavy Duty Steering and Suspension

## Automotive – Heavy Duty Chassis – Concentration (*AHOC.CON*)

Students will focus on repair and maintenance of the automobile. These skills include suspension and steering systems, electrical systems, under vehicle services and braking systems. This concentration prepares students for employment as a technician in the heavy duty truck repair industry.

|                                      |     |
|--------------------------------------|-----|
| Minimum credits.....                 | 23  |
| Minimum cumulative GPA.....          | 2.0 |
| Minimum grade in all courses .....   | 2.0 |
| Minimum Jackson College credits..... | 15  |

### REQUIRED COURSES (23 CREDITS)

*Take the following:*

- AUT 101 General Service  
AUT 112 Electrical Systems I  
AUT 113 Electrical Systems II  
AUT 210 Internship/Externship  
AUT 251 Heavy Duty Brakes  
AUT 263 Heavy Duty Steering and Suspension

- WLD 100 Fundamentals of Welding **OR**  
AUT 234 Undercar Service

## Automotive – Heavy Duty Service – Concentration

(AHDS.CON)

Students will be exposed to procedures of engine performance and diagnosis of the internal combustion engine. Students will learn how to make a logical diagnosis based on vehicle operation. Focus will be on correct use of specifications, equipment, and interpretation of test results. This concentration prepares students for employment as a technician in the heavy duty truck repair industry.

|                                      |     |
|--------------------------------------|-----|
| Minimum credits.....                 | 22  |
| Minimum cumulative GPA.....          | 2.0 |
| Minimum grade in all courses .....   | 2.0 |
| Minimum Jackson College credits..... | 15  |

### REQUIRED COURSES (22 CREDITS)

*Take the following:*

|         |                           |
|---------|---------------------------|
| AUT 102 | Engine Performance I      |
| AUT 103 | Engine Performance II     |
| AUT 112 | Electrical Systems I      |
| AUT 113 | Electrical Systems II     |
| AUT 118 | Diesel Fundamentals       |
| AUT 210 | Internship/Externship     |
| AUT 248 | Diesel Engine Performance |

## Automotive – Heavy Duty Undercar Service – Skill Set

(AHDU.SSET)

The emphasis in this skill set is on wheel service and how this system is impacted by brakes and steering and suspension. An additional emphasis in this skill set is on pipe bending and welding. It provides a foundation basis for students. This skill set prepares students for employment as a technician in the heavy duty truck repair industry.

|                                      |     |
|--------------------------------------|-----|
| Minimum credits.....                 | 8   |
| Minimum cumulative GPA.....          | 2.0 |
| Minimum grade in all courses .....   | 2.0 |
| Minimum Jackson College credits..... | 8   |

### REQUIRED COURSES (8-10 CREDITS)

*Take the following:*

|         |  |
|---------|--|
| AUT 251 | Heavy Duty Brakes                            |
| AUT 263 | Heavy Duty Steering and Suspension <b>OR</b> |
| AUT 234 | Undercar Service                             |

## Automotive – Heavy Duty Air Conditioning & Heating – Skill Set (AAAH.SSET)

This foundational skill set focuses heating and cooling systems so that students have the basic understanding and knowledge to diagnose and repair air conditioning and heating systems. Students may want to further this exposure through additional automotive and heavy duty course work in related concentrations, certificates or an associate degree.

|                                      |     |
|--------------------------------------|-----|
| Minimum credits.....                 | 12  |
| Minimum cumulative GPA.....          | 2.0 |
| Minimum grade in all courses .....   | 2.0 |
| Minimum Jackson College credits..... | 12  |

### REQUIRED COURSES (12 CREDITS)

*Take the following:*

|         |   |
|---------|---|
| AUT 112 | Electrical Systems I                    |
| AUT 113 | Electrical Systems II                   |
| AUT 268 | Heavy Duty Heating and Air Conditioning |
| ELT 105 | Introduction to Electrical Systems      |

## Automotive – Heavy Duty Electrical – Skill Set

(AHDE.SSET)

This foundational skill set focuses electrical systems so that students have the basic understanding and knowledge to diagnose and repair electrical systems. Students may want to further this exposure through additional automotive and heavy duty course work in related concentrations, certificates or an associate degree.

|                                      |     |
|--------------------------------------|-----|
| Minimum credits.....                 | 6   |
| Minimum cumulative GPA.....          | 2.0 |
| Minimum grade in all courses .....   | 2.0 |
| Minimum Jackson College credits..... | 6   |

### REQUIRED COURSES (6 CREDITS)

*Take the following:*

|         |                       |
|---------|-----------------------|
| AUT 112 | Electrical Systems I  |
| AUT 113 | Electrical Systems II |

## Aviation Flight Technology –

## Associate in Applied Science (AVFT.AAS)

Basic ground school and flight instruction needed to meet the requirements of the Federal Aviation Administration's Commercial Pilot certificate with instrument ratings.\* Federal and/or Michigan law may require that enrollees in the aviation program undergo an FBI background check. Contact the director of aviation with questions.

|                                      |     |
|--------------------------------------|-----|
| Minimum credits.....                 | 65  |
| Minimum cumulative GPA.....          | 2.0 |
| Minimum grade in all courses .....   | 2.0 |
| Minimum Jackson College credits..... | 15  |

### GENERAL EDUCATION REQUIREMENTS (24 CREDITS)

#### GEO 1: Write clearly, concisely and intelligibly (3 credits)

*Take the following:*

ENG 131 Writing Experience I

#### GEO 2: Speak clearly, concisely and intelligibly (3 credits)

*Choose one of the following:*

COM 231 Communication Fundamentals

COM 240 Interpersonal Communication

#### GEO 3: Demonstrate computational skills and mathematical reasoning (4 credits)

*Take the following:*

MAT 130 Quantitative Reasoning or higher

#### GEO 4: Demonstrate scientific reasoning (4 credits)

*Choose one of the following:*

PHY 131 Conceptual Physics

PHY 231 College Physics I

#### GEO 5: Understand human behavior and social systems, and the principles which govern them (4 credits)

*Take the following:*

PSY 140 Introduction to Psychology

#### GEO 6: Understand aesthetic experience and artistic creativity (3 credits)

*Choose one of the following:*

ART 111 Art History: Prehistoric to 1400

ART 112 Art History: Renaissance to Present

ENG 210 Introduction to Film

ENG 246 Short Story & Novel

ENG 247 Poetry & Drama

ENG 249 African-American Literature

ENG 252 Shakespeare

ENG 254 Children's Literature

ENG 255 American Literature – 19th Century

ENG 256 American Literature – 20th Century

HUM 131 Cultural Connections

MUS 131 Understanding Music

THR 116 Introduction to Theatre

#### GEO 7: Understand and respect the diversity and interdependence of the world's peoples and cultures (3-4 credits)

*Choose one of the following:*

ANT 131 Cultural Anthropology

COM 250 Intercultural Communications

ENG 236 Women in a Changing Society

ENG 242 Sports in Film and Literature

ENG 249 African-American Literature

ENG 257 World Literature

FRN 131 French I

GEO 132 World Regions

GER 131 German I

HIS 125 African-American History

HIS 211 Minority Groups in America

HUM 131 Cultural Connections

MUS 130 Music of Non-Western Cultures

PHL 243 World Religions

PLS 262 International Relations

SOC 236 Women in a Changing Society

SOC 246 Marriage and Family

SPN 131 Spanish I

### AVIATION FLIGHT TECHNOLOGY RELATED REQUIREMENTS (7 CREDITS)

*Choose two of the following:*

CIS 101 Introduction to Computer Systems

ELT 140 Introduction to Digital Circuits

MAT 133 Introduction to Probability & Statistics

UAS 101 Introduction to Unmanned Aerial Vehicles

### AVIATION FLIGHT TECHNOLOGY CORE REQUIREMENTS (34 CREDITS)

*Take the following:*

AFT 110 Primary Ground School

AFT 112 Primary Flight I

AFT 114 Primary Flight II

AFT 116 Primary Flight III

AFT 125 Commercial Ground School

AFT 130 Commercial Flight I

AFT 135 Instrumental Ground School

AFT 140 Commercial Flight II

AFT 200 Commercial Flight III

AFT 205 Commercial Flight IV

\*All enrollees must be capable of attaining the FAA class II medical certificate.



## Concentration (AVFT.CON)

Students will gain further experience about aviation and careers while gaining more experience flying. Students may further their experience through additional course work toward an associate degree.

|                                      |     |
|--------------------------------------|-----|
| Minimum credits.....                 | 19  |
| Minimum cumulative GPA.....          | 2.0 |
| Minimum grade in all courses .....   | 2.0 |
| Minimum Jackson College credits..... | 15  |

### GENERAL EDUCATION REQUIREMENTS (7 CREDITS)

*Take the following:*

|         |                                  |
|---------|----------------------------------|
| ENG 131 | Writing Experience I             |
| MAT 130 | Quantitative Reasoning or higher |

### AVIATION FLIGHT TECHNOLOGY CORE REQUIREMENTS (12 CREDITS)

*Take the following:*

|         |                       |
|---------|-----------------------|
| AFT 110 | Primary Ground School |
| AFT 112 | Primary Flight I      |
| AFT 114 | Primary Flight II     |
| AFT 116 | Primary Flight III    |

## Aviation Flight Technology – Skill Set (AVFT.SSET)

Students will learn about careers in aviation and complete their written private pilot license exam and solo in the aircraft. Students may further their experience through additional course work in a concentration or associate degree.

|                                      |     |
|--------------------------------------|-----|
| Minimum credits.....                 | 10  |
| Minimum cumulative GPA.....          | 2.0 |
| Minimum grade in all courses .....   | 2.0 |
| Minimum Jackson College credits..... | 10  |

### AVIATION FLIGHT TECHNOLOGY CORE REQUIREMENTS (10 CREDITS)

*Take the following:*

|         |                        |
|---------|------------------------|
| AFT 110 | Primary Ground School  |
| AFT 112 | Primary Flight I       |
| MAT 130 | Quantitative Reasoning |

## Unmanned Aerial Systems –

## Skill Set (UASO.SSET)

This skill set will provide the initial skills and practical application experience to operate and repair unmanned aerial systems. This will provide a foundation for students that may want to continue their exposure in the field of aviation toward basic and advanced pilot certifications and degrees.

|                                      |     |
|--------------------------------------|-----|
| Minimum credits.....                 | 13  |
| Minimum cumulative GPA.....          | 2.0 |
| Minimum grade in all courses .....   | 2.0 |
| Minimum Jackson College credits..... | 13  |

### UNMANNED AERIAL SYSTEMS CORE REQUIREMENTS (13 CREDITS)

*Take the following:*

|         |                                     |
|---------|-------------------------------------|
| AFT 110 | Primary Ground School               |
| AFT 112 | Primary Flight I                    |
| ELT 140 | Introduction to Digital Electronics |
| UAS 101 | Unmanned Aerial Systems             |

## Electrician – Associate in Applied Science (ELEC.AAS)

Electricians install and maintain electrical systems in residential construction and commercial buildings. They also work in manufacturing settings often servicing highly automated industrial processes. Increasingly electricians will be required to wire computer networks and telecommunications. This program will prepare students to work in each of these applications of electricity.

|                                      |     |
|--------------------------------------|-----|
| Minimum credits.....                 | 63  |
| Minimum cumulative GPA.....          | 2.0 |
| Minimum grade in all courses .....   | 2.0 |
| Minimum Jackson College credits..... | 15  |

### GENERAL EDUCATION REQUIREMENTS (23-25 CREDITS)

**GEO 1: Write clearly, concisely and intelligibly (3 credits)**

*Take the following:*

|         |                      |
|---------|----------------------|
| ENG 131 | Writing Experience I |
|---------|----------------------|

**GEO 2: Speak clearly, concisely and intelligibly (3 credits)**

*Choose one of the following:*

|         |                             |
|---------|-----------------------------|
| COM 231 | Communication Fundamentals  |
| COM 240 | Interpersonal Communication |

**GEO 3: Demonstrate computational skills and mathematical**

**reasoning (4 credits)**

*Take the following:*

MAT 130 Quantitative Reasoning or higher

**GEO 4: Demonstrate scientific reasoning (4-5 credits)**

*Choose one of the following:*

BIO 110 Introductory Biology  
 BIO 132 Human Biology  
 BIO 158 Environmental Science  
 BIO 161 General Biology I  
 BIO 162 General Biology II  
 BIO 220 Microbiology  
 BIO 253 Human Anatomy and Physiology I  
 CEM 131 Fundamentals of Chemistry  
 CEM 141 General Chemistry I  
 GEL 109 Earth Science  
 GEL 160 Introduction to Geology  
 NSC 131 Contemporary Science  
 PHY 131 Conceptual Physics  
 PHY 151 Astronomy  
 PHY 231 College Physics I  
 PHY 251 Modern University Physics I

**GEO 5: Understand human behavior and social systems, and the principles which govern them (3-4 credits)**

*Choose one of the following:*

ECN 231 Macroeconomics  
 ECN 232 Microeconomics  
 HIS 131 Western Civilization to 1555  
 HIS 132 Western Civilization 1555 to Present  
 HIS 231 Development of the US through the Civil War  
 HIS 232 Development of the US from the Civil War  
 HIS 235 20th Century History  
 PLS 141 American National Government  
 PSY 140 Introduction to Psychology  
 SOC 231 Principles of Sociology

**GEO 6: Understand aesthetic experience and artistic creativity (3 credits)**

*Choose one of the following:*

ART 111 Art History: Prehistoric to 1400  
 ART 112 Art History: Renaissance to Present  
 ENG 210 Introduction to Film  
 ENG 246 Short Story & Novel  
 ENG 247 Poetry & Drama  
 ENG 249 African-American Literature  
 ENG 252 Shakespeare  
 ENG 254 Children's Literature  
 ENG 255 American Literature – 19th Century  
 ENG 256 American Literature – 20th Century  
 HUM 131 Cultural Connections  
 MUS 131 Understanding Music  
 THR 116 Introduction to Theatre

**GEO 7: Understand and respect the diversity and interdependence of the world's peoples and cultures (3-4 credits)**

*Choose one of the following:*

ANT 131 Cultural Anthropology  
 COM 250 Intercultural Communications  
 ENG 236 Women in a Changing Society  
 ENG 242 Sports in Film and Literature  
 ENG 249 African-American Literature  
 ENG 257 World Literature  
 FRN 131 French I  
 GEO 132 World Regions  
 GER 131 German I  
 HIS 125 African-American History  
 HIS 211 Minority Groups in America  
 HUM 131 Cultural Connections  
 MUS 130 Music of Non-Western Cultures  
 PHL 243 World Religions  
 PLS 262 International Relations  
 SOC 236 Women in a Changing Society  
 SOC 246 Marriage and Family  
 SPN 131 Spanish I

**ELECTRICIAN CORE REQUIREMENTS (40 CREDITS)**

*Take the following:*

ELT 120 Circuit Analysis I  
 ELT 126 Circuit Analysis II  
 ELT 130 Electronics I  
 ELT 140 Introduction to Digital Electronics  
 ELT 150 Residential Wiring  
 ELT 151 Commercial Wiring  
 ELT 152 Industrial Wiring  
 ELT 215 Electrical Troubleshooting  
 ELT 220 Industrial Motion Control  
 ELT 250 Electrical Motors & Controls  
 ELT 260 Basic Programmable Controllers  
 ELT 261 Advanced PLC Programming  
 ELT 274 Electrician's National Code

**ELECTRICIAN ADDITIONAL REQUIREMENTS**

EMS 110 Advanced First Aid & American Heart CPR **OR**  
 Current Adult CPR and First Aid Certification

## Electrician – Certificate

### (ELEC.CERT)

Electricians install and maintain electrical systems in residential construction and commercial buildings. They also work in manufacturing settings often servicing highly automated industrial processes. Increasingly electricians will be required to wire computer networks and telecommunications. This program will prepare students to work in each of these applications of electricity.

|                                      |     |
|--------------------------------------|-----|
| Minimum credits.....                 | 45  |
| Minimum cumulative GPA.....          | 2.0 |
| Minimum grade in all courses .....   | 2.0 |
| Minimum Jackson College credits..... | 15  |

### GENERAL EDUCATION REQUIREMENTS (7 CREDITS)

*Take the following:*

|         |                                  |
|---------|----------------------------------|
| ENG 131 | Writing Experience I             |
| MAT 130 | Quantitative Reasoning or higher |

### ELECTRICIAN CORE REQUIREMENTS (38 CREDITS)

*Take the following:*

|         |                                     |
|---------|-------------------------------------|
| ELT 120 | Circuit Analysis I                  |
| ELT 126 | Circuit Analysis II                 |
| ELT 130 | Electronics I                       |
| ELT 140 | Introduction to Digital Electronics |
| ELT 150 | Residential Wiring                  |
| ELT 151 | Commercial Wiring                   |
| ELT 152 | Industrial Wiring                   |
| ELT 215 | Electrical Troubleshooting          |
| ELT 220 | Industrial Motion Control           |
| ELT 250 | Electrical Motors & Controls        |
| ELT 260 | Basic Programmable Controllers      |
| ELT 274 | Electrician's National Code         |

### ADDITIONAL REQUIREMENTS

|         |   |
|---------|---|
| EMS 110 | Advanced First Aid & American Heart CPR OR<br>Current Adult CPR and First Aid Certification |
|---------|---|

## Electrical Basics – Concentration (ELEC.CON)

Completion of this program provides a solid electrical foundation for the person seeking electrical or industrial maintenance mechanic training.

|                                      |     |
|--------------------------------------|-----|
| Minimum credits.....                 | 16  |
| Minimum cumulative GPA.....          | 2.0 |
| Minimum grade in all courses .....   | 2.0 |
| Minimum Jackson College credits..... | 15  |

### REQUIRED COURSES (16 CREDITS)

*Take the following:*

|         |                                |
|---------|--------------------------------|
| ELT 120 | Circuit Analysis I             |
| ELT 126 | Circuit Analysis II            |
| ELT 150 | Residential Wiring             |
| ELT 152 | Industrial Wiring              |
| ELT 260 | Basic Programmable Controllers |

## Electronic Technology / ELT – Associate in Applied Science (ETGE.AAS)

Electronic technologists are employed in such fields as digital computer maintenance, voice and data communications, radio and television broadcasting, medical electronic instrumentation, high-tech manufacturing, research and development in laboratory settings. Students may also work to achieve A+ certification for employment as personal computer service professionals. A+ certification is the "journeyman's card" for computer technologists, which is recognized by CompTIA. The non-profit Computing Technology Industry Association (CompTIA) is widely recognized as the standard for qualified computer service professionals.

|                                      |     |
|--------------------------------------|-----|
| Minimum credits.....                 | 68  |
| Minimum cumulative GPA.....          | 2.0 |
| Minimum grade in all courses .....   | 2.0 |
| Minimum Jackson College credits..... | 15  |

### GENERAL EDUCATION REQUIREMENTS (23-25 CREDITS)

#### GEO 1: Write clearly, concisely and intelligibly (3 credits)

*Take the following:*

|         |                      |
|---------|----------------------|
| ENG 131 | Writing Experience I |
|---------|----------------------|

#### GEO 2: Speak clearly, concisely and intelligibly (3 credits)

*Choose one of the following:*

|         |                             |
|---------|-----------------------------|
| COM 231 | Communication Fundamentals  |
| COM 240 | Interpersonal Communication |

#### GEO 3: Demonstrate computational skills and mathematical reasoning (4 credits)

*Take the following:*

|         |                                  |
|---------|----------------------------------|
| MAT 130 | Quantitative Reasoning or higher |
|---------|----------------------------------|

**GEO 4: Demonstrate scientific reasoning (4-5 credits)***Choose one of the following:*

BIO 110 Introductory Biology  
 BIO 132 Human Biology  
 BIO 158 Environmental Science  
 BIO 161 General Biology I  
 BIO 162 General Biology II  
 BIO 220 Microbiology  
 BIO 253 Human Anatomy and Physiology I  
 CEM 131 Fundamentals of Chemistry  
 CEM 141 General Chemistry I  
 GEL 109 Earth Science  
 GEL 160 Introduction to Geology  
 NSC 131 Contemporary Science  
 PHY 131 Conceptual Physics  
 PHY 151 Astronomy  
 PHY 231 College Physics I  
 PHY 251 Modern University Physics I

**GEO 5: Understand human behavior and social systems, and the principles which govern them (3-4 credits)***Choose one of the following:*

ECN 231 Macroeconomics  
 ECN 232 Microeconomics  
 HIS 131 Western Civilization to 1555  
 HIS 132 Western Civilization 1555 to Present  
 HIS 231 Development of the US through the Civil War  
 HIS 232 Development of the US from the Civil War  
 HIS 235 20th Century History  
 PLS 141 American National Government  
 PSY 140 Introduction to Psychology  
 SOC 231 Principles of Sociology

**GEO 6: Understand aesthetic experience and artistic creativity (3 credits)***Choose one of the following:*

ART 111 Art History: Prehistoric to 1400  
 ART 112 Art History: Renaissance to Present  
 ENG 210 Introduction to Film  
 ENG 246 Short Story & Novel  
 ENG 247 Poetry & Drama  
 ENG 249 African-American Literature  
 ENG 252 Shakespeare  
 ENG 254 Children's Literature  
 ENG 255 American Literature – 19th Century  
 ENG 256 American Literature – 20th Century  
 HUM 131 Cultural Connections  
 MUS 131 Understanding Music  
 THR 116 Introduction to Theatre

**GEO 7: Understand and respect the diversity and interdependence of the world's peoples and cultures (3-4 credits)***Choose one of the following:*

ANT 131 Cultural Anthropology  
 COM 250 Intercultural Communications  
 ENG 236 Women in a Changing Society  
 ENG 242 Sports in Film and Literature  
 ENG 249 African-American Literature  
 ENG 257 World Literature  
 FRN 131 French I  
 GEO 132 World Regions  
 GER 131 German I  
 HIS 125 African-American History  
 HIS 211 Minority Groups in America  
 HUM 131 Cultural Connections  
 MUS 130 Music of Non-Western Cultures  
 PHL 243 World Religions  
 PLS 262 International Relations  
 SOC 236 Women in a Changing Society  
 SOC 246 Marriage and Family  
 SPN 131 Spanish I

**ELECTRONIC TECHNOLOGY RELATED REQUIREMENTS (7 CREDITS)***Choose one of the following:*

CIS 170 Programming C++  
 CIS 160 Programming in Visual Basic.NET

*Plus up to 4 credits from the following:*

Any ELT, CIS or CNS course that best meets your educational goals.

**ELECTRONIC TECHNOLOGY CORE REQUIREMENTS (38 CREDITS)***Take the following:*

CIS 101 Introduction to Computer Systems **OR**  
 CIS 201 Advanced Information Technologies

CIS 174 PC Repair/A+ Hardware Component  
 CIS 175 PC Repair/A+ Software Component  
 CIS 176 A+ Certification Exam Preparation  
 CNS 101 Network+/Networking Fundamentals  
 ELT 120 Circuit Analysis I  
 ELT 126 Circuit Analysis II  
 ELT 130 Electronics I  
 ELT 140 Introduction to Digital Electronics  
 ELT 250 Electric Motors & Controls  
 ELT 260 Basic Programmable Controllers

## Electronic Technology / ELT – Certificate (*ELTE.CERT*)

Employment opportunities would include OEM product service and repair, repair and calibration technician, manufacturing maintenance, instrument technician, and retail sales.

|                                      |     |
|--------------------------------------|-----|
| Minimum credits.....                 | 36  |
| Minimum cumulative GPA.....          | 2.0 |
| Minimum grade in all courses .....   | 2.0 |
| Minimum Jackson College credits..... | 15  |

### GENERAL EDUCATION REQUIREMENTS (7 CREDITS)

*Take the following:*

|     |     |                                  |
|-----|-----|----------------------------------|
| ENG | 131 | Writing Experience I             |
| MAT | 130 | Quantitative Reasoning or higher |

### RELATED REQUIREMENTS (3 CREDITS)

*Choose one of the following:*

|     |     |                                 |
|-----|-----|---------------------------------|
| CIS | 160 | Programming in Visual Basic.NET |
| CIS | 170 | Programming C++                 |
| ELT | 250 | Electric Motors & Controls      |
| ELT | 260 | Basic Programmable Controllers  |

### ELECTRONIC TECHNICIAN CORE REQUIREMENTS (26 CREDITS)

*Take the following:*

|     |     |  |
|-----|-----|--|
| CIS | 101 | Introduction to Computer Systems <b>OR</b> |
| CIS | 201 | Advanced Information Technologies          |
| CIS | 174 | PC Repair/A+ Hardware Component            |
| CIS | 175 | PC Repair/A+ Software Component            |
| CIS | 176 | A+ Certification Exam Preparation          |
| ELT | 120 | Circuit Analysis I                         |
| ELT | 126 | Circuit Analysis II                        |
| ELT | 130 | Electronics I                              |
| ELT | 140 | Introduction to Digital Electronics        |

## Electronic Technology / Microcomputer – Associate in Applied Science (*ETMS.AAS*)

Electronic technologists are employed in such fields as digital computer maintenance, voice and data communications, radio and television broadcasting, medical electronic instrumentation, high-tech manufacturing, research and development in laboratory settings. Students may also work to achieve A+ certification for employment as personal computer service professionals. A+ certification is the "journeyman's card" for computer technologists, which is recognized by CompTIA. The non-profit Computing Technology Industry Association (CompTIA) is widely recognized as the standard for qualified computer service professionals.

|                                      |     |
|--------------------------------------|-----|
| Minimum credits.....                 | 70  |
| Minimum cumulative GPA.....          | 2.0 |
| Minimum grade in all courses .....   | 2.0 |
| Minimum Jackson College credits..... | 15  |

### GENERAL EDUCATION REQUIREMENTS (23-25 CREDITS)

#### GEO 1: Write clearly, concisely and intelligibly (3 credits)

*Take the following:*

|     |     |                      |
|-----|-----|----------------------|
| ENG | 131 | Writing Experience I |
|-----|-----|----------------------|

#### GEO 2: Speak clearly, concisely and intelligibly (3 credits)

*Choose one of the following:*

|     |     |                             |
|-----|-----|-----------------------------|
| COM | 231 | Communication Fundamentals  |
| COM | 240 | Interpersonal Communication |

#### GEO 3: Demonstrate computational skills and mathematical reasoning (4 credits)

*Take the following:*

|     |     |                                  |
|-----|-----|----------------------------------|
| MAT | 130 | Quantitative Reasoning or higher |
|-----|-----|----------------------------------|



**GEO 4: Demonstrate scientific reasoning (4-5 credits)***Choose one of the following:*

BIO 110 Introductory Biology  
 BIO 132 Human Biology  
 BIO 158 Environmental Science  
 BIO 161 General Biology I  
 BIO 162 General Biology II  
 BIO 220 Microbiology  
 BIO 253 Human Anatomy and Physiology I  
 CEM 131 Fundamentals of Chemistry  
 CEM 141 General Chemistry I  
 GEL 109 Earth Science  
 GEL 160 Introduction to Geology  
 NSC 131 Contemporary Science  
 PHY 131 Conceptual Physics  
 PHY 151 Astronomy  
 PHY 231 College Physics I  
 PHY 251 Modern University Physics I

**GEO 5: Understand human behavior and social systems, and the principles which govern them (3-4 credits)***Choose one of the following:*

ECN 231 Macroeconomics  
 ECN 232 Microeconomics  
 HIS 131 Western Civilization to 1555  
 HIS 132 Western Civilization 1555 to Present  
 HIS 231 Development of the US through the Civil War  
 HIS 232 Development of the US from the Civil War  
 HIS 235 20th Century History  
 PLS 141 American National Government  
 PSY 140 Introduction to Psychology  
 SOC 231 Principles of Sociology

**GEO 6: Understand aesthetic experience and artistic creativity (3 credits)***Choose one of the following:*

ART 111 Art History: Prehistoric to 1400  
 ART 112 Art History: Renaissance to Present  
 ENG 210 Introduction to Film  
 ENG 246 Short Story & Novel  
 ENG 247 Poetry & Drama  
 ENG 249 African-American Literature  
 ENG 252 Shakespeare  
 ENG 254 Children's Literature  
 ENG 255 American Literature – 19th Century  
 ENG 256 American Literature – 20th Century  
 HUM 131 Cultural Connections  
 MUS 131 Understanding Music  
 THR 116 Introduction to Theatre

**GEO 7: Understand and respect the diversity and interdependence of the world's peoples and cultures (3-4 credits)***Choose one of the following:*

ANT 131 Cultural Anthropology  
 COM 250 Intercultural Communications  
 ENG 236 Women in a Changing Society  
 ENG 242 Sports in Film and Literature  
 ENG 249 African-American Literature  
 ENG 257 World Literature  
 FRN 131 French I  
 GEO 132 World Regions  
 GER 131 German I  
 HIS 125 African-American History  
 HIS 211 Minority Groups in America  
 HUM 131 Cultural Connections  
 MUS 130 Music of Non-Western Cultures  
 PHL 243 World Religions  
 PLS 262 International Relations  
 SOC 236 Women in a Changing Society  
 SOC 246 Marriage and Family  
 SPN 131 Spanish I

**MICROCOMPUTER RELATED REQUIREMENTS (7 CREDITS)***Choose one of the following:*

CIS 170 Programming C++  
 CIS 160 Programming in Visual Basic.NET

*Plus up to 4 credits from the following:*

Any ELT, CIS or CNS course that best meets your educational goals.

**MICROCOMPUTER CORE REQUIREMENTS (40 CREDITS)***Take the following:*

BUA 120 Human Relations in Business

CIS 101 Introduction to Computer Systems **OR**  
 CIS 201 Advanced Information Technologies

CIS 105 Windows® Workshop  
 CIS 106 Operating Systems: UNIX  
 CIS 107 Microsoft® DOS® Workshop  
 CIS 174 PC Repair/A+ Hardware Component  
 CIS 175 PC Repair/A+ Software  
 CIS 176 A+ Certification Exam Preparation  
 CIS 179 Network+ Certification Exam Preparation  
 CNS 101 Network+/Networking Fundamentals  
 ELT 120 Circuit Analysis I  
 ELT 126 Circuit Analysis II  
 ELT 130 Electronics  
 ELT 140 Introduction to Digital Electronics

## Electronic Technology/ Microcomputer – Certificate (ETMS.CERT)

With this certificate, employment opportunities would include PC repair, staffing for help desk for a software manufacturer, PC service desk and retail sales.

|                                      |     |
|--------------------------------------|-----|
| Minimum credits.....                 | 43  |
| Minimum cumulative GPA.....          | 2.0 |
| Minimum grade in all courses .....   | 2.0 |
| Minimum Jackson College credits..... | 15  |

### GENERAL EDUCATION REQUIREMENTS (7 CREDITS)

*Take the following:*

|         |                                  |
|---------|----------------------------------|
| ENG 131 | Writing Experience I             |
| MAT 130 | Quantitative Reasoning or higher |

### RELATED REQUIREMENTS (3 CREDITS)

*Choose one of the following:*

|         |                                 |
|---------|---------------------------------|
| CIS 160 | Programming in Visual Basic.NET |
| CIS 170 | Programming in C++              |

### MICROCOMPUTER CORE REQUIREMENTS (33 CREDITS)

*Take the following:*

|         |  |
|---------|--|
| CIS 101 | Introduction to Computer Systems <b>OR</b> |
| CIS 201 | Advanced Information Technologies          |

|         |                                     |
|---------|-------------------------------------|
| CIS 105 | Windows® Workshop                   |
| CIS 106 | Operating Systems: UNIX             |
| CIS 107 | Microsoft® DOS® Workshop            |
| CIS 174 | PC Repair/A+ Hardware Component     |
| CIS 175 | PC Repair/A+ Software Component     |
| CIS 176 | A+ Certification Exam Preparation   |
| CNS 101 | Network+/Networking Fundamentals    |
| ELT 120 | Circuit Analysis I                  |
| ELT 126 | Circuit Analysis II                 |
| ELT 130 | Electronics                         |
| ELT 140 | Introduction to Digital Electronics |

## Energy Systems Management – Bachelor of Science (EGYM.BS)

This is a 120-credit, four-year program providing the advanced technical, interpersonal and managerial skills necessary to embark on a professional career in the energy industry and to become an effective decision maker, manager and leader within this diverse and challenging field.

|                                      |     |
|--------------------------------------|-----|
| Minimum credits.....                 | 120 |
| Minimum cumulative GPA.....          | 2.0 |
| Minimum grades in all courses.....   | 2.0 |
| Minimum Jackson College credits..... | 30  |

### GENERAL EDUCATION REQUIREMENTS (48 CREDITS)

#### GEO 1: Write clearly, concisely, and intelligibly (6 credits)

*Take the following:*

|         |                                |
|---------|--------------------------------|
| ENG 131 | Writing Experience I           |
| ENG 232 | Technical and Business Writing |

#### GEO 2: Speak clearly, concisely, and intelligibly (6 credits)

*Take the following:*

|         |                              |
|---------|------------------------------|
| COM 240 | Interpersonal Communication  |
| COM 350 | Intercultural Communications |

#### GEO 3: Demonstrate computational skills and mathematical reasoning (4 credits)

*Take the following:*

|         |                 |
|---------|-----------------|
| MAT 139 | College Algebra |
|---------|-----------------|

#### GEO 4: Demonstrate scientific reasoning (13-15 credits)

*Take the following:*

|         |                              |
|---------|------------------------------|
| CEM 141 | General Chemistry            |
| PHY 231 | College Physics I <b>OR</b>  |
| PHY 251 | Modern University Physics I  |
| PHY 232 | College Physics II <b>OR</b> |
| PHY 252 | Modern University Physics II |

#### GEO 5: Understand human behavior and social systems, and the principles that govern them (13 credits)

*Take the following:*

|         |                            |
|---------|----------------------------|
| ECN 231 | Macroeconomics             |
| ECN 232 | Microeconomics             |
| PSY 140 | Introduction to Psychology |
| PSY 344 | Organizational Psychology  |

**GEO 6: Understand aesthetic experience and artistic creativity (3 credits)***Choose one of the following:*

|     |     |                                     |
|-----|-----|-------------------------------------|
| ART | 111 | Art History: Prehistoric to 1400    |
| ART | 112 | Art History: Renaissance to Present |
| ENG | 240 | Introduction to Film                |
| ENG | 246 | Short Story and Novel               |
| ENG | 247 | Poetry and Drama                    |
| ENG | 252 | Shakespeare                         |
| ENG | 254 | Children's Literature               |
| ENG | 255 | American Literature -19th Century   |
| ENG | 256 | American Literature -20th Century   |
| HUM | 131 | Cultural Connections                |
| MUS | 131 | Understanding Music                 |
| THR | 116 | Introduction to Theatre             |

**GEO 7: Understand and respect the diversity of and interdependence of the world's people and cultures (3 credits)***Take the following:*

|     |     |                      |
|-----|-----|----------------------|
| HUM | 131 | Cultural Connections |
|-----|-----|----------------------|

**ENERGY SYSTEMS MANAGEMENT CORE REQUIREMENTS (60 CREDITS)***Take the following:*

|     |     |                                    |
|-----|-----|------------------------------------|
| ALT | 200 | Principles of Alternative Energy   |
| BIO | 158 | Environmental Science              |
| BUA | 220 | Principles of Management           |
| BUA | 420 | Project Management and Leadership  |
| CAD | 151 | AutoCAD                            |
| EGY | 101 | Energy Industry Fundamentals       |
| EGY | 320 | Energy Industry Experience         |
| EGY | 345 | Internship                         |
| EGY | 361 | Industry Materials Analysis        |
| EGY | 380 | Power Grid/Smart Grid              |
| EGY | 499 | Senior Seminar                     |
| ELT | 105 | Introduction to Electrical Systems |
| ELT | 220 | Industrial Motion Controls         |
| MFG | 105 | Blueprint Reading                  |
| MFG | 164 | Basic Fabrication                  |
| MFG | 170 | Hydraulics/Pneumatics              |
| MFG | 240 | Introduction to Quality Systems    |
| PHL | 232 | Logic                              |
| STM | 101 | Introduction to Sustainability     |
| STM | 401 | Systems Thinking                   |

**TECHNICAL ELECTIVES (13 CREDITS)**

Select any courses from ALT, CAD, ELT, MAT, MFG, or WLD (or additional subjects approved by program faculty) to meet the program's 120-credit requirement.

**ADDITIONAL PROGRAM REQUIREMENTS**

Rigging Safety Training/Certification, CPR Training/  
Certification

## Energy Systems Technology – Associate in Applied Science (EGYT.AAS)

The Energy Systems Technology - Associate in Applied Science program prepares students for careers as technicians within the energy industry. This 60-credit degree will provide students with the diverse skill set necessary to work competently within the various sectors of the industry: energy production, energy transmission and energy distribution. Students will achieve a certification in Energy Industry Fundamentals (Center for Energy Workforce Development). This program provides a foundation for the student to secure a career with a regulated provider of energy, or a non-regulated, public or private provider of energy (e.g. municipalities, heavy manufacturing, hospitals or college campuses).

|                                      |     |
|--------------------------------------|-----|
| Minimum credits.....                 | 60  |
| Minimum cumulative GPA.....          | 2.0 |
| Minimum grade in all courses .....   | 2.0 |
| Minimum Jackson College credits..... | 15  |

**GENERAL EDUCATION REQUIREMENTS (27 CREDITS)****GEO 1 Write clearly, concisely and intelligibly (6 credits)***Take the following:*

|     |     |                                |
|-----|-----|--------------------------------|
| ENG | 131 | Writing Experience I           |
| ENG | 232 | Technical and Business Writing |

**GEO 2: Speak clearly, concisely and intelligibly (3 credits)***Take the following:*

|     |     |                             |
|-----|-----|-----------------------------|
| COM | 240 | Interpersonal Communication |
|-----|-----|-----------------------------|

**GEO 3: Demonstrate computational skills and mathematical reasoning (4 credits)***Take the following:*

|     |     |                                  |
|-----|-----|----------------------------------|
| MAT | 130 | Quantitative Reasoning or higher |
|-----|-----|----------------------------------|

**GEO 4: Demonstrate scientific reasoning**

*Choose one of the following: If in the Science Focus Track the requirement may be met with an elective course.*

*Please check for any prerequisite requirements.*

*(4-5 credits)*

|     |     |                           |
|-----|-----|---------------------------|
| CEM | 131 | Fundamentals of Chemistry |
| CEM | 141 | General Chemistry I       |

**GEO 5: Understand human behavior and social systems, and the principles that govern them (4 credits)***Take the following:*

PSY 140 Introduction to Psychology

**GEO 6: Understand aesthetic experience and artistic creativity (3 credits)***Choose one of the following:*

ART 111 Art History: Prehistoric to 1400  
 ART 112 Art History: Renaissance to Present  
 ENG 210 Introduction to Film  
 ENG 246 Short Story & Novel  
 ENG 247 Poetry and Drama  
 ENG 249 African-American Literature  
 ENG 252 Shakespeare  
 ENG 254 Children's Literature  
 ENG 255 American Literature – 19th Century  
 ENG 256 American Literature – 20th Century  
 HUM 131 Cultural Connections  
 MUS 131 Understanding Music  
 THR 116 Introduction to Theatre

**GEO 7 Understand and respect the diversity and interdependence of the world's peoples and cultures. (3 credits)***Take the following:*

HUM 131 Cultural Connections

**ENERGY SYSTEMS TECHNOLOGY CORE REQUIREMENTS (32 CREDITS)***Take the following:*

EGY 101 EIF Energy Industry Fundamentals  
 MFG 105 Blueprint Reading  
 MFG 164 Basic Fabrication  
 MFG 170 Pneumatics and Hydraulics  
 CAD 151 Introduction to CAD  
 ELT 105 Introduction to Electrical Systems  
 ELT 220 Industrial Motion Control  
 STM 101 Introduction to Sustainability  
 ALT 200 Principles of Alternative Energy

**TECHNICAL ELECTIVES\***

\*Technical Electives include any ALT/ELT/CAD/MAT/WLD or other with lead faculty approval.

**ADDITIONAL REQUIREMENT**

EMS 110 Advanced First Aid & American Heart CPR **OR**  
 Current Adult CPR Rigging Safety Training.

**Occupational Studies – Associate in Applied Science (OCST.AAS)**

This Associate of Applied Science is designed specifically for students who have completed an apprenticeship program and received a certificate of completion from the U.S. Department of Labor/Bureau of Apprenticeship and Training. Apprenticeship occupations accepted are carpenter, cement mason, structural draftsman, machine builder, machine repair and maintenance, millwright, wood model maker, mold maker (plaster and die cast), operating engineer, plumber, pipe fitter, tool and die maker. Other apprenticeship programs would need to be reviewed on a case-by-case for consideration by the lead faculty. The curriculum will provide students with a strong academic foundation and introduce them to new ideas in sustainability, business, entrepreneurship and computer systems.

Minimum credits..... 60  
 Minimum cumulative GPA..... 2.0  
 Minimum grade in all courses ..... 2.0  
 Minimum Jackson College credits..... 15

**GENERAL EDUCATION REQUIREMENTS (23-25 CREDITS)****GEO 1: Write clearly, concisely and intelligibly***Take the following:*

ENG 131 Writing Experience I

**GEO 2: Speak clearly, concisely and intelligibly***Choose one of the following:*

COM 231 Communication Fundamentals  
 COM 240 Interpersonal Communication

**GEO 3: Demonstrate computational skills and mathematical reasoning***Take the following:*

MAT 131 Intermediate Algebra or higher

**GEO 4: Demonstrate scientific reasoning***Choose one of the following:*

BIO 110 Introductory Biology  
 BIO 132 Human Biology  
 BIO 158 Environmental Science  
 BIO 161 General Biology I  
 BIO 162 General Biology II  
 BIO 220 Microbiology  
 BIO 253 Human Anatomy and Physiology I  
 CEM 131 Fundamentals of Chemistry

CEM 141 General Chemistry I  
 GEL 109 Earth Science  
 GEL 160 Introduction to Geology  
 NSC 131 Contemporary Science  
 PHY 131 Conceptual Physics  
 PHY 151 Astronomy  
 PHY 231 College Physics I  
 PHY 251 Modern University Physics I

**GEO 5: Understand human behavior and social systems, and the principles which govern them**

*Choose one of the following:*

ECN 231 Macroeconomics  
 ECN 232 Microeconomics  
 HIS 131 Western Civilization to 1555  
 HIS 132 Western Civilization 1555 to Present  
 HIS 231 Development of the US through the Civil War  
 HIS 232 Development of the US from the Civil War  
 HIS 235 20th Century History  
 PLS 141 American National Government  
 PSY 140 Introduction to Psychology  
 SOC 231 Principles of Sociology

**GEO 6: Understand aesthetic experience and artistic creativity**

*Choose one of the following:*

ART 111 Art History: Prehistoric to 1400  
 ART 112 Art History: Renaissance to Present  
 ENG 210 Introduction to Film  
 ENG 246 Short Story & Novel  
 ENG 247 Poetry & Drama  
 ENG 249 African-American Literature  
 ENG 252 Shakespeare  
 ENG 254 Children's Literature  
 ENG 255 American Literature – 19th Century  
 ENG 256 American Literature – 20th Century  
 HUM 131 Cultural Connections  
 MUS 131 Understanding Music  
 THR 116 Introduction to Theatre

**GEO 7: Understand and respect the diversity and interdependence of the world's peoples and cultures**

*Choose one of the following:*

ANT 131 Cultural Anthropology  
 ENG 236 Women in Changing Society  
 ENG 249 African-American Literature  
 ENG 257 World Literature  
 FRN 131 French I or higher  
 GEO 132 World Regions  
 GER 131 German I or higher  
 HIS 125 African-American History  
 HIS 211 Minority Groups in America  
 PHL 243 World Religions  
 PLS 262 International Relations

MUS 130 Music of Non-Western Cultures  
 SOC 236 Women in Changing Society  
 SOC 246 Marriage and Family  
 SPN 131 Spanish I or higher

**OCCUPATIONAL STUDIES CORE REQUIREMENTS (17 CREDITS)**

*Take the following:*

STM 101 Introduction to Sustainability  
 ENT 101 Entrepreneurship: Creating Your Own Job  
 CIS 101 Introduction to Computer Systems  
 ECM 101 e-Commerce Fundamentals  
 BUA 100 Contemporary Business  
 ENG 232 Technical and Business Writing

**OCCUPATIONAL STUDIES ELECTIVE REQUIREMENTS (20 CREDITS)**

Apprenticeship Certificate of Completion. Other apprenticeship/certificate programs would need to be reviewed on a case-by-case for consideration by the lead faculty.

**Apprenticeship Information**

Apprenticeship programs are available in many trades in cooperation with an employer or a joint apprenticeship committee representing labor and management. The U.S. Department of Labor/Bureau of Apprenticeship and Training registers and monitors the programs to ensure quality in apprenticeship programs nationwide.

Apprenticeship training involves classroom and on-the-job training over a span of usually four years. The process of applying knowledge on the job provides the apprentice with the opportunity to develop the necessary skills for a particular trade.

Upon completion of all employer-specified coursework and the required hours of on-the-job instruction, the employer may recommend that the apprentice receive a completion certificate from the U.S. Department of Labor/Bureau of Apprenticeship and Training.





## COURSE DESCRIPTIONS

### Accounting (ACC)

#### **ACC 115 PAYROLL ACCOUNTING (2 CR)**

Accurate payroll records and timely payroll tax reporting are critical elements for all successful businesses. Learn to apply payroll accounting rules and procedures to support business operations. Learn employment and tax laws that affect payroll preparation. Learn the skills, procedures, and concepts necessary to compute a company's payroll. Topics include hiring, gross pay, FICA taxes, income taxes, employee deductions and benefits, payroll accounting, earnings records, tax deposits, unemployment taxes, recording payroll transactions, Form 940EZ, Form 941, reporting employee earnings and special situations.

**Prerequisites:** *CIS 101\*, ENG 085\* and ENG 090\**

#### **ACC 130 QUICKBOOKS PRO (2 CR)**

Today nearly all businesses rely on computer software to facilitate the accounting process. Learn to use the many features of this popular and sophisticated small business computerized accounting system. Topics include customizing the system to your business, invoicing, statements, collections, bill paying, general ledger, budgeting and tax reports.

**Prerequisites:** *ACC 216 or higher and CIS 095\**

*\* You may meet this prerequisite based on your course placement, ACT score or successful college coursework. Visit [www.jccmi.edu](http://www.jccmi.edu) for current assessment options and requirements.*

#### **ACC 214 INCOME TAX ACCOUNTING (3 CR)**

Federal income tax for personal and business use is explored. Concepts covered include taxable income, deductions, exclusions, exemptions and credits against tax. Proprietorship tax returns including account and depreciation methods, self-employment taxes, self-employed retirement plans, capital gains and losses, disposition of property (both personal and business) and estimated tax declaration.

**Prerequisites:** *CIS 095\* and MAT 020\* or higher*

#### **ACC 216 FINANCIAL ACCOUNTING CONCEPTS (4 CR)**

This course is designed for the non-accounting supervisor/manager who must have an understanding of financial and managerial accounting as it is used in decision making. Learn about annual reports, financial statements, balance sheet accounts and accounting transactions. Focus on how accounting information is used in decision making and not on the mechanics behind that accounting information. This is an introductory accounting course required for some BUA, CIS and HOC programs. Students should consider their academic program and select either ACC 216 or ACC 231 for their introductory accounting course.

**Prerequisites:** *CIS 095\*, ENG 085\*, ENG 090\* and MAT 020\* or higher*

#### **ACC 231 PRINCIPLES OF ACCOUNTING I (4 CR)**

This course is an introductory course in financial accounting. Learn the theory and practice of recording financial accounting data and preparation of financial statements in accordance with Generally Accepted Accounting Principles (GAAP) with an emphasis on corporations. Current software and online applications will be utilized.

**Prerequisites:** *ENG 085\*, ENG 090\*, MAT 033\* or higher and CIS 101\* or CIS 121*

**ACC 232 PRINCIPLES OF ACCOUNTING II (4 CR)**

This course is an introductory course in managerial accounting. Learn how accounting impacts managerial decision making. Topics include stocks, bonds, cash flow, cost accounting, break-even analysis, differential analysis, financial statements and budgeting. Current software and online applications will be utilized.

**Prerequisite:** ACC 231

**ACC 234 MANAGERIAL ACCOUNTING (4 CR)**

Management-level professionals from all disciplines will be faced with complex situations and decisions. Appropriate managerial accounting reports and critical thinking skills are crucial to a proactive management process. Learn about financial statement analysis, cash flow forecasting, job order costing in manufacturing, process costing in manufacturing, activity-based costing in manufacturing, cost-volume analysis, cost behavior analysis, budgeting, responsibility accounting, case study analysis, critical thinking and decision-making skills.

**Prerequisite:** ACC 232

**ACC 240 INTERMEDIATE ACCOUNTING (4 CR)**

Professional accountants must have a solid background in Generally Accepted Accounting Principles (GAAP) financial accounting concepts. Review and expand your knowledge of accounting theory and processes, nature and content of the balance sheet and income statement, present value tables and their application, currently applicable General Accepted Accounting Principles (GAAP) and recent Financial Accounting Standards Board (FASB) pronouncements.

**Prerequisite:** ACC 231

**ACC 245 INTERNSHIP/EXTERNSHIP (3 CR)**

Gain valuable work experience in an accounting position. The position must be obtained by the student in coordination with a faculty member and approved by the department before the semester begins.

**ACC 246 VOLUNTEER TAX INTERNSHIP (3 CR)**

Gain valuable tax preparation work experience by participating in the IRS VITA program. Students will provide free tax preparation services for low- to mid-income earners, the elderly and the disabled in Jackson, Lenawee or Hillsdale counties. Working with both the Community Action Agency and the Internal Revenue Service, students will train and test to become VITA volunteer tax preparers. Training and certification will occur during January; tax preparation fieldwork will take place Feb. 1 through April 15, and ACC 246 coursework will conclude during April. This internship position must be arranged well in advance of tax season with faculty approval late December or early January.

**ACC 300 FINANCIAL MANAGEMENT FOR THE HOSPITALITY INDUSTRY (4 CR)**

Using a combination of management accounting and finance principles, develop your management skills in the area of financial management. With an emphasis on management decision making, students will consider topics such as financial statement reporting and analysis, budgeting, forecasting, ethics, and internal controls. Coursework and assignments will be structured to highlight the challenges and opportunities within the hospitality industry.

**Prerequisite:** ACC 216

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## Agriculture Technology (AGT)

**AGT 111 AGRICULTURE SAFETY AND BIO SECURITY (1 CR)**

This course prepares students from a variety of backgrounds to study and work safely in agricultural and agribusiness settings. Students will learn best practices for biological security and workplace safety standard in these industries. Farm safety will include proper use of power equipment and implements as well as livestock handling. This course contains lecture and field experience components.

**AGT 113 INTRODUCTION TO FOOD SYSTEMS (3 CR)**

This course provides students with an overview of the diverse food systems industry. Through research, guest lectures, and field experiences students will engage a cross-section of agricultural, agribusiness, governmental and food processing sectors. Emphasis will be made in identifying the unique but deeply inter-connected pieces that make up regional, national and international food systems.

**AGT 131 INTRODUCTION TO PLANT AND SOIL SCIENCE (4 CR)**

This course teaches principles of crop production and soil resource management. It relates soils, crop growth, physiology, and genetics to cultural demands and environmental factors. Lab investigates the identification of plant structures, crop seeds, and important pests. Also explores crop variety selection and traits, deficiency symptoms, crop scouting, basic nutrient calculations, and applications within sustainable and international agriculture.

**Prerequisites:** CEM 141 or NSC 120

**AGT 201 INTEGRATED PEST MANAGEMENT (2 CR)**

This course covers identification, biology, and management of agricultural pests including weeds, insects, and diseases. Course content will emphasize prevention, avoidance, monitoring, and control strategies of specific pests, while examining the ecological and economic considerations of integrated pest management within crop production systems.

**Prerequisites:** AGT 111 and AGT 131

**AGT 202 PESTICIDES IN AGRICULTURE (1 CR)**

Applied coursework in commercial and private application of pesticides. Topics include pesticide law, product labels, equipment and calibration, safe storage and handling, formulations, and necessary calculations. Applicator certification expected upon course completion through standardized exam.

**Prerequisites:** Instructor permission required

**AGT 209 PRECISION FARMING (3 CR)**

This course will provide students with a working knowledge of precision management systems intended for food production. Course content will cover mechanical and electronic advancements toward automation, how computers are used in food production, variable rate technology, product application, sensors, global positioning systems, yield monitors & other data collection systems. This course includes both classroom and field experience components.

**Prerequisites:** AGT 111

**AGT 212 AGRICULTURE POLICY AND PRACTICES (1 CR)**

This course introduces students to applicable state and federal agricultural policy as well as Generally Accepted Agricultural Management Practices (GAAMP) for both livestock and crop production. Students will become familiar where to locate and how to interpret and apply agricultural policies and best practices.

**Prerequisites:** AGT 111

**AGT 227 INTRODUCTION TO ANIMAL SCIENCE (4 CR)**

The classification of different species of livestock based on breeding, feeding, and management techniques and how they apply to overall animal health and behavior are studied. Historical and current trends of the livestock industry both domestically and internationally are examined. The usage of animal science tools in the agriculture field and how they can be used in future career options are highlighted. Course includes 15 hours of field experience.

**Prerequisites:** AGT 111, and NSC 120 or CEM 141

**AGT 231 AGRICULTURE FINANCE AND MANAGEMENT (3 CR)**

This course will introduce students to the concepts and organization of the agri-food financing systems, including: financial structures, lenders and borrowers, ownership and legal terminology. Topics will include an overview of financial analysis, cost of production, risk, leverage and feasibility, financial statements and capital costs.

**Prerequisites:** ACC 216 and BUA 220

**AGT 245 AGRICULTURE INTERNSHIP (2 CR)**

This course offers meaningful industry experience within the agricultural and/or agri-business arena. Specific internship site, industry supervisor and learning outcomes must be jointly agreed upon between the student, the faculty member and the site supervisor. A portfolio of the internship will be created and submitted to the faculty member upon completion of the course.

**Prerequisites:** Instructor permission required

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## Aviation Flight Technology (AFT)

**AFT 110 PRIMARY GROUND SCHOOL (3 CR)**

Preparation for the FAA Private Pilot written examination by classroom work on federal aviation regulations, air space, meteorology, navigation, communication and aerodynamics.

**AFT 112 PRIMARY FLIGHT I (3 CR)**

This course prepares the student for solo flight. Includes: Pre-flight, start-up, radio communications, taxiing, basic flight maneuvers, take-offs, and landings. (Course requires 25 hours of flight).

**AFT 114 PRIMARY FLIGHT II (3 CR)**

This course prepares the student for solo navigation and solo cross country flight and includes basic instrument training and night flights. (Course requires 20 hours of flight and students must possess a 3rd Class Medical Certificate or higher.)

**Prerequisite:** AFT 112

**AFT 116 PRIMARY FLIGHT III (3 CR)**

The course prepares the student for Private Pilot Certification, including additional solo hours and proficiency in required FAA maneuvers during day and night operations. Course requires 20 hours of flight and students must possess a 3rd Class Medical Certificate or higher.

**Prerequisite:** AFT 114

**AFT 125 COMMERCIAL GROUND SCHOOL (3 CR)**

Prepares the student for the FAA Commercial Pilot written examination. In-depth study of meteorology, federal aviation regulations, aircraft systems, airspace, aerodynamics, etc. included.

**AFT 130 COMMERCIAL FLIGHT I (4 CR)**

This course covers initial flight training leading to the commercial pilot certificate with an instrument rating. Students practice skills as pilot in command while logging cross-country and night flight hours. This follows Stage IV of the Jeppesen Guided Flight Discovery Instrument Commercial Syllabus.

**Prerequisite:** AFT 120

**AFT 135 INSTRUMENT GROUND SCHOOL (3 CR)**

Prepares the student for the FAA Instrument Pilot written examination through study of federal aviation regulations, A/C systems, meteorology, IFR departure, en route and arrival procedures.

**Prerequisite:** AFT 120

**AFT 140 COMMERCIAL FLIGHT II (4 CR)**

During this course, students learn and gain proficiency with local instrument flight procedures during day and night flying (scanning, tracking, and intercepting Nav Aids, DME arcs, holds, and instrument approaches). The follows Stage I and Stage II of the Jeppesen Guided Flight Discovery Instrument Commercial Syllabus.

**Prerequisite:** AFT 130

**AFT 200 COMMERCIAL FLIGHT III (4 CR)**

Continuation of advanced and instrument flight procedures with emphasis on high-performance maneuvers, solo cross-country and dual instrument en route and approach procedures.

**Prerequisite:** AFT 140

**AFT 205 COMMERCIAL FLIGHT IV (4 CR)**

This course is the culmination of training for the commercial pilot certificate. Students gain proficiency in complex air craft and commercial maneuvers. Students also gain the remainder of hours and skills required for the commercial pilot certificate. (Follows Stage VI of the Jeppesen Guided Flight Discovery Instrument Commercial Syllabus).

**Prerequisite:** AFT 200

**AFT 210 INSTRUMENT FLIGHT (4 CR)**

Designed for the non-commercial pilot, includes all phases of instrument flight including basic instrument, departure, en route and arrival procedures.

**Prerequisite:** AFT 135

**AFT 215 FLIGHT INSTRUCTOR THEORY (3 CR)**

Preparation for completion of the two FAA written examinations for Flight Instructor-Airplane. Covers theory of instruction and analysis of flight maneuvers from the perspective of the instructor.

**Prerequisite:** AFT 205

**AFT 220 FLIGHT INSTRUCTOR FLIGHT (3 CR)**

Preparation for the Flight Instructor-Airplane Certificate through effective techniques of lesson planning, teaching methods, and analysis of maneuvers.

**Prerequisite:** AFT 205

**AFT 230 INSTRUMENT FLIGHT INSTRUCTOR FLIGHT (3 CR)**

Preparation of materials and teaching methods, analysis of maneuvers and instruction in flight instructor responsibilities.

**Prerequisite:** AFT 215

**AFT 235 FLIGHT TRANSITION (2 CR)**

Provides the licensed pilot with the opportunity to develop the knowledge, experience, and flight skills needed for transition to the next level of aircraft (e.g. helicopter, multiengine, or other complex aircraft).

**AFT 240 BIENNIAL FLIGHT REVIEW CLINIC (1 CR)**

Provides the flight review necessary for FAA biennial requirements. Includes ground and flight review appropriate to the certificate or rating held by the student.

**AFT 250 IFR RECURRENCE (1 CR)**

Designed for the instrument pilot in need of recurrent training. Satisfies FAR Part 61 requirement for recent IFR experience. Student may utilize simulator, aircraft or both.

**AFT 275 MAINTENANCE FOR PILOTS (2 CR)**

Pilot-owner oriented procedures for legal self-maintenance of aircraft. Considerable hands-on experience detailing preventative maintenance, inspection and repair of aircraft. Contains a review of federal aviation regulations, documents and standard practices pertaining to pilot-owner maintenance.



## Alternative Energy (ALT)

### ALT 200 PRINCIPLES OF ALTERNATIVE ENERGY (3 CR) (Same as ELT 160)

This course will introduce students to alternative energy systems and their design and applications. The course will focus primarily on wind turbines, solar systems, and hydrogen fuel cells. A basic understanding of electricity is highly recommended.

**Prerequisites:** ENG 085\* and MAT 020\* or higher

### ALT 210 FUNDAMENTALS OF ENERGY EFFICIENCY (2 CR) (Same as CCT 160)

This course will explore the fundamentals of designing and maintaining an energy efficient building to reduce a homeowner or business's cost of utilities. Students will learn techniques to identify wasted energy and the methods needed to modernize an energy inefficient home.

**Prerequisites:** ENG 085\* and MAT 020\* or higher

### ALT 215 ENERGY AUDIT TECHNIQUES (3 CR) (Same as CCT 162)

This course will explore the necessary knowledge and skills to conduct a building energy audit. The class will learn how to operate the latest building science technology and equipment to identify heating, cooling, base load, and air leakage problems in a building.

**Prerequisites:** CCT 160 and MAT 033\* or higher

### ALT 250 WIND ENERGY (3 CR) (Same as ELT 163)

In this course students are exposed to many of the skills necessary to install a residential wind turbine system. Topics include siting wind turbines, turbine components, estimating turbine electricity output, loading, battery, inverters and off-grid/grid-connected systems. Labs include hands-on activities with turbines and electrical equipment. Prior electrical skills and knowledge are required to be successful in this course.

**Prerequisites:** ELT 126 and ELT 151

### ALT 255 SOLAR ENERGY (3 CR) (Same as ELT 166)

This course explores the design, installation and maintenance of photovoltaic (PV) systems. Topics include site survey and assessment, estimating solar array electricity output, inverters, battery systems and off-grid/grid-connected systems. Labs include hands-on activities with solar panels and electrical equipment. Prior electrical skills and knowledge are required to be successful in this course.

**Prerequisites:** ELT 120 and ELT 151

### ALT 260 GEOTHERMAL ENERGY & SYSTEMS (2 CR) (Same as CCT 165)

This course will explore the basics of geothermal energy production, theory and technology. Residential system installation, maintenance and problem diagnosis will also be covered.

**Prerequisites:** CCT 121 and CCT 131 or ELT 120

### ALT 265 SOLAR THERMAL ENERGY & SYSTEMS (2 CR) (Same as CCT 167)

This course will explore the basics of solar thermal energy technology and application. The class will also cover system installation, maintenance and problem diagnosis.

**Prerequisites:** CCT 121 and CCT 131 or ELT 120

### ALT 270 ALTERNATIVE FUELS (3 CR) (Same as AUT 160)

This course is an overview of alternative fuels used in automobiles and light trucks. Students learn about various alternate fuels, their effect on exhaust emissions, their effect on the environment, the economic impact of alternate fuels and how they contribute to the reduction of importing foreign oil. Topics include hydrogen, fuel cells, natural gas (CNG & LNG), propane (LP gas), ethanol, methanol and biodiesel.

**Prerequisite:** ALT 200 or ELT 160

## Anthropology (ANT)

### ANT 131 CULTURAL ANTHROPOLOGY (3 CR)

Cultural anthropology is a one semester introductory course. The course focuses on the thesis that every society is based on an integrated culture, which satisfies human needs and facilitates survival. The course also explores the ways in which our own culture fits into the broad range of human possibilities.

**Prerequisite:** ENG 085\*

## Art (ART)

### ART 101 TWO-DIMENSIONAL DESIGN (3 CR)

Students will learn the principles and elements of 2-D design and practice their application in a variety of hands-on studio projects. Critical thinking skills such as problem solving, understanding the creative process (from idea to finished product), and addressing visual and conceptual themes are essential parts of the course. These skills are reflected in studio projects.



**ART 103 DRAWING I: FOUNDATIONS (3 CR)**

This course introduces basic drawing principles and techniques in a studio setting. Students explore contour and tonal drawing using various subjects and media in both observational and conceptual drawings. Projects will incorporate a variety of ability levels, as well as traditional and non-traditional media (including digital images). Students will draw from a nude model. Critical thinking skills such as problem solving, understanding the creative process (from idea to finished product), and addressing visual and conceptual themes are essential parts of the course, reflected in the studio projects. An end of semester portfolio represents students' growth and artistic development.

**ART 111 ART HISTORY: PREHISTORIC TO 1400 (3 CR)**

This course is a survey of art history and aesthetics covering art and architecture from prehistoric times to 1400.

**Prerequisite:** ENG 085\*

**ART 112 ART HISTORY: RENAISSANCE TO PRESENT (3 CR)**

This course is a survey of art history and aesthetics covering art from the Renaissance through the 20th century.

**Prerequisite:** ENG 085\*

**ART 121 CERAMICS I: FOUNDATIONS (3 CR)**

A general overview of ceramics that focuses on a variety of hand building techniques as well as wheelwork and finishes.

**ART 122 CERAMICS II: WHEEL & CERAMIC SCULPTURE (3 CR)**

This course allows the advanced students an opportunity for further work on wheel-produced production pieces, as well as exploring the possibilities of sculpture created with ceramic materials. Advanced finishing and firing techniques will also be considered.

**Prerequisite:** ART 121

**ART 137 DIGITAL PHOTOGRAPHY I (3 CR)**

*(Same as CIS 137)*

This course demonstrates how to use and handle a digital camera, capturing the image, editing and processing images for output - such as printing, or preparing images for upload to the Internet for websites or social media platforms. The class will include techniques and instruction on layout, composition, rules of design, history of photography, and Photoshop® or image altering program applications.

**ART 152 PAINTING I: DESIGN & COLOR (3 CR)**

The elements and principles of design and color are introduced to create basic painting composition in a studio setting. Emphasis is given to techniques using acrylics and/or watercolor media. Critical thinking skills such as problem solving, understanding the creative process (from idea to finished product), and addressing visual and conceptual themes are essential parts of the course, reflected in the studio projects. Students will paint from a nude model. Gallery trips, as well as other field experiences, are key aspects of this course. Students work with the instructor to mount an end of semester exhibition, showcasing their artistic growth and development.

**Prerequisite:** ART 103

**ART 201 THREE-DIMENSIONAL DESIGN: SHAPES & SPACE (3 CR)**

Students learn the principles and elements of three-dimensional design and study how to apply them in a variety of studio projects. Students understand and demonstrate the different construction methods needed to create sculpture with a diverse array of media. Critical thinking skills such as problem solving, understanding the creative process (from idea to finished product), and addressing visual and conceptual themes are essential parts of the course. These skills are reflected in studio projects.

**ART 205 DRAWING II: FIGURE & COMPOSITION (3 CR)**

Students learn the elements and principles of drawing from life, with the emphasis on basic anatomy and advanced compositional elements. Projects incorporate advanced techniques and nontraditional media in a studio setting. Students will draw from a nude model. Critical thinking skills such as problem solving, understanding the creative process (from idea to finished product), and addressing visual and conceptual themes are essential parts of the course. These skills are reflected in studio projects.

**Prerequisite:** ART 103

**ART 237 DIGITAL PHOTOGRAPHY II (3 CR)**

*(Same as CIS 237)*

This course provides the opportunity to refine and extend the skills of photographic seeing. Personal skills in digital photography will be used to explore a complete body of work. Students will be using Photoshop® CS5 to edit and explore their creative outlets further. Students' individual personal goals will be set and executed during the semester.

**Prerequisite:** ART 137 or CIS 137

\* You may meet this prerequisite based on your course placement, ACT score or successful college coursework. Visit [www.jccmi.edu](http://www.jccmi.edu) for current assessment options and requirements.

**ART 240 PRINTMAKING (3 CR)**

The elements and principles of design and color are introduced to create prints in a studio setting. Emphasis is given to techniques using a variety of media and technologies. Critical thinking skills such as problem solving, understanding the creative process (from idea to finished product), and addressing visual and conceptual themes are essential parts of the course, reflected in the studio projects. Gallery trips, as well as other field experiences, are key aspects of this course. Students work with the instructor to mount an end-of-semester exhibition showcasing their artistic growth and development.

**Prerequisite:** ART 101 or ART 103

**ART 252 PAINTING I: DESIGN & COLOR (3 CR)**

Student work will primarily involve paintings from a nude model in a studio setting. Students extend previous learning by solving problems dealing with complex compositional and color painting in a variety of situations. The development of a personal style and a culminating portfolio of work are emphasized.

**Prerequisite:** ART 152

## Automotive Service Technology (AUT)

**AUT 101 GENERAL SERVICE (2 CR)**

This course is designed for those who wish to explore the automotive service technician occupation. Introductory exposure to the various service areas is provided, along with student participation of various service tasks.

**AUT 102 ENGINE PERFORMANCE I (4 CR)**

A comprehensive study including hands-on repair of the automobile's ignition and emission systems. Service procedures include scope analysis, compression testing, cylinder leak-down testing, component testing with digital multimeters and lab scopes, tune-up, and trouble-shooting of the various systems. The combination of AUT 102 and 103 prepares the student with job skills for entry into the workforce and the knowledge for successfully completing the Michigan or ASE certification examinations required for mechanic licensing.

**Prerequisites:** ENG 085\* and MAT 020\* or higher

**AUT 103 ENGINE PERFORMANCE II (4 CR)**

A comprehensive study including hands-on repair of the automobile's fuel and computerized engine control systems. Service procedures include fuel pressure testing,

fuel injector testing, exhaust gas analysis, scan tool usage, component testing with digital multimeters and lab scopes, and troubleshooting of the various systems. The combination of AUT 102 and 103 prepares the student with job skills for entry into the workforce and the knowledge for successfully completing the Michigan or ASE certification examinations required for mechanic licensing. Students are required to take the Michigan certification test as an integral part of the course.

**Prerequisite:** AUT 102

**AUT 105 AUTOMOTIVE BRAKES (3 CR)**

A comprehensive study including hands-on repair of the automobile's braking systems. Service procedures include drum brake service, disc brake service, machining drums and rotors, parking brake service, hydraulic system repair, anti-lock brake system service, and troubleshooting the various systems. This course prepares the student with job skills for entry into the workforce and the knowledge for successfully completing the Michigan or ASE certification examinations required for mechanic licensing. Students are required to take the Michigan certification test as an integral part of the course.

**Prerequisites:** AUT 101, AUT 234, ENG 085\* and MAT 020\*

**AUT 106 SUSPENSION & STEERING (3 CR)**

A comprehensive study including hands-on repair of the automobile's steering and suspension systems. Service procedures include pre-alignment inspections, four-wheel alignment, conventional suspension and steering systems, McPherson strut service, rack & pinion steering service, component replacement, and trouble-shooting the various systems. This course prepares the student with job skills for entry into the workforce and the knowledge for successfully completing the Michigan or ASE certification examination required for mechanic licensing. Students are required to take the Michigan certification examination as an integral part of the course.

**Prerequisites:** AUT 101, AUT 234, ENG 085\* and MAT 020\*

**AUT 108 AUTOMOTIVE AIR CONDITIONING & HEATING (3 CR)**

A comprehensive study including hands-on repair of the automobile's air conditioning and heating systems. Service procedures include cooling system service, refrigeration system service, control system repair, heater service, component testing, environmental issues (the ASE Refrigerant and Recovery Certification test is included and required), and troubleshooting the various systems. This course prepares the student with job skills for entry into the workforce and the knowledge for successfully completing the Michigan or ASE certification examination required for mechanic licensing. Students are required to take the Michigan certification test as an integral part of the course.

**Prerequisites:** ENG 085\* and MAT 020\*

**AUT 112 ELECTRICAL SYSTEMS I (3 CR)**

A comprehensive study including hands-on repair of the automobile's electrical system. Service procedures include basic electrical testing using test lights and multimeters, reading basic electrical schematics, battery service, starter service, alternator service, and troubleshooting the various systems. The combination of AUT 112 and 113 prepares the student with job skills for entry into the workforce and the knowledge for successfully completing the Michigan or ASE certification examination required for mechanic licensing.

**Prerequisites:** *ENG 085\* and MAT 020\**

**AUT 113 ELECTRICAL SYSTEMS II (3 CR)**

A comprehensive study including hands-on repair of the automobile's electrical system. Service procedures include basic electronics testing using digital multimeters, advanced electrical schematics, chassis wiring, lighting, circuits, instrumentation, power seats, power windows, wiper systems, air bag systems, electrical accessories, and troubleshooting the various systems. The combination of AUT 112 and 113 prepares the student with job skills for entry into the workforce and the knowledge for successfully completing the Michigan or ASE certification examination required for mechanic licensing. Students are required to take the Michigan certification test as an integral part of the course.

**Prerequisite:** *AUT 112 and ENG 090\**

**AUT 118 DIESEL FUNDAMENTALS (2 CR)**

This course is designed for those who wish to explore modern automotive and light truck diesel engines. This will include a study of diesel operating principles, fuel systems, engine construction, sub-systems, diesel maintenance and diagnosis. Shop time will include disassembly, exploration and reassembly of compact diesel engines.

**Prerequisites:** *ENG 085\* and MAT 020\**

**AUT 160 ALTERNATE FUELS (3 CR)**

*(Same as ALT 270)*

This course is an overview of alternative fuels used in automobiles and light trucks. Students learn about various alternate fuels, their effect on exhaust emissions, their effect on the environment, the economic impact of alternate fuels and how they contribute to the reduction of importing foreign oil. Topics include hydrogen, fuel cells, natural gas (CNG & LNG), propane (LP gas), ethanol, methanol and biodiesel.

**Prerequisite:** *ALT 200 or ELT 160*

**AUT 201 ENGINE REPAIR (4 CR)**

A comprehensive study including hands-on repair of the automobile engine. Service procedures include cooling system repair, lubrication system repair, intake systems repair, exhaust repair, engine testing, engine replacement, engine

disassembly, cleaning and measurement, cylinder head reconditioning, block reconditioning, machining operations, assembly techniques, and troubleshooting the various systems. This course prepares the student with job skills for entry into the workforce and the knowledge for successfully completing the Michigan or ASE certification examination required for mechanic licensing. Students are required to take the Michigan certification test as an integral part of the course.

**Prerequisites:** *ENG 085\* and MAT 020\* or higher*

**AUT 202 AUTOMATIC TRANSMISSION (4 CR)**

A comprehensive study including hands-on repair of automatic transmissions and transaxles. Service procedures include basic transmission service, transmission pressure testing, scan tool testing, transmission assembly replacement, transmission disassembly, inspection of parts, transmission reassembly, and troubleshooting the various systems. This course prepares the student with job skills for entry into the workforce and the knowledge to successfully complete the Michigan or ASE certification examination required for mechanic licensing. Students are required to take the Michigan certification test as an integral part of the course.

**Prerequisites:** *AUT 101, AUT 234, ENG 085\* and MAT 020\* or higher*

**AUT 203 ADVANCED ENGINE PERFORMANCE (2 CR)**

Covers general power train diagnosis, computerized power train diagnosis (including OBD II), ignition system diagnosis (including scope analysis), fuel and air induction diagnosis (including 5-gas analysis), emission control systems diagnosis, and I/M failure diagnosis. Students who successfully complete this course will be ready to take the ASE L-1, Auto Advanced Engine Performance Specialist Exam.

**Prerequisites:** *AUT 102, AUT 103 and CIS 116*

**AUT 204 MANUAL TRANSMISSIONS & DRIVELINES (3 CR)**

A comprehensive study including hands-on repair of manual transmissions, manual transaxles and drivelines. Service procedures include transmission service, clutch overhaul, half-shaft repair, driveshaft repair, differential service, axle repair, and troubleshooting the various systems. This course prepares the student with job skills for entry into the workforce and the knowledge to successfully complete the Michigan or ASE certification examination required for mechanic licensing. Students are required to take the Michigan certification test as an integral part of the course.

**Prerequisites:** *AUT 101, AUT 234, ENG 085\* and MAT 020\* or higher*

**AUT 210 INTERNSHIP/EXTERNSHIP (4 CR)**

This co-op experience is paid on-the-job training. It prepares the student to acquire hands-on job skills and work habits in conjunction with the student's employment site. The student will work at a sponsoring repair shop or dealership approximately three days a week (or to be arranged with instructor's approval) performing a variety of automotive repairs. Visits by the school supervisor provide the basis for evaluation. Students are required to complete a total of one co-op experience in the associate degree program.

**Prerequisite:** *Instructor Permission Required*

**AUT 211 INTERNSHIP/EXTERNSHIP (4 CR)**

This co-op experience is paid on-the-job training. It prepares the student to acquire hands-on job skills and work habits in conjunction with the student's employment site. The student will work at a sponsoring repair shop or dealership approximately three days a week (or to be arranged with instructor's approval) performing a variety of automotive repairs. Visits by the school supervisor provide the basis for evaluation. Students are required to complete a total of one co-op experience in the associate degree program.

**Prerequisite:** *Instructor Permission Required*

**AUT 212 INTERNSHIP/EXTERNSHIP (4 CR)**

This co-op experience is paid on-the-job training. It prepares the student to acquire hands-on job skills and work habits in conjunction with the student's employment site. The student will work at a sponsoring repair shop or dealership approximately three days a week (or to be arranged with instructor's approval) performing a variety of automotive repairs. Visits by the school supervisor provide the basis for evaluation. Students are required to complete a total of one co-op experience in the associate degree program.

**Prerequisite:** *Instructor Permission Required*

**AUT 214 AUTO LAB EXPERIENCE (4 CR)**

Structured lab time to work on auto repair projects in which students have completed coursework and want to expand their knowledge and skills in specific areas previously not covered. May be used as an internal co-op.

**Prerequisites:** *Choose one of the following: AUT 102, AUT 103, AUT 105, AUT 106, AUT 108, AUT 112, AUT 113, AUT 201, AUT 202 or AUT 204*

**AUT 234 UNDERCAR SERVICE (2 CR)**

This course will provide training in MIG welding, exhaust pipe bending and oxyacetylene cutting procedures. This class is designed to prepare the students to pass the ASE XI Specialist Test: Exhaust Systems.

**AUT 240 HYBRID TECHNOLOGY (2 CR)**

This course will introduce students to hybrid technology through a combination of classroom and lab experiences. Topics include safety procedures when working on the high voltage systems, understanding the various warning lights, understanding normal operation and diagnosis of the various high voltage systems. Lab will include hands-on activities on a hybrid vehicle.

**Prerequisites:** *AUT 102 and AUT 112*

**AUT 248 DIESEL ENGINE PERFORMANCE (2 CR)**

This course is designed to provide an in-depth study of the compact diesel fuel and emission systems. This will include the study of diesel fuel, diesel fuel supply systems, high pressure mechanical and electronic fuel injection systems, computerized engine controls, exhaust gas recirculation valves, exhaust emissions, and soot particle reduction. Shop time will include using diesel fuel systems simulators, scan tool usage for diagnosis of fuel and emission system problems, and work on a diesel powered pick-up truck.

**Prerequisite:** *AUT 118*

**AUT 251 HEAVY DUTY BRAKES (3 CR)**

A comprehensive study of the heavy duty trucks braking systems. This course is designed to address the safe, effective diagnostic, repair and maintenance procedures for today's medium and heavy duty vehicles. Service procedures include braking fundamentals, air brake foundation systems and air brake circuits, hydraulic and air over hydraulic braking systems, anti-lock, vehicle stability and servicing of these systems. This course prepares the student with job skills for entry into the workforce and the knowledge for successfully completing the Michigan or ASE certification examinations required to become a Michigan Certified Technician.

**Prerequisite:** *ENG 085, MAT 030, AUT 101 and AUT 234*

**AUT 263 HEAVY DUTY STEERING AND SUSPENSION (3 CR)**

A comprehensive study including a hands-on repair of the medium and heavy duty trucks' steering and suspension systems. Service procedures include pre-alignment inspections, commercial vehicle tires, wheels, front axles and vehicle alignment factors suspension systems and steering systems, component replacement, and troubleshooting the various systems. This course prepares the student with job skills for entry into the workforce and the knowledge for successfully completing the Michigan or ASE certification examination required for mechanic licensing.

**Prerequisite:** *ENG 085, MAT 030, AUT 101 and AUT 234*

**AUT 268 HEAVY DUTY HEATING AND AIR CONDITIONING (3 CR)**

A comprehensive study including hands-on repair of the automobile's air conditioning and heating systems. Service procedures include cooling system service, refrigeration system service, control system repair, heater service, component testing, environmental issues (the ASE Refrigerant and Recovery Certification test is included and required), and troubleshooting the various systems. This course prepares the student with job skills for entry into the workforce and the knowledge for successfully completing the Michigan or ASE certification examination required for mechanic licensing. Students are required to take the Michigan certification test as an integral part of the course.

**Prerequisite:** *ENG 085, MAT 030, AUT 101 and AUT 234*

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## Biology (BIO)

**BIO 110 INTRODUCTORY BIOLOGY (4 CR)**

Students will investigate the nature of science and critically analyze scientific data. Basic biological concepts including cancer, biostatistics, organic molecules and nutrition, biotechnology, nutrient cycles, and evolution are presented in the context of current issues. This course includes a discussion component which involves reading, critically evaluating, and discussing scientific papers: thus strong college reading and writing skills are recommended. The course is designed for non-science majors and includes a laboratory component.

**Prerequisites:** *ENG 085\*, ENG 090\* and MAT 033\* or higher*

**BIO 132 HUMAN BIOLOGY (4 CR)**

Students focus on the structure and function of the human body, the unity and diversity of life, the nature of scientific inquiry, and the principles and processes of evolution as well as contemporary issues that relate to biology. Course includes a laboratory component which focuses on human anatomy.

**Prerequisite:** *ENG 085\* and MAT 020\* or higher*

**BIO 140 PUBLIC HEALTH AND DISEASE (3 CR)**

This lecture/discussion course provides an evidence-based approach to the concepts of public health. Topics covered include infectious and non-infectious diseases along with genetic and environmental factors in health and disease. Students will explore local and national public health resources with an emphasis on how public health data can be used to inform decisions about their own health.

**Prerequisite:** *ENG 085\* ENG 090\* and MAT 020\* or higher*

**BIO 158 ENVIRONMENTAL SCIENCE (4 CR)**

This course serves as a foundation for environmental science majors. It is also suitable for non-majors interested in environmental topics. Emphasis is placed on laboratory experience, environmental surveys, and class discussions to reinforce scientific principles. Environmental case studies are covered in detail. In laboratory, the students will learn how to analyze quantitative environmental data through application. This class has a laboratory component.

**Prerequisites:** *ENG 085\*, ENG 090\* and MAT 020\* or higher*

**BIO 161 GENERAL BIOLOGY I (4 CR)**

Biology 161 is the first semester of a one-year general biology experience intended for science majors or pre-professional students. This course covers nature of science, a survey of the major groups of living organisms (bacteria, fungi, plants and animals), the process and evidence for evolution, and the fundamentals of ecology. It provides the foundation for upper level biology courses. This course includes a laboratory component.

**Prerequisites:** *ENG 090\* and MAT 033\* or higher*

**BIO 162 GENERAL BIOLOGY II (4 CR)**

Biology 162 is the second semester of a one-year general biology experience intended for science majors or pre-professional students. This course covers the chemical basis of life, cell structure and function, photosynthesis and cellular respiration, molecular and Mendelian genetics, cell division, gene regulation and biotechnology. It provides the foundation for upper level biology courses. This course includes a laboratory component. Successful completion of BIO 161 is recommended prior to enrollment.

**Prerequisites:** *CEM 131 or higher*

**BIO 220 MICROBIOLOGY (4 CR)**

Basic structure and function of microorganisms with special emphasis on recent advances in microbiology, pathogens, disease, control and immunity. Strong biology background recommended. Course includes a laboratory component.

**Prerequisites:** *ENG 085\* and MAT 020\* or higher*

**BIO 231 GENERAL BOTANY (4 CR)**

*(Formerly BIO 151)*

Emphasizes the development, anatomy, physiology and evolution of angiosperms. A survey of the plant kingdom with representative life cycles stresses relationships among plant groups. Course includes a laboratory component.

**Prerequisites:** *BIO 110, BIO 161 or BIO 162*



**BIO 232 GENERAL ZOOLOGY (4 CR)***(Formerly BIO 152)*

A comparative study of the anatomical and evolutionary relationships of the major animal phyla with emphasis on development, structure and function of vertebrate systems. Course includes a laboratory component.

**Prerequisite:** *BIO 110, BIO 161 or BIO 162*

**BIO 253 HUMAN ANATOMY AND PHYSIOLOGY I (4 CR)**

This is the first course of a two-semester course sequence in which students study the anatomy and physiology of the human body. The course includes introductions to basic chemistry, biology and histology and extends to the survey of the integumentary, skeletal, muscular and nervous systems. This course includes a laboratory component in which students are responsible for performing dissections and making original observations on dissected material. The laboratory experience culminates with the use of a plastinated human specimen for observation. A strong background in biology and/or chemistry is highly recommended.

**Prerequisites:** *ENG 085\* and MAT 020\* or higher*

**BIO 254 HUMAN ANATOMY AND PHYSIOLOGY II (4 CR)**

This is the second course of a two-semester course sequence in which students study the anatomy and physiology of the human body. The course includes the autonomic nervous system, sensory, motor, and integrative systems, special senses, endocrine system, cardiovascular systems, lymphatic system and immunity, respiratory systems, digestive system, metabolism and nutrition, urinary system and reproductive systems. This course includes a laboratory component in which students are responsible for performing dissections and making original observations on dissected material. The laboratory experience culminates with the use of a plastinated human specimen for observation. Because physiological processes are based on the principles of chemistry, prior chemistry coursework is strongly recommended for this course.

**Prerequisite:** *BIO 253*

**BIO 258 FIELD ECOLOGY (5 CR)**

This course is designed to provide hands-on field research experiences in ecology and environmental science. Students will be introduced to quantitative field science methodology, natural history, current research issues, and will participate in data collection for ongoing research projects. The ecological concepts that underlie modern hypothesis tests in ecology will be explored through discussions, readings and field research activities. Conducting regionally based ecological projects with ecological mathematical methods are a major component of this course. People highly allergic to poison ivy, insects, molds or pollen need to take precautionary steps during field studies.

**Prerequisites:** *ENG 085\*, ENG 090\* and MTH 033\* or higher*

## Business (BUA)

**BUA 100 CONTEMPORARY BUSINESS (3 CR)***(Formerly BUS 131)*

As business speeds into the 21st century, new techniques, population shifts, and shrinking global barriers are altering the world at a frantic pace. Learn about the range of business careers available and the daily decisions, tasks and challenges that they face. Emphasis is placed upon developing a vocabulary of business terminology, teamwork, quality, social responsibility and cultural diversity. Understand how management, marketing, accounting, and human resource management work together to provide ethical competitive advantages for firms. This knowledge can help you enhance your career potential.

**Prerequisites:** *CIS 095\*, ENG 085\* and ENG 090\**

**BUA 111 PERSONAL FINANCE (3 CR)**

Provides a fundamental knowledge of financial concerns including financial services, stocks, bonds, budgeting, insurance, real estate, estate and tax planning, buying on credit, borrowing, saving, investing intelligently, and retirement. Analysis of personal objectives to financial planning will be discussed and put into practice.

**Prerequisites:** *CIS 095\*, ENG 085\* and ENG 090\**

**BUA 120 HUMAN RELATIONS IN BUSINESS (3 CR)**

Effective human relations are an indispensable tool in developing a successful professional presence in today's world. Topics include self-understanding, as well as the understanding of others, motivation, productivity, morale, conflict and change, stress, ethics, diversity, goal setting, the power of positive reinforcement, image building, emotional control, assertiveness, effective communication and different leadership styles.

**Prerequisites:** *CIS 095\*, ENG 085\* and ENG 090\**

**BUA 121 LEADERSHIP (3 CR)**

Both knowledge and behavior contribute to effective leadership skills needed to enhance the contribution of your team. Students explore topics including shared vision and values, team building, and decision making. You will study leadership theory in ways that encourage development of your leadership skills, including effective use of power and influence, motivational tools, personality assessment, team communication, role modeling, and performance appraisals.

**Prerequisites:** *CIS 095\*, ENG 085\* and ENG 090\**

**BUA 122 SUCCESSFUL SMALL BUSINESS (3 CR)**

Do you have what it takes to own your own business? Discover that, as well as sources of financing, forms of legal ownership, niche marketing, and most importantly, how to avoid business failure.

**Prerequisites:** CIS 095\*, ENG 085\* and ENG 090\*

**BUA 130 CUSTOMER SERVICE (3 CR)**

In the face of change, an uncertain economy, and intensive competition, the student will learn how to create an unexpected, highly evolving experience, to create customer loyalty and compelling word of mouth customers. The core element of service quality will be applied to both people-centered and technology-centered businesses, industries and organizations. The ultimate goal of this course is to help improve students' abilities to communicate effectively with internal and external customers.

**Prerequisites:** CIS 095\*, ENG 085\* and ENG 090\*

**BUA 131 EFFECTIVE SELLING (3 CR)**

This class covers the basic fundamentals of selling, adaptable to any product or potential customer. Skills learned include satisfying customer needs, recognizing individual motives for purchase, sales psychology, business etiquette and developing a long-term consultative relationship with customers. Persuasive sales presentations are developed and delivered using the steps of the selling process.

**Prerequisites:** CIS 095\*, ENG 085\* and ENG 090\*

**BUA 220 PRINCIPLES OF MANAGEMENT (3 CR)**

This management course exposes students to the dynamics of the changing world. Topics such as management functions/processes, quality, leadership styles, power, global issues, and the challenges and opportunities of diversity are included. Emphasis is placed on ethics, decision making, effective communication, evaluating employees, motivational tools, organizational design, environmental scanning, supervising groups, controlling quality, productivity improvement, managing change and conflict, labor relations and time management.

**Prerequisites:** CIS 095\*, ENG 085\* and ENG 090\*

**BUA 221 HUMAN RESOURCES MANAGEMENT (3 CR)**

Create and maintain a desirable and productive work place by applying management skills with emphasis on improving performance and career development. Topics include: employment law, recruitment and selection, placement techniques, interview methods, job analysis, staffing, training and development, performance appraisals, team building, benefit administration, government regulation, compensation systems, health and safety, and labor-management issues.

**Prerequisites:** CIS 095\*, ENG 085\* and ENG 090\*

**BUA 230 PRINCIPLES OF MARKETING (3 CR)**

Students analyze the marketplace to identify customer wants and needs and develop effective strategies to satisfy them. Emphasis is placed on research, marketing environments, strategic planning, buyer behavior, evaluating key competitors, and the marketing functions of product or service planning, pricing, promotion and distribution.

**Prerequisites:** CIS 095\*, ENG 085\* and ENG 090\*

**BUA 231 ADVERTISING, PROMOTION & PUBLIC RELATIONS (3 CR)**

Students study the principles and practices of numerous promotional tools used in marketing communications. Topics include creation of advertising, media strategies, message appeals, plus the use of specialty advertising, sales promotion and public relations to help sell goods, services and ideas.

**Prerequisites:** CIS 095\*, ENG 085\* and ENG 090\*

**BUA 245 INTERNSHIP/EXTERNSHIP (3 CR)**

Students will have meaningful work experience with an appropriate company. The company and job must be approved by the supervising faculty member.

**BUA 250 BUSINESS LAW I (3 CR)**

This course offers an introduction to law and the legal system, dispute resolution and courts, business ethics, torts, contracts, sales and leases of goods, and negotiable instruments.

**Prerequisites:** CIS 095\*, ENG 085\* and ENG 090\*

**BUA 251 BUSINESS LAW II (3 CR)**

The student will learn the law governing the forms of business organization, including agency, partnerships, corporations, and real and personal property.

**Prerequisite:** BUA 250

**BUA 315 INNOVATION, BRANDING, AND STRATEGIC MARKETING (3 CR)**

Students will analyze methods for creating innovative product and service offerings as part of an overall brand strategy for a hospitality establishment. This course will equip students with analytical tools used in developing brands to capture market share and adapt to ever-changing consumer preferences. A robust brand strategy aligns with an organization's internal systems and culture. As a result, students will adopt the perspective of senior managers, considering the importance of team building, market research/product testing, competitive analysis, quality control/consistency, outsourcing, and complying with legal/regulatory requirements.

**Prerequisite:** BUA 230 and CUL 100

**BUA 420 PROJECT MANAGEMENT AND LEADERSHIP (3 CR)**

Students will experience and complete the entire project management process, from start to finish. Each student will create a project proposal, develop scope definitions, determine schedule, allocate resources, establish cost predictions, manage risk and critical path threats, communicate with stakeholders, close out and document the project. Additional topics include building and leading project teams, utilizing industry project management software, and following the Project Management Body of Knowledge (PMBOK) framework.

**Prerequisites:** *PHL 232, CIS 101\* or CIS 201\*, ENG 131, and MAT 131\* or higher*

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## Computer Assisted Drafting (CAD)

**CAD 151 AUTOCAD 1 (3 CR)**

This course covers the applications in which the phases of computer graphics are involved. A general introduction to drafting application will be presented. Recommended: Windows® and blue print reading experience.

**Prerequisite:** *MFG 105 and ENG 085\**

**CAD 251 AUTOCAD II (3 CR)**

This is a second level CAD-based design course that will expand the student's knowledge of 3D CAD modeling, 3D assemblies, and more complex CAD based designs. 3D Stereolithographic printers and other prototyping equipment will be used to construct design projects.

**Prerequisite:** *CAD 151*

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## Climate Control Technology (CCT)

**CCT 121 INTRODUCTION TO HVAC (3 CR)**

The course will introduce the student to a variety of professions and work opportunities in the HVAC field. Students will also review the tools of the trade, safety practices, a basic introduction to components of heating and air conditioning equipment, heat transfer, psychometrics and air quality.

**Prerequisite:** *ENG 085\**

**CCT 160 FUNDAMENTALS OF ENERGY EFFICIENCY (2 CR)**

*(Same as ALT 210)*

This course will explore the fundamentals of designing and maintaining an energy efficient building to reduce a homeowner or business's cost of utilities. Students will learn techniques to identify wasted energy and the methods needed to modernize an energy inefficient home.

**Prerequisites:** *ENG 085\* and MAT 020\* or higher*

**CCT 162 ENERGY AUDIT TECHNIQUES (3 CR)**

*(Same as ALT 215)*

This course will explore the necessary knowledge and skills to conduct a building energy audit. The class will learn how to operate the latest building science technology and equipment to identify heating, cooling, base load, and air leakage problems in a building.

**Prerequisites:** *CCT 160 and MAT 033\* or higher*

**CCT 165 GEOTHERMAL ENERGY & SYSTEMS (2 CR)**

*(Same as ALT 260)*

This course will explore the basics of geothermal energy production, theory and technology. Residential system installation, maintenance, and problem diagnosis will also be covered.

**Prerequisites:** *CCT 121 and CCT 131 or ELT 120*

**CCT 167 SOLAR THERMAL ENERGY & SYSTEMS (2 CR)**

*(Same as ALT 265)*

This course will explore the basics of solar thermal energy technology and application. The class will also cover system installation, maintenance and problem diagnosis.

**Prerequisites:** *CCT 121 and CCT 131 or ELT 120*

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## Chemistry (CEM)

**CEM 131 FUNDAMENTALS OF CHEMISTRY (4 CR)**

Fills requirement for some non-science majors. Provides background for CEM 141 for those with no recent high school chemistry. Fundamental principles of chemistry such as states of matter, simple atomic and molecular structure, and the periodic classification of elements. The study of water emphasizes the properties of solutions and acid-base relations. Course includes a laboratory component.

**Prerequisites:** *ENG 085\* and MAT 033\* or higher*

*\* You may meet this prerequisite based on your course placement, ACT score or successful college coursework. Visit [www.jccmi.edu](http://www.jccmi.edu) for current assessment options and requirements.*

**CEM 132 FUNDAMENTALS OF ORGANIC & BIOLOGICAL CHEMISTRY (4 CR)**

This course is an extension of material covered in CEM 131. It is required in many bachelor's degree programs, including nursing. Organic topics include the structure, physical properties and chemical behavior of the major classes of organic compounds. The structure, function, formation and reactions of carbohydrates, fats, proteins, and nucleic acids are covered, including enzymes, chemical messengers and biochemical energy production. Course includes a laboratory component.

**Prerequisite:** CEM 131 or CEM 141

**CEM 141 GENERAL CHEMISTRY I (5 CR)**

This course is required for most sciences, engineering, and pre-professional health majors. Students who are required to take organic chemistry for their major should enroll in CEM 141 during their first semester. Topics include atomic and molecular structure, periodicity, chemical bonding, states of matter, kinetic molecular theory and stoichiometry. Course includes a laboratory component.

**Prerequisites:** CIS 095\*, ENG 085\*, ENG 090\* and MAT 131\* or higher

**CEM 142 GENERAL CHEMISTRY II (5 CR)**

This course is the second semester of general chemistry and extends material covered in CEM 141. Covered concepts include chemical thermodynamics, electrochemical reactions, reaction kinetics, acid-base theories, nuclear chemistry, and aqueous solutions with emphasis on equilibrium. Experiments include quantitative methods, stoichiometry, colorimetry and gravimetric analysis. Course includes a laboratory component.

**Prerequisite:** CEM 141

**CEM 241 ORGANIC CHEMISTRY I (5 CR)**

Comprehensive study of the major classes of organic compounds, their structures and reactions. The stereo-chemical properties and spectra (IR and NMR) of molecules and their mechanisms of reactions are stressed. The laboratory experiments demonstrate techniques used in organic reactions, syntheses illustrating types of reactions, analysis of major classes of compounds, and kinetic studies.

**Prerequisite:** CEM 142

**CEM 242 ORGANIC CHEMISTRY II (5 CR)**

A continuation of CEM 241. Course includes a laboratory component.

**Prerequisite:** CEM 241

## Computer Information Systems (CIS)

**CIS 090 COMPUTER BASICS (2 CR)**

This course introduces basic computer concepts and components. Topics include beginning computer concepts, identifying hardware, understanding software, using Windows® operating system, learning the keyboard, understanding the World Wide Web and conducting Internet searches, and introduction to e-mail communication. Students will apply concepts to real-life scenarios through active-learning strategies.

**CIS 095 COMPUTER LITERACY (2 CR)**

This course covers computer concepts, storage media, file management, word processing, online learning systems, e-mailing with attachments, and keyboarding. Students will apply concepts to real-life scenarios through active-learning strategies.

**Prerequisites:** CIS 090\*

**CIS 101 INTRODUCTION TO COMPUTER SYSTEMS (3 CR)**

Enhance computer knowledge. Course covers computer system concepts with an emphasis on several software applications. Typing ability necessary to be successful in this class.

**Prerequisites:** CIS 095\*, ENG 085\*, ENG 090\* and MAT 020\* or higher

**CIS 103 LEARNING THE KEYBOARD (1 CR)  
(Formerly CIS 010)**

Learn keyboard fundamentals for success in computer-related programs. The students learn proper finger placement and key locations on a microcomputer.

**CIS 104 KEYBOARD SPEED/ACCURACY (1 CR)  
(Formerly CIS 011)**

At course entry your keyboarding speed and accuracy is measured. A diagnosis of your specific keyboarding problem is made. Your skill improvement goals will be established and appropriate practice lessons selected. Periodic program check timings will be administered to measure your progress.

**CIS 105 MICROSOFT® WINDOWS® WORKSHOP (1 CR)  
(Formerly CIS 012)**

This course provides a basic introduction to Microsoft® Windows®. The fundamentals of Microsoft Windows will be covered which include the start menu, desktop, launching an application program and using help and support. File and folder management, control panel and using the taskbar will be introduced.

**CIS 106 OPERATING SYSTEM: UNIX (1 CR)***(Formerly CIS 013)*

This course is an overview of the UNIX operating system, commands, batch files and other basic topics. Typing ability is necessary to be successful in this course.

**CIS 107 MICROSOFT® DOS® WORKSHOP (1 CR)***(Formerly CIS 016)*

Learn the IBM® (or equivalent) personal computer and its components. This course covers the operating systems background, Disk Operating System (DOS®) commands, tree structure, EDLIN, Microsoft® - DOS®.

**CIS 110 KEYBOARDING/DOCUMENT PROCESSING (3 CR)**

Students are introduced to the computer keyboard and are given instruction in proper typing technique. Student are also introduced to basic Microsoft® Word® operations to create business letters and envelopes, business and academic reports, tables and other business and academic related documents.

**Prerequisite:** CIS 095\*

**CIS 111 INTERMEDIATE KEYBOARD/TYPING (3 CR)**

Learn production typing including tables, letters, manuscripts, reports, and business forms. Students learn on microcomputer using word processing software. Advanced word processing functions are included.

**Prerequisite:** CIS 110

**CIS 112 MICROSOFT® OFFICE® PROFESSIONAL INTRODUCTION (3 CR)**

Introduction and skill development in the four applications of Microsoft® Office® (Microsoft® Word®, Excel®, Access®, PowerPoint®), plus the full integration of all four packages.

**CIS 114 MICROSOFT® WORD WORKSHOP-WINDOWS® (1 CR) (Formerly CIS 020)**

Learn to process documents using Microsoft® Word®, including letters, memos and reports. Typing ability is necessary to be successful in this course.

**CIS 115 MICROSOFT® EXCEL® WORKSHOP-WINDOWS® (1 CR) (Formerly CIS 021)**

Create business applications using the Excel® spreadsheet within the Windows® graphical user interface (GUI). This course covers basic commands, cell ranges, formulas, and mathematical, financial and statistical functions.

**CIS 117 MICROSOFT® OUTLOOK® WORKSHOP (1 CR)***(Formerly CIS 024)*

Learn to use Outlook® components to create and use the calendar feature to schedule meetings and multiple day events, establish a "contacts" database, keep journals, notes and use the task manager for prioritizing jobs. This is an optional component of the Microsoft® Office® User Specialist Expert certification tests. Typing ability necessary to be successful in this course.

**CIS 118 MICROSOFT® PUBLISHER® WINDOWS® (2 CR)**

This course presents design techniques and the proper procedures necessary to create electronic documents in Microsoft® Publisher®. Students explore the use of Publisher's® extensive design templates to create documents such as flyers, brochures and newsletters. Publications are also created from scratch. An emphasis is placed on good design principles and the creative aspects of desktop publishing.

**Prerequisites:** ENG 085\* and ENG 090\*

**CIS 119 MICROSOFT® POWERPOINT® - WINDOWS® (2 CR)**

Students will learn how to create electronic presentations using design templates, slide layouts, the outline tab, clip art, from other programs such as Microsoft® Word® and how to enhance slideshows with visual elements in presentation formats. Student will also learn how to create presentations for the web, self-running presentations, presentations containing interactive documents and how to collaborate work groups. Keyboarding skills are essential.

**Prerequisites:** ENG 085\* and ENG 090\*

**CIS 120 MICROSOFT® WORD® COMPREHENSIVE - WINDOWS® (3 CR)**

Produce, store and revise letters, memos, tables and reports using Microsoft® Word®. Headers, footers, mail merge, document assembly, grammar and spell checker, thesaurus, and outlining are covered. Keyboarding skills are essential.

**Prerequisites:** ENG 085\* and ENG 090\*

**CIS 121 MICROSOFT® EXCEL® COMPREHENSIVE - WINDOWS® (3 CR)**

Learn Excel® components: charts, creating workbooks, using drawing tools, formatting and auditing worksheets, functions, Internet and intranet documents, modifying and printing workbooks, ranges, database queries, importing and exporting data, macros, working with multiple workbooks, working with existing and creating new templates, and advanced workgroup functions. Keyboarding skills are essential.

**Prerequisites:** ENG 085,\* ENG 090\* and MAT 020\* or higher

\* You may meet this prerequisite based on your course placement, ACT score or successful college coursework. Visit [www.jccmi.edu](http://www.jccmi.edu) for current assessment options and requirements.



**CIS 122 MICROSOFT® ACCESS® COMPREHENSIVE - WINDOWS® (3 CR)**

Planning, creating and displaying databases, sorting and report preparation, data entry screens, data validation and selection, and multiple file operations. Keyboarding skills are essential.

**Prerequisites:** *ENG 085,\* ENG 090\* and MAT 020\* or higher*

**CIS 125 MICROSOFT® EXPRESSIONS® WEB (1 CR)**

This course will show how to create web sites with the Microsoft® Expressions® Web program. Topics will include how to create a web site, managing and publishing a web site, and how to use views, table and frames. Previous keyboarding experience is necessary to be successful in this course.

**Prerequisite:** *CIS 095\**

**CIS 126 DIGITAL DESIGN FUNDAMENTALS (3 CR)**

Students explore fundamental methods used to compose persuasive digital layouts. Strategies in aesthetics, personal methodology, industry-standard practices are performed with the intent to deliver a clear, unique and proficient message.

**Prerequisites:** *MAT 131 or higher, and ENG 085\*, and ENG 090\**

**CIS 127 INTRODUCTION TO CREATIVE SOFTWARE (3 CR)**

Understanding the full potential and limitations of software is essential to the success of graphic design students. Introduction to Creative Software is an entry-level course that takes the student who is new to graphic design and creative careers into this dynamic industry and lets them explore common software used.

**Prerequisites:** *ENG 085\**

**CIS 128 TYPOGRAPHY & LAYOUT (3 CR)**

Learn principles of type identification, selection and use in the professional rendering of comprehensive layouts. Utilization of tools, materials, and techniques of rendering emphasized.

**Prerequisite:** *CIS 095\**

**CIS 129 INTRODUCTION TO PRODUCTION FOR THE DESIGNER (3 CR)**

This course introduces the graphic design student to the fundamentals of production printing processes.

**Prerequisite:** *ENG 085\**

**CIS 131 METHODS IN 3-D PROTOTYPING (1 CR)**

Students propose concept development and build three-dimensional product mock-ups. Dexterity, craftsmanship and implementation using innovative logistical methods are practiced and delivered.

**Prerequisite:** *ENG 085\**

**CIS 132 GRAPHIC ILLUSTRATION (ADOBE® ILLUSTRATOR®) (3 CR)**

Learn how to create professional looking illustrations using Adobe® Illustrator®. This course introduces student to techniques used by professional designers and illustrators.

**Prerequisite:** *CIS 095\**

**CIS 133 BRAND IDENTITY DESIGN (1 CR)**

This course introduces students to common contemporary practices of corporate brand identity design. Review and discussion of brand-building concepts are researched and analyzed.

**Prerequisite:** *ENG 085\**

**CIS 134 GRAPHIC IMAGING (ADOBE® PHOTOSHOP®) (3 CR)**

Learn the intricacies of scanning and editing images for producing practical and expressive images on a computer using Adobe® Photoshop® software.

**CIS 135 OPEN SOURCE WEB DESIGN (1 CR)**

This course will explore several open source web design software programs available, their risks and advantages in the web development arena. Students will create an eCommerce website, learn to manage the site using open source utilities available and discover strategies for security of website information and eCommerce transactions.

**CIS 136 INTEGRATED DESIGN I (ADOBE® INDESIGN®) (3 CR)**

Learn the basics of desktop publishing using Adobe® InDesign®. Students use computers and laser printers to create professional-looking publications that incorporate illustrations and bitmap graphics.

**Prerequisite:** *CIS 095\**

**CIS 137 DIGITAL PHOTOGRAPHY I (3 CR)**

*(Same as ART 137)*

This course demonstrates how to use and handle a digital camera, capturing the image, editing and processing images for output — such as printing, or preparing images for upload to the Internet for websites or social media platforms. The class will include techniques and instruction on layout, composition, rules of design, history of photography, and Photoshop® or image altering program applications.

*\* You may meet this prerequisite based on your course placement, ACT score or successful college coursework. Visit [www.jccmi.edu](http://www.jccmi.edu) for current assessment options and requirements.*

**CIS 138 IMAGE EDITING APPLICATIONS (1 CR)**

Students will be exposed to current applications and technical aspects of image manipulation in a variety of contexts. They will become familiar with applications through research, demonstrations and structured exercises as well as open-ended assignments.

**Prerequisite:** ENG 085\*

**CIS 143 HTML (2 CR)**

Create web pages using HTML. Students will learn techniques and strategies to build and promote successful web pages. Features such as columns, frames, image maps and META tags will be covered in this course.

**Prerequisite:** CIS 095\*

**CIS 147 WEB PAGE DESIGN I (DREAMWEAVER®) (1 CR) (Formerly CIS 045)**

This course covers the fundamental concepts of web page design using Adobe® Dreamweaver®. This course will instruct students in all the basic functions of Adobe® Dreamweaver® in regards to understanding how to get a website up and running.

**Prerequisite:** CIS 095\*

**CIS 158 PROGRAMMING LOGIC (3 CR)**

Students explore the development of the logic and theory for writing business programs that control the operation of a computer. Course covers the development of both structured design and object-oriented design. Topics include control structures, arrays, data validation, testing and debugging.

**Prerequisite:** CIS 095\*

**CIS 160 PROGRAMMING IN VISUAL BASIC.NET (3 CR)**

This course introduces students to principles and concepts of programming in a Windows® environment using the Visual Basic.NET programming language. Students learn to develop business applications by designing and creating a user interface and writing the necessary procedures using both structured and object-oriented design. Topics covered include objects, variables, menus, arrays, file input/output, OLE methods, and debugging. Recommended computer programming majors take CIS 158 prior to this course.

**Prerequisites:** CIS 095\* and MAT 020\* or higher

**CIS 165 JAVA PROGRAMMING (3 CR)**

Students use procedural and object-oriented programming capabilities to design, develop, and test computer programs. Topics covered include control structures, methods, object-oriented programming, classes, applets and user interfaces.

**Prerequisites:** CIS 095\* and MAT 033\* or higher

**CIS 170 PROGRAMMING IN C++ (3 CR)**

*(Same as CPS 177)*

Students study digital computing systems and how they are used to solve problems. Students use procedural and object-oriented programming capabilities to design, develop, and test computer programs. Topics covered include program development, functions, control structures, text file operations, classes, recursion, arrays and pointers.

**Prerequisites:** CIS 095\* and MAT 033\* or higher

**CIS 171 3D MODELING I (4 CR)**

Students will begin learning the basic low polygon modeling techniques. Special emphasis on character design and environmental modeling will be the key to this class along with a flow into topics of human topology. This course is perfect for an artist or a technical-minded individual.

**Prerequisite:** CIS 095\*

**CIS 172 LIGHTING AND TEXTURING (4 CR)**

Students will learn how to set up 3D environments, dynamic and static lighting and be able to use mappings to manipulate that light on a 3D surface. Material and surface terminology will also be taught. Students will be introduced to 2D matte painting techniques for environmental backdrops.

**Prerequisite:** CIS 171

**CIS 173 ANIMATION I (4 CR)**

This core class of animation introduces students to moving and animation 3D characters. Using industry standard software, students will translate muscle and bone structure. Various character rigs will be introduced so that the 3D characters will move in both forward and inverse kinematics.

**Prerequisite:** CIS 171

**CIS 174 PC REPAIR/A+ HARDWARE COMPONENT (3 CR)**

Course covers basic computer theory, logic, technological evolution, fundamental PC components, I/O peripheral identification, implementation, functionality, and printer fundamentals/types/diagnostics/troubleshooting/basic repair.

**CIS 175 PC REPAIR/A+ SOFTWARE COMPONENT (3 CR)**

Students gain familiarization with basic DOS functionality and manipulation for diagnostics, troubleshooting and repair with Windows® O/S. Installation, configuration, troubleshooting, diagnostics, upgrade familiarity with necessary Microsoft® product for A+ certification.

**Prerequisite:** CIS 174

**CIS 176 A+ CERTIFICATION EXAM PREPARATION (1 CR)**

Focus on A+ core exam module component essentials/fundamentals, includes real-time test environment and materials.

**Prerequisite:** CIS 175

**CIS 179 NETWORK+ CERTIFICATION EXAM PREPARATION (1 CR)**

Focus on Network+ core exam module component essentials/fundamentals to include real-time test environment and materials.

**Prerequisite:** CNS 101

**CIS 201 ADVANCED INFORMATION TECHNOLOGIES (3 CR)**

*(Same as ECM 201)*

This course enhances electronic communication skills and computer concepts essential to using current advanced information technologies. Topics include web collaboration, web conferencing, web 2.0 applications, social media, mobile computing, file conversions and cross-platform compatibility.

**Prerequisites:** ENG 085\*, ENG 090\* and CIS 101\*

**CIS 203 INTRODUCTION TO PROBABILITY & STATISTICS (4 CR)**

*(Same as MAT 133 and PSY 144)*

This course is an introduction to experimental design, data representation, basic descriptive statistics, probability theorems, frequency distributions and functions, binomial and normal probability distributions and functions, probability density functions, hypothesis testing, statistical inference, Chi-square analysis, linear regression, correlation and application of the above in making informed, data-driven decisions in real-world contexts. Both graphing calculators and computer-based statistical software (Microsoft® Excel®) will be used. If the prerequisite is more than two years old, then the mathematics department recommends the course placement exam be taken or the prerequisite be retaken to ensure the success of the student.

**Prerequisite:** MAT 033\* or MAT 130\* or higher

**CIS 210 OFFICE ADMINISTRATION SYSTEMS (4 CR)**

Develop and integrate administrative support skills in communication, information technologies, administrative procedures and problem solving. Topics include: records management, information/communication systems, including electronic, space management and ergonomics, quality and productivity improvement techniques, meeting/travel planning, records preparation/presentation and employment skills. Keyboarding skills are essential.

**Prerequisite:** CIS 120

**CIS 230 PRACTICUM IN PRINTING (4 CR)**

Students receive hands-on introduction on how screen and offset printing works. The class will be project-oriented.

**Prerequisite:** CIS 101\*

**CIS 232 INTEGRATED DESIGN II (ADOBE® INDESIGN®) (3 CR)**

Students will design creative publications via Adobe® InDesign® while integrating designs from Adobe® Photoshop® and Illustrator®. Topics in this class include: page layouts, styles, layers, color separation and interactive PDFs.

**Prerequisites:** CIS 128 and CIS 132 or CIS 136

**CIS 234 GRAPHIC TECHNOLOGY APPLICATIONS (3 CR)**

Students prepare for career opportunities by defining areas of employment and identifying prospective employers in the graphic design profession. Students also create a professional portfolio to be used for employment interview purposes.

**Prerequisites:** CIS 128 and CIS 132

**CIS 237 DIGITAL PHOTOGRAPHY II (3 CR)**

*(Same as ART 237)*

This course provides the opportunity to refine and extend the skills of photographic seeing. Personal skills in digital photography will be used to explore a complete body of work. Students will be using Photoshop® CS5 to edit and explore their creative outlets further. Students' individual personal goals will be set and executed during the semester.

**Prerequisite:** ART 137 or CIS 137

**CIS 243 WEB ANIMATION (3 CR)**

Design fully interactive sites using Adobe® Flash®. Students will draw vector graphics, use key tools to produce animations, and create an activity that drives dynamic web sites. Students will also produce multimedia presentations.

**Prerequisites:** CIS 101\* and CIS 143

**CIS 244 WEB PROGRAMMING (3 CR)**

Students will learn to design and maintain interactive and dynamic web applications within a server-based scripting environment.

**Prerequisites:** CIS 101\*, CIS 143 and CIS 158

**CIS 245 INTERNSHIP/EXTERNSHIP (3 CR)**

This course will provide comprehensive work experience to assist students in the development of essential skills to be successful in a chosen career. The position must be obtained by the student and approved by the department before registration is permitted.

**Prerequisite:** Instructor permission required

**CIS 246 WEB INTEGRATION WITH DATABASES (3 CR)**

Students will experience different approaches for creating web pages that interact with databases. This course will define how web sites are being used to support electronic commerce applications.

**Prerequisites:** CIS 101\*, CIS 122 and CIS 244

**CIS 247 WEB PAGE DESIGN II (DREAMWEAVER®) (3 CR)**  
(Formerly CIS 145)

This course covers advanced concepts of web page design using Dreamweaver®. This course will teach students advanced design techniques to add efficiency, interactivity, and visual interest to their Internet web site.

**Prerequisite:** CIS 147

**CIS 260 ADVANCED VISUAL BASIC.NET (3 CR)**

Further study of Visual Basic.NET. Students learn the advanced features of Visual Basic including writing relational database programs, web services, data structures and user controls.

**Prerequisite:** CIS 160

**CIS 270 ADVANCED C++ PROGRAMMING (3 CR)**

Hands-on programming course using the Visual C++ language. Object-oriented programming concepts, input handling, the Microsoft® Foundation Class, and using the Windows® programming interface with Visual C++ tools are some of the topics discussed.

**Prerequisite:** CIS 170

**CIS 271 3D MODELING II (4 CR)**

This course builds from the previous 3D modeling course. Students will design characters with even greater detail and polygon levels that reach over a million. Topics of human anatomy, muscle structure and topology will be introduced.

**Prerequisite:** CIS 171

**CIS 272 COMPUTER GAMING FUNDAMENTALS (3 CR)**

Game engine fundamental workflows will be introduced from a design perspective. Using a pre-made game engine, students will import static and animated props into an environment to create maps and levels.

**Prerequisites:** CIS 172, CIS 173 and CIS 271

**CIS 273 SYSTEMS CONCEPTS AND DESIGN (3 CR)**

Students will design a system, prepare the related documentation and required programs, using an existing business as a model. Course covers flow charting a system, defining problems, and preparing new forms. Students determine a desirable file structure.

**Prerequisites:** CIS 101\* and CIS 160 or CIS 165 or CIS 170

## Communications (COM)

**COM 231 COMMUNICATION FUNDAMENTALS (3 CR)**

(Formerly SPH 231)

Students will learn the basic principles of speech communication including speech development and delivery, interpersonal message, non-verbal messages, and small group dynamics. The course is designed to prepare students to be effective communicators in a diverse global society. Student speeches will be evaluated for effectiveness.

**Prerequisites:** ENG 085\* and ENG 090\*

**COM 233 ARGUMENTATION & DEBATE (3 CR)**

Students are provided theory and practice in debate, emphasizing principles of research, logical reasoning, and oral presentation of reasoned discourse in group situations.

**Prerequisite:** COM 231

**COM 234 PUBLIC ADDRESS (3 CR)**

(Formerly SPH 234)

Explore the role of the speaker, audience, occasion and the message. Opportunities are offered for participation in all general purposes of speech plus some special occasion speeches. Delivery methods are impromptu, extemporaneous, manuscript and memorized. Outlining, organization, delivery technique and other theories of public address stressed.

**Prerequisites:** ENG 085\* and ENG 090\*

**COM 240 INTERPERSONAL COMMUNICATION (3 CR)**

(Formerly SPH 240)

Students will learn to improve communication in one-on-one and small group situations. In this course, students will examine basic verbal and non-verbal elements affecting communication between individuals in family, peer group and work contexts. Specific units of discussion include intrapersonal perspective, conflict resolution, self-disclosure, message generation, intercultural messages and non-verbal communication.

**Prerequisites:** ENG 085\* and ENG 090\*

**COM 250 INTERCULTURAL COMMUNICATION (3 CR)**

(Students cannot receive credit for both COM 250 and COM 350)

This course will explore how diverse cultural orientations influence the way we perceive and interact with an increasingly culturally diverse world. We will discuss the causes of intercultural conflicts in different communication settings (interpersonal, small group, school, workplace and global) and how to manage them effectively.

**Prerequisites:** ENG 085\* and ENG 090\*

**COM 251 INTERCULTURAL COMMUNICATION - IMMERSIVE (3 CR)**

This course will explore how diverse cultural orientations influence the way we perceive and interact with an increasingly culturally diverse world. We will discuss the causes of intercultural conflicts in different communication settings (interpersonal, small group, school, workplace and global) and how to manage them effectively. This course will include a mandatory travel study experience organized by Jackson College

**Prerequisites:** ENG 085\* and ENG 090\*

**COM 350 INTERCULTURAL COMMUNICATION FOR MANAGEMENT (3 CR)**

*(Students cannot receive credit for both COM 250 and COM 350)*

This course will explore how diverse cultural orientations influence the way we perceive and interact with an increasingly culturally diverse world. We will discuss the causes of intercultural conflicts in different communication settings (interpersonal, small group, school, workplace and global) and how to manage them effectively. This course is tailored for those students seeking management/leadership positions and the unique needs of cross-cultural communication in those areas.

**Prerequisites:** COM 231 or 240 and ENG 131

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## Computer Networking and Security (CNS)

**CNS 101 NETWORK FUNDAMENTALS/NETWORK+ (4 CR)**

This course introduces students to fundamental networking concepts and technologies. It is the first of four courses that help prepare students for the Cisco CCNA certification exam. The course materials will assist in developing the skills necessary to plan and implement small networks across a range of applications. It also helps prepare the student for the CompTIA Network+ certification exam.

**Prerequisites:** ENG 085\* and ENG 090\*

**CNS 102 ROUTING PROTOCOLS & CONCEPTS (3 CR)**

This course is the second of four courses that help prepare students for the Cisco CCNA certification exam. It covers the routing concepts introduced in CNS 101. The goal is to develop an understanding of how a router learns about remote networks and determines the best path to those networks. This course includes both static routing and dynamic routing protocols.

**Prerequisite:** CNS 101

**CNS 103 LAN SWITCHING & WIRELESS (3 CR)**

This course is the third of four courses that help prepare students for the Cisco CCNA certification exam. It covers the switching and wireless concepts introduced in CNS 101 in more depth. The goal is to develop an understanding of how switches are interconnected and configured to provide network access to LAN users. This course also teaches how to integrate wireless devices into a LAN.

**Prerequisite:** CNS 101

**CNS 104 ACCESSING THE WAN (3 CR)**

This course is the fourth of four courses that help prepare students for the Cisco CCNA certification exam. It covers the WAN concepts introduced in the CNS 101 in more depth. The goal is to develop an understanding of various WAN technologies to connect small to medium business networks. It focuses on WAN technologies including PPP, Frame Relay and broadband links.

**Prerequisite:** CNS 101

**CNS 121 MICROSOFT® NETWORKING CLIENT I (3 CR)**

This course will help students gain the knowledge and skills required to configure Windows® Vista® for optimal performance on the desktop. This course focuses on installing the client software, migrating from previous versions of the Microsoft® Windows® client, and configuring systems settings, security features, network connectivity, communications and media applications, and mobile devices.

**Prerequisites:** ENG 085\* and ENG 090\*

**CNS 122 MICROSOFT® NETWORKING CLIENT II (3 CR)**

This course covers how Windows® Vista® is used in a medium to large enterprise. It focuses on the various technologies used to deploy and manage the operating system, including Windows® Image Manager, Windows PE, Group Policy, User Account Control and Encrypted File System.

**Prerequisite:** CNS 121

**CNS 123 MICROSOFT® NETWORKING SERVER I (3 CR)**

This course covers installing Windows® Server 2008, configuring remote access, Network Access Protection (NAP), network authentication, IPv4 and IPv6 addressing and Domain Name System (DNS) replication: capturing and deploying Microsoft® Windows® Deployment Services images; creating virtual machines; and installing server core.

**Prerequisites:** CNS 121

\* You may meet this prerequisite based on your course placement, ACT score or successful college coursework. Visit [www.jccmi.edu](http://www.jccmi.edu) for current assessment options and requirements.



**CNS 124 MICROSOFT® NETWORKING SERVER II (3 CR)**

This course covers planning Windows® Server 2008 roles; maintain server security; planning data storage, network load balancing, and server backups; managing software deployment and versions; monitoring IPv6, server performance and capacity, and AD replication; scheduling server deployments; and designing a rollback contingency plan.

**Prerequisite:** CNS 123

**CNS 125 MICROSOFT® DIRECTORY SERVICES (3 CR)**

This course covers configuring, managing and supporting user and computer accounts, groups, Domain Name System zones and clients settings; group policy objects; the new Active Directory® Lightweight Directory Service and Active Directory Rights Management Service; backup and recovery; and communication security.

**Prerequisites:** CNS 123

**CNS 128 POWERSHELL SCRIPTING FOR NETWORK ADMINISTRATORS (3 CR)**

Students will develop the knowledge and skills to utilize Microsoft® PowerShell to automate common administrative tasks on a Microsoft® network. This course assumes no prior programming skills.

**Prerequisite:** CNS 121 or CNS 123

**CNS 131 LINUX ADMINISTRATION I (3 CR)**

This course introduces Linux to experienced computer users and to those with a basic knowledge of computers. Students will install and configure a distribution of Linux. They will learn to use a command line shell and a GUI to manage the file system, create user and group accounts, and manage file permissions. This course will cover how to set up a Linux system on a TCP/IP network, bash shell concepts, printing and installing programs Linux.

**Prerequisites:** ENG 085\* and ENG 090\*

**CNS 132 LINUX ADMINISTRATION II (3 CR)**

In this course, the student will learn how to implement, configure and troubleshoot Linux, particularly as a network server. The student will configure Linux to provide DNS, DHCP, as a firewall and basic routing functions. The student will set up and secure the Apache web service and set up Linux to provide e-mail service. They will also set up Linux to interoperate within a Microsoft® Active Directory environment.

**Prerequisite:** CNS 131

**CNS 141 WIRELESS NETWORKING (3 CR)**

This course introduces the basic concepts of wireless networking. Students will work with various types of equipment needed to set up and maintain local wireless networks of various sizes. Considerable emphasis will be placed on how to secure access to and the information that travels across wireless networks.

**Prerequisite:** CNS 101

**CNS 201 NETWORK SECURITY/SECURITY+ (3 CR)**

The student will be introduced to computer network vulnerabilities and threats and how to safeguard computer networks from those vulnerabilities and threats. This course will expose the student to network security planning, network security technology, network security organization and the legal and ethical issues associated with network security. In this course, students will learn the skills necessary for Security+ certification.

**Prerequisite:** CNS 131

**CNS 221 SECURING MICROSOFT® NETWORKS (3 CR)**

This course will cover how to protect your Windows®-based clients, server roles, networks, and Internet services. Students learn how to plan and implement comprehensive security with special emphasis on new Windows® security tools, security objects, security services, user authentication and access control, network security, application security, Windows® Firewall, Active Directory® security, group policy, auditing and patch management.

**Prerequisite:** CNS 123

**CNS 231 FIREWALL INTRUSION DETECTION (3 CR)**

This course will cover how to install, configure and manage network and host-based firewalls. It will cover how to set up and configure popular network-based firewalls and host-based firewalls with various operating systems. It will instruct the students how to set up both network- and host-based intrusion detection systems to determine if and when a network or system has been breached.

**Prerequisite:** CNS 201

**CNS 232 COMPUTER FORENSICS I (3 CR)**

This course deals with the preservation, identification, extraction, documentation and interpretation of computer data. Topics covered include evidence handling, chain of custody, collection, preservation, identification and recovery of computer data.

**Prerequisite:** CNS 201

**CNS 233 HACKER TECHNIQUES AND INCIDENT HANDLING (3 CR)**

Introduces common computer and network hacking techniques. With a sound understanding of how hackers can compromise computers and computer networks you will learn how to identify when an incident has happened, how to respond in a comprehensive manner, and what steps to take to protect yourself in the future.

**Prerequisites:** CNS 131 and CNS 201

**CNS 234 ETHICAL HACKING (3 CR)**

This course introduces the concept of ethical hacking and how to perform penetration tests of computer networks. In hands-on labs an emphasis will be placed on how to use tools to discover weaknesses in computer networks and how to improve the defenses of those networks against malicious attacks.

**Prerequisite:** CNS 201

**CNS 235 PACKET ANALYSIS AND NETWORK FORENSICS (3 CR)**

Students utilize common packet sniffing tools, intrusion detection tools and packet analysis tools to determine if malicious activity is occurring on a network. They learn details about how network protocols can be abused by hackers. They find how network connection logging provides a valuable source of evidence.

**Prerequisite:** CNS 231

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## Computer Science (CPS)

**CPS 177 PROGRAMMING IN C++ (3 CR)**

*(Same as CIS 170)*

Students study digital computing systems and how they are used to solve problems. Students use procedural and object-oriented programming capabilities to design, develop and test computer programs. Topics covered include program development, functions, control structures, text file operations, classes, recursion, arrays and pointers.

*\* You may meet this prerequisite based on your course placement, ACT score or successful college coursework. Visit [www.jccmi.edu](http://www.jccmi.edu) for current assessment options and requirements.*

## Criminal Justice (CRJ)

**CRJ 101 CRIMINAL LAW (3 CR)**

This course covers both substantive and procedural law at local, state and federal levels. Special emphasis given to the Michigan Penal Code and landmark court decisions.

**Prerequisite:** ENG 085\*

**CRJ 102 CRIMINAL INVESTIGATION (3 CR)**

This course covers the fundamentals of criminal investigation, theory and practice, from crime scene to courtroom, with emphasis on techniques appropriate to specific crimes.

**Prerequisite:** ENG 085\*

**CRJ 104 CRIMINAL JUSTICE PSYCHOLOGY (3 CR)**

This course is an overview of criminal behavior from a psych-social perspective. Contemporary research, theory and practice concerning the psychology of crime are reviewed.

**Prerequisite:** ENG 085\*

**CRJ 111 INTRODUCTION TO CRIMINAL JUSTICE (3 CR)**

This course covers the history, evolution and philosophy of the American criminal justice system. Emphasis on the interrelationship of system components: police, attorneys, courts and corrections.

**Prerequisites:** ENG 085\* and ENG 090\*

**CRJ 112 CRIME & DELINQUENCY (3 CR)**

Introduction to deviant behavior and current criminological theories with emphasis on synthesis and police applications to juveniles; diversion and status offenses considered.

**Prerequisites:** ENG 085\* and ENG 090\*

**CRJ 113 INTRODUCTION TO CRIMINALISTICS (3 CR)**

Scientific methods applied to the collection, identification, preservation and transportation of physical evidence and taught in a laboratory setting.

**Prerequisite:** ENG 085\*

**CRJ 114 POLICE ADMINISTRATION & OPERATIONS (3 CR)**

Administration and operation of a police department including line/staff activities are explored.

**Prerequisites:** ENG 085\* and ENG 090\*

**CRJ 117 CRIMINOLOGY (3 CR)**

*(Same as SOC 117)*

Provides an understanding of the cultural nature, origin and development of criminal behavior with attention given to the psychological and sociological factors involved.

**Prerequisites:** ENG 085\* and ENG 090\*

**CRJ 119 CLIENT GROWTH & DEVELOPMENT (3 CR)**

A corrections-oriented course involving the study of normal versus criminal behavior, human development and criminal pattern. Also involves the study of specific problems including substance abuse, sexual and medical problems and disorders.

**Prerequisites:** *ENG 085\* and ENG 090\**

**CRJ 120 HUMAN RELATIONS FOR CORRECTIONS (3 CR)**

A study of the meaning and function of culture and the social and psychological implications of discrimination. Also involves a survey of minorities in Michigan, attitude formation and professional responsiveness.

**Prerequisites:** *ENG 085\* and ENG 090\**

**CRJ 121 INTRODUCTION TO CORRECTIONS (3 CR)**

A survey of the American corrections system as a component of the criminal justice system.

**Prerequisites:** *ENG 085\*, ENG 090\* and MAT 020\**

**CRJ 124 INSTITUTION POPULATIONS (3 CR)**

The nature, composition and dynamics of the prison population as a separate society are central topics in this course.

**Prerequisites:** *ENG 085\* and ENG 090\**

**CRJ 125 PAROLE & PROBATION (3 CR)**

Pre- and post-institutional treatment and alternatives are presented. Consideration also given to diversion and community-based correctional programs.

**Prerequisites:** *ENG 085\* and ENG 090\**

**CRJ 127 CORRECTIONS LAW (3 CR)**

Deals with the law as it applies to the correctional system. Applicable court cases and legislation will be considered. Topics will include sentencing, prisoners' rights and responsibilities; loss of rights, prisoner remedies; community corrections and restoration of rights of offenders.

**Prerequisites:** *ENG 085\* and ENG 090\**

**CRJ 203 FIELD STUDIES (3 CR)**

*(Same as SOC 203)*

This course provides an opportunity for students to work for one semester in a law enforcement or corrections agency. Only open to students who have reached sophomore level (26 or more credit hours), minimum 2.5 GPA and permission of the instructor.

**CRJ 224 HEALTH AND SAFETY IN CORRECTIONS (3 CR)**

This course is a Michigan Corrections Officer Training Council approved curriculum under Public Act 415, requiring the training of new corrections officers. The course provides information and practical demonstration to prepare the student for certification as a corrections officer. Topics of instruction cover the health and safety of prisoners and corrections officers in the confined institution, identification and response in fire safety and hazardous material including applicable MIOSHA standards. Areas of safety include infectious disease, stress management and hostage awareness. Students learn and demonstrate the proper techniques to maintain personal and prisoner safety in the prison.

**CRJ 225 WORKPLACE RELATIONS IN CORRECTIONS (4 CR)**

This course is a Michigan Corrections Officer Training Council approved curriculum under Public Act 415, requiring the training of new corrections officers. The course provides information and practical demonstration to prepare the student for certification as a corrections officer. Workplace Relations covers the relations inside the prison setting as it pertains to communications, safety, harassment and prisoners conduct. Topics of instruction include: workplace policies, rules and guidelines for state corrections officers, discrimination, computer security, segregation, set ups and professional conduct, ethics and report writing.

**CRJ 231 OFFENDER MANAGEMENT IN CORRECTIONS (6 CR)**

This course is a Michigan Corrections Officer Training Council approved curriculum under Public Act 415, requiring the training of new corrections officers. The course provides information and practical demonstration to prepare the student for certification as a corrections officer. Offender management is a course in the management and discipline of prisoners in the institutional setting. The course instructs students in the areas of self-defense and prisoner restraints that are necessary to maintain order in a custody setting. Instruction includes firearms familiarization, restraints, chemical agent use and preparation and disturbance control. Students are required to demonstrate proficiency in each technique to meet the standards for certification.

*\* You may meet this prerequisite based on your course placement, ACT score or successful college coursework. Visit [www.jccmi.edu](http://www.jccmi.edu) for current assessment options and requirements.*

## Culinary Arts (CUL)

### CUL 100 INTRODUCTION TO HOSPITALITY (3 CR)

Students are exposed to the social, economic and environmental context within which the hospitality industry operates. Student will study the structure, nature and operating characteristics of the different sectors of the hospitality industry including food service, lodging and tourism. Students are also exposed to the various functions of management, their interrelationships with marketing, finance and human resource management. Students study the role of managers in the hospitality industry and highlight their principal responsibilities.

**Prerequisites:** ENG 085\* and ENG 090\*

### CUL 101 SERVSAFE FUNDAMENTALS (1 CR)

This course focuses on food safety risks encountered in the food service industry including the characteristics and causes the food-borne illnesses. Students are introduced to measures to prevent unsanitary conditions that cause food-borne illnesses, safe food handling, chemical use and storage, and management training tools. A study of the Michigan Food Law is incorporated into the class. Course completion involves passing the National Restaurant Association Education Foundation's ServSafe Food Protection Manager Certification Examination.

### CUL 111 FOOD HANDLING AND ALCOHOL SERVICE (3 CR)

Students study food safety risks encountered in the food service industry to ensure that food is safely served. Students learn about the microorganisms that cause foodborne illness and other contaminants that can make food hazardous. Concepts and skills are presented to reduce the risk of foodborne illness and prepare the student to pass the National Restaurant Association ServSafe Food Protection Manager Certification Examination. ServSafe Alcohol training will provide students the understanding of alcohol law and their responsibility, how to recognize and prevent intoxication, how to properly check identification, and handling difficult situations related to alcohol use. Concepts and skills learned will prepare the student to pass the national Restaurant Associate on ServSafe Alcohol Certification Examination.

**Prerequisite:** ENG 085\*

\* You may meet this prerequisite based on your course placement, ACT score or successful college coursework. Visit [www.jccmi.edu](http://www.jccmi.edu) for current assessment options and requirements.

### CUL 114 BAKING (3 CR)

Students are introduced to basic theory, practices and production techniques required to produce quality baked good items such as yeast raised breads, cookies, pies and cakes. Emphasis is placed on time management, safe food handling, storage and proper utilization of ingredients and equipment. Students are required to demonstrate managerial and organizational skills.

**Prerequisites:** CUL 111, ENG 085\*, ENG 090\* and MAT 020\* or higher

### CUL 115 BAKING & PASTRY (3 CR)

In this course students will produce classic and modern cakes, cookies, custards, chocolates, candies, hot and frozen desserts, classical plated desserts and centerpieces using several different mediums. Emphasis is on organization, sanitation, speed and presentation.

**Prerequisites:** CUL 114, ENG 085\* and MAT 020\* or higher

### CUL 118 NUTRITION FOR FOOD SERVICE AND CULINARY (3 CR)

This course studies nutrients including functions, food sources, digestion, absorption and metabolism with application to normal and preventive nutrition needs, including nutrient intake analysis, energy expenditure evaluation and diet planning. Students recall and classify nutrient categories, their functions, digestion, absorption and metabolism; recommendations and nutrient categories; conduct personalized computerized nutrient analysis and calculate personalized energy needs; and plan a personalized diet according to the principles of the Exchange List System and the USDA Food Pyramid.

**Prerequisites:** CUL 100, CUL 111, ENG 085\* and MAT 020\* or higher

### CUL 120 CULINARY SKILLS (3 CR)

Students are introduced to the principles of quantity food production, fabricating techniques, recipe conversions, costing, product identification and classical culinary skills. Students learn to operate and care for equipment, along with maintaining a safe and sanitary environment.

**Prerequisites:** CUL 111, ENG 085\*, ENG 090\* and MAT 020\* or higher

### CUL 121 INTRODUCTION TO FOOD PRODUCTION TECHNIQUES (3 CR)

This course will serve as an introduction to the basic concepts, techniques, terminology and methods involved in the preparation, presentation and portioning of various food and menu items. Students will rotate through the stations of a commercial kitchen gaining experience in knife skills, food

production, food preparation, recipe understanding and the overall operation of a restaurant kitchen. This course will focus on à la carte, cooked to order foods as well as some quantity food production. Emphasis will be placed on the cookery process, food desserts, vegetables, salads, starches and entree preparations and also developing the proper techniques of plating and preparing desserts, vegetables, salads, starches and entree preparations.

**Prerequisites:** CUL 111, CUL 120, ENG 085\* and MAT 020\* or higher

### **CUL 150 FOOD SERVICE MANAGEMENT (3 CR)**

Students are introduced to trends, organization and operations within the hospitality industry including tourism, lodging, restaurant, recreation and leisure, gaming, managed services, meeting/convention/exhibition, cruise, spa and resort segments.

**Prerequisites:** ENG 085\*, ENG 090\* and MAT 020\* or higher

### **CUL 175 INTERNATIONAL CUISINE (3 CR)**

The development of world cuisine is a direct result of topography, location, climate and cultural influence. This hands-on course offers the student practical exposure and historical insight to the varied world cuisines of Europe, Asia and the Mediterranean, working from the roots of these civilizations to present day. As the particular aspects of regional ingredients and traditional cooking techniques are discovered, a rich source of inspiration is cultivated in future culinary professionals.

**Prerequisites:** CUL 121, ENG 085\*, ENG 090\* and MAT 020\* or higher

### **CUL 210 GARDE MANGER (3 CR)**

Students study garde manger, both as a style of cuisine and as a tool to enhance the efficiency and value of cookery. Emphasizing techniques of cooking over specific recipes, it covers a broad range of dishes from cold sauces to plated appetizers to hors d'oeuvres. Focus on creativity, the principles of plate presentation, buffet design, food art and sculpted centerpieces. Designed for the contemporary kitchen, it prepares students for a variety of situations, from à la carte menus to theme-based events, buffets and brunches.

**Prerequisites:** CUL 121, ENG 085\*, ENG 090\* and MAT 020\* or higher

### **CUL 224 FOOD AND BEVERAGE COST CONTROL (3 CR)**

Students are introduced to concepts of food, beverage and labor cost control systems to students preparing for careers in the food, beverage and hospitality industry. Students analyze costs related to food and beverage, labor and supplies used in the industry as well as exercises that are related to purchasing and receiving.

**Prerequisites:** ENG 085\* and MAT 020\* or higher

### **CUL 227 CONTEMPORARY CUISINE (3 CR)**

This course emphasizes supervision and management concepts, knowledge and skills of contemporary cuisine including menu selection, layout and design, on/off premise catering, entrepreneurship, small business management and nutrition. Laboratory demonstrations and student experimentation parallel class work.

**Prerequisites:** CUL 121, ENG 085\*, ENG 090\* and MAT 020\* or higher

### **CUL 228 FOOD SERVICE LAYOUT AND DESIGN (3 CR)**

Students are introduced to the design and layout of food service facilities. Course covers preliminary planning, the roles and responsibilities of members of the project team, the design sequence, principles of design, space analysis, equipment layout, fabricated and manufactured equipment and engineering and architecture for food service facilities.

**Prerequisites:** CUL 120, CUL 150, ENG 085\*, ENG 090\* and MAT 020\* or higher

### **CUL 230 QUANTITY FOOD PRODUCTION (3 CR)**

Students advance their culinary skills, creativity in food presentation, time management, planning and composing catering functions, as well as participation in postsecondary skill competitions. Emphasis will be placed on innovative and practical thinking to cope with last minute and short notice events. At the end of this course a student could acquire the skills and knowledge to enter a culinary ACF approved food show and take an active role in Skills USA competitions.

**Prerequisites:** CUL 121, ENG 085\*, ENG 090\* and MAT 020\* or higher

### **CUL 231 À LA CARTE KITCHEN (3 CR)**

The focus is on modern, contemporary and classical cuisine for service in restaurants. Correct applications and fundamentals of culinary skills, quantity food production and organization, mise en place, cooking methods, improved knife skills, plate presentation and the use of standardized recipes will be stressed. Students prepare à la carte salads, dressings, marinades, vegetables, starches and entrees. Students hone their skills to be both creative in preparation and food presentation approaches.

**Prerequisites:** CUL 121, ENG 085\*, ENG 090\* and MAT 020\* or higher



**CUL 245 INTERNSHIP LEVEL I (1 CR)**

The internship offers students the opportunity to put learned theory to practice, while working in a paid or unpaid culinary related internship environment, involving employer(s) and departmental instructional staff. Students are required to complete a minimum of 60 hours and complete a portfolio on the internship. Periodic conferences between the site supervisor and Jackson College internship coordinators are scheduled to monitor and evaluate student progress. Students are responsible for identifying their own internship site. Lists of potential internship sites will be available through the Culinary Arts/Hospitality Management Department. Students must have permission of the department head and attend an internship orientation meeting before registering for this course.

**Prerequisites:** CUL 100, CUL 101, CUL 120, CUL 115 and CUL 121

**CUL 250 PRINCIPLES OF BEVERAGE SERVICE (3 CR)**

This course focuses on the study of the beverage service in the hospitality industry which includes spirits, wines, beers and non-alcoholic beverages. Topics include purchasing, resource control, legislation, marketing, physical plant requirements, staffing, service and the selection of wines to enhance foods. Students complete the ServSafe Alcohol training and national examination. Must have Culinary Arts and Hospitality Management associate degree as active program of study to enroll.

**Prerequisites:** CUL 111, ENG 085\*, ENG 090\* and MAT 020\* or higher

**CUL 345 INTERNSHIP LEVEL II (3 CR)**

The internship offers students the opportunity to put learned theory to practice, while working in a paid or unpaid culinary related internship environment, involving employer(s) and departmental instructional staff. Students are required to complete a minimum of 180 hours and complete a portfolio on the internship. Periodic conferences between the site supervisor and Jackson College internship coordinators are scheduled to monitor and evaluate student progress. Students are responsible for identifying their own internship site. Lists of potential internship sites will be available through the Culinary Arts/Hospitality Management Department. Students must have permission of the department head and attend an internship orientation meeting before registering for this course.

**Prerequisites:** CUL 100, CUL 101, CUL 120, CUL 115, CUL 121, and CUL 245

**CUL 445 INTERNSHIP LEVEL III (3 CR)**

The internship offers students the opportunity to put learned theory to practice, while working in a paid or unpaid culinary related internship environment, involving employer(s) and departmental instructional staff. Students are required to

complete a minimum of 180 hours and complete a portfolio on the internship. Periodic conferences between the site supervisor and Jackson College internship coordinators are scheduled to monitor and evaluate student progress. Students are responsible for identifying their own internship site. Lists of potential internship sites will be available through the Culinary Arts/Hospitality Management Department. Students must have permission of the department head and attend an internship orientation meeting before registering for this course.

**Prerequisites:** CUL 100, CUL 101, CUL 120, CUL 115, CUL 121, CUL 245 and CUL 345

**CUL 455 CAPSTONE EXTERNSHIP AND PRACTICUM (3 CR)**

The capstone internship/practicum is a hands-on, interactive practicum in which students will experience the operations of a hotel/resort, or hotel/casino environment. Students will complete back-of-the-house training, and front-of-the-house training (front desk, housekeeping, engineering, HR, food and beverage, meeting and convention space, sales and marketing, and recreation operations). Proficiency in each of these operations is required for successful completion of the program.

**Prerequisites:** CUL 100, CUL 101, CUL 120, CUL 115, CUL 121, CUL 245, CUL 345 and CUL 445

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## Dance (DAN)

**DAN 121 JAZZ TECHNIQUES (3 CR)**

(Same as HPF 221)

Beginner to intermediate level class exploring contemporary jazz and modern dance techniques. Includes an introduction to the fundamentals of choreography, exploration of the elements of dance, and history of dance.

**DAN 122 JAZZ TECHNIQUES II (3 CR)**

An advanced approach to jazz dance with emphasis upon combining jazz pieces into complete choreographies.

**Prerequisite:** DAN 121 or HPF 221

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## Diagnostic Medical Sonography (DMS)

**DMS 100 INTRODUCTION TO DIAGNOSTIC IMAGING (3 CR)**

Students are introduced to the radiologic sciences. Modalities discussed include x-rays, nuclear medicine, ultrasound, computerized tomography (CT), magnetic resonance imaging (MRI) and photon emission tomography (PET). Students learn

indications for a variety of diagnostic studies, how they are evaluated and interpreted, correlations of multiple studies, and how to prepare the patient for the study.

#### **DMS 101 SONOGRAPHIC ORIENTATION (3 CR)**

This course prepares sonography students for their clinical work-site experiences. Students will explore interpersonal relationship skills, ethical decision making, and a review of clinical technical skills as they relate to the on-site work experience. Students will learn basic cross-sectional anatomy as related to beginning sonographic scanning of the abdomen.

**Prerequisite:** *Acceptance into DMS program*

#### **DMS 104 INTRODUCTION TO SONOGRAPHIC INSTRUMENTATION (3 CR)**

In this course students will learn the history and basic principles of static and real-time ultrasound machines. The instrumentation of A-mode and its conversion into the real time B-mode scanners will be explored. Laboratory assignments reinforce learning activities.

**Prerequisites:** *ENG 085\* and MAT 131\* or higher, plus signed DMS fact sheet (EQV-DMSFS)*

#### **DMS 105 SONOGRAPHIC TECHNIQUES (3 CR)**

This course instructs the DMS student in scan planes, anatomical positioning, scan protocols, scan preparations, scan scheduling, appropriate history recording, correlations with other diagnostic procedures, and the techniques required for initiating and completing diagnostic sonographic procedures of the abdominal, obstetrical and gynecological patients.

**Prerequisites:** *DMS 101 and DMS 104*

#### **DMS 107 SONOGRAPHIC ORIENTATION-VASCULAR (3 CR)**

This course prepares sonography students for their clinical work-site experiences. Students will explore interpersonal relationship skills, ethical decision making, and a review of clinical technical skills as they relate to the on-site work experience. Students will learn basic cross-sectional anatomy as related to beginning sonographic scanning of the arterial and venous systems, of the extremities, neck and abdomen.

#### **DMS 108 ESSENTIALS OF SONOGRAPHY (3 CR)**

This course will address the high priorities in the health care field such as good character, strong work ethic and professional traits and behaviors that apply to all health care workers. Affective domain, as well as the ability to process and understand physical relationships among objects, will be assessed through scanning exercises.

#### **DMS 122 CLINICAL EXPERIENCE I (6 CR)**

In this course, students receive supervised clinical work experience in an approved clinical education center. This course provides basic scanning opportunities, patient interviewing techniques, professional attitudes and ethics, and other basic patient/professional situations under the direct supervision of a registered diagnostic medical sonographer (RDMS). Completions of professional and technical scanning proficiencies are required. A minimum of 515 hours are required to complete this course.

**Prerequisite:** *DMS 101*

#### **DMS 140 SONOGRAPHIC ORIENTATION & TECHNIQUE (3 CR)**

In this course students learn the principles of application of ultrasound as it pertains to echocardiographic exam. Topics of study include: windows and views, anatomy and physiology of the heart and great vessels, Doppler techniques, nomenclature of cardiac structures per ASE guidelines, LV assessment and function, as well as clinical indications for the echo. These studies are for preparation of applying correct techniques in the acquisition of sonographic cardiac images.

#### **DMS 141 ADULT ECHO I (4 CR)**

In this course students learn fundamentals of cardiac pressures, cardiac cycle, and the cardiac conduction system. Studies include: cardiac valves – normal and abnormal conditions, flow abnormalities, and physiological complications from these conditions. These studies are for preparation of applying correct techniques in the acquisition of sonographic cardiac images.

#### **DMS 142 ECHO CLINICAL I (2 CR)**

In this course students receive 168 hours of supervised clinical experience in an approved clinical education center. This course provides hands-on experience in basic cardiac imaging, patient care, and application of knowledge and skills acquired in DMS 140 and DMS 141. Successful completion of professional and technical scanning proficiencies is required to remain in the program. This course is the first in a series of three clinical courses that prepare the student for the final objective of performing and evaluating the adult echocardiogram.

#### **DMS 144 CARDIOVASCULAR PRINCIPLES (3 CR)**

This course is a study of cardiac anatomy and physiology, cardiac hemodynamics, principles of Doppler, and ECG interpretation. Problem solving, evaluation, and echo interpretation will be emphasized in this course. This course contains materials and instruction that will prepare the student in meeting the program's final objective of independent performance and evaluation of the complete adult echocardiogram.

**Prerequisites:** *DMS 140 and DMS 141*

**DMS 148 ECHO CLINICAL II (7 CR)**

In this course students receive 512 hours of supervised clinical experience in an approved clinical education center. This course provides hands-on experience in intermediate level cardiac imaging and use of cardiovascular equations. Successful completion of scanning proficiencies is required to remain in the program. This course is the second in a series of three clinical courses that has the final objective of independent performance and evaluation of the adult echocardiogram.

**DMS 151 PERIPHERAL ARTERIAL I (3 CR)**

This course facilitates student learning of diagnostic testing methods for the peripheral arterial systems of the upper and lower extremities. Testing methods covered will include segmental pressures, color Doppler imaging (CDI) and duplex sonography.

**Prerequisite:** BIO 132 or BIO 253

**DMS 152 PERIPHERAL ARTERIAL II (3 CR)**

This course, a continuation of DMS 151, facilitates student learning of diagnostic testing methods for the peripheral arterial systems of the upper and lower extremities. Testing methods covered will include segmental pressures, color Doppler imaging (CDI) and duplex sonography. Abdominal vascular testing techniques will be included.

**Prerequisite:** DMS 151

**DMS 155 PERIPHERAL VENOUS (3 CR)**

This course facilitates student learning of diagnostic testing methods for the peripheral venous systems of the upper and lower extremities. Venous hemodynamics and testing methods covered include all areas of color Doppler imaging (CDI), air and photo plethysmography.

**Prerequisite:** BIO 132 or BIO 253

**DMS 161 VASCULAR CLINICAL I (4 CR)**

In this course students receive 300-plus hours of supervised clinical experience in an approved vascular laboratory. This course provides hands-on experiences in basic color Doppler imaging (CDI), hemodynamics, segmental pressures and duplex sonography. Students are instructed and supervised by registered vascular technologists. Completion of clinical competencies is required to complete this course.

**DMS 196 INTRODUCTION TO CARDIAC CLINICAL (5 CR)**

This course prepares cardiac sonography students for their clinical externship. Students will study and practice the technical as well as personal skills as they relate and are required for the on-site work experience. Students will demonstrate sonographic scanning of their discipline with the expected outcome of a basic level competency. Admission to the cardiac sonography program required to register for this course.

**DMS 197 INTRODUCTION TO CLINICAL (5 CR)**

This course will allow students to gain basic knowledge and practical skills that are necessary to begin a clinical externship in sonography. Students will study and practice: 1) communication skills as they are applied to the student-to patient/sonographer/physician relationship, 2) patient assessment, and 3) scanning techniques that will be a part of their daily routine in their clinical practice. Admission to the sonography program required to register for this course.

**DMS 198 INTRODUCTION TO VASCULAR CLINICAL (5 CR)**

This course prepares sonography students for their clinical work-site experiences. Students will review clinical technical skills as they relate to the on-site work experience. Students will learn sonographic scanning of their program discipline with the outcome of a basic level competency. Admission to the vascular sonography program required to register for this course.

**DMS 200 ABDOMEN AND SMALL PARTS SONOGRAPHY (4 CR)**

In this course students learn in-depth, cross-sectional anatomy and pathology as related to sonographic scanning of the abdomen and small parts in the adult and pediatric patient. The class gives attention to physiologic and pathological changes of specific, non-specific diseases, and trauma as they relate to sonographic interpretation of the abdomen and small parts. Mastery level achievement is encouraged and expected.

**DMS 201 OBSTETRIC AND GYNECOLOGIC SONOGRAPHY (4 CR)**

Students learn in-depth, cross-sectional anatomy and pathology as related to sonographic scanning of the pelvis in the adult and pediatric patient, and the gravid uterus. The class gives attention to physiologic and pathological changes of specific, non-specific diseases, and trauma as they relate to sonographic interpretation of the pelvis and gravid uterus. Mastery level achievement is encouraged and expected.

**DMS 206 SONOGRAPHIC INSTRUMENTATION (4 CR)**

Students explore the mechanics of A-mode, B-mode, M-mode, Doppler, and real time equipment. Accessory equipment such as cameras, transducers, phased, annular and linear arrays, and all types of hard copy documentation instruments are investigated. Multiple methods of preventative maintenance and quality control are presented. Laboratory reinforces learning activities.

**DMS 212 COMPREHENSIVE SONOGRAPHY (4 CR)**

This course includes advanced scanning practices with introduction to cardiac, peripheral vascular, neurosonography, breast, prostate, and musculoskeletal scanning. Invasive procedures and intra-operative scanning protocols and techniques will be enhanced upon. Opportunity and aid is

given for ARDMS board applications. Extensive review of all facets of sonography is included in preparation for the ARDMS board exams.

#### **DMS 223 CLINICAL EXPERIENCE II (6 CR)**

This course includes supervised clinical experience in an approved clinical education center, advanced scanning techniques to demonstrate cross-sectional anatomy and pathology of specific and non-specific disease and traumatic changes. Specific attention is given to fetal development, fetal anomalies, abnormal prenatal and maternal conditions as they relate to sonographic scanning and interpreting of images. Although the student is still under the supervision of a RDMS professional, the student is expected to perform sonographic procedures independently as a regular portion of this course. The completion of professional and technical scanning proficiencies is required. A minimum of 515 clinical hours are required for successful completion of this course.

**Prerequisites:** *DMS 122 and DMS 200*

#### **DMS 224 CLINICAL EXPERIENCE III (6 CR)**

This course includes supervised clinical experience in an approved clinical education center. Advanced scanning procedures, methods and experience are provided in this course. Students experience advanced scanning modalities via M-mode, Doppler, 3D, real-time and invasive procedures. Comparative interpretations of sonographic imaging with other diagnostic imaging modalities are provided. Students are expected to initiate, perform, and complete all sonographic procedures with direct supervision by a RDMS. The successful completion of professional and technical scanning proficiencies is required. A minimum of 320 clinical hours are required to successfully complete this course.

**Prerequisites:** *DMS 201 and DMS 223*

#### **DMS 240 ADULT ECHO II (4 CR)**

In this course students will focus on the abnormal heart. Valvular disease, coronary artery disease, diseases of the myocardium, cardiac masses and tumors, pericardial disease and diseases of the aorta are some of the topics to be covered. Students will also learn the various appearances of congenital heart disease in the adult heart. This advanced course contains materials and instruction that will assist the student in meeting the final objective of independent performance and evaluation of the complete adult echocardiogram.

**Prerequisites:** *DMS 140, DMS 141 and DMS 144*

#### **DMS 244 ECHO CLINICAL III (6 CR)**

In this course students receive 464 hours of supervised clinical experience in an echo lab at an approved medical facility. This course provides hands-on experience at an advanced level of cardiac imaging and use of cardiovascular equations.

Interpretation skills will apply. Successful completion of scanning proficiencies is required to graduate from the program. This clinical course is the final course in a sequence of three, and the final objective to be met is successful, independent performance and evaluation of the complete adult echocardiogram.

**Prerequisites:** *DMS 142 and DMS 148*

#### **DMS 251 CEREBROVASCULAR IMAGING (3 CR)**

This course facilitates student learning of diagnostic testing methods and hemodynamics of the extracranial vessels of the head and neck. Testing methods covered include color Doppler imaging (CDI) and duplex sonography.

**Prerequisite:** *BIO 132 or BIO 253*

#### **DMS 254 TRANSCRANIAL DOPPLER IMAGING AND CAPSTONE (3 CR)**

This course will facilitate student learning of diagnostic testing methods and hemodynamics of the intracranial vessels. Testing methods covered will include: color Doppler imaging (CDI and duplex sonography). In this course a strong emphasis is placed on registry preparation and job placement. Topics include: testing tips and techniques (during weekly class sessions students will individually and on a team basis complete a 200 question mock registry using testing tips and techniques), and the process of developing a résumé and cover letter.

**Prerequisite:** *DMS 251*

#### **DMS 265 VASCULAR CLINICAL II (4 CR)**

This course is a continuation of DMS 161. Students receive 300 plus hours of supervised clinical experience in an approved vascular laboratory. It also provides hands-on experiences in basic and advanced color Doppler imaging (CDI), hemodynamics, segmental pressures and duplex sonography. Students are instructed and supervised by registered vascular technologists. Completion of clinical competencies required to complete this course.

#### **DMS 266 VASCULAR CLINICAL III (4 CR)**

This course is a continuation of DMS 265. Students receive 300 hours of supervised clinical experience in an approved vascular laboratory. It also provides hands-on experiences in advanced color Doppler imaging (CDI), hemodynamics, segmental pressures and duplex sonography. Students are instructed and supervised by registered vascular technologists. Completion of clinical competencies is required to complete this course.

## eCommerce (ECM)

### ECM 101 ECOMMERCE FUNDAMENTALS (3 CR)

The course introduces revenue models for conducting business transactions globally with customers over the Internet. Topics include integrating eBusiness strategies with traditional store-front objectives, procuring hardware and software resources, optimizing web marketing opportunities, and complying with legal, ethical and regulatory restrictions. Student will apply concepts to real-life scenarios through active-learning strategies.

**Prerequisites:** CIS 095\*, ENG 085\*, ENG 090\* and MAT 020\* or higher

### ECM 201 ADVANCED INFORMATION TECHNOLOGIES (3 CR) (Same as CIS 201)

This course enhances electronic communication skills and computer concepts essential to using current advanced information technologies. Topics include web collaboration, web conferencing, web 2.0 applications, social media, mobile computing, file conversions and cross-platform compatibility.

**Prerequisites:** CIS 101\*, ENG 085\*, ENG 090\*

### ECM 220 EBUSINESS: SEO/MANAGEMENT (3 CR)

This course covers search engine optimization, analyzing web marketing efficiencies and evaluating content management systems. Topics include competitive comparison, keyword analysis, effective link building, blogs and eCommunities setup. Specific eBusiness components, such as Google Analytics, social networking sites and pay-per-click advertising campaigns are emphasized to increase the efficiency of eCommerce site operations.

**Prerequisite:** CIS 095\*

## Economics (ECN)

### ECN 231 MACROECONOMICS (3 CR)

This course covers macroeconomics and explains the operation of free markets, the role of government in the economy, measurement of the national product, inflation and unemployment, monetary and fiscal policy, and economic growth.

**Prerequisites:** ENG 131 and MAT 131 or higher

\* You may meet this prerequisite based on your course placement, ACT score or successful college coursework. Visit [www.jccmi.edu](http://www.jccmi.edu) for current assessment options and requirements.

### ECN 232 MICROECONOMICS (3 CR)

This course covers microeconomics: the market structure of firms operating in competition and monopoly, labor markets and unions, how income is distributed, current economic problems, international economics, and alternative economic systems.

**Prerequisites:** ENG 131 and MAT 131 or higher

## Education (EDU)

### EDU 100 PRE-TEACHING PATHWAY (3 CR)

A career track introduction to the teaching profession designed for students with basic skill levels in reading, writing and math/science. Experiences in the course will include an introduction to: professional portfolio, teaching professionalism and technology. Students will begin the professional career path with grades pre-K to 12 field experiences and professional pathway planning, as well as investigating opportunities in the field of teacher education.

**Prerequisite:** ENG 085\*

### EDU 221 EXPLORING TEACHING (3 CR)

"What are the things prospective teachers beginning their formal study of teacher education should know?" Students will gain knowledge of the role of a professional teacher and education topics: schools, diverse students and their needs, historical and current education issues and trends, as well as philosophical and legal foundations in American education. Students will explore and experience key concepts and skills through reading, research, presentation of a lesson, development of a professional portfolio and a teaching philosophy, documented technology and education site-based field experiences. Minimum of 16 hours field experience is included.

**Prerequisites:** ENG 131

### EDU 232 THE EXCEPTIONAL CHILD (3 CR)

This survey course introduces the learner to exceptional children from pre-kindergarten through adolescence. Characteristics, educational considerations and implications for educators and parents are a sample of the topics addressed. Developmental factors and the role of families in education and intervention, appropriate practices, culturally competent professional behavior, and collaborative interpersonal and inter-professional actions are included. The course includes historical and organizational factors, laws, and implications of all areas of exceptionality that govern special education. A minimum of five hours of approved literacy field service is required.

**Prerequisites:** ENG 131



**EDU 263 CHILD GROWTH & DEVELOPMENT (3 CR)**

This course surveys learning development from prenatal stages through adolescence. Students study normal and exceptional development of the physical, cognitive, emotional and social domains of children in the contexts of home, school and group settings. Students study developmental theories and best practice methods. A minimum of 20 hours of approved field service including a group diversity project is required.

**Prerequisite:** ENG 131

**EDU 290 INSTRUCTIONAL SKILLS WORKSHOP (2 CR)**

Instructional skills workshop course brings together best practices in education and a proven process that fosters personal growth and reflections about the teaching/learning process. The course includes: best practices in teaching/learning, lesson development and delivery, lesson assessment skills, and feedback skills. In addition, best practices in teaching techniques are explored and include: cooperative learning, multiple intelligences, assessment techniques, curriculum alignment, etc. This course is intended for anyone interested or employed in the teaching profession.

## Energy Systems (EGY)

**EGY 101 ENERGY INDUSTRY FUNDAMENTALS (3 CR)**

Energy Industry Fundamentals (EIF) provides a broad understanding of the electric and natural gas utility industry and the generation, transmission, and distribution infrastructure, commonly called the "largest machine in the world," which forms the backbone for the industry. The course includes business models, regulations, types of energy and their conversion to useable energy such as electric power, emergent technologies, and the connection to careers in the energy industry. An ANSI-accredited EIF Certificate will be awarded upon successful completion of final certification exam.

**Prerequisite:** MAT 020\* and ENG 085\*

**EGY 220 ENERGY INDUSTRY EXPERIENCE**

This is a field-based course that includes tours of power production, transmission, and distribution facilities with guided conversation and reflection. Prepares students for internship selection.

**Prerequisite:** EGY 101

**EGY 345 ENERGY SYSTEMS INTERNSHIP (3 CR)**

This course offers meaningful industry experience within the energy systems arena. The internship demands intentional reflection on the part of student based upon feedback from their industry supervisor. A specific internship site, industry

supervisor and learning outcomes must be jointly agreed upon between the student, the faculty member and the site supervisor. A portfolio of the internship will be created and submitted to the faculty member. Student may only take twice for credit.

**Prerequisites:** Instructor permission required

**EGY 361 INDUSTRY MATERIALS ANALYSIS (3 CR)**

This course provides students with the necessary concepts, terminology, and principles to interact effectively with engineers and engineered materials in a power plant or other energy industry environment. Topics include stress/strain, tensile strength, yield strength, fatigue, dynamic loading, and basic finite element analysis (FEA). In addition, students will explore additional principles of power engineering and roles within the energy industry. The term project will cover the complete design and specification process for engineered materials.

**Prerequisites:** EGY 101, MFG 105, CAD 151, and PHY 231 or PHY 251

**EGY 380 POWER GRID/SMART GRID (3 CR)**

The electric power grid has quietly supported our industrialized society for over a century, but a changing world poses major challenges. Today, new technology is transforming the energy industry as smart grid solutions and renewable energies enter the market. Industry professionals need to understand the evolution of the present system, the technology and challenges that have emerged in recent years, and additional changes that are on the horizon. Topics include: advanced metering systems, powerline communications, integration of renewables, cyber security, microgrids, and more.

**Prerequisites:** EGY 101, ALT 200, and PHY 231 or PHY 251

**EGY 499 SENIOR SEMINAR (3 CR)**

This course is the capstone experience for the Bachelor of Science in Energy Systems Management degree. The course centers around an energy-related capstone project, which may be community-based, industry-based, or student-created. Students will draw upon their previous coursework, synthesize skills, knowledge, and experience, and demonstrate their potential to make a positive difference in the industry or community.

**Prerequisites:** STM 401, COM 350, and senior standing in program

# Electronic Technology (ELT)

## ELT 105 INTRODUCTION TO ELECTRICAL SYSTEMS (3 CR)

This course provides non-electricians an introduction to principles of electricity, circuits, electrical devices and electrical safety. Students gain hands-on experience wiring circuits, using test equipment, and troubleshooting electrical equipment problems. The course gives students the tools necessary to work safely with and around electricity in an industrial environment that may include special machines, facility (process) support equipment, energy production equipment, and energy distribution systems.

**Prerequisites:** ENG 085\*, ENG 090\* and MAT 020\* or higher

## ELT 120 CIRCUIT ANALYSIS I (4 CR)

Students examine the fundamental concepts of DC circuits including electricity and magnetism, resistance, capacitance, inductance, series and parallel circuits, power and basic electrical measurements.

**Prerequisites:** ENG 085\*, ENG 090\* and MAT 020\* or higher

## ELT 126 CIRCUIT ANALYSIS II (4 CR)

A study of alternating electrical current is presented. Topics include AC measurements, resistance, inductance and capacitance in AC circuits.

**Prerequisite:** ELT 120

## ELT 130 ELECTRONICS I (4 CR)

Study of electronic devices including diodes, bipolar and field effect transistors, integrated circuits, and other semiconductor devices; their parameters, nomenclature, characteristics, and application to practical circuitry.

**Prerequisite:** ELT 126

## ELT 140 INTRODUCTION TO DIGITAL ELECTRONICS (4 CR)

This course is the beginning course in digital electronics. Topics include number systems, Boolean algebra, and basic logic gates and circuits.

**Prerequisite:** ENG 085 and MAT 020\* or higher

## ELT 150 RESIDENTIAL WIRING (2 CR)

Topics covered in this course include blueprint reading, NEC code, branch circuit design, service entrance and switch control. Students are required to practice wiring and design skills with hands-on experiences.

## ELT 151 COMMERCIAL WIRING (2 CR)

Topics covered in this course include wiring plans of commercial buildings, three phase 208/120 volt services, lighting fixtures, service entrances and metering facilities. The students will be given opportunities to practice skills in the wiring laboratory.

**Prerequisite:** ELT 105 or 150

## ELT 152 INDUSTRIAL WIRING (2 CR)

Topics covered in this course include: substation and high voltage metering, feed duct, panel boards, motors and controllers, signal systems, ventilation and others. Students will be given opportunities to practice skills in the electrical wiring laboratory.

**Prerequisite:** ELT 150

## ELT 160 PRINCIPLES OF ALTERNATIVE ENERGY (3 CR)

(Same as ALT 200)

This course will introduce students to alternative energy systems and their design and applications. The course will focus primarily on wind turbines, solar systems, and hydrogen fuel cells. A basic understanding of electricity is highly recommended.

**Prerequisites:** ENG 085\* and MAT 020\* or higher

## ELT 163 WIND ENERGY (3 CR)

(Same as ALT 250)

In this course students are exposed to many of the skills necessary to install a residential wind turbine system. Topics include siting wind turbines, turbine components, estimating turbine electricity output, loading, battery, inverters and off-grid/grid-connected systems. Labs include hands-on activities with turbines and electrical equipment. Prior electrical skills and knowledge are required to be successful in this course.

**Prerequisites:** ELT 126 and ELT 151

## ELT 166 SOLAR ENERGY (3 CR)

(Same as ALT 255)

This course explores the design, installation and maintenance of photovoltaic (PV) systems. Topics include site survey and assessment, estimating solar array electricity output, inverters, battery systems and off-grid/grid-connected systems. Labs include hands-on activities with solar panels and electrical equipment. Prior electrical skills and knowledge are required to be successful in this course.

**Prerequisites:** ELT 120 and ELT 151

**ELT 215 ELECTRICAL TROUBLESHOOTING (2 CR)**

This course explores troubleshooting in various areas such as: control circuits, combination starters, control devices, special controls, DC motors, AC motors, lighting systems with use of schematics, building drawings, and with emphasis on cutting trouble-shooting time.

**Prerequisites:** ELT 126 and ELT 152

**ELT 220 INDUSTRIAL MOTION CONTROL (3 CR)**

This course covers motion controls as used in real world situations, including PLC, robotics, servos, sensing devices, actuators and controls.

**Prerequisite:** ELT 105 or ELT 126

**ELT 250 ELECTRIC MOTORS & CONTROLS (4 CR)**

Basic principles involved in the operation of motors and controls. Study includes single-phase motors and their operating principles, polyphase systems and the various control devices used with these systems.

**Prerequisite:** ELT 126

**ELT 260 BASIC PROGRAMMABLE CONTROLLERS (4 CR)**

Basic programmable controllers is a course for apprentices and skilled trades trainees looking at the history, characteristics, application and limitation of PCs. Numeration systems, binary-coded decimals, ASCII, gray code and Boolean logic studied. Additional study includes input/output devices, processing and programming functions, program development, documentation, start-up and troubleshooting.

**Prerequisite:** ELT 126

**ELT 261 ADVANCED PLC PROGRAMMING (2 CR)**

This course introduces topics that include advanced PLC programming, troubleshooting and data communications.

**Prerequisite:** ELT 260

**ELT 274 ELECTRICIAN'S NATIONAL CODE (3 CR)**

This course is an extensive study of the national and local electric codes for wiring and apparatuses. It covers wiring design and protection, wiring methods and materials, equipment for general use including motors and controllers, special occupancies such as hazardous location; special equipment such as electric welding and machine tool wiring, and the use of tables and diagrams for the solution of practical wiring problems.

**Prerequisite:** ELT 150

## Emergency Medical Services (EMS)

**EMS 110 ADVANCED FIRST AID & AMERICAN HEART CPR (2 CR)**

This course provides instruction in adult, child and infant cardiopulmonary resuscitation, as well as advanced first aid. It is designed to prepare an individual to handle medical or accidental emergencies until professional help arrives or until the victim can seek help, and to handle minor injuries that do not require professional assistance. Upon successful completion of this course, the student is qualified to receive CPR and Advanced First Aid certificates through the American Heart Association (AHA) and American Academy of Orthopedic Surgeons (AAOS).

**EMS 113 MEDICAL FIRST RESPONDER (5 CR)**

The medical first responder course (MFR) is a minimum 64-hour lecture, lab and practical based emergency medical education program in a wide variety of medical and trauma settings. This level of education is the first level of licensure that the State of Michigan recognizes for a professional emergency health care provider. The scope of practice is typically utilized by rural fire departments, police and security agencies, industrial plant workers, lifeguards, search and rescue teams, along with private and public school personnel.

**Prerequisite:** Instructor permission required

**EMS 114 EMS MEDICAL TERMINOLOGY/A & P (3 CR)**

This course provides demonstration and foundation development for medical terminology, anatomy and physiology for students pursuing an EMS education. The structure of this course will be a lecture/lab format focused on anatomy and physiology of the human body combined with word building, definitions, spelling, usage and pronunciation of medical terminology utilized specifically for the entry-level EMS student.

**Prerequisite:** Instructor permission required

\* You may meet this prerequisite based on your course placement, ACT score or successful college coursework. Visit [www.jccmi.edu](http://www.jccmi.edu) for current assessment options and requirements.

**EMS 122 EMT BASIC TECHNOLOGY (12 CR)**

The basic emergency medical technician course is a Michigan Department of Community Health approved course. This program provides the information and experience necessary to prepare the student to sit for the National Registry Basic EMT Certification exam. Topics include: legal responsibilities, anatomy, physiology, patient assessment, management of various emergency situations, extrication, and current standards for EMTs in the field. Students will also participate in scenario-based education and computer-based testing and scenarios to reinforce skills learned within these areas. Students must complete a minimum of four 12-hour experiences in the hospital emergency room setting and with a pre-hospital life support agency. Laboratory and clinical experiences are included.

**Prerequisites:** *ENG 085\* and MAT 020\**

**Corequisites:** *EMS 1220 (Lab) and EMS 1221 (Clinical)*

**EMS 150 EMT INTERMEDIATE TECHNOLOGY (I-85) (8 CR)**

The intermediate emergency medical technician (EMT-I) course is a classroom and field-based emergency medical education program that prepares students to take the National Registry Intermediate EMT Certification exam. Students learn the role and responsibilities of an emergency medical technician at an intermediate level in providing emergency care. Content areas are covered in lectures, practical skills practiced in a laboratory setting along with observations and experience that will be gained in a clinical and/or internship setting.

**Prerequisite:** *Instructor permission required*

**EMS 160 PARAMEDIC ADVANCED PRACTICE: I (4.25 CR)**  
(Formerly EMS 215 with EMS 161, EMT 162, EMT 163 and EMS 166)

This course is designed to prepare the student for licensure as an advanced emergency medical technician (paramedic) in the State of Michigan. This course includes patient assessment techniques and concepts, advanced airway management, fluid and shock resuscitation, acid/base and body buffer systems, and multi-systems trauma treatments. Included in this course is a module on medical terminology. The course involves medical procedures and use of equipment as prescribed by the U.S. Department of Transportation, Michigan Department of Community Health, and Jackson County Medical Control Authority.

**Prerequisite:** *Instructor permission required*

**Corequisites:** *EMS 161, EMS 162, EMS 163, EMS 164 and EMS 166.*

**EMS 161 PARAMEDIC SKILL LAB: I (2 CR)**

(Formerly EMS 215 with EMS 160, EMT 162, EMT 163 and EMS 166)

This course is designed to provide the paramedic student with the skills as prescribed by the Michigan Department of Community Health (MDCH) for the paramedic curriculum. This course includes skill practice and scenarios (both computer and classroom).

**Prerequisite:** *Instructor permission required*

**Corequisites:** *EMS 160, EMS 162, EMS 163, EMS 164 and EMS 166.*

**EMS 162 PARAMEDIC PHARMACOLOGY: I (2.25 CR)**

(Formerly EMS 215 with EMS 160, EMT 161, EMT 163 and EMS 166)

This course is designed to provide the paramedic students with a knowledge of basic pharmacological principles, biological factors influencing drug actions, predictable effects of drugs on physiologic problems, modifiers of predictable effects, commonalities and variations between the actions of drugs employed for comparable therapeutic effect, adverse effects of drugs that can and do commonly occur, and application for pharmacological therapy in the pre-hospital setting. Concentration will focus on cardiovascular drugs in this semester.

**Prerequisite:** *Instructor permission required*

**Corequisites:** *EMS 160, EMS 161, EMS 163, EMS 164 and EMS 166.*

**EMS 163 PARAMEDIC CARDIOLOGY: I (2.25 CR)**

(Formerly EMS 215 with EMS 160, EMT 161, EMT 162 and EMS 166)

This is a course designed to provide knowledge in cardiology to fulfill the needs of the paramedic program. This course involves medical procedures and use of equipment as stated by the U.S. Department of Transportation, Michigan Department of Community Health, and the American Heart Association Advanced Cardiac Life Support standards. Topics include: rapid interpretation of EKGs, static recognition of EKGs, electrical therapy, pharmacological therapy, and basic algorithms for treatment of cardiac arrhythmias.

**Prerequisite:** *Instructor permission required*

**Corequisites:** *EMS 160, EMS 161, EMS 162, EMS 164 and EMS 166.*

*\* You may meet this prerequisite based on your course placement, ACT score or successful college coursework. Visit [www.jccmi.edu](http://www.jccmi.edu) for current assessment options and requirements.*

**EMS 164 PEDIATRIC ADVANCED LIFE SUPPORT (2 CR)***(Formerly EMS 235 with EMS 174 and EMS 176)*

This course is designed to provide the paramedic student with the skills and knowledge to handle pediatric emergencies in the pre-hospital setting. Pediatric patients are not treated as "young" adults. They are a distinct population with different responses to injuries than adults.

**Prerequisite:** *Instructor permission required*

**Corequisites:** *EMS 160, EMS 161, EMS 162, EMS 163 and EMS 166.*

**EMS 166 PARAMEDIC CLINICAL: I (3 CR)**

This course is designed to provide the first semester clinical hours necessary to meet the requirements of the Michigan Department of Community Health paramedic curriculum. This course includes clinical rotations at various sites including ambulance, hospital, and skilled care facilities. In addition, classroom time is scheduled to review clinical procedures and review progress of the students.

**Prerequisite:** *Instructor Permission Required*

**Corequisites:** *EMS 160, EMS 161, EMS 162, EMS 163 and EMS 164.*

**EMS 170 PARAMEDIC ADVANCED PRACTICE: II (4.25 CR)***(Formerly EMS 225 with EMS 171, EMS 172, and EMS 173)*

This course is designed to prepare the student for licensure as a paramedic in the State of Michigan. The course involves medical procedures and use of equipment as prescribed by the U.S. Department of Transportation, the Michigan Department of Community Health, and Jackson County Medical Control Authority. Topics include: advanced life support in gynecological emergencies, behavioral emergency management, gastrointestinal emergencies, lab test analysis, and other medical emergencies.

**Prerequisites:** *EMS 160, EMS 161, EMS 162, EMS 163, EMS 164, and EMS 166.*

**Corequisites:** *EMS 171, EMS 172, EMS 173, EMS 174 and EMS 176*

**EMS 171 PARAMEDIC SKILL LAB: II (2 CR)***(Formerly EMS 225 with EMS 170, EMS 172 and EMS 173)*

This course is designed to provide the paramedic student with the skills as prescribed by the Michigan Department of Community Health (MDCH) for the paramedic curriculum. This course includes skill practice and scenarios (both computer and classroom).

**Prerequisites:** *EMS 160, EMS 161, EMS 162, EMS 163, EMS 164 and EMS 166.*

**Corequisites:** *EMS 170, EMS 172, EMS 173, EMS 174 and EMS 176*

**EMS 172 PARAMEDIC PHARMACOLOGY: II (2.25 CR)***(Formerly EMS 225 with EMS 170, EMS 171 and EMS 173)*

This course is designed to provide pharmacological information on the remaining non-cardiac drugs, which a paramedic will experience in the pre-hospital and hospital setting. This course is based on the paramedic education program requirements as set by the Michigan Department of Health.

**Prerequisites:** *EMS 160, EMS 161, EMS 162, EMS 163, EMS 164 and EMS 166.*

**Corequisites:** *EMS 170, EMS 171, EMS 173, EMS 174 and EMS 176*

**EMS 173 PARAMEDIC CARDIOLOGY: II (2.25 CR)***(Formerly EMS 225 with EMS 170, EMS 171 and EMS 172)*

This course is designed to provide knowledge in cardiology to fulfill the needs of the AEMT (paramedic) program. This course involves medical procedures and use of equipment as stated by the U.S. Department of Transportation, Michigan Department of Community Health, and the American Heart Association Advanced Cardiac Life Support standards. Topics include pathophysiology of heart disorders, 12 lead EKG interpretation, pediatric ACLS, pharmacological therapy.

**Prerequisites:** *EMS 160, EMS 161, EMS 162, EMS 163, EMS 164 and EMS 166.*

**Corequisites:** *EMS 170, EMS 171, EMS 172, EMS 174 and EMS 176*

**EMS 174 PARAMEDIC ADVANCED PRACTICE: III (4.25 CR)***(Formerly EMS 235 with EMS 164 and EMS 176)*

This course provides the paramedic student the knowledge in the transport of patients with special considerations and advanced EMT operations as prescribed in the U.S. Department of Transportation's paramedic curriculum. Student will take a comprehensive exam at the conclusion of this course for certification by Jackson College. This certification can be used as evidence of completion for the National Registry Exam (passage of which leads to licensing in most U.S. states).

**Prerequisites:** *EMS 160, EMS 161, EMS 162, EMS 163, EMS 164 and EMS 166.*

**Corequisites:** *EMS 170, EMS 171, EMS 172, EMS 173 and EMS 176*



**EMS 176 PARAMEDIC CLINICAL: II (3 CR)***(Formerly EMS 235 with EMS 164 and EMS 174)*

This course is designed to provide the second semester clinical hours necessary to meet the requirements of the Michigan Department of Community Health Paramedic curriculum. This course includes clinical rotations at various sites including ambulance, hospital, and skilled care facilities. In addition, classroom time is scheduled to review clinical procedures and review progress of the students.

**Prerequisites:** EMS 160, EMS 161, EMS 162, EMS 163, EMS 164 and EMS 166.

**Corequisites:** EMS 170, EMS 171, EMS 172, EMS 173 and EMS 174

**EMS 280 EMS INSTRUCTOR COORDINATOR I (4 CR)**

This course is the first of three consecutive courses designed to prepare currently licensed EMT or AEMT for State EMS Instructor Coordinator Licensure. This course is a Michigan Department of Community Health EMS and Trauma Systems section approved program. This course includes state-mandated modules with a primary focus on educational pedagogy related to teaching EMS. The first semester includes: Blooms Taxonomy, creating lessons, classroom management, critical thinking and assessment, etc.

**Prerequisite:** Licensed EMT-B, EMT-I or EMT-P with a minimum of three years of field experience. Instructor permission required .

**EMS 282 EMS INSTRUCTOR COORDINATOR II (4 CR)**

This course is the second of three consecutive courses designed to prepare currently licensed EMT or AEMT for State EMS Instructor Coordinator Licensure. This course is a Michigan Department of Community Health EMS and Trauma Systems section approved program. This course includes state mandated modules with a primary focus on state requirements for EMS education. This semester includes: guided student teaching, guidance in didactic and laboratory skills, information related to adhering to state mandates policies and procedures EMS education.

**Prerequisite:** EMS 280 Instructor Coordinator I.

**All EMS students must complete EDU-290 Instructional Skills Workshop as the third course component.**

**Instructor permission required.**

**Corequisite:** EDU 290

**EMS 245 PARAMEDIC CLINICAL INTERNSHIP**

This course is designed to provide the field internship as prescribed by Michigan Department of Transportation and the requirements of the Michigan Department of Community Health paramedic curriculum. This course is the last course taken as part of the paramedic program. This course includes clinical rotations at ambulance services as the lead paramedic under the supervision of a field paramedic. Students are expected to complete their clinical competencies during

this class. In addition, classroom time is scheduled to review clinical procedures and review progress of the students. This course includes up to eight hours of medical simulation to help achieve any missing paramedic competencies.

**Prerequisites:** EMS 170, EMS 171, EMS 172, EMS 173, EMS 174 and EMS 176

## Engineering (EGR)

**EGR 153 ENGINEERING DRAWING (4 CR)**

Students examine the communication aspects of graphics emphasizing sketching and computer-aided drafting and design. This course covers simple pictorial and working drawings, orthographic and isometric projections, an introduction to the mechanical design process, the basics of freehand sketching and of computer aided drafting (CAD) and the computer as a design tool.

## English (ENG)

**ENG 080 READING ESSENTIALS (4 CR)**

This course provides the most fundamental support for students who need to develop college-level reading skills. Students must show an ability to read some pre-college writing independently. They are provided with a structured approach to comprehending college-level writing. Student writing is a significant component.

**ENG 085 COLLEGE READING (4 CR)**

This course is intended for students who have developed their reading skills nearly to the college level but need further development of comprehension and vocabulary skills. Using a wide range of reading materials, students will employ metacognitive processes to enhance understanding and will find connections between a text and 1) their own lives, 2) the world and 3) other texts. They will also learn and practice strategies for expanding vocabulary. Student writing is a significant component of the course.

**Prerequisite:** ENG 080\*

**ENG 086 ACTIVE READING (3 CR)**

Using a wide range of reading materials, students will employ metacognitive processes to enhance understanding and will find connections between a text and their own lives, the world, and other texts. They will also learn and practice strategies for expanding vocabulary. Student writing is a significant component of the course.

**Prerequisite:** ENG 080\*

**ENG 090 INTRODUCTION TO WRITING (4 CR)**

This is an intensive course in composition for students who need supplementary help in writing. A personal approach helps students enhance their writing abilities, resolve writing problems and explore writing strategies. An end-of-semester portfolio is required.

**Prerequisite:** ENG 080\*

**ENG 091 INTRODUCTION TO COLLEGE WRITING (3 CR)**

*(Fulfills same requirements as ENG 090)*

This is an intensive course to give students a strong foundation for the work of English 131. Students explore genres in order to meet the expectations of audiences for a variety of purposes. A personal approach helps students enhance their writing abilities, resolve writing problems, and explore writing strategies. An end-of-the-semester portfolio is required.

**Prerequisite:** ENG 080\*

**Corequisite:** ENG 131A

**ENG 131 WRITING EXPERIENCE I (3 CR)**

This is an intensive writing course. Narrative and descriptive modes are stressed. Basic research strategies are introduced. An end-of-the-semester portfolio is required.

**Prerequisites:** ENG 085\* and ENG 090\*

**ENG 131A WRITING EXPERIENCE I (3 CR)**

*(Same as ENG 131)*

This is an intensive writing course. Narrative and descriptive modes are stressed. Basic research strategies are introduced. An end-of-the-semester portfolio is required.

**Prerequisite:** ENG 085\*

**Corequisite:** ENG 091

**ENG 132 WRITING EXPERIENCE II (3 CR)**

This is an intensive writing course. Analytical and persuasive modes are stressed. Advanced research writing strategies are used. Database and primary research methods are emphasized. An end-of-the-semester portfolio is required.

**Prerequisite:** ENG 131

**ENG 186 INTRODUCTION TO PHOTOJOURNALISM (3 CR)**

Use of the 35-millimeter single reflex camera and introduction to digital camera use. Camera operation and darkroom procedures (film development and enlargements) are covered. Instruction emphasizes photographic equipment, lenses, exposure and composition.

\* You may meet this prerequisite based on your course placement, ACT score or successful college coursework. Visit [www.jccmi.edu](http://www.jccmi.edu) for current assessment options and requirements.

**ENG 201 ADVANCED COMPOSITION (3 CR)**

An advanced course offering. Selected students practice peer tutoring and research writing. Emphasis is placed on student writing conferences, process writing, and standard research methods. End-of-the-semester portfolio of research paper is required. Additionally, all students enrolled in this course work as tutors in the Writing Center.

**Prerequisite:** Instructor permission required

**ENG 210 FILMS AS LITERATURE (3 CR)**

Students analyze films as texts by learning to evaluate the story structure of different films and how a film's visual elements work to enhance the story. Students also examine the cultural and societal impact of films. Readings in the narrative structure of films, cultural impact, and film techniques. Includes Jackson College Winter Film Series.

**Prerequisites:** ENG 131

**ENG 232 TECHNICAL & BUSINESS WRITING (3 CR)**

A course designed to provide practice in a variety of written and oral communications to meet the requirements of the workplace. Projects may include descriptions, instructions, résumés, proposals, reports or online documents. It involves frequent writing, both in and out of class, as well as oral presentations, collaborative activities and individual conferences.

**Prerequisites:** ENG 131

**ENG 236 WOMEN IN A CHANGING SOCIETY (3 CR)**

*(Same as SOC 236)*

Inquiry into historical and changing roles of women, looking at causes of these changes and their effects on women and society through literature, sociology, biology and history.

**Prerequisites:** ENG 131

**ENG 242 SPORTS IN FILM AND LITERATURE (3 CR)**

This course is an inquiry into historical and changing role of sports in American culture through novels, essays, biographies, films, documentaries and sports-related poetry.

**Prerequisites:** ENG 131

**ENG 246 SHORT STORY & NOVEL (3 CR)**

Students are introduced to traditional and contemporary fictional genres. This course emphasizes understanding, appreciation and the critical analysis of narrative art. Selections for study are chosen from English and American literature as well as world literature in translation.

**Prerequisites:** ENG 131

**ENG 247 POETRY & DRAMA (3 CR)**

Students are introduced to lyric and dramatic genres. This course emphasizes understanding, appreciation and enjoyment of poetry and theatre as language performances and literary forms. Selections for study are chosen from English and American literature as well as world literature in translation.

**Prerequisites:** ENG 131

**ENG 249 AFRICAN-AMERICAN LITERATURE (3 CR)**

Survey of the literature of African-American writers. Emphasis is on the major writers in narrative, poetry, fiction, essay and drama.

**Prerequisites:** ENG 131

**ENG 252 SHAKESPEARE (3 CR)**

Students read representative plays and are introduced to the Elizabethan world. Course emphasizes developing understanding, appreciation and critical analysis skills.

**Prerequisites:** ENG 131

**ENG 254 CHILDREN'S LITERATURE (3 CR)**

Students survey the various genres of children's literature from a critical point of view. Course emphasizes developing student competency in oral reading and presentation of children's literature.

**Prerequisites:** ENG 131

**ENG 255 AMERICAN LITERATURE-19TH CENTURY (3 CR)**

Students examine the development of a distinctive American literature and culture during the 19th century. Students read selections from many writers, with emphasis on major figures such as Hawthorne, Melville, Thoreau, Emerson, Poe, Dickinson, Whitman, Douglass and Jacobs.

**Prerequisites:** ENG 131

**ENG 256 AMERICAN LITERATURE-20TH CENTURY (3 CR)**

Students examine the literature and culture of America from 1890 to the present, with emphasis on the development of organic and post-modern writing in narrative, poetic and critical modes.

**Prerequisites:** ENG 131

**ENG 257 WORLD LITERATURE I (3 CR)**

Students compare major themes and writers from Africa, America, Asia and Europe.

**Prerequisites:** ENG 131

**ENG 261 CREATIVE WRITING I (3 CR)**

Students experiment with writing poetry, fiction, drama and creative nonfiction for discussion and criticism. Students invent, collaborate and revise before submitting a portfolio of their work. Contemporary readings and visiting authors/videos enhance the class, but primary attention is given to students' creative writing process.

**Prerequisites:** ENG 131

**ENG 262 CREATIVE WRITING II (3 CR)**

Students in this workshop write fiction, poetry and other forms, and present writing for criticism and discussion. Contemporary readings emphasize participation of writers in a living act. Students write and workshop fiction, poetry and other genres. Contemporary readings emphasize writing invention and writing communities.

**Prerequisite:** ENG 261

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## Entrepreneurship (ENT)

**ENT 101 ENTREPRENEURSHIP: CREATING YOUR OWN JOB (3 CR)**

There will be only one constant throughout your career, and that constant is change. The preferences of consumers are constantly changing, entire industries are rising and falling, and hard-working people often are finding themselves looking for a job. This course provides you with the foundation to design your own job, whether in the context of an existing organization (i.e., as an "intrapreneur") or as someone who starts a new enterprise (i.e., as an "entrepreneur"). In this course you will learn more about your own strengths and weaknesses, as well as the key characteristics shared by successful entrepreneurs. You'll also gain skills for matching your strengths with a business idea that fits you well, so that both you and your customers will benefit. Finally, you will begin developing analytical tools to help make sound decisions in a rapidly changing world.

**Prerequisites:** CIS 095\*, ENG 085\* and ENG 090\*

**ENT 102 ENTREPRENEURIAL MARKETING: FINDING YOUR NICHE (3 CR)**

Organizations grow by serving the needs of customers. These needs are frequently changing; at times even the customers themselves don't accurately express what they need. The key to entrepreneurial success is identifying the underlying needs of specific niches within the changing marketplace and then devising a plan which matches your driving passion and unique capabilities with the specific needs you have identified. This

\* You may meet this prerequisite based on your course placement, ACT score or successful college coursework. Visit [www.jccmi.edu](http://www.jccmi.edu) for current assessment options and requirements.

process is entrepreneurial marketing. In this course you will work with market research tools and develop analytical processes for identifying the needs of target customers, and you will produce marketing plans designed to capitalize on your unique advantages in order to delight customers. Simultaneously, you will begin developing a brand identity intended to become the preferred choice among your target customers.

**Prerequisite:** CIS 095\*, ENG 085\*, ENG 090\*

### ENT 169 BUSINESS PLAN (3 CR)

The student will be able to evaluate their business concept and write a sound business plan for their entrepreneurial venture. In the process of doing so, the student will be able to assess the strengths and weaknesses of a business concept; collect and organize market research data into a marketing plan; and prepare the financial projects for their business venture. In addition, students will be able to identify and evaluate various resources available for funding the entrepreneurial venture. To be successful in this course, basic computer skills are required.

**Prerequisites:** ENT 101

## First Year Seminar (FYS)

### FYS 105 COLLEGE SUCCESS SEMINAR (1 CR)

This first-year experience course focuses on the transition of high school graduates into their first semester of college with an emphasis on developing study strategies, teamwork and problem solving. Basic academic areas will be reviewed to improve skill levels prior to fall semester.

### FYS 110 LIFE MAPS (1 CR)

This first-year experience course equips students for transitions in education and life. Students will be actively involved in learning and integrating practical applications to promote success. Students will develop a learning portfolio and an educational plan while enhancing critical thinking and study strategies.

### FYS 131 NAVIGATING COLLEGE AND LIFE (2 CR)

Students will develop and apply soft skills such as self-management, emotional intelligence, interdependence and resiliency in order to promote success in education and in life. Learners will become better equipped as self-advocates in navigating the academic advising and financial aid systems of higher education. Student Education Plans (SEP) and the Life Maps Project will be completed and academic success strategies are introduced and reinforced throughout the course.

### FYS 150 HONORS LEADERSHIP (2 CR)

This course introduces students to the mission, vision and values of Jackson College and introduces students to leadership principles with individual and group service learning projects centered on improving connections with area high schools, the community and stakeholders.

**Prerequisite:** Instructor permission required.

## French (FRN)

### FRN 131 ELEMENTARY FRENCH I (4 CR)

Introduces and develops the four skills of language learning: listening, speaking, reading and writing, with special emphasis on listening and speaking.

**Prerequisite:** ENG 085\*

### FRN 132 ELEMENTARY FRENCH II (4 CR)

Provides increased practice in the basic language skills: listening, speaking, reading and writing.

**Prerequisite:** FRN 131

## Geology (GEL)

### GEL 109 EARTH SCIENCE (4 CR)

This course serves as a foundation for the Earth sciences and Earth science majors. Emphasis is placed on laboratory experience and class discussions to reinforce scientific principles. Earth science case studies are covered in detail. In laboratory, the students will learn how to apply basic scientific principles through active learning and application. This course has a laboratory component.

**Prerequisites:** ENG 085\*, ENG 090\* and MAT 033\* or higher

### GEL 160 INTRODUCTION TO GEOLOGY (4 CR)

The course covers minerals, rocks, earthquakes and volcanoes. It also covers the landscapes and behaviors of continents and oceans. Diagrams, photographs, topographic maps, Internet resources and hands-on exercises are utilized to support the concepts. Course includes a laboratory component.

**Prerequisites:** ENG 085\* and ENG 090\*

## Geography (GEO)

### GEO 131 PHYSICAL GEOGRAPHY (3 CR)

The course begins with maps and grid systems. Map exercises are used all semester to enhance the textbook. Other topics include meteorology, vegetation, earth materials and a range of tectonic and landscape subjects.

**Prerequisites:** ENG 085\* and ENG 090\*

### GEO 132 WORLD REGIONS (3 CR)

This course covers all regions of the world from a human perspective. Topics include resources, population, settlements, agriculture, manufacturing and transportation. There is special emphasis on Internet research in the classroom.

**Prerequisites:** ENG 085\* and ENG 090\*

## German (GER)

### GER 131 ELEMENTARY GERMAN I (4 CR)

Introduces and develops the four skills of language learning: listening, speaking, reading and writing, with special emphasis on listening and speaking.

**Prerequisite:** ENG 085\*

### GER 132 ELEMENTARY GERMAN II (4 CR)

Continuation of GER 131 with increased practice in the basic language skills: listening, speaking, reading and writing with special emphasis on listening and speaking.

**Prerequisite:** GER 131

## History (HIS)

### HIS 120 ANCIENT HISTORY (3 CR)

This course attempts to answer the question, "Where did it all begin?" with a survey of the politics, art and religion of the ancient world from history's beginning in Sumeria to the end of the ancient world when the Western Roman Empire faded out of sight in 476 A.D.

**Prerequisites:** ENG 085\* and ENG 090\*

### HIS 125 AFRICAN-AMERICAN HISTORY (3 CR)

Examines the role African-Americans have historically played in the political, economic and social construction of America.

**Prerequisites:** ENG 085\* and ENG 090\*

### HIS 131 WESTERN CIVILIZATION TO 1555 (4 CR)

HIS 131, together with HIS 132, constitutes the basic history course, as well as an introduction to the humanities.

This course examines the roots of Western culture and its development through the Reformation. The course also surveys the social, philosophical, scientific, artistic, religious and political setting evolution with emphasis on the role of ideas and their consequences in the history of the human kind from the beginning to the 16th century.

**Prerequisites:** ENG 085\* and ENG 090\*

### HIS 132 WESTERN CIVILIZATION 1555 TO PRESENT (4 CR)

HIS 131, together with HIS 132, constitutes the basic history course, as well as an introduction to the humanities.

This course is a continuation of HIS 131, emphasizing the development of new political areas, economic and social theories, the evolution and expansion of modern states, and efforts to control international tensions from the 16th century to the present.

**Prerequisites:** ENG 085\* and ENG 090\*

### HIS 211 MINORITY GROUPS IN AMERICA (3 CR)

(Formerly SOC 235)

History of dominant-minority relations in contemporary American society. Attention to specific ethnic, religious, and racial minorities in terms of prejudice and discrimination.

**Prerequisites:** ENG 085\* and ENG 090\*

### HIS 231 DEVELOPMENT OF THE U.S. THROUGH THE CIVIL WAR (3 CR)

This course is the study of American national history beginning with the colonization to the Civil War. Themes include exploration and settlement, development of political theory, development of the West and its influence on the country, the growth of sectionalism and the Civil War.

**Prerequisites:** ENG 085\* and ENG 090\*

### HIS 232 DEVELOPMENT OF THE U.S. FROM THE CIVIL WAR (3 CR)

This course examines the period from the Civil War and Reconstruction to the present day. Emphasizing industrial, commercial and agricultural expansion; intellectual currents; outstanding social changes; the nation's expanding role in the world affairs, and the Cold War.

**Prerequisites:** ENG 085\* and ENG 090\*

\* You may meet this prerequisite based on your course placement, ACT score or successful college coursework. Visit [www.jccmi.edu](http://www.jccmi.edu) for current assessment options and requirements.



**HIS 235 20TH CENTURY HISTORY (3 CR)**

Examination of national and international developments in the past century focusing on such matters as colonialism, global warfare and emerging nations, appearance and disappearance of communism. In addition, polarization of wealth and power, the revolution in technology, communication, businesses and industry, the conflict between the globalization movement and national tendencies will be examined.

**Prerequisites:** *ENG 085\* and ENG 090\**

## Health Occupations (HOC)

**HOC 130 INTRODUCTION TO HEALTH OCCUPATIONS (3 CR)**

This course will provide the student with an overview of the health care field. Information that is covered serves as a solid foundation for all students in health sciences or health occupations, regardless of the particular health care profession they are interested in pursuing. Topics include: careers in health care, legal and ethical responsibilities, professionalism, interactions between and reaction of patients in normal and altered states, patient and personal safety and cultural diversity.

**HOC 135 ELECTROCARDIOGRAPHY TECHNICIAN (4 CR)**

This course will consist of an overview of the cardiovascular system, proper documentation, and vital signs, along with HIPAA compliance and infection control in the clinical setting. The main focus of this course will be on how to perform and analyze an EKG and recognize various arrhythmias. Students will also learn about exercise electrocardiography and how to perform ambulatory monitoring. The course will also include extensive instruction on cardiovascular pharmacology.

**Prerequisites:** *ENG 085\* and MAT 020\* or higher*

**HOC 140 PHARMACY TECHNICIAN CONCEPTS & CALCULATIONS (4 CR)**

This course applies mathematics in the calculations required for determination of proper dosages, conversion operations, as well as in preparation of parenteral solutions for injections, IVs, etc. Detailed instruction in the techniques used in dosage preparation aseptic techniques will be provided. Knowledge of pharmaceutical and medical terms, abbreviations, and symbols commonly used in the prescribing, dispensing and charting medications. Demonstrating drug purchasing and inventory control concepts. Preparation and pretesting for sitting for the Pharmacy Technician Certification Exam (PTCE) included.

**Prerequisites:** *MAT 130 or higher*

**HOC 145 PHLEBOTOMY TECHNICIAN (4 CR)**

This course will prepare students for performing phlebotomy procedures in a variety of health care settings. Students will learn about the roles and responsibilities of the phlebotomist which will include infection control procedures, legal and ethics issues, working with special populations and situations, and proper specimen collection and handling procedures. The focus will be on performing venipuncture and capillary procedures properly to obtain specimens for various laboratory testing.

**Prerequisites:** *ENG 085\* and MAT 020\* or higher*

**HOC 150 ELECTRONIC HEALTH RECORDS SPECIALIST (3 CR)**

This course provides students with skills necessary to work with Electronic Health Records. This course is ideal for those currently working in the health field or those looking to enter into a health-related program who are hoping to learn more about key concepts and the use of Electronic Health Records in the medical setting. Topics include the cost and needs to consider when implementing an EHR system, how to utilize an EHR system to meet government requirements and medical practice needs, and practical application of various EHR tasks. The course will also cover basic medical terminology and basic medical coding principles. Students who complete this course with a passing grade will be eligible to sit for the Certified Electronic Health Record Specialist exam.

**Prerequisites:** *ENG 085\*, MAT 020\* or higher, CIS 095\**

## Health & Physical Fitness (HPF)

**HPF 110 GOLF (1 CR)**

Learn beginning skills, rules and courtesies. This course emphasizes the swing, chipping and putting. Golf clubs are not provided.

**HPF 119 INTRODUCTION TO YOGA (1 CR)**

Participants will begin to develop yoga as a practice to facilitate lifelong skills enhancing physical, emotional and intellectual strength, flexibility and power. Emphasis is on conscious awareness and internal focus through asana practice, relaxation, body alignment and breathing techniques. Students are required to bring their own yoga mat.

**HPF 141 GROUP CYCLING (1 CR)**

A fast-paced, invigorating workout to music utilizing specialized "spinning" stationary exercise bikes. Students are able to exercise at their own pace. The class is designed for a wide range of fitness levels.

**HPF 143 YOGA II (1 CR)**

Participants develop yoga as a practice to facilitate lifelong skills, enhancing physical, emotional, and intellectual strength, flexibility, and power. The course emphasizes conscious awareness and internal focus through asana practice, body alignment, breathing techniques, relaxation and beginning meditation. Students are required to bring their own yoga mat.

**Prerequisite:** HPF 119

**HPF 160 WELLNESS (1 CR)**

Learn the theoretical and practical relationship of lifestyle to productivity. Students examine attitudes and behaviors that enhance quality of life and maximize personal potential. Students have opportunities for self-evaluation.

**Prerequisite:** ENG 085\*

**HPF 161 PERSONALIZED FITNESS (1 CR)**

A self-paced program in which students exercise independently in a supervised lab. Instructor's guidance is available to develop an individualized plan to achieve personal health and fitness goals.

**HPF 168 WEIGHT TRAINING AND CONDITIONING (2 CR)**

Includes both didactic and practical application of the principles of comprehensive exercise. Learn about the multi-dimensional components of exercise including cardiovascular, flexibility and body composition. Special focus is placed on muscular strength and endurance within the context of a wellness perspective. Under the supervision of the instructor, students work out in a state of the art fitness facility that includes Eagle/Cybex equipment and multiple cardiovascular machines as well as a ten-lap/mile track.

**HPF 169 AEROBIC RHYTHMS (1 CR)**

Students at various fitness levels participate in a choreographed exercise/dance and step class for the improvement of cardiovascular fitness, strength and flexibility.

**HPF 173 SPORTS MATTERS (3 CR)**

Students examine the changes and challenges in the field of sport and exercise today for the individual and society, including ethics and values, gender, ethnicity, leadership and politics.

**Prerequisite:** ENG 085\*

**HPF 182 LIGHT WALKING (1 CR)**

Use walking to develop cardiovascular fitness and lose weight. This course emphasizes both muscular endurance and flexibility.

**HPF 186 WEIGHT TRAINING & WELLNESS (3 CR)**

The principle course focus is that of self-responsibility for well-being. Concentration is on aspects of wellness and conditioning that can be personally controlled and changed. Included are didactic and practical applications of principles for a comprehensive conditioning and wellness program in the context of creating a healthy lifestyle from a wellness perspective.

**Prerequisite:** ENG 085\*

**HPF 187 INTERVAL TRAINING (1 CR)**

Participate in a vigorous running workout. Intervals ranging in distance from 200-800 meters form the basis of the workout.

**HPF 221 JAZZ TECHNIQUES (3 CR)**

*(Same as DAN 121)*

Beginner to intermediate level class exploring contemporary jazz and modern dance techniques. Includes an introduction to the fundamentals of choreography, exploration of the elements of dance, and history of dance.

**HPF 268 ADVANCED WEIGHT TRAINING (2 CR)**

Participate in fitness evaluations and individually prescribed programs designed to develop strength, aerobic endurance and flexibility.

**Prerequisite:** HPF 168 or HPF 186

**HPF 277 STRESS MANAGEMENT (2 CR)**

Examine current information and techniques related to stress management. Students learn basic concepts and skills related to the holistic management of stress.

**Prerequisite:** ENG 085\*

**HPF 283 MANAGING STRESS AND HOLISTIC HEALTH (3 CR)**

This course provides students with a holistic approach to health focusing on competencies to manage stress. Students learn the relationship of lifestyle to their health. Through the reflective use of specific skills, tools and new knowledge students have an increased opportunity to enhance their lives and the lives of those around them.

**Prerequisites:** ENG 085\* and ENG 090\*

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## Hospitality Management (HTM)

**HTM 300 INTRODUCTION TO TOURISM AND HOSPITALITY (3 CR)**

Students will explore careers and components of the tourism and hospitality industries, inclusive of lodging, restaurants, recreation/theme parks, clubs/gaming, and entertainment

and events. Using the hospitality perspective, many business principles will be covered, such as: leadership, management, planning, organization, communication, decision-making, and quality control.

**Prerequisites:** BUA 220

### **HTM 305 HOSPITALITY FACILITIES MANAGEMENT (3 CR)**

This course offers an overview of the operation of hospitality facilities, including operating costs for various types of facilities, types and characteristics of major building systems, sustainable aspects of building equipment and management, and the responsibilities of the engineering maintenance department. The study of technology, that aids renovation needs, will be explored so as to streamline operation procedures and key managerial aspects of hospitality facility maintenance.

**Prerequisites:** CUL 100, BUA 220, ENG 232 and STM 101

### **HTM 313 HOSPITALITY ETHICS (3 CR)**

Students will develop theoretic lenses for understanding ethical issues that confront management in the hospitality and tourism industry while cultivating practical tools for accomplishing personal and organizational goals, and equally exploring how those issues might be handled in ethically defensible ways. This will chiefly be accomplished by way of case studies, self-assessments, experiential exercises, reading, discussion, papers and group activities.

**Prerequisites:** CUL 100, BUA 220 and ENG 232

### **HTM 320 CLUB AND SPECIAL EVENT MANAGEMENT (3 CR)**

This course explores the management of, and leadership roles within, private city, country, and athletic clubs. Topics include: the general manager function; organizational structure of clubs; membership requirements; the future of clubs; and the relationship of private clubs to the hospitality industry. Students will examine the production and execution of special events, focusing on planning, developing, managing, and implementing all types of events, such as festivals, entertainment, corporate, cultural, and sporting events.

**Prerequisites:** CUL 100, CUL 150 and BUA 220

### **HTM 325 GAMING AND CONVENTION SALES MANAGEMENT (3 CR)**

This course is designed to focus on the planning and managing of events, meetings and conventions. Students will cover the basic techniques and processes behind event planning and meeting management. Emphasis will be given on technical, financial, operational and implementation skills, as well as identifying legal and strategic requirements. Furthermore, the student will be introduced to the multi-billion-dollar gaming industry. Topics include a historical overview of gaming and examines legal, social, and economic issues within the industry. It also reviews the various games played in casinos, current trends, and most popular casino destinations in the world.

**Prerequisites:** CUL 100, CUL 150, and BUA 220

### **HTM 330 HOSPITALITY AND SALES MARKETING (3 CR)**

Students analyze the hospitality and tourism industry to identify customer wants and needs and develop effective marketing strategies to satisfy them. Emphasis is placed on evaluating hospitality/tourism environments, identifying target markets, building brands, and the marketing functions of defining the product, pricing, promotion (direct and online) and placement/sales.

**Prerequisites:** BUA 230

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## **Humanities (HUM)**

### **HUM 131 CULTURAL CONNECTIONS (3 CR)**

This interdisciplinary course examines contemporary issues, their human and technological components, and their historical precedents through art, music, literature and philosophy.

**Prerequisites:** ENG 085\* and ENG 090\*

### **HUM 220 US-BRAZIL CONNECT I (3 CR)**

This course is only open to students who participate in the international program partnership between Jackson College and Denver-based US-Brazil Connect. The course introduces students to Brazilian history and culture while employing small team techniques to teach the students how to coach Brazilian high school students in English. This is a structured cross-cultural experience that will afford students the ability to examine the differences and similarities of two dynamic and unique cultures and languages.

**Prerequisites:** ENG 085\* and ENG 090\*

### **HUM 250 STUDIES IN LEADERSHIP (3 CR)**

The course provides emerging and existing leaders the opportunity to explore the concept of leadership and to develop and improve their leadership skills. The course integrates readings from the humanities, experiential exercises, films and contemporary readings on leadership.

**Prerequisite:** FYS 150

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## **Licensed Practical Nursing (LPN)**

The LPN program at Jackson College has recently updated its accreditation. Please view our website, [www.jccmi.edu](http://www.jccmi.edu), for the most up to date program information and course descriptions.

# Mathematics (MAT)

## **MAT 019 RAPID REVIEW MATH (1 CR)**

This course provides a rapid review of three pre-algebra: integers, fractions, and decimals. Placement testing and advising is included at the end of the review to determine the best math placement for the student for the remainder of the semester.

## **MAT 020 PRE-ALGEBRA (4 CR)**

*(Formerly MTH 098)*

This course reviews the arithmetic of fractions, decimals, and signed numbers with applications. Students will learn the mathematics of proportion and percent with applications, basic statistical graphs and charts, geometry and measurement (including the metric system), and introductory algebraic concepts. The mathematics department recommends that the prerequisite not be more than two years old. If the prerequisite is more than two years old, the recommendation is course placement assessment be taken or the prerequisite be retaken to ensure the success of the student.

**Prerequisites:** MAT 019\*

## **MAT 030 FOUNDATIONS OF MATH (4 CR)**

This course is designed to prepare non-STEM major students for MAT 130, Quantitative Reasoning. Cultivates student skills in interpreting, understanding, and using quantitative information. Develops facility with numeracy, problem solving strategies, proportional and statistical reasoning through a quantitative literacy lens. Fosters skills in reading and writing quantitative information. Emphasizes critical thinking and the use of multiple strategies in applied contexts.

**Prerequisites:** MAT 019\*

## **MAT 033 ALGEBRA FOR STATISTICS (4 CR)**

As an alternative pathway toward college-level mathematics, this course introduces fundamental algebra concepts within an underlying framework of statistics and mathematical modeling based on real-world data. Major concepts and themes include: problem solving and experimental design; unit analysis and error in measurement; dimensional analysis and scientific notation; representing data and coordinate graphing; introduction to basic descriptive statistics and probability theorems; basic geometric principles (area, volume, perimeter); arithmetic operations on numbers, ratios, summations, and percents; solution and manipulation of formulas; modeling relationships (linear and exponential regression); solving equations and inequalities; and function arithmetic and graphing. Appropriate technology includes a graphing calculator. The mathematics department recommends that the prerequisite not be more than two years old. If the prerequisite

is more than two years old, then the recommendation is that the course placement exam be taken or the prerequisite be retaken to ensure the success of the student.

**Prerequisite:** MAT 030\*

## **MAT 039 BEGINNING ALGEBRA (4 CR)**

Students will build algebraic skills working with expressions and linear and quadratic equations. The course particularly emphasizes graphs and equations of lines, factoring techniques, methods of solving quadratic equations, and linear and quadratic modeling.

**Prerequisite:** Placement test only

## **MAT 130 QUANTITATIVE REASONING (4 CR)**

Quantitative reasoning develops student skills in analyzing, synthesizing and communicating quantitative information. Cultivates algebraic reasoning and modeling skills through a quantitative literacy lens. Emphasizes critical thinking and the use of multiple strategies in applied contexts. Topics include proportional and statistical reasoning, probability, and evaluation of bias and validity.

**Prerequisites:** MAT 030\*

## **MAT 131 INTERMEDIATE ALGEBRA (4 CR)**

*(Formerly MTH 131)*

This course emphasizes simplifying expressions, solving equations, and graphing functions, including linear, quadratic, polynomial, rational, radical, exponential and logarithmic. Problem solving and mathematical modeling are integrated throughout. Appropriate technology includes a graphing calculator. The mathematics department recommends the prerequisite not be more than two years old. If the prerequisite is more than two years old the recommendation is the course placement assessment be taken or the prerequisite be retaken to ensure the success of the student.

**Prerequisite:** MAT 039\* or MAT 130

## **MAT 133 INTRODUCTION TO PROBABILITY & STATISTICS (4 CR)**

*(Formerly MTH 133) (Same as CIS 203 and PSY 144)*

This course is an introduction to experimental design, data representation, basic descriptive statistics, probability theorems, frequency distributions and functions, binomial and normal probability distributions and functions, probability density functions, hypothesis testing, statistical inference, Chi-square analysis, linear regression, correlation and application of the above in making informed, data-driven decisions in real-world contexts. Both graphing calculators and computer-based statistical software (Microsoft® Excel®) will be used.

If the prerequisite is more than two years old, then the mathematics department recommends the course placement exam be taken or the prerequisite be retaken to ensure the success of the student.

**Prerequisite:** MAT 033\* or MAT 130\* or higher

### **MAT 135 FINITE MATHEMATICS (4 CR)**

*(Formerly MTH 145)*

This course is for student whose programs do not require trigonometry (or the calculus sequence). The topics included are linear, exponential, quadratic, polynomial and logarithmic functions and models: systems of linear equations; linear regression; mathematics of finance and financial modeling; matrices, linear programming; permutations; combinations, probability theory; probabilistic simulations; decision theory; descriptive statistics; and Markov chains. The mathematics department recommends the prerequisite not be more than two years old. If the prerequisite is more than two years old the recommendation is the course placement assessment be taken or the prerequisite be retaken to ensure the success of the student.

**Prerequisite:** MAT 039 or MAT 131\*

### **MAT 139 COLLEGE ALGEBRA (4 CR)**

Algebraic functions, graphs and models are addressed.

Emphasis is placed on the following function types: polynomial, exponential, logarithmic, rational and radical. In all topic areas, covered content includes simplifying expressions, solving equations, graphing using transformations, mathematical modeling and problem solving.

**Prerequisite:** MAT 039\* or MAT 131\* or higher

### **MAT 141 PRE-CALCULUS (5 CR)**

Major emphasis is on the concept of functions. Study polynomial, rational, exponential, logarithmic, trigonometric and inverse trigonometric functions, their properties, graphs, and related equations and applications. Additional topics include systems of equations, matrices, conic sections, sequences and series, and probability. A graphing calculator is required and used extensively. The mathematics department recommends that the prerequisite not be more than two years old. If the prerequisite is more than two years old, then the recommendation is that the course placement exam be taken or the prerequisite be retaken to ensure the success of the student.

**Prerequisite:** MAT 139\*

\* You may meet this prerequisite based on your course placement, ACT score or successful college coursework. Visit [www.jccmi.edu](http://www.jccmi.edu) for current assessment options and requirements.

### **MAT 151 CALCULUS I (4 CR)**

*(Formerly MTH 151)*

First calculus course for business, mathematics, engineering and science students explores introductory plane analytic geometry, the derivative, the integral and their applications for algebraic, trigonometric, exponential and logarithmic functions. The mathematics department recommends that the prerequisite not be more than two years old. If the prerequisite is more than two years old, then the recommendation is that the course placement exam should be taken or the prerequisite be retaken to ensure the success of the student.

**Prerequisite:** MAT 141\*

### **MAT 154 CALCULUS II (5 CR)**

*(Formerly MTH 154)*

This course explores the following topics: methods and applications of the derivative and integral for inverse trigonometric and hyperbolic functions, indeterminate forms, series and polar/parametric representation of functions. Graphing calculator required. The mathematics department recommends the prerequisite not be more than two years old. If the prerequisite is more than two years old, the recommendation is the course placement exam be taken or the prerequisite be retaken to ensure the success of the student.

**Prerequisite:** MAT 151\*

### **MAT 210 FOUNDATIONS OF MATHEMATICS I (4 CR)**

*(Formerly MTH 210)*

This course provides background material for students preparing to teach at the elementary level and emphasizes the structure and properties of the number system. It also covers concepts, models in algorithms for whole numbers, integers, fractions, decimals and percents. Some additional hours of on-site field work may be required. The mathematics department recommends that the prerequisite not be more than two years old. If the prerequisite is more than two years old the recommendation is the course placement exam be taken or the prerequisite be retaken to ensure the success of the student.

**Prerequisite:** MAT 131\* or higher

### **MAT 211 FOUNDATIONS OF MATHEMATICS II (4 CR)**

*(Formerly MTH 211)*

This course will provide the second semester of math content for elementary education majors. It is a continuation course for MAT 210; Foundations of Mathematics I. Topics include probability and statistics, geometry and measurement. The mathematics department recommends that the prerequisite not be more than two years old. If the prerequisite is more than two years old then the recommendation is that the course placement exam be taken or the prerequisite be retaken to ensure the success of the student.

**Prerequisite:** MAT 210



**MAT 251 CALCULUS III (4 CR)***(Formerly MTH 251)*

Solid analytical geometry is integrated throughout this course covering the calculus of vector valued functions, multivariable functions, and vector fields with applications. Graphing calculator required. The mathematics department recommends that the prerequisite not be more than two years old. If the prerequisite is more than two years old then the recommendation is that the course placement exam be taken or the prerequisite be retaken to ensure the success of the student.

**Prerequisite:** MAT 154**MAT 254 DIFFERENTIAL EQUATIONS (4 CR)***(Formerly MTH 254)*

Explore solutions of first order differential equations, linear differential equations with constant coefficients, variation of parameters, series solutions, Laplace transforms, eigenvectors and eigenvalues and application to solution of systems of linear first order equations. Graphing calculator required. The mathematics department recommends that the prerequisite not be more than two years old. If the prerequisite is more than two years old, then the recommendation is that the course placement exam be taken or the prerequisite be retaken to ensure the success of the student.

**Prerequisite:** MAT 154

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## Manufacturing Technology (MFG)

**MFG 105 BLUEPRINT READING (2 CR)**

This course will provide the student with a working knowledge and understanding of a variety of mechanical and electrical blueprints. Students will learn to recognize and identify symbols and specifications common to modern industrial blueprints. Topics will include: lines and symbols, views, form, position, title blocks, sketching, features and sections.

**MFG 115 GD & T (2 CR)**

This course will provide the student with a working knowledge and understanding of dimensioning and tolerancing for specific design requirements on engineering drawings. Students are exposed to symbols, terms, datums, material conditions, form, profile, orientation, runout and location tolerances. Content includes use and understanding of the symbolic method of specification relating to tolerances being applied using ANSI Y14.5M.

**Prerequisite:** MFG 105**MFG 150 MACHINING THEORY & METHODS (4 CR)**

This course instructs students in machine tool principles and practices used in industry. Safety, terminology, manual milling, lathe, grinding, drilling, basic CNC, measurement and various shop procedures are used to complete projects. A working knowledge of hand and machine tools is achieved through a series of lectures, demonstrations and hands-on projects.

**MFG 160 MATERIALS/METALLURGY (2 CR)**

This course will provide the student with a working knowledge of the properties, uses and treatment methods used to alter the properties of commonly used metals and alloys. This knowledge may be applied to the design, selection, processing and testing of metal parts.

**MFG 164 BASIC FABRICATION (4 CR)**

This course instructs students in standard fabrication principles and practices used in industry. Safety, terminology, material milling, lathe, grinding, sawing, drilling, tapping, riveting, sheet metal working, standard layout skills, measurement and standard shop procedures are used to complete various projects. A working knowledge of hand and machine tools is achieved through a series of lectures, demonstrations and hands-on projects.

**Prerequisite:** MFG 105\***MFG 166 PRECISION MACHINING METHODS (2 CR)**

This course instructs students in machine tool principles and practices used in industry. Safety, terminology, material milling, lathe, grinding, drilling, basic CNC, measurement and various shop procedures are used to complete projects. A working knowledge of hand and machine tools is achieved through a series of lectures, demonstrations and hands-on projects.

**Prerequisite:** ENG 085\***MFG 170 HYDRAULICS/PNEUMATICS (4 CR)**

This course provides instruction in the basics of hydraulic and pneumatic systems including pumps, valving, control assemblies and actuators. Provides a general understanding of basic laws and formulas used in simple hydraulic circuits, including standard hydraulic symbols, and maintenance procedures.

**MFG 172 CNC THEORY (2 CR)**

This course will review the development of computer numerical control (CNC), where CNC is used, terminology, and its advantages and shortcomings. Fundamentals of programming and tooling for basic CNC machining are also covered.

**Prerequisite:** ENG 085\*

**MFG 174 CNC PROGRAMMING (2 CR)**

This course will provide students with a better understanding of set-up and operations of CNC machine tools. Special emphasis is placed on time-saving techniques in programming and operations.

**Prerequisite:** MFG 172

**MFG 185 MAINTENANCE & TROUBLESHOOTING (3 CR)**

Covers methods and means used to troubleshoot and maintain machines typically found in a manufacturing environment. Problem symptoms, problem identification, maintenance records and systems will be covered.

**MFG 190 DRIVE COMPONENTS & BEARINGS (2 CR)**

This course instructs students in the principles, applications, and maintenance of various types of bearings and mechanical couplings, including ball and roller, powdered metal, nonmetallic, hydrostatic bearings, couplings, such as shear, torque limiting, floating and insulated, speed reducers, seals and gears.

**MFG 200 BASIC GAUGES & MEASUREMENT (2 CR)**

This course provides instruction in inspection tools and inspection procedures commonly used in manufacturing.

**MFG 240 INTRODUCTION TO QUALITY MANAGEMENT (3 CR)**

This is a beginning course in the field of quality management. Students will be introduced to history of the field; problem solving strategies; root cause analysis; workflow diagraming; Six Sigma/Lean concepts; and basic statistical process control (SPC) as the concept of systems thinking is explored in practical scenario based projects. The concepts in this class are universal to all industries.

**Prerequisites:** MAT 131\* or higher, ENG 131 and CIS 101\*

**MFG 261 STRENGTH OF MATERIALS FOR MANUFACTURING (3 CR)**

This course will build upon previous courses and provide students with a basic working knowledge of stress/strain, tensile strength, yield strength and some basic finite element analysis (FEA). Students will use standard and custom elements to calculate load capabilities for bolts, pins, axles, and structural material. Some analysis will be computer based as well as standard engineering analysis.

**Prerequisites:** MFG 105, MFG 160 and CAD 151

## Medical Insurance Coder/ Biller (MIC)

**MIC 101 ICD-CM CODING (3 CR)**

This course is an introduction to basic coding principles utilizing the International Classification of Diseases, Clinical Modification Coding System, with an emphasis on ICD-CM conventions, coding steps and guidelines, V and E codes, symptoms, signs, and ill-defined conditions and use of the medical record as a source for coding. The Uniform Hospital Discharge Data Set (UHDDS) and guidelines for coding neoplasms, injuries, burns, poisonings, adverse effects of drugs, and complications of surgery and medical care are also included.

**Prerequisites:** BIO 132 or BIO 254 or MOA 141 or LPN 141 and MOA 112, MOA 120 and MIC 141

**MIC 141 PRINCIPLES OF MEDICAL CODING AND BILLING (3 CR)**

Study principles and practices in health information management as it relates to documentation for medical billing. Introduction to ICD and CPT coding, private insurance, and government program claim processing, legal and health care finance issues, HIPAA and release of information guidelines are emphasized.

**Prerequisites:** MOA 120, ENG 131, CIS 095\*, and BIO 132 or MOA/LPN 141 or BIO 254

**MIC 150 CPT CODING (3 CR)**

This course provides an introduction to the study of Current Procedure Terminology (CPT) Coding. Simulation of outpatient coding, including ambulatory surgery, diagnostic testing and procedures, physician services using patient records, and encoder software are essential parts of this course. Emphasis is placed on the use of official CPT coding guidelines, compliance and Ambulatory Payment Classification (APC) calculations.

**Prerequisites:** BIO 132 or BIO 254 or MOA 141 or LPN 141 and MOA 112, MOA 120 and MIC 141

**MIC 201 BILLING SYSTEMS (3 CR)**

This course provides an introduction to the study of the billing and reimbursement processes of hospitals and ambulatory health care settings including: scheduling, registration, insurance verification, fee schedules, encounter forms, charge capturing, billing process, reimbursement process, patient payment and collections. Computer laboratory work with billing software is included.

**Prerequisites:** CIS 095\*

**MIC 211 ADVANCED CODING (3 CR)**

This course serves as a continuation of basic ICD-CM Coding with application of guidelines in more advanced case scenarios. The content includes simulation of inpatient and outpatient coding of diseases, procedures and services of all body systems using patient records and encoder software. Emphasis is placed on the use of official coding guidelines and compliance.

**Prerequisites:** MIC 101 and MIC 150

**MIC 242 ADVANCED MEDICAL BILLING (3 CR)**

Designed to teach advanced skills in medical insurance billing. Correct preparation of major carrier claims including use of modifiers and rebilling skills emphasized.

**Prerequisites:** MIC 141

**MIC 255 CODER/BILLER CAPSTONE (3 CR)**

A student may choose to take the capstone instead of the practicum. In the capstone, you will not be performing hours at an external site, but rather perform extensive coding and billing exercises to prepare for the CPC exam, build a portfolio, and prepare for employment. Expect to spend approximately 10 hours a week minimum, outside of class time working on assigned items.

**Prerequisite:** MIC 211 and Instructor permission

## Medical Assistant (MED/MOA)

**MOA 112 MEDICAL LAW AND ETHICS (3 CR)**

Principles and concepts of medical law and bioethics, as well as an overview of health care financing through third party payers are the main focus of this course. Topics include: medical practice management, medical law, liability and malpractice prevention, health information management, HIPAA and confidentiality of patient information, employment practices, consent, billing collections, insurance and government health care programs, codes of ethics and contemporary bioethical issues.

**Prerequisites:** CIS 095\* and ENG 090\*

**MED 115 FOUNDATIONS OF CLINICAL PRACTICE (5 CR)**

This course provides students with an introduction to the medical assistant profession along with instruction on basic clinical skills such as aseptic techniques and hand washing, OSHA & blood borne pathogen training, documentation, patient interviews and patient history, vitals, performing inventory and equipment maintenance, using the electronic

health record, and an overview of pharmacology with a focus on the top 50 prescribed medications.

**Prerequisites:** CIS 095\*, ENG 131, MAT 030 or higher, MOA 120 and, BIO 132 or BIO 254, or MOA 141 or LPN 141

**MED 116 PHYSICAL EXAMS & DIAGNOSTIC TESTING (3 CR)**

Through two hours of lecture and three hours of lab per week students will learn clinical practices that will include: assisting patients with special needs, assisting with the physical exam, eye and ear procedures, EKG, pulmonary testing, FOBT/ colonoscopy, diagnostic imaging, patient education and community resources.

**Prerequisites:** CIS 095\*, ENG 131, MAT 030 or higher, MOA 120, and BIO 132 or BIO 254, or MOA 141 or LPN 141

**MOA 120 MEDICAL TERMINOLOGY (3 CR)**

A programmed learning word-building system approach is used to teach basic medical terminology. Word roots, prefixes, suffixes, language origins, plural formation and grammar rules are studied. Emphasis is placed on word building, definitions, spelling, usage, pronunciation and acceptable medical abbreviations.

**Prerequisite:** ENG 085\*

**MOA 141 BODY STRUCTURE & FUNCTION (4 CR)**

(Same as LPN 141)

This course is a body systems approach to the body structures and functions providing a foundation of understanding normal and abnormal body functions and disease processes.

**Prerequisite:** ENG 085\*

**MED 215 SPECIALTY EXAMS AND TREATMENTS (3 CR)**

Through two hours of lecture and three hours of lab per week, the student will learn clinical practices, procedures and routines including: well child examinations and immunizations, obstetrics/gynecology, male health, geriatrics, orthopedics and administration of medications.

**Prerequisites:** MOA 112, MED 115 and MED 116

**MED 216 SURGICAL PROCEDURES AND LAB TESTING (3 CR)**

Through two hours of lecture and three hours of lab students will learn and become competent in minor office surgery and surgical asepsis, CLIA laws, lab specimen collection and medical lab testing, microscopy, phlebotomy and professional and personal emergency preparedness.

**Prerequisites:** MOA 112, MED 115 and MED 116

**MOA 240 MEDICAL OFFICE PROCEDURES (3 CR)**

Through written and computerized medical office simulations the student will learn basic concepts and medical administrative practices. Topics include: medical office health information management, oral and written communication skills, patient account management, bookkeeping and accounting practices, electronic transmission of data, preparation of correspondence, understanding document content and use, reception and telephone etiquette, appointment scheduling and legal issues.

**Prerequisites:** CIS 095\*, ENG 131 and MOA 120

**MOA 241 PRINCIPLES OF MEDICAL CODING AND BILLING (3 CR)**

Study principles and practices in health information management as it relates to documentation for medical billing. Introduction to ICD and CPT coding, private insurance, and government program claim processing, legal and health care finance issues, HIPAA and release of information guidelines are emphasized.

**Prerequisites:** ENG 131, CIS 095\*, MOA 120, and BIO 132 or MOA/LPN 141 or BIO 254

**MED 251 MEDICAL ASSISTANT CAPSTONE (3 CR)**

This capstone medical assistant course will assist the graduate in preparation to sit for the national certification exam. Students will also compile a program portfolio along with creating an e-Portfolio to prepare for securing a position in the field. Successful completion of this course is required for graduation.

**Prerequisite:** MED 215, MED 216

**MED 252 MEDICAL ASSISTANT CLINICAL PRACTICUM (3 CR)**

This clinical practicum provides an opportunity for a non-paid practical experience working in a qualified licensed health care practitioner's office or clinic. The student will perform both clinical and administrative medical assisting while being supervised and evaluated by the office staff and monitored by the instructor. The student will also complete assignments via the virtual classroom.

**Prerequisite:** Instructor permission required

**MOA 255 HAI'S PRACTICUM (3 CR)**

The practicum is a non-paid practical experience in which the student is placed in a medical office, clinic, or hospital setting under the supervision of a health care practitioner for 180 hours total. The student has the opportunity to apply the knowledge and skill learned in the classroom in a real life clinical situation. Depending on the placement, the student may perform medical office duties, coding/billing, or other administrative tasks learned in the program. The student will

work with the program director to determine what type of practicum/placement they would prefer.

**Prerequisite:** MIC 211 and Instructor permission required

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## Music (MUS)

**MUS 103 KEYBOARD I (2 CR)**

Sequence of courses that teach music reading and performance on piano. The course stresses functional keyboard skills.

**MUS 104 KEYBOARD II (2 CR)**

Sequence of courses that teach music reading and performance on piano. The course stresses functional keyboard skills.

**Prerequisite:** MUS 103

**MUS 105 KEYBOARD III (2 CR)**

Sequence of courses that teach music reading and performance on piano. The course stresses functional keyboard skills.

**Prerequisite:** MUS 104

**MUS 106 KEYBOARD IV (2 CR)**

Sequence of courses that teach music reading and performance on piano. The course stresses functional keyboard skills.

**Prerequisite:** MUS 105

**MUS 107 GUITAR I (2 CR)**

Beginner class instruction in playing folk and classical guitar. Each student provides own guitar.

**MUS 108 GUITAR II (2 CR)**

Continuation of MUS 107.

**Prerequisite:** MUS 107

**MUS 123 VOICE CLASS (2 CR)**

Designed to aid in vocal techniques and develop stage presence. Topics include breathing techniques, vocal evaluation, developing a personal style and working with a microphone. May be taken two times for credit.

**MUS 124 ADVANCED VOICE CLASS (2 CR)**

Sequence of Voice Class, MUS 123. Class continues the development of vocal technique, with emphasis on performance. May be taken two times for credit.

**Prerequisite:** MUS 123

**MUS 129 COMMUNITY CONCERT BAND (1 CR)**

Study and performance of concert band music. May be taken four times for credit.

**MUS 130 MUSIC OF NON-WESTERN CULTURES (3 CR)**

Discovering the music of non-Western cultures through lecture and directed listening.

**Prerequisite:** ENG 085\*

**MUS 131 UNDERSTANDING MUSIC (3 CR)**

Lecture and directed listening on the elements, forms, and historic chronology of Western music.

**Prerequisite:** ENG 085\*

**MUS 132 HISTORY OF AMERICAN POPULAR MUSIC (3 CR)**

Students explore the development of popular music in America and focus on the musical, social and economic influences of commercial music in an historical context.

**MUS 133 MUSIC EDUCATION (3 CR)**

Elementary education student is taught the fundamentals of music and then given practical experience in teaching, creating, and accompanying songs and how to enhance an elementary classroom with music.

**MUS 135 AFRICAN DRUM ENSEMBLE (2 CR)**

Performance of African (Ashante) drums. Rehearsals with cultural exploration leading to performances of the music. May be taken four times for credit.

**MUS 136 BRASS ENSEMBLE (2 CR)**

Performance of music for brass chamber ensembles. May be taken four times for credit.

**MUS 137 JAZZ ENSEMBLE (2 CR)**

Performance of jazz with emphasis on improvisational skill development. May be taken four times for credit.

**MUS 138 WOODWIND ENSEMBLE (2 CR)**

Performance of woodwind chamber ensemble music. May be taken four times for credit.

**MUS 151 MUSIC THEORY I (4 CR)**

Study of scales, key signatures, chord structure, intervals, chord progression and non-harmonic tones. This course includes sight singing, keyboard harmony and ear training.

**MUS 152 MUSIC THEORY II (4 CR)**

Continued study of scales, key signatures, chord structure, intervals, chord progression and nonharmonic tones. This course includes sight singing, keyboard harmony and ear training.

**Prerequisite:** MUS 151

**MUS 167 APPLIED MUSIC (1 CR)**

Private lessons taken for one credit, designed for music transfer students on secondary instruments, or recreational players looking to further their instrumental or vocal skills. Each face-to-face lesson will be 40 minutes, once per week, will include extra outside work, and require an end-of-semester recital performance combined with other private lesson students.

**MUS 168 APPLIED MUSIC (1 CR)**

Private lessons taken for one credit, designed for music transfer students on secondary instruments, or recreational players looking to further their instrumental or vocal skills. Each face-to-face lesson will be 40 minutes, once per week, will include extra outside work, and require an end-of-semester recital performance combined with other private lesson students.

**Prerequisite:** MUS 167

**MUS 177 APPLIED MUSIC (2 CR)**

Private lessons taken for two credits, designed for music transfer students on secondary instruments, or recreational players looking to further their instrumental or vocal skills. Each face-to-face lesson will be 60 minutes, once per week, will include extra outside work, and require an end-of-semester recital performance combined with other private lesson students.

**Prerequisite:** MUS 168

**MUS 178 APPLIED MUSIC (2 CR)**

Private lessons taken for two credits, designed for music transfer students on secondary instruments, or recreational players looking to further their instrumental or vocal skills. Each face-to-face lesson will be 60 minutes, once per week, will include extra outside work, and require an end-of-semester recital performance combined with other private lesson students.

**Prerequisite:** MUS 177

**MUS 190 BROADWAY REVUE (1 CR)**

Study and perform Broadway, jazz and popular vocal literature. The performance aspect includes singing, stage presence, staging and movement. This ensemble rehearses a total of three to four hours per week. Audition is required. May be taken four times for credit.

**MUS 267 APPLIED MUSIC (1 CR)**

Private study on all instruments is open to all students. This is a requirement for music majors pursuing a bachelor's degree. All students must register with music department at the beginning of each semester. Recital and jury required.

**Prerequisite:** MUS 168 or MUS 178



## Natural Science (NSC)

### NSC 120 FUNDAMENTALS OF AGRICULTURAL SCIENCE (4 CR)

This course is designed for students in the agricultural science degree program. It provides an overview of important concepts in biology and chemistry. Chemistry topics include atomic structure, energy, and acid and base chemistry. Biology concepts include cellular structure and energy production, biotechnology, evolution, and ecology. These concepts will be expanded and applied in later courses in the program. Course includes a lab component.

**Prerequisites:** MAT 030 (course can be taken concurrently)

### NSC 131 CONTEMPORARY SCIENCE (4 CR)

An interdisciplinary course that introduces the nature of science as a process. Particular topics from biology, chemistry, physics, geology and astronomy covered with an emphasis on critical thinking and evaluating evidence to examine competing theories. This course is ideal as a first science course for students whose science background is minimal, who are anxious about science, or who have not had a science course for several years. Course includes a laboratory component.

**Prerequisites:** ENG 090\* and MAT 030\* or higher

## Nursing (NUR/NRS)

### NRS 110 NURSING FUNDAMENTALS (5 CR) (Formerly NUR 101)

This course introduces students to fundamental concepts of professional nursing and the nursing process. It is designed to teach students to utilize evidence-based practice in providing client-centered and culturally responsive care, advocate for the safety and well-being of clients, develop sound clinical reasoning, promote a spirit of inquiry, and build a strong foundation for a professional identity. Clinical experiences in the long term care facilities and in community settings are designed to reinforce theory concepts and the nursing process.

**Prerequisite:** Admission into the NURS.AAS program

### NRS 111 NURSING SKILLS (1 CR)

This course prepares students to safely and efficiently perform basic psychomotor nursing skills which are client-centered, culturally responsive and evidence-based. Classroom, laboratory and simulation experiences foster the development of clinical reasoning, a spirit of inquiry, and teamwork in preparation for the clinical experience.

**Prerequisite:** Admission into the NURS.AAS program

### NRS 116 PHARMACOLOGY (3 CR)

(Formerly NUR 121)

This course introduces students to basic principles of drug actions and nursing implications within the framework of the nursing process. Students will develop clinical reasoning and drug computation skills necessary to safely administer medications in a culturally responsive, client-centered manner.

**Prerequisite:** MAT 133 and BIO 132, LPN/MOA 141 or BIO 254

### NRS 119 HEALTH ASSESSMENT (3 CR)

(Formerly NUR 245)

This course prepares students to conduct evidenced based, client-centered health assessments. Using a systematic and culturally responsive approach, the student will demonstrate safe assessment techniques and electronic health record documentation according to evidence-based practice.

Classroom, laboratory and simulation experiences foster the development of clinical reasoning, a spirit of inquiry, and teamwork in preparation for the clinical experience.

**Prerequisite:** Admission into the NURS.AAS program

### NRS 145 NORMAL/THERAPEUTIC NUTRITION (3 CR)

Basic nutritional concepts are presented with emphasis on application to patient care. Selected nutritional disorders and fundamentals of diet therapy are also included.

**Prerequisite:** ENG 085\*

### NRS 210 MEDICAL SURGICAL NURSING I (4 CR)

(Formerly NUR 171)

This course prepares the student to provide cultural responsive, safe, quality care while utilizing evidenced-based clinical reasoning that meets the educational and health promotion needs of the medical-surgical client and their families. Clinical experiences, designed to reinforce theory, are included in the acute care setting.

**Prerequisite:** NRS 110, NRS 111, NRS 116, NRS 119

### NRS 211 CARE OF WOMEN AND NEONATES (4 CR)

(Formerly NUR 176)

This course utilizes the nursing process to assist the student in collaborating with the client/family or other health care members to provide culturally responsive care during the childrearing experience. The student will address care issues from a physiological, pathophysiological, and psychosocial context using clinical reasoning to provide safe and quality care for women and neonates. Clinical experiences designed to reinforce theory are included in acute care clinical settings.

**Prerequisite:** NRS 110, NRS 111, NRS 116, NRS 119

**NRS 212 BEHAVIORAL HEALTH (3 CR)***(Formerly NUR 277)*

This course prepares the student to provide culturally responsive, safe, quality care utilizing clinical reasoning when caring for clients and their families with behavioral health needs. Clinical experiences, designed to reinforce theory, practice standards, and current research, are included in both the acute care and community settings.

**Prerequisite:** NRS 210, NRS 211, and NRS 215

**NRS 213 PEDIATRICS (3 CR)***(Formerly NUR 276)*

This course explores Family Centered Care (FCC) concepts according to theories of growth and development to provide culturally responsive, safe, quality care utilizing clinical reasoning in the practice of primary preventative, acute and chronic nursing care of the pediatric patient population. Digital documentation techniques along with clinical experiences designed to reinforce application of theory, practice standards, and current research are included in both the acute care and community settings.

**Prerequisite:** NRS 210, NRS 211 and NRS 215

**NRS 214 MEDICAL SURGICAL NURSING II (4 CR)***(Formerly NUR 270)*

This course prepares the student to provide cultural responsive safe, quality care while utilizing clinical reasoning to the complex medical surgical clients and their families while reinforcing health promotion. Clinical experiences designed to reinforce theory are include in both acute care and community settings.

**Prerequisite:** NRS 210 or NUR 220, NRS 211 or NUR 221, and NRS 215

**NRS 215 PATHOPHYSIOLOGY (4 CR)***(Formerly NUR 172)*

This course challenges student to apply the fundamental principles of pathophysiology in the management of the most relevant acute and chronic diseases within the framework of the nursing process. The student will use pathophysiology knowledge to develop sound clinical reasoning, promote a spirit of inquiry, and build a strong foundation for a professional identity.

**Prerequisite:** NRS 110, 111, 116 and 119

**NRS 220 TRANSITION BRIDGE (4 CR)***(Formerly NUR 124)*

This course prepares the student to transition into the role of the professional nurse. Students build upon foundational concepts of critical thinking to further analyze the nursing process and evaluate plans of care that reflect culturally

responsive, prioritized care utilizing evidenced-based clinical reasoning. Students expand physical assessment and lab skills to fulfill the professional nurse scope of practice.

**Prerequisite:** Admission into TNUR.AAS program

**NRS 221 CARE OF WOMEN AND NEONATES – TRANSITION BRIDGE (.5 CR)***(Formerly NUR 236)*

This course utilizes the nursing process to assist the student in collaborating with the client/family or other health care members to provide culturally responsive care during the childrearing experience. The student will address care issues from a physiological, pathophysiological and psychosocial context using clinical reasoning to provide safe and quality care for woman and neonates. This course is a one-day review of material that the LPN is expected to have gained in their LPN Program. It is meant as a way to refresh the student on the material, and assess for basic competency in the care of women and neonates prior to becoming an RN.

**Prerequisite:** Admission into TNUR.AAS program

**NRS 222 BEHAVIORAL HEALTH – TRANSITION BRIDGE (2 CR) (Formerly NUR 247)**

This course builds on prior knowledge to assist the student with the transition to the role of the registered nurse in the psychosocial setting. Students will build on past knowledge to provide culturally responsive, safe quality care utilizing clinical reasoning when caring for clients and their families with behavioral health needs. The clinical experiences are designed to identify and distinguish the expanded scope of nursing practice through reinforcement of theory, practice standards, and current research in both the acute care and community settings.

**Prerequisite:** Admission into TNUR.AAS program

**NRS 223 PEDIATRIC BRIDGE (.5 CR)***(Formerly NUR 237)*

This course builds upon previous learning to explore the physiological and psychosocial alterations of pediatric clients with acute and chronic health care needs. Students will examine the impact of and plan nursing care for pediatric clients utilizing the nursing process and nursing management techniques. This course is constructed to review and update the Licensed Practical Nurse with the knowledge and skills needed to transition to the role of the professional nurse.

**Prerequisite:** Admission into TNUR.AAS program

\* You may meet this prerequisite based on your course placement, ACT score or successful college coursework. Visit [www.jccmi.edu](http://www.jccmi.edu) for current assessment options and requirements.

**NRS 230 MEDICAL SURGICAL NURSING III (4 CR)***(Formerly NUR 275)*

This course prepares students to provide culturally responsive safe, quality, transitional care while utilizing nursing judgement to increasingly complex, critically ill, and/or multiple clients and their families. Clinical experiences designed to reinforce theory are included in both acute care and community settings.

**Prerequisite:** NRS 212 or 222, NRS 213 or 223 and NRS 214

**NRS 240 NURSING CAPSTONE (4 CR)***(Formerly NUR 274)*

This course prepares students for the transition from student to graduate nurse through synthesis and evaluation of current health care trends, legal and ethical processes, and evidence based practice. Clinical preceptorships designed to integrate theory, practice and professional socialization are included.

**Prerequisite:** NRS 212 or 222, NRS 213 or 223, NRS 214 and NRS 230

**NUR 270 PARTIALLY COMPENSATORY (4 CR)***(Will be replaced by NRS 214)*

Students will apply the nursing process to promote self-care for clients with chronic health needs. This course explores the problems of the "partially compensatory" elderly client. Clinical experiences designed to reinforce theory are included in both the hospital and community settings.

**Prerequisite:** Admission into the NURS.AAS or TNUR.AAS program

**NUR 274 LEADERSHIP (4 CR)***(Will be replaced by NRS 240)*

The student will examine the role change from student to graduate nurse, the nurse agent's role in a leadership position, as well as responsibility, accountability and liability in a health care setting, and current health care trends which impact the client's self-care. The student will continue skill development through the clinical experience.

**Prerequisite:** Admission into the NURS.AAS or TNUR.AAS program

**NUR 275 WHOLLY COMPENSATORY CARE OF THE ADULT (4 CR)***(Will be replaced by NRS 230)*

Utilize the nursing process to provide "wholly compensatory" care for clients. Caring for clients requiring complex nursing interventions and medical regimens in an acute care clinical setting will be provided.

**Prerequisite:** Admission into the NURS.AAS or TNUR.AAS program

**NUR 276 FAMILY II-NURSING OF CHILDREN (4 CR)***(Will be replaced by NRS 213)*

Students build upon previously learned concepts of Orem's Self-Care Model as it pertains to the role of the maternal child nurse and family centered care (FCC) provider. Students apply concepts of critical thinking to analyze sociocultural factors that influence growth and development in children. Utilizing the nursing process as a theoretical framework to potentiate wellness within the child at each developmental stage; students explore the value of active partnerships with client/families in promoting health and wellness to both hospitalized and community care recipients. This course includes clinical experiences designed to reinforce theory.

**Prerequisite:** Admission into the NURS.AAS or TNUR.AAS program

**NUR 277 MENTAL HEALTH NURSING (4 CR)***(Will be replaced by NRS 212)*

Students explore learning experiences that promote satisfactory assimilation of fundamental mental health and mental illness concepts in their delivery of the nursing process with clients and family systems. Learning experiences with a clinical component will be provided for students to demonstrate mental health nursing care to clients with self-care deficits within the wholly and partially compensatory and educative-supportive nursing system.

**Prerequisite:** MAT 133 (preferred) or higher and  
**Corequisite:** NUR 2771

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## Philosophy (PHL)

**PHL 231 INTRODUCTION TO PHILOSOPHY (3 CR)**

In this course, you will be exposed to some of the major figures in Western philosophy, and through them, some of the most important philosophical questions. You will discuss questions such as: Is ethics all a matter of opinion? What is the good life for human beings? When is the state justified in using coercive power? What is the nature of knowledge, and how do we get knowledge? What is the nature of reality? Can we prove the existence of God?

**Prerequisites:** ENG 085\* and ENG 090\*

**PHL 232 LOGIC (3 CR)**

This course gives you a background in both informal and formal logic. Informal logic, which is derived from everyday types of discussions and arguments, is dealt with first. Topics included are the nature of arguments in general, statistical arguments, and fallacies (bad arguments). Formal logic involves dealing with arguments in an artificial language and is the ancestor of digital computers and every computer programming language. You will learn how to manipulate the artificial language and construct relatively simple proofs.

**Prerequisites:** ENG 085\* and ENG 090\*

**PHL 236 ETHICS (3 CR)**

In this course, students will examine various questions concerning the status of ethical judgments and become familiar with certain approaches to ethics that have been influential in Western philosophy, including Kantian ethics, utilitarianism and virtue-based ethical theories. In addition, students will consider how these approaches can be employed in ethical decision-making.

**Prerequisite:** ENG 131

**PHL 243 GREAT WORLD RELIGIONS (3 CR)**

Students examine the literature and historical settings of great world religions. The relationship of contemporary thought is considered for representative groups.

**Prerequisites:** ENG 085\* and ENG 090\*

## Physics (PHY)

**PHY 131 CONCEPTUAL PHYSICS (4 CR)**

Become familiar with basic concepts used in physics to describe and explain various physical phenomena. The course covers the following topics: kinematics (the description of motion); mechanics (the study of force, momentum, and energy); the behavior of solids, liquids and gases; temperature and heat; waves and sound; electricity and magnetism; and optics. The course is designed to familiarize the student with the basics of physics using a minimum of mathematics. Course includes a laboratory component.

**Prerequisites:** ENG 085\* and MAT 020\* or higher

**PHY 145 INTRODUCTION TO BASIC PHYSICS (2 CR)**

This course addresses the basic principles of classical physics specifically for the sonography program with a minimal amount of mathematics. The topics covered include motion, mechanics, energy, properties of matter, waves, heat, electricity and magnetism.

**Prerequisites:** ENG 085\* and MAT 020\* or higher.

**PHY 150 CONCEPTS IN ASTRONOMY (3 CR)**

A one semester conceptual astronomy course for non-science majors. This is a survey course that focuses on four broad content categories: the motions of the sky, the solar system, light & stars, and the universe. The emphasis of the course is on critical thinking about specific topics in these categories with a minimum of mathematics. There is no laboratory component.

**Prerequisites:** ENG 085\* and MAT 033\* or higher.

**PHY 151 ASTRONOMY (4 CR)**

A one-semester conceptual astronomy course for non-science majors. This is a survey course that focuses on four broad content categories: motions of the sky, the solar system, light and stars, and the universe. The emphasis of the course is on critical thinking about specific topics in these categories. The course has an associated laboratory in which students run experiments to verify the concepts presented. The mathematical skills necessary for this course include working with ratios, rates, scaling, unit conversion, percentages, exponents, graphing, basic geometry and substitution into formulas.

**Prerequisites:** ENG 085\* and MAT 033\* or higher

**PHY 231 COLLEGE PHYSICS I (4 CR)**

Pre-professional and engineering technology students explore kinematics, mechanics, dynamics, thermodynamics, acoustics and general wave motion. Course includes a laboratory component.

**Prerequisite:** MAT 131\* or higher

**PHY 232 COLLEGE PHYSICS II (4 CR)**

Students cover topics in electricity, magnetism and modern physics and is a continuation of PHY 231. Course includes a laboratory component.

**Prerequisite:** PHY 231

**PHY 251 MODERN UNIVERSITY PHYSICS I (5 CR)**

Students cover classical mechanics, thermodynamics and wave motion. This course should be elected by all science and engineering students. Course includes a laboratory component.

**Prerequisite:** MAT 151 or higher

**PHY 252 MODERN UNIVERSITY PHYSICS II (5 CR)**

Students cover topics in classical electricity and magnetism, optics, special relativity and modern physics. A continuation of PHY 251. Course includes a laboratory component.

**Prerequisite:** PHY 251

## Political Science (PLS)

### PLS 141 AMERICAN NATIONAL GOVERNMENT (3 CR)

Develops a systematic framework for the interpretation of political activity in the United States. Numerous models explain the theoretical foundations of government and the decision-making process.

**Prerequisites:** ENG 085\* and ENG 090\*

### PLS 262 INTERNATIONAL RELATIONS (3 CR)

Survey contemporary world affairs and examine the nation-state system, the struggle for power, and factors creating harmony and hostility among states.

**Prerequisites:** ENG 085\* and ENG 090\*

## Psychology (PSY)

### PSY 140 INTRODUCTION TO PSYCHOLOGY (4 CR)

Overview of the field of psychology, including learning, development, emotion, motivation, personality, abnormal behavior and psychotherapy.

**Prerequisites:** ENG 085\* and ENG 090\*

### PSY 140A INTRODUCTION TO PSYCHOLOGY (4 CR)

(Same as PSY 140)

Overview of the field of psychology, including learning, development, emotion, motivation, personality, abnormal behavior and psychotherapy.

**Prerequisites:** ENG 090\*

### PSY 144 INTRODUCTION TO PROBABILITY & STATISTICS (4 CR) (Same as MAT 133 AND CIS 203)

This course is an introduction to experimental design, data representation, basic descriptive statistics, probability theorems, frequency distributions and functions, binomial and normal probability distributions and functions, probability density functions, hypothesis testing, statistical inference, Chi-square analysis, linear regression, correlation and application of the above in making informed, data-driven decisions in real-world contexts. Both graphing calculators and computer-based statistical software (Microsoft® Excel®) will be used. If the prerequisite is more than two years old, then the mathematics department recommends the course placement exam be taken or the prerequisite be retaken to ensure the success of the student.

**Prerequisite:** MAT 033\* or MAT 130\* or higher

### PSY 152 SOCIAL PSYCHOLOGY (3 CR)

(Same as SOC 152)

Theoretical synthesis of social influences, including attitude formation, social and cognitive development, aggression, prosocial behavior, prejudice, conformity, culture and gender differences, influences, group processes and interpersonal attraction will be studied.

**Prerequisite:** PSY 140 or SOC 231

### PSY 161 INTRODUCTION TO COUNSELING (3 CR)

Learn basic counseling micro skills against a backdrop of comparative theories and systems of counseling. Ethical, legal and practical issues included.

**Prerequisite:** PSY 140

### PSY 222 APPLIED BEHAVIOR ANALYSIS (3 CR)

Methods and techniques for changing behaviors based on learning principles. Includes modeling, simulation, role playing, operant, aversion, fear reduction and self-management methods.

**Prerequisite:** PSY 140

### PSY 225 INTRODUCTION TO GROUP THERAPY (3 CR)

This course is designed to expose the student to the principles and concepts associate with the conduct of group therapy. The course will be a combination of lecture and application. The course is designed for psychology/social work majors with an interest in clinical application.

**Prerequisites:** PSY 140 and PSY 161, PSY 251 or PSY 252

### PSY 232 SPORTS PSYCHOLOGY (3 CR)

This course will cover various psychological principles associated with sport. The course is designed to introduce the student to the field of sport psychology through a broad overview of the major topics in sport psychology, including but not limited to: personality, motivation, arousal, imagery, goal setting, burnout, gender, diversity and culture. A focus will be on performance enhancement through practical applications of theory.

**Prerequisite:** PSY 140

### PSY 245 INFANCY AND CHILDHOOD (3 CR)

Physical, mental, emotional and social development of the human individual from conception through childhood. Genetic, prenatal and postnatal influences on development are examined. Cognitive and social learning theories are used to integrate research findings.

**Prerequisite:** PSY 140



**PSY 251 ABNORMAL PSYCHOLOGY (3 CR)**

Survey of those behaviors that do not fit the norm of society, including causal factors, specific disorders and treatment methods.

**Prerequisite:** PSY 140

**PSY 252 DEVELOPMENTAL PSYCHOLOGY (3 CR)**

Principles and theories of human development from conception through adulthood, with applications to foster optimal development. Cognitive, behavioral and social learning theories are used to integrate research findings.

**Prerequisite:** PSY 140

**PSY 256 EDUCATIONAL PSYCHOLOGY (3 CR)**

Application of psychological theories to the teaching-learning process. Principles of cognitive and social development discussed along with discipline, motivation and assessment and evaluation.

**Prerequisites:** ENG 085\* and ENG 090\*

**PSY 290 HUMAN SEXUALITY (3 CR)**

Physiological, psychological and sociocultural influences on human sexuality, including gender, sexual maturation and behavior, identity, values, orientation, relationships, sexually transmitted diseases, sexual disorders and therapy.

**Prerequisite:** PSY 140

**PSY 344 ORGANIZATIONAL PSYCHOLOGY (3 CR)**

Performance management and organizational change techniques based on principles of behavioral psychology. Environmental change strategies are emphasized. Topics include personnel management, employee motivation, job satisfaction, compensation strategies and practices, employee behavior and leadership.

**Prerequisite:** ENG 131 and PSY 140

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## Radiography (RAD)

**RAD 120 RADIOLOGIC ORIENTATION (2 CR)**

This course orientates students to the field of radiography. Students are prepared to enter the hospital setting. Hospital personnel, departments, history, and means of operation are discussed. The moral, legal and professional rights and responsibilities of a radiographer are a focus.

**RAD 121 RADIOGRAPHIC POSITIONING I (4 CR)**

Students learn to formulate and apply a working knowledge of radiographic positioning and human anatomy. The student will learn to select and employ the correct procedure process

during a radiographic examination and prepare to implement this knowledge in a clinical setting. The course covers anatomy and positioning of the chest, upper airway, abdomen, upper & lower extremity. Students will actively practice in a lab setting with a lab instructor.

**RAD 125 RADIOGRAPHIC POSITIONING II (4 CR)**

Students will continue to formulate and apply a working knowledge of radiographic positioning and human anatomy. The students will learn to select and employ the correct procedure process during a radiographic examination and prepare to implement this knowledge in a clinical setting. This course will cover the bony thorax, spine, head, gastrointestinal tract, as well as urinary imaging.

**Prerequisite:** RAD 121

**RAD 126 CLINICAL PRACTICUM I (3 CR)**

Clinical experience is provided in this course under the direct supervision of ARRT-registered radiographers. Clinical competencies will be given corresponding to the exams completed in the classroom. Performance standards are used to evaluate the student's progress.

**Prerequisite:** RAD 121

**RAD 160 FUNDAMENTALS OF RADIOLOGIC SCIENCE (4 CR)**

This course will teach the student about the physics of radiology. The basic principles of electricity, magnetism and electromagnetic energy will be covered. This knowledge will help to provide an understanding of how a quality diagnostic radiograph is created, while taking into account safe exposure factors for a patient. Students will understand how x-rays are created and how they interact with tissues and matter. A clear understanding of the fundamentals of physics is the starting point for becoming a superior radiologic technologist.

**Prerequisite:** RAD 126

**RAD 161 RADIOGRAPHIC EXPOSURE (4 CR)**

This course will study in depth the four radiographic qualities of density, contrast, recorded detail and distortion. Factors that affect the four radiographic qualities will be discussed. Students will learn mathematical formulas that aid them in better understanding these factors. Lab and group performance will be utilized to help students learn and understand the content.

**Prerequisite:** RAD 126

**RAD 162 CLINICAL PRACTICUM II (3 CR)**

Continuation of Clinical Practicum I.

**Prerequisite:** RAD 126

**RAD 209 CROSS SECTIONAL IMAGING (3 CR)**

This course is designed to prepare imaging students for CT and MRI imaging. Students will learn how to identify and assess cross-sectional images. Expectations of radiologists and physicians will be clearly delineated in the course. Students that complete this course successfully will be better prepared for rotations in CT and/or MRI imaging.

**Prerequisite:** RAD 125

**RAD 211 CLINICAL PRACTICUM III (6 CR)**

Continuation of Clinical Practicum II.

**Prerequisite:** RAD 162

**RAD 212 SPECIAL RAD STUDIES (4 CR)**

This course will provide a detailed study of special radiographic procedures. The course will discuss the role of the technologist, equipment required in various procedures, and concerns of the technologist when performing these exams. The course also discusses radiation protection and health physics. This course will provide direction to students for registry preparation.

**Prerequisite:** RAD 160

**RAD 213 RADIOBIOLOGY (2 CR)**

Students review the basics of cell biology and study the basic biologic interaction of radiation. That study will include cellular and tissue response to radiation, as well as radiation pathology, the total body radiation response, and the late effects of radiation. It will conclude with a discussion of clinical radiobiology that includes diagnostic radiology, nuclear medicine and therapeutic radiology.

**Prerequisite:** RAD 211

**RAD 214 CLINICAL PRACTICUM IV (5 CR)**

Continuation of Clinical Practicum III.

**Prerequisite:** RAD 211

**RAD 218 RADIOGRAPHIC PATHOLOGY (3 CR)**

This course will introduce the student radiographer to pathology. Students will learn about how differing pathologies occur and how they present themselves radiographically. The course will also discuss how differing pathologies affect the radiographic procedure itself.

**Prerequisite:** RAD 213

**RAD 219 CLINICAL PRACTICUM V (5 CR)**

Continuation of Clinical Practicum IV.

**Prerequisite:** RAD 214

**RAD 220 COMPUTED TOMOGRAPHY FUNDAMENTALS (4 CR)**

This course will provide students with a basic understanding of computed tomographic concepts. The areas of concentration include: fundamentals, equipment and instrumentation, data acquisition, image processing and reconstruction, patient safety, image quality, procedures, and cross-sectional anatomy of the head, neck, chest, abdomen and pelvis.

**Prerequisite:** RAD 219

**RAD 250 CT CLINICAL (5 CR)**

To formulate and apply a working knowledge of CT examinations and patient care at the actual clinical setting. The student will observe, assist and eventually perform CT examinations at the clinical site. Students work and learn from registered CT technologists. Students will record procedures performed according to the ARRT CT requirements.

**Prerequisite:** RAD 209 and RAD 220

**RAD 252 CT CLINICAL II (5 CR)**

To continue to formulate and apply a working knowledge of CT examinations and patient care at the actual clinical setting. The student will perform CT examinations at the clinical site. Students work and learn from registered CT technologists. Students will record procedures performed according to the ARRT CT requirements.

**Prerequisite:** RAD 250

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## Respiratory Care (RES)

**RES 100 RESPIRATORY CARE TECHNIQUES I (7 CR)**

This classroom and laboratory course is an introduction to the duties and responsibilities of respiratory care practitioners. Topics covered include a review of physical science, cardiopulmonary anatomy and physiology, cardiopulmonary resuscitation, basic nursing skills, medical gas and aerosol administration, employee health and safety, pulmonary medications, and an orientation to clinical sites.

**RES 101 INTRODUCTION TO RESPIRATORY CARE (2 CR)**

The student in this course will be able to describe what a respiratory care practitioner does, where they work, the role of the respiratory care practitioner in patient care as well as to recognize the role of professional organizations in the career. Using a series of case studies the student will identify HIPAA violations. The student will be introduced to medical abbreviations, calculations commonly used in respiratory care, normal values for vital signs and the normal chest x-ray, basic heart/lung anatomy and physiology, lung volumes and capacities, and blood gas interpretation.

**RES 104 CARDIOPULMONARY ASSESSMENT (2 CR)**

This course is an introduction to basic physical and laboratory assessment of cardiopulmonary patients. Topics include basic pulmonary function and medical lab values, blood gas analysis, and bedside patient assessment equipment and techniques.

**RES 110 RESPIRATORY CARE TECHNIQUES II (5 CR)**

This classroom and laboratory course continues the introduction to basic duties of respiratory care practitioners. Emphasis will be placed on patient assessment, basic therapy modalities, airway management, cardiopulmonary diagnostic equipment and techniques and an introduction to continuous mechanical ventilation.

**Prerequisites:** RES 100 and RES 104

**RES 114 CARDIOPULMONARY PATHOPHYSIOLOGY I (2 CR)**

The student in this course will be able to describe the etiology, pathophysiology, clinical manifestations, diagnosis and management of a variety of cardiopulmonary diseases and processes. Using a series of case studies, student will continue to develop assessment skills and apply clinical practice guidelines to develop care plans for patients with cardiopulmonary disease.

**Prerequisites:** RES 100 and RES 104

**RES 115 CLINICAL PRACTICE I (5 CR)**

This course provides a hospital experience in which previously acquired classroom theory and laboratory skills can be exercised. Skills practiced include those associated with patient respiratory assessment, oxygen therapy, a wide range of bronchopulmonary hygiene therapies, and equipment processing.

**Prerequisites:** RES 100 and RES 104

**RES 120 RESPIRATORY CARE TECHNIQUES III (6 CR)**

Mechanical ventilation topics are continued in this classroom and laboratory course. Topics presented include volume pre-set and pressure pre-set ventilator equipment and basic ventilator application and management techniques for adult patients.

**Prerequisites:** RES 110 and RES 114

**RES 124 RESPIRATORY PHARMACOLOGY (2 CR)**

This course provides an overview of general pharmacology with an emphasis on drugs used in the critical care management of cardiopulmonary conditions.

**Prerequisites:** RES 110, RES 114 and RES 115

**RES 125 CLINICAL PRACTICE II (2 CR)**

This clinical course provides three types of experience for the respiratory therapy student. First, there will be a continuation

of basic respiratory care modalities from the previous semester. Second, the diagnostic areas of basic pulmonary function testing, arterial blood gas puncture and analysis, and 12-lead electrocardiography will be introduced. Third, the student will receive an orientation to volume control ventilation in the adult ICU environment. In addition, weekly clinic seminars will be held on campus to facilitate student learning.

**Prerequisites:** RES 110, RES 114 and RES 115

**RES 126 CARDIOPULMONARY PATHOPHYSIOLOGY II (2 CR)**

The student in this course will be able to describe the etiology, pathophysiology, clinical manifestations, diagnosis and management of a variety of advanced cardiopulmonary diseases and processes. Using a series of case studies, students will continue to develop assessment skills and apply clinical practice guidelines to develop care plans for patients with cardiopulmonary disease.

**Prerequisite:** RES 114

**RES 204 DIAGNOSTIC THEORY (3 CR)**

This course covers pulmonary function testing and blood gas analysis equipment and procedures in the laboratory and clinical settings and includes an emphasis on the interpretation of test results from this equipment. Ventilator graphics, an extension of PFT graphics, and their interpretation will be presented. Additionally, equipment and procedures in common use in the areas of ABG laboratories, cardiopulmonary stress testing, pulmonary rehabilitation, and pulmonary home care will be presented.

**Prerequisites:** RES 120, RES 125 and RES 126

**RES 205 CLINICAL PRACTICE III (5 CR)**

This clinical course allows students to assist in the pulmonary management of adults on mechanical ventilation. An integrated approach to patient care will be stressed through accurate patient assessment and application of various equipment and therapies. Students will also function as members of the health care team.

**Prerequisites:** RES 120, RES 124, RES 125 and RES 126

**RES 207 ADVANCED CARDIOPULMONARY ANATOMY & PHYSIOLOGY (3 CR)**

This course advances the student's knowledge of cardiopulmonary physiology. The cardiac sections cover gross and histologic cardiovascular anatomy, neural/endocrinological control of cardiac function, hemodynamics, microcirculatory disorders, and a review of common cardiac arrhythmias. The pulmonary section covers bronchopulmonary anatomy, gas diffusion, blood flow, ventilation/perfusion relationships, gas transport, mechanics and control of ventilation, and lung responses to changing environments and conditions.

**Prerequisites:** RES 120, RES 125 and RES 126

**RES 210 PERINATAL & PEDIATRIC RESPIRATORY CARE (3 CR)**

This classroom and laboratory course covers topics including fetal growth and development, patient assessment, commonly encountered equipment and the clinical management of common neonatal/pediatric diseases and conditions.

**Prerequisites:** RES 120 and RES 205

**RES 220 RESPIRATORY SEMINAR (2 CR)**

This course presents a wide variety of topics for discussion. Included are respiratory care history, management and supervision, trends in allied health, research, job acquisition skills and credentialing exam preparation.

**Prerequisite:** RES 210

**RES 225 CLINICAL PRACTICE IV (5 CR)**

This clinical course provides a varied experience for students who are about to graduate. A major emphasis will be in assisting with the pulmonary management of neonatal patients on mechanical ventilation. Other rotations will be in a variety to advanced diagnostic laboratories and alternate site venues where respiratory therapists are employed. In addition, weekly clinic seminars will be held on campus to facilitate student learning.

**Prerequisite:** RES 210

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## Seminar (SEM)

**SEM 140 SEMINAR IN LIFE PATHWAYS (3 CR)**

Seminar in Life Pathways (SEM 140) is the gateway course to Jackson College. This course is designed to help all students develop both the hard and the soft skills, the inner qualities and external behaviors needed to take charge of their academic and career success. Students will be guided through an extensive process in making career choices and selecting an academic program of study at Jackson College and beyond. With the exception of select second-admit programs, SEM 140 is required of all students. Students are expected to bring their own laptop or similar device for use in the course. Please view the Jackson College website, [www.jccmi.edu/tbz](http://www.jccmi.edu/tbz), for technical specifications.

*\* You may meet this prerequisite based on your course placement, ACT score or successful college coursework. Visit [www.jccmi.edu](http://www.jccmi.edu) for current assessment options and requirements.*

## Sports Management (SMT)

**SMT 100 INTRODUCTION TO SPORTS MANAGEMENT (3 CR)**

Students will explore careers in the sport industry, both in the U.S. and globally, inclusive of professional, collegiate, youth, and non-profit sport, as well global branding, sponsorships, merchandising and entertainment events. Using the sports industry perspective, many business principles will be covered, such as: marketing, strategic management, communication, sales and revenue generation, facility management and finance.

**Prerequisite:** CIS 095\*, ENG 085\*, ENG 090\* and MAT 033\*

**SMT 230 PRINCIPLES OF SPORTS MARKETING (3 CR)**

Students analyze the sport marketplace and consumption trends to identify customer wants and needs and develop effective marketing strategies to satisfy them. Emphasis is placed on evaluating sport/entertainment environments, identifying target markets, building brands, and the marketing functions of product or service planning, pricing, promotion and placement (distribution).

**Prerequisites:** CIS 095\*, ENG 085\*, ENG 090\*, MAT 033\* and HPF 173

**SMT 245 INTERNSHIP (3 CR)**

Students plan, organize, direct, and assess a public activity which integrates the learning objectives of the sports management degree. Students will have meaningful internship experience with an appropriate company. The company and job must be approved by the supervising faculty member.

**Prerequisites:** HPF 173, SMT 100, SMT 101, SMT 230, must meet with faculty advisor for approval

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## Sociology (SOC)

**SOC 112 SERVICE EXPLORATION AND SOCIAL ISSUES (1 CR)**

Students will learn about the service learning design and prepare for travel during spring break by engaging in local service experiences. Students will develop team-building and communication skills, in addition to first aid response. Students will complete reflective essays related to local community service activities. Fundraising activities will be explored and implemented. A minimum of 16 hours of local service is required.

**SOC 117 CRIMINOLOGY (3 CR)***(Same as CRJ 117)*

Provides an understanding of the cultural nature, origin, and development of criminal behavior with attention given to the psychological and sociological factors involved.

**Prerequisites:** ENG 085\* and ENG 090\*

**SOC 122 SERVICE IN ACTION (2 CR)**

Students will travel during spring break to a pre-determined site to perform a minimum of 45 hours of service learning. Students will demonstrate team-building and communication skills. Understanding of cultural and geographic issues will be assessed through reflective writings. Must be enrolled in six credits at the time of the service trip.

**Prerequisite:** SOC 112

**SOC 152 SOCIAL PSYCHOLOGY (3 CR)***(Same as PSY 152)*

Theoretical synthesis of social influences, including attitude formation, social and cognitive development, aggression, prosocial behavior, prejudice, conformity, culture and gender differences/influences, group processes and interpersonal attraction.

**Prerequisite:** PSY 140 or SOC 231

**SOC 203 FIELD STUDIES (3 CR)***(Same as CRJ 203)*

Only open to students who have reached sophomore level (26 or more credit hours), a minimum 2.5 GPA and permission of the department. An opportunity for students to work for one semester in a law enforcement agency.

**SOC 231 PRINCIPLES OF SOCIOLOGY (3 CR)**

The discipline and its contributions to understanding the fundamental processes of social interaction. Includes development of self, socialization process, groups and social structure. Application of sociological principles to our society by examination of relevant research.

**Prerequisites:** ENG 085\* and ENG 090\*

**SOC 236 WOMEN IN A CHANGING SOCIETY (3 CR)***(Same as ENG 236)*

Inquiry into historical and changing roles of women, looking at causes of these changes and their effects on women and society through literature, sociology, biology and history.

**Prerequisites:** ENG 131

**SOC 246 MARRIAGE AND FAMILY (3 CR)**

The position and significance of marriage and the family in contemporary society are examined. Issues are examined within the larger political, historical and social context,

including marriage and family values within diverse ethnic, minority and gender identity groups. SOC 231 recommended before enrolling in this course.

**Prerequisites:** ENG 085\* and ENG 090\*

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## Spanish (SPN)

**SPN 131 ELEMENTARY SPANISH I (4 CR)**

Introduces and develops the four skills of language learning: listening, speaking, reading and writing, with special emphasis on listening and speaking.

**Prerequisite:** ENG 085\*

**SPN 132 ELEMENTARY SPANISH II (4 CR)**

Provides increased practice in the basic language skills: listening, speaking, reading and writing.

**Prerequisite:** SPN 131

**SPN 221 SPANISH COMPOSITION & CONVERSATION I (3 CR)**

This course is designed for the student with some prior background in Spanish. It offers additional practice in spoken and written Spanish to improve fluency and flexibility of expression. Students develop greater proficiency in pronunciation, build vocabulary and gain greater control over idiomatic expressions.

**Prerequisite:** SPN 131 or higher

**SPN 222 SPANISH COMPOSITION & CONVERSATION II (3 CR)**

This course offers additional practice in spoken and written Spanish to improve fluency and flexibility of expression. Communication skills strengthen while written texts approach norms of native composition. Students develop greater proficiency in pronunciation, build vocabulary and gain greater control over idiomatic expressions.

**Prerequisite:** SPN 131 or higher

**SPN 231 INTERMEDIATE SPANISH I (4 CR)**

Improves the basic skills of language learning with emphasis on speaking and writing. Introduces sustained readings in Spanish.

**Prerequisite:** SPN 132 or higher

**SPN 232 INTERMEDIATE SPANISH II (4 CR)**

Continues to stress speaking practice and writing improvement. Readings and discussions in Spanish, focusing on contemporary events and Hispanic culture.

**Prerequisite:** SPN 231



## Sustainable Technology and Management (STM)

### STM 101 INTRODUCTION TO SUSTAINABILITY (3 CR)

Students will familiarize themselves with the environmental issues facing our community, state, country and planet. This course will provide meaning to the term "sustainability" in order to build skills that will help the leaders of tomorrow protect the Earth's resources and meet the needs of humanity indefinitely. It is an introduction to both the scientific and social sides of the environmental problems the world faces, with a specific aim at establishing a foundation in environmental comprehension and for further learning within the topic of sustainability.

**Prerequisites:** CIS 095\*, ENG 085\* and ENG 090\*

### STM 401 SYSTEMS THINKING: TOPICS IN SUSTAINABILITY (3 CR)

In a changing world, systems-thinking is needed to make wise decisions, solve complex problems, and understand your role within the larger context. This course uses topics in sustainability to develop systems thinking skills and to engage with real-world, meaningful issues. Topics include: complex systems theory, energy systems, social systems, ecosystems, and others. Students will research, speak, and write about these topics in depth to explore the complete system, the challenges involved, and the potential solutions that exist.

**Prerequisite:** STM 101, PHL 232 and MAT 131\* or higher

## Theatre (THR)

### THR 102 THEATRE ACTIVITIES (1 CR)

Students are actively involved in creating, producing, acting, building, designing and the technical direction of a small studio production. Involvement may include acting or technical production.

### THR 116 INTRODUCTION TO THEATRE (3 CR)

Survey of Western theatre and drama. Appreciation of theatre through understanding of historical development and societal function. Theatre architecture, production, costuming and acting styles, and the artists who create them.

**Prerequisite:** ENG 085\*

### THR 131 STAGECRAFT I (3 CR)

Basic theory of set design, including tools, equipment, terminology and construction.

### THR 134 STAGECRAFT II (3 CR)

Continuation of Stagecraft I focusing on further developing techniques of stage scenery construction, rigging, scene painting and technical drafting. Process and methods of communicating design ideas through graphic representation are presented.

**Prerequisite:** THR 131

### THR 145 FUNDAMENTALS OF ACTING I (4 CR)

Fundamental theories and methodologies of acting and character development, using theatre games, improvisations and scene work with an emphasis on developing an ensemble.

**Prerequisite:** ENG 085\*

### THR 146 FUNDAMENTALS OF ACTING II (4 CR)

Advanced character work and an opportunity to rehearse and perform a studio theatre production.

**Prerequisite:** THR 145

### THR 151 MAKE-UP FOR STAGE & VIDEO (3 CR)

Students learn the fundamental techniques of design and application of make-up for theatre and video.

### THR 201 BACKSTAGE CERTIFICATION (1 CR)

Students receive training in manual and computerized light boards, sound systems, rigging and stage management and become certified on college equipment. Students crew a production.

### THR 216 VOICE FOR THE ACTOR (3 CR)

This course will train the actor in the mechanics of vocal production, in the clarity, expressiveness and emotional context required for communicating the meaning of the spoken and written language and in dialects.

### THR 241 LIGHTING FOR STAGE AND VIDEO (3 CR)

Students learn the theoretical and practical aspects of lighting design for theatre, dance and video. Emphasis on design, execution and problem solving.

### THR 242 SOUND FOR STAGE AND VIDEO (3 CR)

Students learn the theoretical and practical aspects of creating sound tracks for theatre and video. Topics include recording techniques, multi-track recording and mixing, editing, sound effects and sound reinforcement.

### THR 260 INTRODUCTION TO DIRECTING (3 CR)

Fundamentals of play directing. Exploration of text analysis, staging techniques and rehearsal processes. Student-directed scenes analyzed and critiqued. The instructor may allow you to take the prerequisite of THR 145 concurrently.

**Prerequisite:** THR 145

**THR 268 THEATRE PRACTICUM (3 CR)**

Practicum for actors, directors, technicians and playwrights. Students will gain practical experience within their field through active participation. Note: May be taken three times for credit (nine total credits may be earned).

**Prerequisite:** *Instructor Permission Required*

## .....

## Welding Technology (WLD)

**WLD 100 FUNDAMENTALS OF WELDING (4 CR)**

Fundamentals of oxyacetylene and electric arc processes, history and applications. Includes study of gases, electricity, equipment and safety procedures. Provides laboratory experience welding in flat and horizontal positions.

**WLD 110 MIG/TIG WELDING (4 CR)**

This is a welding course in GMAW (gas metal arc welding formally known as MIG welding) and GTAW (gas tungsten arc welding formally known as TIG welding) processes and techniques. Topics will include safety, use of equipment, power sources, shielding gases, filler metals, welding techniques, troubleshooting, weld defects and welding in the flat, vertical and horizontal positions.

**Prerequisites:** *ENG 085\*, MAT 020\* and WLD 100*

**WLD 115 WELD III-WELDING ALUMINUM AND STAINLESS STEEL (4 CR)**

Covers theory and fundamental application of welding as required in fabrication of aluminum and stainless steel. Includes the development of basic skills in preparation, cutting and welding of these unique materials. Provides a hands-on experience with the use of GMAW and GTAW on aluminum and stainless steel.

**Prerequisite:** *WLD 110*

**WLD 220 WELDING CERTIFICATION (4 CR)**

This course provides a focus on welding certification component essentials to include real-time test environment and materials that meets the AWS welding standard.

**Prerequisites:** *ENG 090\* and WLD 115*

## .....

## World Languages (WRL)

**WRL 102 PORTUGUESE CONVERSATION (2CR)**

This course is designed for people who have little or no knowledge of Portuguese. The emphasis is on speaking and

listening. The course introduces practical vocabulary, culture, pronunciation, and essential grammar with minimal reading and writing.

**Prerequisite:** *ENG 085*

**WRL 103 PORTUGUESE CONVERSATION II (2CR)**

This course is designed for people who have little knowledge of Portuguese. The emphasis is on speaking and listening. The course presents additional practical vocabulary, culture, pronunciation, and essential grammar with minimal reading and writing.

**Prerequisite:** *WRL 102*

**WRL 104 MANDARIN CONVERSATION I (2CR)**

This course is designed for people who have little or no knowledge of Mandarin. The emphasis is on speaking and listening. The course introduces practical vocabulary, culture, pronunciation, and essential grammar with minimal reading and writing.

**Prerequisite:** *ENG 085*

## .....

## Noncredit Courses

**English Language Institute****ELI-041-01 Speaking and Listening**

This course is a communicative speaking/listening course that focuses on higher level usage of speaking skills necessary for success in academic settings. Students will practice more with listening for the main idea, listening for details as well as improving their speaking skills in discussions, debates and critical thinking.

**ELI-042-01 Reading and Vocabulary**

Reading strategies and vocabulary building are developed in this level. Students will read about academic topics such as business, psychology, nutrition, medicine, literature and sociology. Key reading strategies are emphasized for future success in college level courses.

**ELI-043-01 Writing**

Level 4 Writing is the introduction to the academic essays. Students will first review the structure of a paragraph with emphasis on unity, coherence and using outside sources. Then, students will learn the basic features of an essay and write three essay types: cause/effect, comparison/contrast and argumentative. Deeper development of critical thinking skills is taught throughout the course.

#### ELI-044-01 Grammar

Review of grammar features covered in the previous levels (Level 1-3) is made with further practice with the perfect simple and perfect progressive tenses and other new grammatical structures.

#### ELI-051-01 Speaking and Listening

Students continue to learn and master the skills of participating in and leading academic classroom discussions in a culturally, pragmatically appropriate way. More advanced complex topics are discussed at this level with practice on giving speeches, agreeing/disagreeing with others, identifying strong and weak arguments and supporting arguments with external sources.

#### ELI-052-01 Reading and Vocabulary

This course focuses on improving reading fluency through reading a high-level reading textbook combined with authentic texts. Reinforcement of the reading strategies is made continuously throughout the semester.

#### ELI-053-01 Writing

This course provides students with the strategies and skills needed to write and edit a variety of different essay types such as: classification, process, cause/effect, problem/solution, summary/response, argumentative and research papers. How to find credible sources of information and accurate use of APA and MLA style are emphasized.

#### ELI-054-01 Grammar

This course continues to build on grammatical features from ELI-044-01 with the additional of the passive voice, noun clauses, adjective clauses, gerunds and infinitives, coordinating conjunctions, adverb clauses and conditional structures.

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## Special Options

Each discipline offers the following options. Contact the specific faculty for more information.

#### INDEPENDENT STUDY — VARIABLE CREDIT

In-depth study of topics in any discipline that is of special interest to the student. Topic is selected and detailed in consultation with a faculty member.

#### SPECIAL TOPICS — VARIABLE CREDIT

Intensive, in-depth investigation of one topic of current interest in any discipline. Different topics are chosen by the department.

#### WORK EXPERIENCE, INTERNSHIPS, SEMINARS —

#### VARIABLE CREDIT

Learn through meaningful work experience with an approved company in any discipline. The position must be obtained by the student and approved by the department before registration is permitted. Students apply the skills and knowledge gained from course work. A department faculty member supervises.

**3D Design and Animation**

Associate in Applied Science ..... 67

**A****Academic Skills Requirements** ..... 10**Accounting**

Associate in Applied Science ..... 14

Certificate ..... 15

Course Descriptions ..... 105

**Administrative Assistant**

Associate in Applied Science ..... 15

**Advanced Manufacturing**

Associate in Applied Science ..... 81

Course Descriptions ..... 150

Industrial Systems - Certificate ..... 82

Industrial Systems - Skill Set ..... 82

Manufacturing Design - Certificate ..... 83

Manufacturing Design - Skill Set ..... 83

Welding - Certificate ..... 83

Welding - Skill Set ..... 84

**Agricultural Technology**

Associate in Applied Science ..... 84

Course Descriptions ..... 106

**Allied Health General Studies**

Associate in Applied Science ..... 38

**Alternative Energy**

Course Descriptions ..... 109

**Anthropology**

Course Descriptions ..... 109

**Apprenticeship Information** ..... 104**Art**

Course Descriptions ..... 109

Studio Art - Certificate ..... 73

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Air Conditioning &amp; Heating - Skill Set ..... 88

Automotive Service Technology -

Associate In Applied Science ..... 85

Automotive Service Technology - Certificate ..... 87

Collision Mechanical &amp; Electrical - Concentration ..... 88

Course Descriptions ..... 111

Driveability - Concentration ..... 88

Driveability - Skill Set ..... 88

Ford Service - Concentration ..... 89

Heavy Duty Chassis - Concentration ..... 92

Heavy Duty Electrical - Skill Set ..... 93

Heavy Duty Heating And Air Conditioning - Skill Set ..... 93

Heavy Duty Service - Concentration ..... 93

Heavy Duty Truck - Certificate ..... 87

Heavy Duty Undercar Service - Skill Set ..... 93

Heavy Duty Wheel Service - Concentration ..... 92

Heavy Duty Wheel Service - Skill Set ..... 92

High Speed Diesel Service - Concentration ..... 89

High Speed Diesel Service - Skill Set ..... 89

Hybrid Vehicles - Concentration ..... 89

Hybrid Vehicles - Skill Set ..... 90

Maintenance &amp; Light Repair - Concentration ..... 90

Maintenance &amp; Light Repair - Skill Set ..... 90

Powertrain - Concentration ..... 90

Powertrain - Skill Set ..... 91

Undercar Services - Concentration ..... 91

Undercar Service - Skill Set ..... 91

Wheel Service - Concentration ..... 91

Wheel Service- Skill Set ..... 92

**Aviation Flight Technology**

Associate in Applied Science ..... 94

Concentration ..... 95

Course Descriptions ..... 107

Skill Set ..... 95

**B****Bachelor's Degree Options and Requirements** ..... 5**Biology**

Course Descriptions ..... 114

**Business Administration**

Associate in Applied Science ..... 17

Certificate ..... 18

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Associate in Applied Science ..... 40

**Certificates** ..... 6**Chemistry**

Course Descriptions ..... 117

**Climate Control Technology**

Course Descriptions ..... 117

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| <b>Communications</b>                           |     |
| Course Descriptions .....                       | 123 |
| <b>Computer Assisted Drafting</b>               |     |
| Course Descriptions .....                       | 117 |
| <b>Computer Information Systems</b>             |     |
| Course Descriptions .....                       | 118 |
| <b>Computer Networking</b>                      |     |
| Associate in Applied Science .....              | 32  |
| Certificate .....                               | 34  |
| Concentration .....                             | 34  |
| Course Descriptions .....                       | 124 |
| <b>Computer Programming</b>                     |     |
| Associate in Applied Science .....              | 19  |
| Certificate .....                               | 20  |
| <b>Computer Science</b>                         |     |
| Course Descriptions .....                       | 126 |
| <b>Computer Service Technician</b>              |     |
| Skill Set .....                                 | 20  |
| <b>Computer Support Specialist</b>              |     |
| Associate in Applied Science .....              | 21  |
| Certificate .....                               | 22  |
| <b>Concentrations</b> .....                     | 7   |
| <b>Corrections</b>                              |     |
| Associate in Applied Science .....              | 61  |
| Certificate .....                               | 62  |
| Corrections Officer (State Of Michigan) .....   | 63  |
| Course Descriptions .....                       | 126 |
| Skill Set .....                                 | 62  |
| <b>Course Descriptions</b> .....                | 105 |
| <b>Culinary Arts and Hospitality Management</b> |     |
| Associate in Applied Science .....              | 23  |
| Bachelor of Applied Science .....               | 22  |
| Certificate .....                               | 25  |
| Concentration .....                             | 25  |
| Course Descriptions .....                       | 128 |
| Skill Set .....                                 | 25  |
| <b>Cyber Security</b>                           |     |
| Associate in Applied Science .....              | 26  |
| <b>D</b>  |     |
| <b>Dance</b>                                    |     |
| Course Descriptions .....                       | 130 |
| <b>Diagnostic Medical Sonography</b>            |     |
| Course Descriptions .....                       | 130 |
| <b>Digital Photography</b>                      |     |
| Certificate .....                               | 71  |

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| <b>eCommerce</b>                                   |     |
| Consultant - Certificate .....                     | 35  |
| Course Descriptions .....                          | 134 |
| Designer - Skill Set .....                         | 36  |
| Entrepreneur - Concentration .....                 | 36  |
| Manager - Skill Set .....                          | 36  |
| Specialist - Concentration .....                   | 36  |
| <b>Economics</b>                                   |     |
| Course Descriptions .....                          | 134 |
| <b>Education</b>                                   |     |
| Course Descriptions .....                          | 134 |
| <b>EKG Technician</b>                              |     |
| Skill Set .....                                    | 41  |
| <b>Electrician</b>                                 |     |
| Associate in Applied Science .....                 | 95  |
| Certificate .....                                  | 97  |
| Concentration .....                                | 97  |
| <b>Electronic Health Records Specialist</b>        |     |
| Skill Set .....                                    | 41  |
| <b>Electronic Technology</b>                       |     |
| Course Descriptions .....                          | 136 |
| ELT - Associate in Applied Science .....           | 97  |
| ELT - Certificate .....                            | 99  |
| Microcomputer - Associate in Applied Science ..... | 99  |
| Microcomputer - Certificate .....                  | 101 |
| <b>Emergency Medical Technology</b>                |     |
| Associate in Applied Science .....                 | 42  |
| Concentration .....                                | 43  |
| Course Descriptions .....                          | 137 |
| Skill Set .....                                    | 43  |
| <b>Energy Systems</b>                              |     |
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| Bachelor of Science .....                          | 101 |
| Course Descriptions .....                          | 135 |
| <b>Engineering</b>                                 |     |
| Certificate .....                                  | 79  |
| Course Descriptions .....                          | 140 |
| <b>English</b>                                     |     |
| Course Descriptions .....                          | 140 |
| <b>Entrepreneurship</b>                            |     |
| Associate in Applied Science .....                 | 27  |
| Certificate .....                                  | 28  |
| Course Descriptions .....                          | 142 |
| Skill Set .....                                    | 29  |



**Environmental Science**

|                                    |    |
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| Associate in Applied Science ..... | 76 |
| Certificate .....                  | 78 |

**Executive Assistant**

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| Associate in Applied Science ..... | 29 |
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**F****First Year Seminar**

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| Course Descriptions ..... | 143 |
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**French**

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| Course Descriptions ..... | 143 |
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**G****General Education Philosophy****General Sonography**

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| Associate in Applied Science ..... | 44 |
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**Geography**

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| Course Descriptions ..... | 144 |
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**Geology**

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| Course Descriptions ..... | 143 |
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**German**

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| Course Descriptions ..... | 144 |
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**Graphic Design**

|                                    |    |
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| Associate in Applied Science ..... | 71 |
| Certificate .....                  | 72 |
| Skill Set .....                    | 73 |

**H****Health Administration/Insurance Specialist**

|                                    |    |
|------------------------------------|----|
| Associate in Applied Science ..... | 45 |
|------------------------------------|----|

**Health Occupations**

|                           |     |
|---------------------------|-----|
| Course Descriptions ..... | 145 |
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**Health & Physical Fitness**

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| Course Descriptions ..... | 145 |
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| Course Descriptions ..... | 144 |
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**Human Services Pathway.....**60**L****Law Enforcement**

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| Associate in Applied Science .....                    | 63 |
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| Certificate .....                                     | 65 |

**Liberal Arts Pathway.....**66**Licensed Practical Nursing**

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| Course Descriptions ..... | 147 |
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**M****Management**

|                   |    |
|-------------------|----|
| Certificate ..... | 30 |
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**Marketing**

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|-------------------|----|
| Certificate ..... | 30 |
|-------------------|----|

**Mathematics**

|                           |     |
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| Course Descriptions ..... | 148 |
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**Medical Assistant**

|                                    |     |
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| Associate in Applied Science ..... | 46  |
| Certificate .....                  | 48  |
| Course Descriptions .....          | 152 |

**Medical Insurance Coder/Biller**

|                           |     |
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| Certificate .....         | 48  |
| Course Descriptions ..... | 151 |

**Medical Office Support**

|                     |    |
|---------------------|----|
| Concentration ..... | 48 |
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**Michigan Transfer Agreement .....**11**Microsoft® Networking**

|                     |    |
|---------------------|----|
| Concentration ..... | 31 |
|---------------------|----|

**Microsoft® Office® Specialist**

|                     |    |
|---------------------|----|
| Certificate .....   | 31 |
| Concentration ..... | 32 |

**Music**

|                           |     |
|---------------------------|-----|
| Course Descriptions ..... | 153 |
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**N****Natural Science**

|                           |     |
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| Course Descriptions ..... | 155 |
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**Nursing**

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| Associate in Applied Science .....             | 50  |
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Skill Set ..... 84

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