JACKSON COLLEGE PHONE NUMBERS

Admissions	517.796.8425
Advising	517.796.8425
Cashier	517.796.8420
Center for Student Success	517.796.8415
Corporate and Continuing Education	517.796.8610
Corrections Education Program	517.796.8413
Dean, Health Sciences, Career & Technical Trades	517.796.8531
Dean, Humanities and Sciences	517.990.1341
Events and College Relations	517.796.8473
Executive Director, Athletics and Student Development	517.796.8628
Financial Aid	517.796.8410
Housing (Residence Life)	517.796.8626
Human Resources and Talent	517.796.8460
Jackson College Foundation	517.787.0244
Jackson College Hillsdale	517.437.3343
Jackson College Lenawee	517.265.5515
Jets Store (Bookstore)	517.796.8440
Library	517.796.8622
Nursing Admissions	517.796.8424
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
Solution Center, Information Technology	517.796.8639
Student Resolution Advocate	517.990.1382
Switchboard (Central Campus)	517.787.0800
Tutoring (Central Campus)	517.796.8415
Toll Free Number	888.522.7344
Veteran Affairs	517.990.1333
Victor Cuiss Fieldhouse	517.796.8455
Work-Based Learning and Career Services Coordinator	517.796.8610

BOARD OF TRUSTEES

Donna L. Lake, Chairwoman
Matthew R. Heins, Vice-Chairman
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Teshna Thomas, Trustee
Dr. Daniel J. Phelan, President & CEO

ACCREDITED Higher Learning Commission LINK TO THE HLC WEB SITE

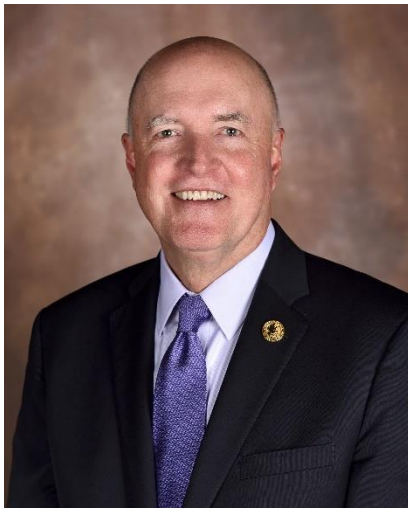
Jackson College is accredited by the Higher Learning Commission (hlcommission.org), a regional accreditation agency recognized by the U.S. Department of Education.

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

League.org FOR INNOVATION IN THE COMMUNITY COLLEGE

Jackson College became a board member in the League for Innovation in the Community College in October 2019.

Dear Future Jet,



Welcome to the start of an exciting new chapter in your life. On behalf of our entire college community, I am honored to greet you as you begin your journey with us.

Whether you are here to pursue a degree, gain new skills, explore your passions, or take the next step toward your career goals, you belong here. Our college is built on the belief that education transforms lives, and each of you brings unique experiences, perspectives, and aspirations that enrich our campus.

You will find a supportive environment designed to help you succeed—dedicated faculty, caring staff, and a wide range of resources to guide you academically and personally. I encourage you to take advantage of these opportunities, get involved in campus life, and connect with your peers. The relationships you build here can last a lifetime.

There may be challenges along the way, but know that you are not alone. We are committed to helping you overcome obstacles and reach your full potential. Your success is our mission.

As you begin this journey, stay curious, stay determined, and never lose sight of your goals. We are proud to have you as part of our community and look forward to celebrating your achievements in the years ahead.

Welcome to Jackson College—we are glad you are here.

Dr. Daniel J. Phelan
President & CEO

TABLE OF CONTENTS

Welcome to Jackson College

This is the 2026-2027 Jackson College academic catalog. This catalog contains information on the various academic study programs available at the College. Jackson College offers 65 associate, certificate programs, as well as pre-baccalaureate transfer pathways. Programs are arranged into Pathways, designed to create a clear path to an academic degree, certificate, or transfer program.

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.

Note: The information in this 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.

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Associate Degree Options and Requirements

Jackson College offers four 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.

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Associate Degrees

All associate degrees will meet the General Education Outcomes (GEO) requirements (see General Education Philosophy on page 10) 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 040, 086, 091, 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 associate degree must be 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 complete their last course at Jackson College. Applications are available on the Jackson College website (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 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. Multiple degrees may be conferred in the same graduation period.

Certificates

Jackson College offers certificates that comprise fewer than 60 credits of course work. They concentrate on specific skills, with fewer general education courses than an associate degree.

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 number of credits earned vary by program at Jackson College.

5. 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 040, 086, 091, 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).

6. 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 campus. Students have five academic years to apply for graduation from the time they completed their last course. Applications are available on the website (www.jccmi.edu/registration-records/graduation). Official audits are processed by the Registration & Records Office.

7. 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.

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 likely to change significantly over time, as determined by appropriate academic departments.

9. Multiple certificates 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 diversity of thought, 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 is 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. Recognize the importance of effective communication in a dynamic and changing society.
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. Identify artistic, linguistic, and theoretical perspectives across the human experience.

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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 1-6) 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.

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Academic Skills Requirements

The associate degree requirements at Jackson College include proficiency in the academic skills of reading, writing, and mathematics. To ensure the 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 multiple measures (using high school GPA, ACT/SAT scores, prior college coursework, etc.) and/or Jackson College-administered placement assessments. 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 are required to pass the college-level writing course, ENG 131 Writing Experience I, or demonstrate proficiency in writing. Upon completion of assessment via multiple measures or the Jackson College writing placement assessment, students whose results indicate a need for further development in writing must enroll in ENG 091, Introduction to College Writing.

Mathematics: All Jackson College students seeking a degree are required to pass a mathematics course best suited to their program of study or demonstrate math proficiency. Upon completion of assessment via multiple measures or the Jackson College mathematics placement assessment, students whose results indicate a need for further development in mathematics must enroll in MAT 040, Quantitative Reasoning Fundamentals; MAT 033, Algebra for Statistics; or MAT 039, Beginning Algebra, based on mathematics course required for that pathway.

Guidelines: ENG 090, ENG 091, ENG 101, ENG 102, ENG 109, ENG 110, MAT 019, MAT 020, MAT 030, MAT 031, MAT 033, MAT 034, MAT 036, MAT 039 and MAT 040 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.

Using AI in Your Courses at Jackson College
Artificial Intelligence (AI) is a tool that can help you learn. You can use it to spark ideas, find information, and improve your writing. AI can also create text, images, videos, music, and other content.

However, if used incorrectly, AI can take away from your learning experience. That's why it's important to use AI **responsibly** in your courses.

How to Use AI the Right Way
Your instructor will decide how AI can be used in their class. Check your syllabus and assignment instructions to see the rules. If you're unsure, just ask.

Many instructors allow AI for tasks like:

- Brainstorming ideas
- Searching for information
- Outlining your writing
- Checking grammar and spelling
- Formatting documents

What Not to Do

- Using AI to do your work for you
- Submitting AI-written work with little personal effort
- Ignoring assignment rules or trying to "beat the system"
- Using AI without saying where it came from with appropriate citation

By following these guidelines, Jackson College students use AI as a supportive tool while maintaining academic integrity and personal growth.

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Important Information for Pre-Baccalaureate 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. Jackson College offers a number of pre-baccalaureate transfer programs in areas such as Business, Biology, Communication, Criminal Justice, and Psychology. More information, including detailed transfer guides, can be found on our website: www.jccmi.edu/transfer.

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 through an articulation agreement. 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 the 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 Hillsdale, Jackson College Lenawee, and on the website, www.jccmi.edu/transfer.

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 sent to each college or university you plan to attend. Transcripts are only accepted if they are sent directly to 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.

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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 https://www.mitransfer.org/michigan-transfer-agreement

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, ENG 132, ENG 201*, ENG 232
Communications: COM 231, COM 240, COM 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, MAT 133, MAT 135, MAT 139, MAT 141, MAT 151, MAT 154, MAT 251, MAT 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, BIO 132, BIO 140*, BIO 158, BIO 161, BIO 162, BIO 220, BIO 253, BIO 254
Chemistry: CEM 131, CEM 132, CEM 141, CEM 142
Geology: GEL 109, GEL 160
Natural Science: NSC 131, NSC 140*, NSC 141* (NSC 141 can be counted as a lab science if also taken with NSC 141L)
Geography: GEO 131* (GEO 131 can be counted as a lab science if also taken with GEO 133)
Physics: PHY 131, PHY 150*, PHY 151, PHY 231, PHY 232, PHY 251, PHY 252

SOCIAL SCIENCE

(at least 2 courses from two disciplines)
Criminal Justice: CRJ 111, CRJ 117
Economics: ECN 231, ECN 232
Geography: GEO 132
History: HIS 211, HIS 231, HIS 232, HIS 235
Psychology: PSY 130, PSY 140, PSY 152, PSY 245, PSY 251, PSY 252, PSY 290
Political Science: PLS 141
Sociology: SOC 117, SOC 152, SOC 231, SOC 236, SOC 246

HUMANITIES

(at least 2 courses from two disciplines)
Art: ART 111, ART 112
English: ENG 210, ENG 236, ENG 246, ENG 247, ENG 249, ENG 252, ENG 254, ENG 255, ENG 256, ENG 257
French: FRN 131, FRN 132
German: GER 131, GER 132
History: HIS 120, HIS 131, HIS 132
Humanities: HUM 131
Music: MUS 130, MUS 131, MUS 132, MUS 151, MUS 152
Philosophy: PHL 231, PHL 232, PHL 243
Spanish: SPN 131, SPN 132, SPN 231, SPN 232
Theatre: THR 116

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General Education Outcomes (GEO)

GEO 1 - Write clearly, concisely and intelligibly

ENG	131	Writing Experience I
ENG	132	Writing Experience II
ENG	201	Advanced Composition
ENG	232	Technical & Business Writing

GEO 2 - Recognize the importance of effective communication in a dynamic and changing society

COM	231	Communication Fundamentals
COM	240	Interpersonal Communication
COM	250	Intercultural Communication
HIS	211	Minority Groups in America
HUM	131	Cultural Connections
PHL	243	Great World Religions
PLS	262	International Relations
PSY	152	Social Psychology *(or SOC 152 Social Psychology)*
SOC	246	Marriage & Family

GEO 3 - Demonstrate computational skills and mathematical reasoning

MAT	130	Quantitative Reasoning
MAT	133	Introduction to Probability & Statistics
MAT	135	Finite Mathematics
MAT	139	College Algebra
MAT	141	Pre-Calculus
MAT	151	Calculus I
MAT	154	Calculus II

GEO 4 - Demonstrate scientific reasoning ** Non lab courses*

AGT	131	Introduction to Plant & Soil Science
AGT	227	Introduction to Animal Science
BIO	110	Introductory Biology
BIO	132	Human Biology
BIO	140	Public Health and Disease
BIO	158	Environmental Science
BIO	161	General Biology I
BIO	162	General Biology II
BIO	220	Microbiology
BIO	253	Human Anatomy and Physiology I
BIO	254	Anatomy and Physiology II
CEM	131	Fundamentals of Chemistry
CEM	132	Fundamentals of Organic and Biological Chemistry
CEM	141	General Chemistry I
CEM	142	General Chemistry II
GEL	109	Earth Science
GEL	160	Introduction to Geology
GEO	131	Physical Geography
GEO	133	Physical Geography Lab
NSC	120	Fundamentals of Agricultural Science
NSC	131	Contemporary Science
NSC	140	Contemporary Climate Science
NSC	141	Scientific Inquiry* *(can be a lab science when taken with NSC 141L)*
PHY	131	Conceptual Physics
PHY	150	Concepts in Astronomy
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.

ECN	231	Macroeconomics
ECN	232	Microeconomics
HIS	120	Ancient History
HIS	125	African American History
HIS	131	Western Civilization to 1555
HIS	132	Western Civilization 1555 to Present

HIS	211	Minority Groups in America
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
PLS	262	International Relations
PSY	130	General Psychology
PSY	152	Social Psychology
PSY	245	Infancy and Childhood
PSY	251	Abnormal Psychology
PSY	252	Developmental Psychology
PSY	256	Abnormal Psychology
PSY	290	Human Sexuality
SOC	152	Social Psychology
SOC	231	Principles of Sociology
SOC	246	Marriage and Family

GEO 6 - Identify artistic, linguistic, and theoretical perspectives across the human experience.

ART	111	Art History: Prehistoric to 1400
ART	112	Art History: Renaissance to Present
ENG	210	Film in 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
ENG	261	Creative Writing
HUM	131	Cultural Connections
MUS	130	Music of Non-Western Cultures
MUS	131	Understanding Music
MUS	132	History of American Popular Music
MUS	151	Music Theory I
MUS	152	Music Theory II
PHL	231	Introduction to Philosophy
PHL	243	World Religions
SPN	131	Elementary Spanish I
SPN	132	Elementary Spanish II
SPN	231	Intermediate Spanish I
SPN	232	Intermediate Spanish II
THR	116	Introduction to Theatre
WRL	102	Portuguese Conversation I
WRL	103	Portuguese Conversation II
WRL	104	Mandarin I
WRL	105	Mandarin II

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
- Social Sciences
- Liberal Arts
- Science, Technology, Engineering and Mathematics
- Professional Trades/Industry 4.0 and Agriculture

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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, and information processing. These may include digital marketing/social media, entrepreneurship, computer information systems, cyber security, human resources, office administration, and sport management.

DEGREES/CERTIFICATES:

- Accounting
- Administrative Assistant (See Executive Assistant)
- Blockchain Foundations
- Business Administration
- Business Management
- Cloud Networking
- Cyber Security
- Entrepreneurship
- Esport Management and Game Design
- Executive Assistant

- Microsoft® Office® Specialist
- Networking Specialist
- Public Leadership and Administration
- Software Engineering
- Sport Management

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 or 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.

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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 (20-21 credits)

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

Take the following:

ENG 131 Writing Experience I

GEO 2: Recognize the importance of effective communication in a dynamic and changing society (3 credits)

Choose one of the following:

COM 231 Communication Fundamentals
COM 240 Interpersonal Communication
COM 250 Intercultural Communication
HIS 211 Minority Groups in America
HUM 131 Cultural Connections
PHL 243 Great World Religions
PLS 262 International Relations
PSY 152 Social Psychology *(or SOC 152 Social Psychology)*
SOC 246 Marriage & Family

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)

Take the following:

NSC 131 Contemporary Science

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: Identify artistic, linguistic, and theoretical perspectives across the human experience (3 credits)**

Take the following:

HUM 131 Cultural Connections

ACCOUNTING CORE REQUIREMENTS (32-34 credits)

Take the following:

ACC	214	Income Tax Accounting
ACC	231	Principles of Accounting
ACC	232	Principles of Accounting II
ACC	234	Managerial Accounting
ACC	240	Intermediate Accounting
ACC	245	Internship/Externship
ACC	250	Technology for Accounting
BUA	250	Business Law I
CIS	101	Introduction to Computer Systems
CIS	121	Microsoft® Excel®

ACCOUNTING ELECTIVES

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

Recommended electives: BUA 111, BUA 120, CIS 201, ENG 232, HPF 277, PHL 236

Online note: Some students find online accounting 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, Microsoft ® Excel and skills with attaching files.

***We have listed the preferred course option(s) in this category, but other courses may be used to meet this requirement. Your student success navigator will assist you making the best course selection based on your schedule and interests. You can view the complete list of approved GEO courses on pages 16-19.*

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Blockchain Foundations – Certificate (BLCF.CERT)

The Blockchain Foundations Certificate introduces students to core blockchain concepts, cryptographic principles, and smart contract fundamentals, while strengthening essential academic and professional skills. Students explore distributed (decentralized) ledger technologies and evaluate when blockchain solutions are appropriate compared to traditional (centralized) systems. Coursework emphasizes logical reasoning, computer applications, written communication, and quantitative problem-solving. This certificate is designed for dual-enrolled students, early college learners, and individuals seeking foundational preparation for continued study or entry-level roles supporting emerging digital technologies.

Minimum credits: 16
Minimum cumulative GPA: 2.0
Minimum grade in all courses: 2.0
Minimum Jackson College credits: 8

BLOCKCHAIN FOUNDATIONS CORE REQUIREMENTS (16 CREDITS)

Take the following:

BLC	110	Blockchain Fundamentals & Cryptography
BLC	120	Smart Contracts & Solidity
CIS	201	Advanced Information Technologies
MAT	130	Quantitative Reasoning

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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 (20-21 CREDITS)

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

Take the following:

ENG	131	Writing Experience I

GEO 2: Recognize the importance of effective communication in a dynamic and changing society (3 credits)

Choose one of the following:

COM	231	Communication Fundamentals
COM	240	Interpersonal Communication
COM	250	Intercultural Communication
HIS	211	Minority Groups in America
HUM	131	Cultural Connections
PHL	243	Great World Religions
PLS	262	International Relations
PSY	152	Social Psychology *(or SOC 152 Social Psychology)*
SOC	246	Marriage & Family

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)

Take the following:

NSC 131 Contemporary Science

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: Identify artistic, linguistic, and theoretical perspectives across the human experience (3 credits)**

Take the following:

HUM 131 Cultural Connections

BUSINESS ADMINISTRATION RELATED REQUIREMENTS (10 CREDITS)

Choose one of the following:

ACC 231 Principles of Accounting I
ACC 131 Introductory Accounting for Non-Majors

Choose one of the following:

CIS 101 Introduction to Computer Systems
CIS 201 Advanced Information Technologies

Take the following:

ENG 232 Technical & Business Writing

BUSINESS ADMINISTRATION CORE REQUIREMENTS (15 CREDITS)

Take the following:

BUA 190 Strategic Business Management
BUA 220 Principles of Management
BUA 230 Principles of Marketing
BUA 245 Internship
BUA 250 Business Law I

BUSINESS ADMINISTRATION ELECTIVES

Student should select additional credit hours from any of the following areas of study to meet the 60-credit hour degree requirement:

> Accounting (ACC), Business (BUA), Economics (ECN), Entrepreneurship (ENT), Public Leadership and Administration (PAM).

Work with your student success navigator to make the best choices based on your career and transfer goals.

***We have listed the preferred course option(s) in this category, but other courses may be used to meet this requirement. Your student success navigator will assist you making the best course selection based on your schedule and interests. You can view the complete list of approved GEO courses on pages 16-18.*

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Business Administration – Associate in Arts (BUAD.AA)

This pre-baccalaureate degree is designed for students who plan to transfer to a four-year college or university to pursue a bachelor's in business administration degree. Courses provide the foundation for transfer and admission into most four-year schools' College of Business, as well as the skills necessary for success in the business world.

Minimum credits: 60
Minimum cumulative GPA: 2.0
Minimum grade in all courses: 2.0
Minimum Jackson College credits: 15

GENERAL EDUCATION REQUIREMENTS (32 to 34 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: Recognize the importance of effective communication in a dynamic and changing society (3 credits)

Choose one of the following:

COM	231	Communication Fundamentals
COM	240	Interpersonal Communication
COM	250	Intercultural Communication
HIS	211	Minority Groups in America
HUM	131	Cultural Connections
PHL	243	Great World Religions
PLS	262	International Relations
PSY	152	Social Psychology *(or SOC 152 Social Psychology)*
SOC	246	Marriage & Family

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 (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
GEO	131	Physical Geography
NSC	140	Contemporary Climate Science
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
NSC	141	Scientific Inquiry *(must be taken with NSC 141L)*
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 credits)

Take the following:

ECN	231	Macroeconomics

Choose one of the following:

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	130	General 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
SOC	246	Marriage and Family

GEO 6: Identify artistic, linguistic, and theoretical perspectives across the human experience (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	Film in 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
ENG	261	Creative Writing
HUM	131	Cultural Connections
MUS	130	Music of Non-Western Cultures
MUS	131	Understanding Music
MUS	132	History of American Popular Music
MUS	151	Music Theory I
MUS	152	Music Theory II
PHL	231	Introduction to Philosophy
PHL	243	World Religions
SPN	131	Elementary Spanish I
SPN	132	Elementary Spanish II
SPN	231	Intermediate Spanish I
SPN	232	Intermediate Spanish II
THR	116	Introduction to Theatre
WRL	102	Portuguese Conversation I
WRL	103	Portuguese Conversation II
WRL	104	Mandarin I
WRL	105	Mandarin II

FIRST YEAR EXPERIENCE (2 credits)

Choose one of the following:

FYS	110	LifeMaps
FYS	131	Navigating College and Life
SEM	140	Seminar in Life Pathways

PRE-BUSINESS CORE REQUIREMENTS (20 credits)

Take the following:

ACC	231	Principles of Accounting I
ACC	232	Principles of Accounting II
BUA	190	Strategic Business Management
BUA	250	Business Law
CIS	101	Introduction to Computer Systems
ECN	232	Microeconomics

TRANSFER ELECTIVES (6 credits)

Select additional courses based on transfer institution and program so that degree totals 60 credit hours.

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Business Management – Certificate (BMGT.CERT)

The Business Management Certificate will develop your awareness and hone your skills in many of the functional aspects of the business world. People with business and management skills are employed in every industry in the career world. Therefore, the focus of this program is on the principles, theories and application of today's business while also concentrating on the legal, management, and human resource components found in today's dynamic, diverse, and global organization. Jobs may be found in insurance companies, health care facilities, educational institutions, transportation/distribution centers, government agencies, and manufacturing firms in a variety of departments. This certificate may also be used to further a personal business endeavor. This program also consists of foundational courses needed for a business administration associate degree.

Minimum credits: 19
Minimum cumulative GPA: 2.0
Minimum grade in all courses: 2.0
Minimum Jackson College credits: 5

BUSINESS MANAGEMENT CORE REQUIREMENTS (19 CREDITS)

Take the following:

ACC	231	Principles of Accounting I
BUA	190	Strategic Business Management
BUA	220	Principles of Management
BUA	221	Human Resource Management
BUA	250	Business Law I
CIS	101	Introduction to Computer Systems

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Cloud, Networking, Security and Administration – Associate in Applied Science (CNSA.AAS)

The Associate Degree Program in Cloud, Networking, Security and Administration provides students with a comprehensive foundation in cloud technologies, cybersecurity, and networking. This program is designed to equip students with the knowledge and skills needed to excel in the rapidly evolving field(s) of IT. Core components of the focus areas of this program:

- **Cloud Technologies:** Students will gain a deep understanding of cloud computing principles, including virtualization, cloud infrastructure, and platform-as-a-service (PaaS) solutions. Practical hands-on experience with leading cloud platforms will be a key component.
- **Cybersecurity:** The program emphasizes the importance of securing digital assets and networks. Students will learn about encryption, network security, threat detection, and incident response. Ethical hacking and penetration testing techniques will also be covered to enhance practical skills.
- **Networking:** The networking component covers fundamental and advanced concepts in computer networking. Topics include network design, protocols, routing, switching, and troubleshooting. Practical lab exercises will provide students with real-world experience in configuring and managing network infrastructure.

Program Highlights: Industry-Relevant Curriculum: The program is constantly updated to reflect the latest trends and technologies in the IT industry.

Hands-On Learning: Practical labs, projects, and real-world scenarios ensure that students gain valuable hands-on experience.

Industry Certifications: Students have the opportunity to earn relevant certifications such as CompTIA Security+, Cisco CCNA, and AWS Certified Solutions Architect.

Career Development: The program includes career development workshops, resume building, and networking opportunities to prepare students for successful entry into the workforce.

Upon completion of the associate degree, students will be well-prepared for entry-level positions in cloud technologies, cybersecurity, and networking, with the added flexibility to pursue further specialization through the Networking and Systems Administration certificate programs as well as taking on more than one focus area.

Minimum credits: 62
Minimum cumulative GPA: 2.0
Minimum grade in all courses: 2.0
Minimum Jackson College credits: 15

GENERAL EDUCATION REQUIREMENTS (20-22 CREDITS)

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

Take the following:

ENG 131 Writing Experience I

GEO 2: Recognize the importance of effective communication in a dynamic and changing society (3 credits)

Choose one of the following:

COM	231	Communication Fundamentals
COM	240	Interpersonal Communication
COM	250	Intercultural Communication
HIS	211	Minority Groups in America
HUM	131	Cultural Connections
PHL	243	Great World Religions
PLS	262	International Relations
PSY	152	Social Psychology *(or SOC 152 Social Psychology)*
SOC	246	Marriage & Family

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 two of the following from two different disciplines; at least one must be a laboratory science course:

BIO	110	Introductory Biology
CEM	131	Fundamentals of Chemistry
GEL	109	Earth Science
NSC	131	Contemporary Science
PHY	131	Conceptual Physics

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

Take the following:

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

GEO 6: Identify artistic, linguistic, and theoretical perspectives across the human experience (3 credits)

Choose one of the following:

ART	111	Art History: Prehistoric to 1400
ART	112	Art History: Renaissance to Present
HUM	131	Cultural Connections
MUS	131	Understanding Music

CNSA CORE REQUIREMENTS (27 CREDITS)

Take the Following:

CNS	101	Network Fundamentals/Network+
CNS	106	Computer Networking II
CNS	107	Computer Networking III
CNS	121	Microsoft® Networking Client I
CNS	123	Microsoft® Networking Client II
CNS	131	Linux Administration I
CNS	141	Wireless Networking
CNS	201	Network Security/Security+

CHOOSE ONE OF THE FOLLOWING TRACKS:

CYBERSECURITY TRACK REQUIREMENTS (15 CREDITS)

Take the Following:

CNS	210	Python Scripting and Security
CNS	231	Firewalls and Intrusion Detection
CNS	233	Hacker Techniques and Incident Handling
CNS	235	Packet Analysis and Network Forensics
CNS	245	Internship

CLOUD NETWORKING TRACK REQUIREMENTS (15 CREDITS)

Take the Following:

CNS	251	Cloud Computing
CNS	252	Virtualization I
CNS	253	Virtualization II
CNS	254	Information Storage and Management
CNS	245	Internship

NETWORK ADMINISTRATION CORE REQUIREMENTS (15 CREDITS)

Take the Following:

CNS	124	Microsoft® Networking Server IV
CNS	125	Microsoft® Directory Service
CNS	128	PowerShell Scripting for Network Administrators
CNS	235	Packet Analysis and Network Forensics
CNS	245	Internship

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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 for the associate degree or may complete this certificate to improve current job skills.

Minimum credits: 16
Minimum cumulative GPA: 2.0
Minimum grade in all courses: 2.0
Minimum Jackson College credits: 4

COMPUTER SUPPORT SPECIALIST CORE REQUIREMENTS (16 CREDITS)

Take the following:

CIS	174	PC Repair/A+ Hardware Component
CIS	175	PC Repair/A+ Software Component
CNS	101	Networking Fundamentals/Network+
CNS	131	Linux Administration
CNS	201	Network Security/Security+

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Digital Arts & Interactive Media – Associate in Applied Science (DAIM.AAS)

Students build strong foundations in traditional graphic design while expanding into interactive, screen-based design practices such as front-end user interface (UI) design strategies, digital layout systems, branding, AI, and emerging media. Through both online and hands-on studio courses, students learn how to design experiences that are not only visually compelling, but also functional and industry relevant. Practical skills are formed using tools and workflows while creating a professional portfolio suitable for entry-level employment or transfer to a four-year institution. There are four focus areas which can ladder into this degree; digital photography, graphic design, 3D design & animation and digital marketing. Career pathways include graphic design, digital content creation, branding, marketing design, UI/UX and interactive media roles. This program is ideal for creative students who want flexibility, relevance, and real-world preparation in a rapidly evolving design field.

Minimum credits: 64
Minimum cumulative GPA: 2.0
Minimum grade in all courses: 2.0
Minimum Jackson College credits: 15

GENERAL EDUCATION REQUIREMENTS (20-22 CREDITS)

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

Take the following:

ENG 131 Writing Experience I

GEO 2: Recognize the importance of effective communication in a dynamic and changing society (3 credits)

Choose one of the following:

COM 231 Communication Fundamentals
COM 240 Interpersonal Communication
COM 250 Intercultural Communication
PLS 262 International Relations
PSY 152 Social Psychology *(or SOC 152 Social Psychology)*
SOC 246 Marriage & Family

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

Take the following:

MAT 130 Quantitative Reasoning
MAT 133 Introduction to Probability and Statistics
MAT 139 Intermediate Algebra
MAT 141 Precalculus

GEO 4: Demonstrate scientific reasoning (4 credits)

Choose two of the following from two different disciplines; at least one must be a laboratory science course:

GEL 109 Earth Science
NSC 131 Contemporary Science
NSC 141 Scientific Inquiry

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

Take the following:

PLS 141 American National Government
PSY 130 General Psychology
SOC 231 Principles of Sociology

GEO 6: Identify artistic, linguistic, and theoretical perspectives across the human experience (3 credits)

Choose one of the following:

ART 112 Art History: Renaissance to Present
HUM 131 Cultural Connections
MUS 131 Understanding Music
MUS 132 History of American Popular Music

DAIM RELATED REQUIREMENTS (15 CREDITS)

Take one of the Following:

ART	101	Two-Dimensional Design
ART	103	Drawing Foundations
ART	152	Painting & Composition

***Choose 4 of the following*:**

ART	137	Digital Photography
BUA	104	Introduction to Business
BUA	130	Customer Service
BUA	230	Principles of Marketing
BUA	231	Advertising, Promotion & Public Relations
ENT	101	Entrepreneurship: Creating your own job
CIS	101	Introduction to Computer Systems
CIS	170	Programming C++
CIS	245	Internship

DAIM CORE REQUIREMENTS (16 CREDITS)

Take the following:

CIS	126	Digital Design Fundamentals
CIS	127	Introduction to Creative Software and AI
CIS	128	Typography and Layout
CIS	134	Graphic Imaging (Photoshop)
CIS	139	Digital Design Studio

DIGITAL ARTS & INTERACTIVE MEDIA ELECTIVES (9-13 CREDITS)
Choose one track

OPTION A: UNIVERSITY TRANSFER MTA AND ELECTIVES
Choose from general education courses that meet MTA requirements for transfer. Be sure to work with a navigator to determine what courses are needed based on intended transfer university.

OPTION B: SPECIALIZED DIGITAL ARTS & INTERACTIVE MEDIA FOCUS
Complete one of the following focus areas.

Digital Photography Focus (9 credits)
Take the following:

ART/CIS	137	Digital Photography I
ART/CIS	237	Digital Photography II
CIS	255	Portfolio/Capstone

**Include CORE DAIM, then consult with program lead or navigator for the remaining electives required. Many align, and are offerings listed above.*

Graphic Design Focus (13 credits)
Take the following:

CIS	183	Introduction to Animation
ECM	112	UX, Web & Content Creation Strategies
CIS	188	Intro to Print Production
CIS	255	Portfolio/Capstone

3D Design & Animation Focus (12 credits)
Take the following:

CIS	183	Introduction to Animation
CIS	274	3D Modeling Techniques
CIS	279	Lighting & Texturing
CIS	255	Portfolio/Capstone

Digital Marketing Focus (13 credits)
Take the following:

ECM	112	UX, Web & Content Creation Strategies
ECM	201	Advanced Technology
ECM	218	Ai in Marketing
ECM	220	eBusiness: SEO/Management/Measurement

.....

Digital Marketing – Certificate (DMKT.CERT)

Digital marketers communicate with the public through platforms that promote content engagement and sharing online. They use business acumen, creativity, communication, and technology skills to create digital marketing campaigns. Content is posted – such as images, text, and videos – to spark interest in a topic, build a brand and engage with the target market. Digital marketers may interact with the public in real-time, mediate criticism and share positive engagements. They track the effectiveness of communication strategies by setting digital campaign goals for Internet traffic and then measuring success against those goals.

Minimum credits: 27
Minimum cumulative GPA: 2.0
Minimum grade in all courses: 2.0
Minimum Jackson College credits: 7

MARKETING CORE REQUIREMENTS (24 CREDITS)

Take the following:

BUA	100	Contemporary Business
BUA	130	Customer Service
BUA	230	Principles of Marketing
BUA	231	Advertising, Promotion & Public Relations
CIS	126	Digital Design Fundamentals
ECM	112	UX, Web & Content Creation Strategies
ECM	201	Advanced Information Technology
ECM	218	AI in Marketing
ECM	220	eBusiness: SEO / Management / Measurement

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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: 19
Minimum cumulative GPA: 2.0
Minimum grade in all courses: 2.0
Minimum Jackson College credits: 5

GENERAL EDUCATION REQUIREMENTS (3 CREDITS)

Take the following:

ENG	131	Writing Experience I

ENTREPRENEURSHIP CORE REQUIREMENTS (16 CREDITS)

Take the following:

ACC	131	Introductory Accounting for Non-Majors
CIS	201	Advanced Information Technologies
ENT	101	Entrepreneurship: Creating Your Own Job
ENT	102	Entrepreneurial Marketing: Finding Your Niche
ENT	169	Business Plan

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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: 27
Minimum cumulative GPA: 2.0
Minimum grade in all courses: 2.0
Minimum Jackson College credits: 7

NETWORKING SPECIALIST CORE REQUIREMENTS (27 CREDITS)

Take the following:

CNS	101	Network Fundamentals/Network+
CNS	106	Computer Networking II
CNS	107	Computer Networking III
CNS	121	Microsoft Networking Client I
CNS	123	Microsoft Networking Server I
CNS	131	Linux Administration I
CNS	141	Wireless Networking
CNS	201	Network Security/Security+

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Public Leadership and Administration – Associate in Arts (PAMT.AA)

Public leadership and administration degrees provide the highest quality for undergraduate education for students interested in working in the public and private sectors and non-profit organizations. Public Leadership and Administration programs strive to achieve local, state, and national prominence through the contemporary curriculum, innovative instruction, scholarly and applied research, and community service. This program and services develop and enhance management skills essential to public and nonprofit organizations' orientation towards evolving communities. The Public Leadership and Administration program offer an opportunity to earn an Associate of Arts degree and transfer to a four-year university program of public administration. The Public Leadership and Administration program provide many opportunities for students to prepare for entry-level employment as public administrators and produces graduates with the public management skills and analytical techniques needed for successful careers in government, nonprofit, and other business-related fields.

Minimum credits: 60
Minimum grade in all courses: 2.0
Minimum cumulative GPA: 2.0
Minimum Jackson College credits: 15

GENERAL EDUCATION REQUIREMENTS (32-35 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: Recognize the importance of effective communication in a dynamic and changing society (3 credits)

Choose one of the following:

COM	231	Communication Fundamentals
COM	240	Interpersonal Communication
COM	250	Intercultural Communication
HIS	211	Minority Groups in America
HUM	131	Cultural Connections
PHL	243	Great World Religions
PLS	262	International Relations
PSY	152	Social Psychology *(or SOC 152 Social Psychology)*
SOC	246	Marriage & Family

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

Take the following:

MAT	133	Introduction to Probability and Statistics 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
GEO	131	Physical Geography
NSC	140	Contemporary Climate Science
NSC	141	Scientific Inquiry (can be counted as a lab science if taken with NSC 141L)

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
NSC	131	Contemporary Science
NSC	141	Scientific Inquiry *(must be taken with NSC 141L)*
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 credits)

Choose one of the following:

ECN	231	Macroeconomics
ECN	232	Microeconomics

Choose one of the following:

HIS	120	Ancient History
HIS	125	African American 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	130	General 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
SOC	246	Marriage and Family

GEO 6: Identify artistic, linguistic, and theoretical perspectives across the human experience (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	Film in 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
ENG	261	Creative Writing
HUM	131	Cultural Connections
MUS	130	Music of Non-Western Cultures
MUS	131	Understanding Music
MUS	132	History of American Popular Music
MUS	151	Music Theory I
MUS	152	Music Theory II
PHL	231	Introduction to Philosophy
PHL	243	World Religions
SPN	131	Elementary Spanish I

SPN	132	Elementary Spanish II
SPN	231	Intermediate Spanish I
SPN	232	Intermediate Spanish II
THR	116	Introduction to Theatre
WRL	102	Portuguese Conversation I
WRL	103	Portuguese Conversation II
WRL	104	Mandarin I
WRL	105	Mandarin II

RELATED REQUIREMENTS (16 CREDITS)

Take the following:

BUA	220	Principles of Management
BUA	230	Principles of Marketing
BUA	250	Business Law I
COM	240	Interpersonal Communication
ACC	231	Principles of Accounting

CORE REQUIREMENTS (12 CREDITS)

Take the following:

PAM	190	Introduction to Public Administration
PAM	220	Nonprofit Leadership and Budgeting
PAM	230	Human Resources in Public Sector
PAM	240	Public Policy Making & Analysis

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Public Leadership and Administration – Certificate (PAMT.CERT)

Completion of certificate program in public administration meets the needs of employees of government or non-profit agencies and those desiring employment or advancement. The program covers the history, present, and future of public administration. Courses include topics on public policy, finance, human resources, organizational behavior, and government.

Minimum credits: 24
Minimum grade in all courses: 2.0
Minimum cumulative GPA: 2.0
Minimum Jackson College credits: 6

GENERAL EDUCATION REQUIREMENTS (3 CREDITS)

Take the following:

ENG	131	Writing Experience

RELATED REQUIREMENTS (9 CREDITS)

Take the following:

BUA	220	Principles of Management
BUA	230	Principles of Marketing
COM	240	Interpersonal Communication

PUBLIC LEADERSHIP AND ADMINISTRATION CORE REQUIREMENTS (12 CREDITS)

Take the following:

PAM	190	Introduction to Public Administration
PAM	220	Nonprofit Leadership and Budgeting
PAM	230	Human Resources in Public Sector
PAM	240	Public Policy Making & Analysis

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Software Engineering – Associate in Applied Science (SOEN.AAS)

Software engineering is the process of analyzing user needs to design, develop, test, deploy and manage software applications systems. Software applications systems connect you to a computer, tablet, smartphone or mobile device. Coursework will include studies in databases, cloud computing, systems design, and multiple programming languages to create scalable programs, web applications, and cloud-based software. This degree is for students who want to develop the skills necessary to pursue their career goals or transfer to work toward a bachelor's degree in the field. Job opportunities may include: applications developer, computer consultant, information technology analyst, programmer, software developer, or software engineer.

Minimum credits: 60
Minimum cumulative GPA: 2.0
Minimum grade in all courses: 2.0
Minimum Jackson College credits: 15

GENERAL EDUCATION REQUIREMENTS (20-22 CREDITS)

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

Take the following:

ENG	131	Writing Experience I

GEO 2: Recognize the importance of effective communication in a dynamic and changing society (3 credits)

Choose one of the following:

COM	231	Communication Fundamentals
COM	240	Interpersonal Communication
COM	250	Intercultural Communication
HIS	211	Minority Groups in America
HUM	131	Cultural Connections
PHL	243	Great World Religions
PLS	262	International Relations
PSY	152	Social Psychology *(or SOC 152 Social Psychology)*
SOC	246	Marriage & Family

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

Choose one of the following:

MAT	137	College Algebra I AND
MAT	138	College Algebra II
MAT	139	College Algebra

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

Choose one of the following:

PHY	131	Conceptual Physics
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
PLS	141	American National Government
PSY	130	General Psychology

GEO 6: Identify artistic, linguistic, and theoretical perspectives across the human experience (3 credits)**

Choose one of the following:

ART	111	Art History: Prehistory to 1400
ART	112	Art History: Renaissance to Present
HUM	131	Cultural Connections
MUS	131	Understanding Music

SOFTWARE ENGINEERING RELATED REQUIREMENTS (16 CREDITS)

Take the following:

BLC	110	Blockchain Fundamental & Cryptography
BLC	120	Smart Contracts & Solidity
CNS	101	Network+/Network Fundamentals
CNS	131	Linux Administration
CIS	245	Internship/Externship
CNS	251	Cloud Computing
COM	231	Communication Fundamentals

SOFTWARE ENGINEERING CORE REQUIREMENTS (24 CREDITS)

Take the following:

CIS	146	Web Design & Development
CIS	158	Programming Logic
CIS	165	JAVA Programming
CIS	170	Programming in C++
CIS	220	Database Systems
CIS	244	Web Programming
CIS	265	Android Mobile Development
CIS	273	Systems Concepts & Design

***We have listed the preferred course option(s) in this category, but other courses may be used to meet this requirement. Your student success navigator will assist you in making the best course selection based on your schedule and interests. You can view the complete list of approved GEO courses on pages 16-18.*

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Sport Management – Associate in Arts (SMGT.AA)

The sport management program prepares students for careers in the global sport industry. The associate degree curriculum explores the cultural and business impact of sport through hands-on, real-word case studies and internships. This program develops strong skills in critical business areas of sport including management, communication, marketing, accounting, leadership, entrepreneurship, and human resource management.

Upon graduation with an Associate in Art in Sport Management from Jackson College, many of our graduates will transfer to a four-year bachelor's degree granting university to pursue a degree in sport management, business, law, accounting, urban planning, and graduate studies.

Minimum credits: 60
Minimum cumulative GPA: 2.0
Minimum grade in all courses: 2.0
Minimum Jackson College credits: 15

GENERAL EDUCATION REQUIREMENTS (33-35 CREDITS)

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

Choose two of the following:

ENG	131	Writing Experience I
ENG	132	Writing Experience II
ENG	232	Technical & Business Writing

GEO 2: Recognize the importance of effective communication in a dynamic and changing society (3 credits)

Choose one of the following:

COM	231	Communication Fundamentals
COM	240	Interpersonal Communication
COM	250	Intercultural Communication
HIS	211	Minority Groups in America
HUM	131	Cultural Connections
PHL	243	Great World Religions
PLS	262	International Relations
PSY	152	Social Psychology *(or SOC 152 Social Psychology)*
SOC	246	Marriage & Family

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

Take the following:

MAT	133	Introduction to Probability & Statistics (or higher)

GEO 4: Demonstrate scientific reasoning (7-8 credits)

Choose two of the following from two different disciplines; at least one course must be a laboratory science course:

Non-laboratory science courses:

BIO	140	Public Health and Disease
GEO	131	Physical Geography

Lab science courses:

BIO	132	Human Biology
GEL	109	Earth Science
NSC	131	Contemporary Science
PHY	131	Conceptual Physics

GEO 5: Understand human behavior and social systems, and the principles which govern them (6 credits)

Choose two of the following from two different disciplines:

HIS	125	African American History
HIS	131	Western Civilization to 1555
HIS	132	Western Civilization 1555 to Present
PLS	141	American National Government
PSY	130	General Psychology
SOC	231	Principles of Sociology
SOC	246	Marriage and Family

GEO 6: Identify artistic, linguistic, and theoretical perspectives across the human experience (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	Film in 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
ENG	261	Creative Writing
HUM	131	Cultural Connections
MUS	130	Music of Non-Western Cultures
MUS	131	Understanding Music
MUS	132	History of American Popular Music
MUS	151	Music Theory I
MUS	152	Music Theory II
PHL	231	Introduction to Philosophy
PHL	243	World Religions
SPN	131	Elementary Spanish I
SPN	132	Elementary Spanish II
SPN	231	Intermediate Spanish I
SPN	232	Intermediate Spanish II
THR	116	Introduction to Theatre
WRL	102	Portuguese Conversation I
WRL	103	Portuguese Conversation II
WRL	104	Mandarin I
WRL	105	Mandarin II

SPORT MANAGEMENT CORE REQUIREMENTS (15 CREDITS)

Take the following:

SMT	100	Introduction to Sport Management
SMT	111	Historical and Sociological Issues in Sport
SMT	230	Sport Marketing
SMT	240	Sport Facility and Event Management
BUA	250	Business Law

SPORT MANAGEMENT ELECTIVES (Select so degree totals 60 credits)

Choose from of the following:

Recommended for General Sport Management Focus:

BUA	111	Personal Finance
BUA	121	Leadership
COM	231	Communication Fundamentals
BUA	231	Advertising, Promotion, and Public Relations
ACC	231	Principles of Accounting I
SMT	255	Sport Management Capstone

Recommended for Esports focus:

SMT	110	Esport and Society
SMT	210	Introduction to Esport Management
SMT	245	Internship

********We have listed the preferred course option(s) in this category, but other courses may be used to meet this requirement. Your student success navigator will assist you in making the best course selection based on your schedule and interests. You can view the complete list of approved GEO courses on pages 16-18.*

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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. 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
- Cardiac Sonography (Second Admit Program)
- Dental Hygiene (Second Admit Program)
- Emergency Medical Services – EMT Basic and Paramedic
- General Sonography (Second Admit Program)
- Medical Assistant
- Medical Insurance Coder/Biller
- Medical Office Support
- Nursing, ADN (RN) (Second Admit Program)
- Nursing, LPN to RN (Second Admit Program)
- Nursing, Practical (LPN) (Second Admit Program)
- Patient Care Technician
- Radiography (Second Admit Program)
- Respiratory Care (Second Admit Program)
- Surgical Technology
- Vascular Sonography (Second Admit Program)

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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 or CCI (Cardiovascular Credentialing International) for the board exam that will award them the RCS (Registered 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 September 15.
- Diagnostic Medical Sonography Admission Committee conducts interviews.
- Students are notified by e-mail of admission status.
- Accepted students begin spring semester.

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

Minimum credits: 66
Minimum cumulative GPA: 2.0
Minimum grade in all courses: 2.0
Minimum grade in BIO 132 or BIO 253/254: 2.5
Minimum grade in 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)

Choose one of the following:

ENG	131	Writing Experience I
ENG	132	Writing Experience II

GEO 2: Recognize the importance of effective communication in a dynamic and changing society (3 credits)

Choose one of the following:

COM	231	Communication Fundamentals
COM	240	Interpersonal Communication
COM	250	Intercultural Communication
HIS	211	Minority Groups in America
HUM	131	Cultural Connections
PHL	243	Great World Religions
PLS	262	International Relations
PSY	152	Social Psychology *(or SOC 152 Social Psychology)*
SOC	246	Marriage & Family

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	130	General Psychology

GEO 6: Identify artistic, linguistic, and theoretical perspectives across the human experience (3 credits)

Choose one of the following:

ART	111	Art History: Prehistoric to 1400
ART	112	Art History: Renaissance to Present
ENG	210	Film in 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
ENG	261	Creative Writing
FRN	131	Elementary French I
GER	131	Elementary German I
HUM	131	Cultural Connections

MUS	130	Music of Non-Western Cultures
MUS	131	Understanding Music
MUS	132	History of American Popular Music
MUS	151	Music Theory I
MUS	152	Music Theory II
PHL	231	Introduction to Philosophy
PHL	243	World Religions
SPN	131	Elementary Spanish I
SPN	132	Elementary Spanish II
SPN	231	Intermediate Spanish I
SPN	232	Intermediate Spanish II
THR	116	Introduction to Theatre
WRL	102	Portuguese Conversation I
WRL	103	Portuguese Conversation II
WRL	104	Mandarin I
WRL	105	Mandarin II

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 (31 CREDITS)

Take the following:

DMS	140	Sonographic Orientation & Technique
DMS	141	Adult Echo I
DMS	142	Echo Clinical I
DMS	144	Cardiovascular Principles
DMS	146	Echo Clinical II
DMS	196	Introduction to Clinical
DMS	206	Sonographic Instrumentation
DMS	240	Adult Echo II
DMS	246	Echo Clinical III

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Dental Hygiene – Associate in Applied Science (DENT.AAS)

The Dental Hygiene Associate in Applied Science program consists of integrated lectures, labs and clinical experiences. As a graduate of the Jackson College dental hygiene program, the student will have the knowledge and skills necessary to provide preventive and periodontal treatment.

The responsibilities of a registered dental hygienist generally include: scaling and root debridement, delivery of local anesthesia, nitrous oxide sedation, topical fluoride, antibiotic and antimicrobial

medicament placement, impressions, diagnostic models, dental radiographs, dental education, nutritional counseling, and various laboratory procedures. The treatments and services are prescribed under the supervision of the dentist.

The dental hygiene program is accredited by the Commission on Dental Accreditation, or CODA. Upon successfully completing the program at Jackson College, the student will be eligible to take the national, regional and state board examinations for dental hygiene licensure.

There are various employment opportunities for the registered dental hygienist. The registered hygienist may choose employment in a general or specialty dental practice, schools, clinics, hospitals, HMOs, public health or governmental agencies. The dental hygienist may also be employed in the area of management, research, sales, consulting or education.

Students must apply for admission to the dental hygiene program and must do so by the application deadline. The program starts every spring semester and continues for four academic semesters after the student has completed the prerequisite courses. Admission to dental hygiene is highly competitive and is not guaranteed. It is the student's responsibility to understand and adhere to the specific admission criteria. The selection process considers academic and non-academic qualities. Assessment of an applicant's academic qualities is based on the applicant's prerequisite grades and overall GPA. Non-academic criteria consider qualities such as work ethic, motivation, compassion, integrity, communication skills, leadership, and desire to contribute to society. Students with the highest points will be admitted based on space availability. The selection process is subject to change.

The program for which you are applying requires that you successfully complete clinical requirements in an on-site clinic. A provider's license may be jeopardized if the State of Michigan learns through the required criminal history background clearance that they or an adult age 18 and over who is employed by them or in practicum with them, has a pending criminal charge or has been convicted of certain various crimes. 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, Jackson College requires 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. Following graduation, applicants for licensure as a registered dental hygienist will also be asked about criminal convictions and this could impact the individual's ability to become licensed. In addition, all dental hygiene students must pass a drug screen as a condition of admission to the dental hygiene program. While enrolled in the program, a student may be asked to submit to a drug test if there is reason to believe the student is under the influence of alcohol or other drugs.

PREREQUISITES

Take the following:

BIO	220	Microbiology
PSY	130	General Psychology
ENG	131	Writing Experience I
COM	250	Intercultural Communication
MAT	133	Introduction to Probability & Statistics

Choose one of the following:
*If not selecting BIO 132, take both BIO 253 and BIO 254 to satisfy requirements.
BIO 132 Human Biology

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

Choose one of the following:
CEM 131 Fundamentals of Chemistry
CEM 141 General Chemistry I

Applications are accepted for spring admission. See a student success navigator for application deadlines. All sciences must be taken within the last eight years.

Minimum credits: 73
Minimum grade in dental hygiene courses: 2.0
Minimum grade in BIO 132, BIO 253, BIO 254 and BIO 220: 2.5
Minimum Jackson College credits: 42

GENERAL EDUCATION REQUIREMENTS (21 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: Recognize the importance of effective communication in a dynamic and changing society (3 credits)

Choose one of the following:
COM 231 Communication Fundamentals
COM 240 Interpersonal Communication
COM 250 Intercultural Communication
HIS 211 Minority Groups in America
HUM 131 Cultural Connections
PHL 243 Great World Religions
PLS 262 International Relations
PSY 152 Social Psychology *(or SOC 152 Social Psychology)*
SOC 246 Marriage & Family

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

Take the following:
MAT 133 Introduction to Probability & Statistics (preferred) (or higher)

GEO 4: Demonstrate scientific reasoning (4 credits)

Take the following:
BIO 220 Microbiology

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

Take the following:

PSY	152	Social Psychology
SOC	152	Social Psychology

GEO 6: Identify artistic, linguistic, and theoretical perspectives across the human experience (3 credits)

Choose one of the following:

ART	111	Art History: Prehistoric – 1400
ART	112	Art History: Renaissance – Present
HUM	131	Cultural Connections
MUS	131	Understanding Music

Dental Hygiene Related Requirements

Choose one of the following:

*If not selecting BIO 132, take both BIO 253 and BIO 254 to satisfy requirements.

BIO	132	Human Biology

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

Choose one of the following:

CEM	131	Fundamentals of Chemistry
CEM	141	General Chemistry I

Dental Hygiene Core Requirements (45 credits)

Take the following:

DHY	101	Principles in Dental Hygiene I
DHY	102	Preclinical Dental Hygiene
DHY	103	Orofacial Anatomy, Histology & Embryology
DHY	104	Biochemistry & Nutrition
DHY	105	Medical Emergencies in the Dental Office
DHY	111	Principles in Dental Hygiene II
DHY	113	Radiology
DHY	114	Periodontics
DHY	115	Clinical Dental Hygiene I
DHY	120	Dental Materials
DHY	121	Pharmacology
DHY	201	Principles in Dental Hygiene III
DHY	203	Pain Management
DHY	204	Oral Pathology
DHY	205	Clinical Dental Hygiene II
DHY	211	Principles in Dental Hygiene IV
DHY	213	Community Dental Health
DHY	215	Clinical Dental Hygiene III

***We have listed the preferred course option(s) in this category, but other courses may be used to meet this requirement. Your student success navigator will assist you in making the best course selection based on your schedule and interests. You can view the complete list of approved GEO courses on pages 16-18.*

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Emergency Medical Services: EMT Basic – Certificate (EMTE.CERT)

The Emergency Medical Services: EMT Basic Certificate program prepares the student to be entry-level in delivering safe, high quality emergency patient care. The EMT-B is trained to respond to emergency calls to provide efficient and immediate care to the critically ill and injured, and to transport the patient to a medical facility. After receiving the call from the dispatcher, the EMT-B drives the ambulance to the address or location given, using the most expeditious route, depending on traffic and weather conditions. The EMT-B must observe traffic ordinances and regulations concerning emergency vehicle operation.

The Emergency Medical Services Certificate (EMSC) will provide education beyond the Basic Emergency Medical Technician minimum state requirements. The program is offered three times per year (fall, spring, summer.) The certificate program is designed to offer students stackable credentials in EMT-B and Emergency Medical Responder or alternative health science pathway career choices. EMSC program will prepare students to become leaders, who are entry-level emergency medical technicians, ready for the workforce or additional educational goals.

The program is designed in a hybrid format, offering course work online with hands-on practice in Jackson College's state of the art simulation lab and driving simulator.

Minimum credits: 17
Minimum cumulative GPA: 2.0
Minimum grade in all courses: 2.0
Minimum Jackson College credits: 16

EMERGENCY MEDICAL SERVICES RELATED REQUIREMENTS (8 CREDITS)

Choose two of the following:

BIO	132	Human Biology
EMS	116	Emergency Medical Responder
HOC	135	EKG Technician
HOC	145	Phlebotomy Technician

EMERGENCY MEDICAL SERVICES CORE REQUIREMENTS (9 CREDITS)

Take the following:

EMS	124	Emergency Medical Technician Basic

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 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 admission status.
- Accepted students begin summer 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 BIO 132 or BIO 253/254 2.5,
Minimum grade in 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)

Choose one of the following:

ENG	131	Writing Experience I
ENG	132	Writing Experience II

GEO 2: Recognize the importance of effective communication in a dynamic and changing society (3 credits)

Choose one of the following:

COM	231	Communication Fundamentals
COM	240	Interpersonal Communication
COM	250	Intercultural Communication
HIS	211	Minority Groups in America
HUM	131	Cultural Connections
PHL	243	Great World Religions
PLS	262	International Relations
PSY	152	Social Psychology *(or SOC 152 Social Psychology)*
SOC	246	Marriage & Family

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 not selecting BIO 132, take both BIO 253 and BIO 254 to satisfy requirements.

BIO	132	Human Biology

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

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

Take the following:

PSY	130	General Psychology

GEO 6: Identify artistic, linguistic, and theoretical perspectives across the human experience (3 credits)

Choose one of the following:

ART	111	Art History: Prehistoric to 1400
ART	112	Art History: Renaissance to Present
ENG	210	Film in 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
ENG	261	Creative Writing
HUM	131	Cultural Connections
MUS	130	Music of Non-Western Cultures

MUS	131	Understanding Music
MUS	132	History of American Popular Music
MUS	151	Music Theory I
MUS	152	Music Theory II
PHL	231	Introduction to Philosophy
PHL	243	World Religions
SPN	131	Elementary Spanish I
SPN	132	Elementary Spanish II
SPN	231	Intermediate Spanish I
SPN	232	Intermediate Spanish II
THR	116	Introduction to Theatre
WRL	102	Portuguese Conversation I
WRL	103	Portuguese Conversation II
WRL	104	Mandarin I
WRL	105	Mandarin II

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 (36 CREDITS)

Take the following:

DMS	101	Sonographic Orientation
DMS	105	Sonographic Techniques
DMS	125	Clinical Experience I
DMS	197	Introduction to Clinical
DMS	200	Abdomen and Small Parts Sonography
DMS	201	Obstetric and Gynecologic Sonography
DMS	206	Sonographic Instrumentation
DMS	212	Comprehensive Sonography
DMS	216	Clinical Experience II
DMS	217	Clinical Experience III

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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 non-paid externship experience with a licensed health care practitioner is the culmination of the program. Upon completion of the program, students are eligible to sit for the RMA(AMT) exam.

Minimum credits: 34
Minimum cumulative GPA: 2.0
Minimum grade in all courses: 2.0
Minimum grade in MED courses: 2.5
Minimum Jackson College credits: 15

MEDICAL ASSISTANT CORE REQUIREMENTS (34 CREDITS)

Take the following:

**If you choose to take MED 120, you do not need to take MOA 120. If you choose to take MED 132, you do not need to take HOC 115.*

MED	120	MA Medical Terminology
MOA	120	Medical Terminology
MED	125	Introduction to Body Systems
MED	132	Foundations of Clinical Practice**
HOC	115	Introduction to Patient Care**
MED	135	MA Pharmacology and Medical Math
MED	225	MA Clinical Procedures I
MED	235	MA Clinical Procedures II
MED	251	MA Capstone
MED	252	MA Practicum
MOA	112	Medical Law and Ethics
MOA	240	Medical Office Procedures
MOA	241	Principles of Medical Coding and Billing

***Do not need to take if you have a current CNA license*

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Medical Office Support – Certificate (MEOS.CERT)

The Medical Office Support program prepares students to provide administrative support in various healthcare settings such as hospitals, medical offices or outpatient clinics, insurance companies, and other private and public sector healthcare 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 health science program.

Minimum credits: 19
Minimum cumulative GPA: 2.0
Minimum grade in all courses: 2.0
Minimum JC credits: 12
MACRAO Agreement: No

MEDICAL OFFICE SUPPORT CORE REQUIREMENTS (19 CREDITS)

Take the following:

*If you choose to take MED 120, you do not need to take MOA 120. If you choose to take MOA 241, you do not need to take MIC 141.

MED	125	Introduction to Body Systems
MED	120	MA Medical Terminology OR
MOA	120	Medical Terminology
MED	132	Foundations of Clinical Practice
MOA	112	Medical Law and Ethics
MOA	240	Medical Office Procedures
MOA	241	Principles of Medical Coding and Billing OR
MIC	141	Principles of Medical Coding and Billing

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Professional Medical Coder – Certificate (MECO.CERT)

The Professional Medical Coder Certificate program prepares the student to work in a medical office, clinic, surgical center, emergency center, or hospital. Emphasis is placed on medical terminology, use of electronic medical management systems, medical financial management, disease conditions, diagnostic and procedure coding, and medical office and hospital coding. This is a competency-based program that allows for a variety of program completion options which may include credit for work experience or waiver by exam and therefore can be tailored to meet the needs of both the novice and experienced coder to prepare for numerous industry credentials.

Minimum credits: 21
Minimum cumulative GPA: 2.0
Minimum grade in all courses: 2.0
Minimum grades in MIC 141, and MIB 241: 2.5
Minimum Jackson College credits: 15

MEDICAL INSURANCE CODER RELATED REQUIREMENTS (6 CREDITS)

Take the following:

MOA	120	Medical Terminology

Choose one of the following:

****If not selecting BIO 132 or MED 125, take both BIO 253 and BIO 254 to satisfy requirements.***

BIO	132	Human Biology OR
BIO	253	Human Anatomy & Physiology I AND
BIO	254	Human Anatomy & Physiology II OR
MED	125	Introduction to Body Systems

MEDICAL INSURANCE CODER CORE REQUIREMENTS (15 CREDITS)

Take the following:

MOA	112	Medical Law and Ethics
MIC	141	Principles of Medical Coding and Billing
MIC	241	Physician Office Medical Coding
MIC	255	Coder Capstone

Professional Medical Biller – Certificate (MEBI.CERT)

The Professional Medical Biller Certificate program prepares the student to work in a medical office, clinic, surgical center, emergency center, or hospital. Emphasis is placed on medical terminology, legal and regulatory issues, use of electronic medical management systems, and the different reimbursement methodologies. This is a competency-based program that allows for a variety of program completion options which may include credit for work experience or waiver by exam and therefore can be tailored to meet the needs of both the novice and experienced coder to prepare for numerous industry credentials.

Minimum credits: 21
Minimum cumulative GPA: 2.0
Minimum grade in all courses: 2.0
Minimum grades in MIC 141, and MIB 241: 2.5
Minimum Jackson College credits: 15

MEDICAL INSURANCE BILLER RELATED REQUIREMENTS (6 CREDITS)

Take the following:

MOA	120	Medical Terminology

Choose one of the following:
****If not selecting BIO 132 or MED 125, take both BIO 253 & BIO 254 to satisfy requirements.***

BIO	132	Human Biology Or
BIO	253	Human Anatomy & Physiology I AND
BIO	254	Human Anatomy & Physiology II Or
MED	125	Introduction to Body Systems

MEDICAL INSURANCE BILLING CORE REQUIREMENTS (15 CREDITS)

Take the following:

MOA	112	Medical Law and Ethics
MIC	141	Principles of Medical Coding and Billing
MIB	241	Professional Medical Billing
MIB	255	Biller Capstone

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Nursing

Nursing is a dynamic and changing field with broader employment opportunities than ever before. It is expected to have one of the largest numbers 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 – Associate in Applied Science
- Nursing, LPN to AAS – 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 plan to transfer to during their first semester.

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Nursing – Associate in Applied Science (NURS.AAS)

The Associate in Applied Science, Nursing (AAS) 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 healthcare settings and for employment in the field of registered nursing. Candidates successfully completing the AAS program are eligible to apply for the licensing examination (NCLEX-RN) required for licensure as a registered professional nurse (RN).

The Jackson College's Associate in Applied Science Nursing Degree is approved by Michigan Licensing and Regulatory Affairs (LARA) located at 511 W Ottawa, P.O. Box 30004, Lansing, MI 48909, 517.373.1820, and is accredited by the National League for Nursing Commission for Nursing Education Accreditation (NLN CNEA) located at 2600 Virginia Avenue, NW, Washington, DC 20037; (202) 909-2526.

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 an application to the nursing program. The advisor will explain the point system on the "AAS 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 healthcare 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:

- MAT 133 Introduction to Probability & Statistics
- BIO 253 Human Anatomy and Physiology I AND BIO 254 Human Anatomy and Physiology II
- CEM 131 Fundamentals of Chemistry

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 must be taken within the last eight years. Nursing courses MUST be taken in sequence. Students are required to take and pass the standardized admission test prior to admission.

Minimum credits: 64
Minimum cumulative GPA: 2.0
Minimum grade in all courses: 2.0
Minimum grades in BIO 253 and BIO 254: 2.5
Minimum Jackson College credits: 39

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: Recognize the importance of effective communication in a dynamic and changing society (3 credits)

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 130 General Psychology

GEO 6: Identify artistic, linguistic, and theoretical perspectives across the human experience (3 credits)

Choose one of the following:

HUM 131 Cultural Connections
ENG 249 African-American Literature

NURSING RELATED REQUIREMENTS (4 CREDITS)

Take the following:

CEM 131 Fundamentals of Chemistry

NURSING CORE REQUIREMENTS (39 CREDITS)

Take the following:

NRS 111 Nursing Skills*
NRS 116 Pharmacology
NRS 119 Health Assessment*
NRS 120 Nursing Fundamentals*
NRS 210 Medical Surgical 1*
NRS 211 Women and Neonate Concepts*
NRS 212 Behavioral Health*
NRS 213 Pediatrics*
NRS 214 Medical Surgical 2*
NRS 215 Pathophysiology
NRS 230 Medical Surgical 3*
NRS 240 Nursing Capstone*

**These courses also have lab and/or clinical components that must be registered for as corequisites.*

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.

*****We have listed the preferred course option(s) in this category, but other courses may be used to meet this requirement. Your student success navigator will assist you in making the best course selection based on your schedule and interests. You can view the complete list of approved GEO courses on pages 16-18.***

Nursing – LPN to AAS – Associate in Applied Science (TNUR.AAS)

The Associate in Applied Science, Nursing – LPN to AAS 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 AAS 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 AAS 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.

Candidates entering the LPN to AAS program will need to meet the competency-based educational (CBE) requirements by having a valid Michigan unencumbered LPN license, have obtained 1,000 cumulative practice hours by start of the program and must pass the following competency exams: National League for Nursing (NLN) Foundations of Nursing Standardized Admission, NLN Pharmacology and Health Assessment skills practicum examinations. 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: 64
Minimum cumulative GPA: 2.0
Minimum grades in all courses: 2.0
Minimum grade in BIO 253 and BIO 254: 2.5
Minimum Jackson College credits: 28

It is highly recommended that chemistry be taken prior to Human Anatomy & Physiology (BIO 253 and 254). All sciences must be taken within the last eight years. Nursing courses MUST be taken in sequence. 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: Recognize the importance of effective communication in a dynamic and changing society (3 credits)

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 130 General Psychology

GEO 6: Identify artistic, linguistic, and theoretical perspectives across the human experience (3 credits)

Choose one of the following:

HUM 131 Cultural Connections

ENG 249 African-American Literature

NURSING (LPN TO AAS) RELATED REQUIREMENTS (4 CREDITS)

Take the following:

CEM 131 Fundamentals of Chemistry

NURSING (LPN TO AAS) CORE REQUIREMENTS (28 CREDITS)

Take the following:

NRS	210	Medical-Surgical Nursing 1
NRS	211	Women and Neonate Concepts
NRS	212	Behavioral Health
NRS	213	Pediatrics
NRS	214	Medical Surgical 2*
NRS	215	Pathophysiology
NRS	230	Medical Surgical 3*
NRS	240	Nursing Capstone*

**These courses also have lab and/or clinical components that must be registered for as corequisites.*

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.

*****We have listed the preferred course option(s) in this category, but other courses may be used to meet this requirement. Your student success navigator will assist you in making the best course selection based on your schedule and interests. You can view the complete list of approved GEO courses on pages 16-18.***

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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:

Choose one of the following:
*If not selecting BIO 132, take both BIO 253 and BIO 254 to satisfy requirements.
BIO 132 Human Biology

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

Minimum credits: 33
Minimum cumulative GPA: 2.0
Minimum grade in all prerequisite 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.

PRACTICAL NURSING RELATED REQUIREMENTS (4 CREDITS)

Choose one of the following:
*If not selecting BIO 132, take both BIO 253 & BIO 254 to satisfy requirements.
BIO 132 Human Biology

BIO 253 Human Anatomy & Physiology I AND
BIO 254 Human Anatomy & Physiology II
*Minimum GPA 2.5 required

PRACTICAL NURSING CORE REQUIREMENTS (29 CREDITS)

Take the following:

PNC	110	Foundations of Nursing
PNC	111	Foundations Skills Lab*
PNC	116	Practical Nurse Pharmacology
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*

**These courses also have lab and/or clinical components that must be registered for as corequisites.*

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Radiography – Associate in Applied Science (RADI.AAS)

A radiographer is the allied health professional who uses ionizing radiation to image patients in hospitals and various 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 completed successfully before applying to the program.

Minimum credits: 81
Minimum cumulative GPA: 2.0
Minimum grade in BIO 132 or BIO 253/254: 2.5
Minimum grade in DMS 100, 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 or
ENG 132 Writing Experience II

GEO 2: Recognize the importance of effective communication in a dynamic and changing society (3 credits)

Choose one of the following:

COM 231 Communication Fundamentals
COM 240 Interpersonal Communication
COM 250 Intercultural Communication
HIS 211 Minority Groups in America
HUM 131 Cultural Connections
PHL 243 Great World Religions
PLS 262 International Relations
PSY 152 Social Psychology *(or SOC 152 Social Psychology)*
SOC 246 Marriage & Family

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 not selecting BIO 132, take both BIO 253 & BIO 254 to satisfy requirements.

BIO 132 Human Biology

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

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

Take the following:

PSY 130 General Psychology

GEO 6: Identify artistic, linguistic, and theoretical perspectives across the human experience (3 credits)

Choose one of the following:

HUM	131	Cultural Connections
ENG	249	African-American Literature

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

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Respiratory Therapy – Associate in Applied Science (RECA.AAS)

Respiratory Therapy 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: 74
Minimum cumulative GPA: 2.0
Minimum grade in all courses: 2.0
Minimum grade in BIO 132 or BIO 253 and BIO 254 and MAT 130: 3.0
Minimum Jackson College credits: 15

GENERAL EDUCATION REQUIREMENTS (18 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: Recognize the importance of effective communication in a dynamic and changing society (3 credits)

Choose one of the following:

COM	231	Communication Fundamentals
COM	240	Interpersonal Communication
COM	250	Intercultural Communication
HIS	211	Minority Groups in America
HUM	131	Cultural Connections
PHL	243	Great World Religions
PLS	262	International Relations
PSY	152	Social Psychology *(or SOC 152 Social Psychology)*
SOC	246	Marriage & Family

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 not selecting BIO 132, take both BIO 253 and BIO 254 to satisfy requirements.

BIO 132 Human Biology

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

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

Take the following:

PSY 130 General Psychology

GEO 6: Identify artistic, linguistic, and theoretical perspectives across the human experience (3 credits)

Choose one of the following:

HUM 131 Cultural Connections
ENG 249 African-American Literature

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

***We have listed the preferred course option(s) in this category, but other courses may be used to meet this requirement. Your student success navigator will assist you in making the best course selection based on your schedule and interests. You can view the complete list of approved GEO courses on pages 16-18.*

Surgical Technology – Associate in Applied Science (SUTE.AAS)

The Associate of Applied Science (AAS) in Surgical Technology provides graduates the training to work in the operating room of hospitals and surgery centers alongside surgeons, nurses and anesthesiologists while assisting the surgeon. Graduates may work as surgical technologists, sterile processors, or sterile processing managers. After gaining clinical experience, graduates may teach or become a certified first assistant. The surgical technology program is an online program leading to an associate in applied science degree. The surgical technology program is an outcome-based program. Students are eligible for early completion after completing the competencies of Clinical I, and a minimum of 360 clinical hours completed in Clinical I in addition to completing the course competencies. The curriculum consists of integrated educational and clinical course work with a maximum of 640 supervised clinical hours with an approved clinical education affiliate. The level of mastery and performance proficiency is assessed in the final clinical semester. Learners will be eligible for early completion during the final clinical semester. The program is designed to prepare the student for employment in the field of surgical technology. Surgical technology positions are located within hospitals, surgical centers, and private practices. Upon successful completion, students are eligible to apply for certification exams through the National board of Surgical Technology and Surgical Assisting (NBSTSA). There are special admission requirements to the surgical technology program, 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 November 15
- Surgical Technology Admission Committee conducts interviews for admission points
- Students are notified by mail of application consultation results.
- Accepted students begin spring semester. General education prerequisites and related requirement courses must be completed before admission to the program.

Minimum credits: 60
Minimum cumulative GPA: 2.0
Minimum grade in all courses: 2.0
Minimum grade in BIO 132 or BIO 253/254: 2.5
Minimum grade in SUR 101: 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 or
ENG 132 Writing Experience II

GEO 2: Recognize the importance of effective communication in a dynamic and changing society (3 credits)

Choose one of the following:

COM 231 Communication Fundamentals
COM 240 Interpersonal Communication
COM 250 Intercultural Communication
HIS 211 Minority Groups in America
HUM 131 Cultural Connections
PHL 243 Great World Religions
PLS 262 International Relations
PSY 152 Social Psychology *(or SOC 152 Social Psychology)*
SOC 246 Marriage & Family

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 not selecting BIO 132, take both BIO 253 and BIO 254 to satisfy requirements.*

BIO 132 Human Biology

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

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

Take the following:

PSY 130 General Psychology

GEO 6: Identify artistic, linguistic, and theoretical perspectives across the human experience (3 credits)

Choose one of the following:

ART 111 Art History: Prehistoric to 1400
ART 112 Art History: Renaissance to Present
ENG 210 Film in 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
ENG	261	Creative Writing
FRN	131	Elementary French I
GER	131	Elementary German I
HUM	131	Cultural Connections
MUS	130	Music of Non-Western Cultures
MUS	131	Understanding Music
MUS	132	History of American Popular Music
MUS	151	Music Theory I
MUS	152	Music Theory II
PHL	231	Introduction to Philosophy
PHL	243	World Religions
SPN	131	Elementary Spanish I
SPN	132	Elementary Spanish II
SPN	231	Intermediate Spanish I
SPN	232	Intermediate Spanish II
THR	116	Introduction to Theatre
WRL	102	Portuguese Conversation I
WRL	103	Portuguese Conversation II
WRL	104	Mandarin I
WRL	105	Mandarin II

SURGICAL TECHNOLOGY RELATED REQUIREMENTS (11 CREDITS)

Take the following:

SUR	101	Introduction to Surgical Technology and Professional Lab Practices
MOA	120	Medical Terminology
MOA	112	Medical Law and Ethics
HOC	110	Advanced First Aid & CPR

SURGICAL TECHNOLOGY CORE REQUIREMENTS (28 CREDITS)

Take the following:

BIO	220	Microbiology
SUR	120	Surgical Pharmacology and Anesthesia
SUR	102	Surgical Procedures I
SUR	121	Surgical Anatomy and Physiology
SUR	103	Surgical Procedures II
SUR	160	Surgical Clinical I
SUR	161	Surgical Clinical II

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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 and many ancillary devices.

The vascular sonographer performs carotid duplex scanning, lower and upper extremity Doppler examinations, venous duplex scans, and abdominal vascular exams, evaluates test results, monitors the 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 a hybrid 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 program is outcome-based (competency-based), and the curriculum consists of integrated educational and clinical course work with a maximum of 1,000 supervised clinical hours with an approved clinical education affiliate. The level of mastery and performance proficiency is assessed in the final clinical semester. Learners will be eligible for early completion during the final clinical semester.

The program is designed to prepare the student for employment in vascular sonography. Vascular positions are in 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 January 31.
- The Vascular Technology Admission Committee conducts consultations for clinical site placements.
- Students are notified by mail of application consultation results.
- Accepted students begin the summer semester.

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

Minimum credits: 67
Minimum cumulative GPA: 2.0
Minimum grade in all courses: 2.0
Minimum grade in BIO 132, BIO 253/254 and MOA 120: 2.5
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 or
ENG 132 Writing Experience II

GEO 2: Recognize the importance of effective communication in a dynamic and changing society (3 credits)

Choose one of the following:

COM 231 Communication Fundamentals
COM 240 Interpersonal Communication
COM 250 Intercultural Communication
HIS 211 Minority Groups in America
HUM 131 Cultural Connections
PHL 243 Great World Religions
PLS 262 International Relations
PSY 152 Social Psychology *(or SOC 152 Social Psychology)*
SOC 246 Marriage & Family

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 not selecting BIO 132, take both BIO 253 and BIO 254 to satisfy requirements.*

BIO 132 Human Biology

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

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

Take the following:

PSY 130 General Psychology or
SOC 231 Principles of Sociology

GEO 6: Identify artistic, linguistic, and theoretical perspectives across the human experience (3 credits)**

Choose one of the following:

ART	111	Art History: Prehistoric to 1400
ART	112	Art History: Renaissance to Present
ENG	210	Film in 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
ENG	261	Creative Writing
HUM	131	Cultural Connections
MUS	130	Music of Non-Western Cultures
MUS	131	Understanding Music
MUS	132	History of American Popular Music
PHL	231	Introduction to Philosophy
THR	116	Introduction to Theatre

VASCULAR SONOGRAPHY RELATED REQUIREMENTS (11 CREDITS)

Take the following:

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 (36 CREDITS)

Take the following:

DMS	159	Vascular Anatomy, Physiology and Doppler Imaging
DMS	103	Introduction to Sonographic Reasoning and Research
DMS	160	Introduction to Vascular Technology and Professional Lab Practice
DMS	171	Vascular Ultrasound Clinical I
DMS	203	Venous Duplex Testing
DMS	205	Arterial Duplex and Physiological Testing
DMS	206	Sonographic Instrumentation
DMS	207	Cerebrovascular Procedures
DMS	208	Advanced Imaging
DMS	209	Vascular Technology Review Capstone
DMS	271	Vascular Ultrasound Clinical II
DMS	272	Vascular Ultrasound Clinical III

***We have listed the preferred course option(s) in this category, but other courses may be used to meet this requirement. Your student success navigator will assist you in making the best course selection based on your schedule and interests. You can view the complete list of approved GEO courses on pages 16-18.*

SOCIAL SCIENCES 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? Social Sciences could be your career path!

Those interested in the Social Sciences 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. Social Sciences careers are perfect for people who are at their best when they are helping others.

DEGREES/CERTIFICATES

- Behavioral Sciences
- Corrections
- Law Enforcement

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Behavioral Sciences – Certificate (BHSC.CERT)

This certificate is designed for students who plan to transfer to four-year institutions as psychology majors. Certificate graduates could also find entry-level employment as clinic technicians in human services fields. This coursework also fulfills many general education requirements for the Associate in Arts degree. Students should verify requirements with their transfer institutions.

Minimum credits: 19 to 25
Minimum cumulative GPA: 2.0
Minimum grade in all courses: 2.0
Minimum Jackson College credits: 7

GENERAL EDUCATION REQUIREMENTS (3 CREDITS)

Take the following:
PSY 130 General Psychology

CORE REQUIREMENTS (18 CREDITS)

Choose one focus, based on transfer or program goals:

PSYCHOLOGY FOCUS:

Choose five of the following:

*If you choose to take PSY 245, you do not need to take PSY 252.

PSY	152	Social Psychology
PSY	161	Introduction to Counseling
PSY	252	Developmental Psychology
PSY	251	Abnormal Psychology
PSY	256	Educational Psychology
PSY	290	Human Sexuality
PSY	344	Organizational Psychology

SOCIAL WORK FOCUS:

Take the following:

SOC	152	Social Psychology (cross listed with PSY 152 Social Psychology)
SOC	231	Principles of Sociology
SOC	246	Marriage and Family
SWK	292	Introduction to Social Work
HIS	211	Minority Groups in America

POLITICAL SCIENCE FOCUS:

Take the following:

PLS	141	American National Government
PSL	262	International Relations
HIS	211	Minority Groups in America
HIS	235	20th Century History

Choose one of the following:

ECN	231	Macroeconomics
ECN	232	Microeconomics
HIS	231	Development of the U.S. through the Civil War
HIS	232	Development of the U.S. from the Civil War

LAW ENFORCEMENT FOCUS:

Take the following:

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

Choose one of the following:

CRJ	102	Criminal Investigation
CRJ	112	Crime and Delinquency
CRJ	121	Introduction to Corrections
CRJ	125	Parole & Probation

EDUCATION FOCUS: (Designed for those seeking elementary teacher education)

Take the following:

EDU	221	Exploring Teaching
EDU	232	The Exceptional Child
EDU	263	Child Development & Learning
PSY	152	Social Psychology
PSY	256	Educational Psychology
MAT	210	Foundations of Mathematics I
MAT	211	Foundations of Mathematics II

COMMUNICATION FOCUS:

Take the following:

COM	231	Communication Fundamentals
COM	234	Public Address
COM	240	Interpersonal Communication
COM	250	Intercultural Communication
COM	260	Small Group Communication

HISTORY FOCUS

Take five of the following:

HIS	120	Ancient History
HIS	125	African American History
HIS	131	Western Civilization to 1555
HIS	132	Western Civilization to Present
HIS	211	Minority Groups in America
HIS	231	Development of the U.S. Through the Civil War
HIS	232	Development of the U.S. from the Civil War
HIS	235	20th Century History

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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: 60
Minimum cumulative GPA: 2.0
Minimum grade in all courses: 2.0
Minimum Jackson College credits: 15

GENERAL EDUCATION REQUIREMENTS (20 CREDITS)

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

Take the following:

ENG 131 Writing Experience I

GEO 2: Recognize the importance of effective communication in a dynamic and changing society (3 credits)

Choose one of the following:

COM 231 Communication Fundamentals
COM 240 Interpersonal Communication
COM 250 Intercultural Communication
HIS 211 Minority Groups in America
HUM 131 Cultural Connections
PHL 243 Great World Religions
PLS 262 International Relations
PSY 152 Social Psychology *(or SOC 152 Social Psychology)*
SOC 246 Marriage & Family

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:

BIO 110 Introductory Biology
CEM 131 Fundamentals of Chemistry
GEL 109 Earth Science
NSC 131 Contemporary Science
PHY 131 Conceptual Physics

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: Identify artistic, linguistic, and theoretical perspectives across the human experience (3 credits)

Choose one of the following:

ART 111 Art History: Prehistoric to 1400
ART 112 Art History: Renaissance to Present
HUM 131 Cultural Connections
MUS 131 Understanding Music

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	130	General 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)

Additional elective hours can be used from the following areas. Choose elective courses relevant to your career goals from any CRJ, PSY, or SOC offerings.

If you hold a CPL from the Police or Corrections Academy, credit will be awarded as CRJ 231 (6 credits) and CRJ 224 (3 credits).

*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.

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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 safekeeping 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 specialists (both public and private) and private security.

Minimum credits: 18
Minimum cumulative GPA: 2.0
Minimum grade in each course: 2.0
Minimum Jackson College credits: 5

GENERAL EDUCATION REQUIREMENTS (3 CREDITS)

Take the following:

ENG 131 Writing Experience I

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

*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.

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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: 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 (6 credits)

Take the following:

ENG 131 Writing Experience I
ENG 132 Writing Experience II

GEO 2: Recognize the importance of effective communication in a dynamic and changing society (3 credits)

Choose one of the following:

COM	231	Communication Fundamentals
COM	240	Interpersonal Communication
COM	250	Intercultural Communication
HIS	211	Minority Groups in America
HUM	131	Cultural Connections
PHL	243	Great World Religions
PLS	262	International Relations
PSY	152	Social Psychology
	OR	SOC 152 Social Psychology
SOC	246	Marriage & Family

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
CEM	131	Fundamentals of Chemistry
GEL	109	Earth Science
NSC	131	Contemporary Science
PHY	131	Conceptual Physics

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: Identify artistic, linguistic, and theoretical perspectives across the human experience (3 credits)**

Choose one of the following:

ART	111	Art History: Prehistoric to 1400
ART	112	Art History: Renaissance to Present
HUM	131	Cultural Connections
MUS	131	Understanding Music

LAW ENFORCEMENT RELATED REQUIREMENTS (16 CREDITS)

Take the following:

*If you choose to take CIS 101, you do not need to take CIS 201.

CIS	101	Introduction to Computer Systems
CIS	201	Advanced Information Technologies
ENG	232	Technical & Business Writing
PSY	130	General Psychology
PSY	251	Abnormal Psychology
SOC	231	Principles of Sociology

LAW ENFORCEMENT CORE REQUIREMENTS (12 CREDITS)

Take the following:

*If you choose to take CRJ 117, you do not need to take SOC 117

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)

Additional elective hours can be used from the following areas. Choose elective courses relevant to your career goals from any CRJ, PSY, or SOC offerings.

If you hold a CPL from the Police or Corrections Academy, credit will be awarded as CRJ 231 (6 credits) and CRJ 224 (3 credits)

***We have listed the preferred course option(s) in this category, but other courses may be used to meet this requirement. Your student success navigator will assist you in making the best course selection based on your schedule and interests. You can view the complete list of approved GEO courses on pages 16-18.*

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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? Liberal arts may be the career path for you!

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

- Associate in Applied Science - Graphic Design
- Associate in Arts
- Associate in Arts - Communication
- Associate in General Studies

Students entering the Liberal Arts Pathway can complete certificates in:

- 3-D Design & Animation
- Digital Photography
- Graphic Design
- Studio Art
- Liberal Arts

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 a smooth transfer.

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3D Design and Animation – Certificate (DDDA.CERT)

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 is action-packed, collaborative and exhilarating should inquire here.

Minimum credits: 24
Minimum cumulative GPA: 2.0
Minimum grade in all courses: 2.0
Minimum Jackson College credits: 15

RELATED REQUIREMENTS (6 CREDITS)

Take the following:

ART	103	Drawing I: Foundations

Choose one of the following:

ART	205	Drawing II: Figure and Composition
CIS	137	Digital Photography I
CIS	170	Programming in C++
ENT	101	Entrepreneurship: Creating Your Own Job

CORE REQUIREMENTS (18 CREDITS)

Take the following:

CIS	101	Introduction to Computer Systems
CIS	132	Graphic Illustration
CIS	134	Graphic Imaging
CIS	183	Introduction to Animation
CIS	274	3D Modeling Techniques
CIS	279	Lighting & Texturing

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Associate in Arts (ARTS.AA)

This pre-baccalaureate 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 (32-35 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: Recognize the importance of effective communication in a dynamic and changing society (3 credits)

Choose one of the following:

COM 231 Communication Fundamentals
COM 240 Interpersonal Communication
COM 250 Intercultural Communication
HIS 211 Minority Groups in America
HUM 131 Cultural Connections
PHL 243 Great World Religions
PLS 262 International Relations
PSY 152 Social Psychology
OR SOC 152 Social Psychology
SOC 246 Marriage & Family

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
NSC	140	Contemporary Climate Science
NSC	141	Scientific Inquiry (Must be taken with NSC 141L for laboratory component)
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 credits)

Choose two of the following from two different disciplines:

ECN	231	Macroeconomics
ECN	232	Microeconomics
HIS	120	Ancient History
HIS	125	African American 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	130	General Psychology
PSY	152	Social Psychology
PSY	245	Infancy and Childhood
PSY	251	Abnormal Psychology
PSY	252	Developmental Psychology
PSY	256	Educational Psychology
PSY	290	Human Sexuality
SOC	152	Social Psychology
SOC	231	Principles of Sociology
SOC	246	Marriage and Family

GEO 6: Identify artistic, linguistic, and theoretical perspectives across the human experience (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	Film in 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

ENG	261	Creative Writing
HUM	131	Cultural Connections
MUS	130	Music of Non-Western Cultures
MUS	131	Understanding Music
MUS	132	History of American Popular Music
MUS	151	Music Theory I
MUS	152	Music Theory II
PHL	231	Introduction to Philosophy
PHL	243	World Religions
SPN	131	Elementary Spanish I
SPN	132	Elementary Spanish II
SPN	231	Intermediate Spanish I
SPN	232	Intermediate Spanish II
THR	116	Introduction to Theatre
WRL	102	Portuguese Conversation I
WRL	103	Portuguese Conversation II
WRL	104	Mandarin I
WRL	105	Mandarin II

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 for verifying 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, 039; 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).

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Associate in General Studies (GEST.AGS)

This pre-baccalaureate degree is an interdisciplinary program 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: Recognize the importance of effective communication in a dynamic and changing society (3 credits)

Choose one of the following:

COM 231 Communication Fundamentals
COM 240 Interpersonal Communication
COM 250 Intercultural Communication
HIS 211 Minority Groups in America
HUM 131 Cultural Connections
PHL 243 Great World Religions
PLS 262 International Relations
PSY 152 Social Psychology *(or SOC 152 Social Psychology)*
SOC 246 Marriage & Family

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 (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 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
NSC	140	Contemporary Climate Science
NSC	141	Scientific Inquiry (Must be taken with NSC 141L for laboratory component)
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	120	Ancient History
HIS	125	African American 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	130	General Psychology
PSY	152	Social Psychology
PSY	245	Infancy and Childhood
PSY	251	Abnormal Psychology
PSY	252	Developmental Psychology
PSY	256	Educational Psychology
PSY	290	Human Sexuality
SOC	152	Social Psychology
SOC	231	Principles of Sociology
SOC	246	Marriage and Family

GEO 6: Identify artistic, linguistic, and theoretical perspectives across the human experience (3 credits)

Choose one of the following:

ART	111	Art History: Prehistoric to 1400
ART	112	Art History: Renaissance to Present
ENG	210	Film in 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
ENG	261	Creative Writing

HUM	131	Cultural Connections
MUS	130	Music of Non-Western Cultures
MUS	131	Understanding Music
MUS	132	History of American Popular Music
MUS	151	Music Theory I
MUS	152	Music Theory II
PHL	231	Introduction to Philosophy
PHL	243	World Religions
SPN	131	Elementary Spanish I
SPN	132	Elementary Spanish II
SPN	231	Intermediate Spanish I
SPN	232	Intermediate Spanish II
THR	116	Introduction to Theatre
WRL	102	Portuguese Conversation I
WRL	103	Portuguese Conversation II
WRL	104	Mandarin I
WRL	105	Mandarin II

ADDITIONAL DEGREE REQUIREMENTS

Choose at least 6 credit hours from two of the following four areas: Natural Science, Social Science, Humanities and Communication.

NATURAL SCIENCE

Must be a different course than taken for GEO 4.

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

SOCIAL SCIENCE COURSES:

Must be a different course than taken for GEO 5.

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

HUMANITIES COURSES:

Must be a different course than taken for GEO 6.

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
ENG	261	Creative Writing I
HUM	131	Cultural Connections
MUS	131	Understanding Music
MUS	151	Music Theory I
MUS	152	Music Theory II
THR	116	Introduction to Theatre

COMMUNICATION COURSES:

Must be a different course than taken for GEO 2.

COM	231	Communication Fundamentals
COM	240	Interpersonal Communication
COM	250	Intercultural Communication
HIS	211	Minority Groups in America
HUM	131	Cultural Connections
PHL	243	Great World Religions
PLS	262	International Relations
PSY	152	Social Psychology *(or SOC 152 Social Psychology)*
SOC	246	Marriage & Family

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, 035 039; 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).

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Communication – Associate in Arts (COMM.AA)

The Communication Associate in Arts pre-baccalaureate degree is designed for students to transfer seamlessly to a baccalaureate institution and major in an area such as mass communication or journalism. Communication students apply fundamental communication concepts by creating media content, crafting messages for business, government, and education organizations, and analyzing relationships between individuals and organizations.

Minimum credits: 60 (Add 3 credits if GEO 2 is not embedded)
Minimum grade in all courses: 2.0
Minimum cumulative GPA: 2.0
Minimum Jackson College credits: 15

GENERAL EDUCATION REQUIREMENTS (29-31 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: Recognize the importance of effective communication in a dynamic and changing society (3 credits)**

Choose one of the following:

Program courses meet this requirement

GEO 3: Demonstrate computational skills and mathematical reasoning (4-5 credits)

Choose one of the following:

MAT 130 Quantitative Reasoning
MAT 133 Introduction to Probability and Statistics

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

LAB SCIENCE COURSES:

BIO 110 Introductory Biology
BIO 158 Environmental Science
CEM 131 Fundamentals of Chemistry
GEL 109 Earth Science
NSC 131 Contemporary Science
PHY 131 Conceptual Physics

GEO 5: Understand human behavior and social systems, and the principles which govern them (6 credits)

Choose two of the following from two different disciplines:

ECN 231 Macroeconomics
PSY 130 General Psychology
SOC 231 Principles of Sociology
SOC 246 Marriage and Family

GEO 6: Identify artistic, linguistic, and theoretical perspectives across the human experience (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	Film in 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
ENG	261	Creative Writing
HUM	131	Cultural Connections
MUS	130	Music of Non-Western Cultures
MUS	131	Understanding Music
MUS	132	History of American Popular Music
MUS	151	Music Theory I
MUS	152	Music Theory II
PHL	231	Introduction to Philosophy
PHL	243	World Religions
SPN	131	Elementary Spanish I
SPN	132	Elementary Spanish II
SPN	231	Intermediate Spanish I
SPN	232	Intermediate Spanish II
THR	116	Introduction to Theatre
WRL	102	Portuguese Conversation I
WRL	103	Portuguese Conversation II
WRL	104	Mandarin I
WRL	105	Mandarin II

COMMUNICATION CORE REQUIREMENTS (15 CREDITS)

Take the following:

COM	231	Communication Fundamentals
COM	240	Interpersonal Communication
COM	234	Public Address
COM	250	Intercultural Communication
COM	260	Small Group Communication

TRANSFER ELECTIVES (16-18 CREDITS)

Select additional courses based on transfer institution and program so degree totals 60 credit hours.

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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, 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: 8

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:

**If you choose to take ART 137, you do not need to take CIS 137. If you choose to take ART 237, you do not need to take CIS 237.*

ART	101	Two-Dimensional Design
ART	137	Digital Photography I *(CIS 137 Digital Photography I)*
ART	237	Digital Photography II *(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	190	Strategic Business Management
BUA	230	Principles of Marketing
ENT	101	Entrepreneurship: Creating Your Own Job

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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: 28
Minimum cumulative GPA: 2.0
Minimum grade in all courses: 2.0
Minimum Jackson College credits: 7

GENERAL EDUCATION REQUIREMENTS (7 CREDITS)

Take the following:

ENG	131	Writing Experience I
MAT	130	Quantitative Reasoning (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:

*If you choose to take ART 137, you do not need to take CIS 137.

ART	111	Art History: Prehistoric to 1400
ART	122	Ceramics II
ART	137	Digital Photography I (CIS 137 Digital Photography I)
ART	152	Painting I: Design & Color
ART	205	Drawing II: Figure & Composition
ART	240	Printmaking
CIS	134	Graphic Imaging

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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, an Associate in Applied Science (or Certificate) in Environmental Science, a Pre-Professional 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 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, Micobiology, Neuroscience, Physics, and Zoology.
- **Engineering** – Aeronautical, Architecture, Automotive, Biomedical, Chemical, Civil, Electrical, Industrial, and Mechanical.
- **Math** – Actuary, Biomathematics, Finance, Forensic Accounting, Health Informatics, and Statistics.

- **Healthcare** – Audiology, Dentistry, Dietetics & Nutrition, Exercise Science, Genetic Counseling, Kinesiology, Occupational Therapy, Pharmacist, Physical Therapy, Physician, Public Health, Speech Pathology, and Veterinarian.

- **Technology** – Computer Engineering, Cyber Security, Geographic Information Systems (GIS), Information Technology, Prosthetics, and Robotics.

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Associate in Science (SCIE.AS)

This pre-baccalaureate 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 (23-27 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: Recognize the importance of effective communication in a dynamic and changing society (3 credits)

Choose one of the following:

COM 231 Communication Fundamentals
COM 240 Interpersonal Communication
COM 250 Intercultural Communication
HIS 211 Minority Groups in America
HUM 131 Cultural Connections
PHL 243 Great World Religions
PLS 262 International Relations
PSY 152 Social Psychology *(or SOC 152 Social Psychology)*
SOC 246 Marriage & Family

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	Introduction 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 and appreciate 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
ENG	261	Creative Writing I
HUM	131	Cultural Connections
MUS	131	Understanding Music
MUS	151	Music Theory I
MUS	152	Music Theory II
THR	116	Introduction to Theatre

NATURAL SCIENCE (16 CREDITS)

(At least one course must be from a different discipline than taken in GEO 4)
Choose from the following:

BIO	110	Introductory Biology
BIO	132	Human Biology
BIO	158	Environmental Science
BIO	253	Human Anatomy and Physiology I
BIO	254	Human Anatomy and Physiology II
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
EGR	261	Engineering Mechanics I
EGR	262	Engineering Mechanics 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

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 those 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, 039; 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).

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Environmental Science – Associate in Applied Science (ENSC.AAS)

The Environmental Science Associate of Applied Science 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: Recognize the importance of effective communication in a dynamic and changing society (3 credits)

Choose one of the following:

COM	231	Communication Fundamentals
COM	240	Interpersonal Communication
COM	250	Intercultural Communication
HIS	211	Minority Groups in America
HUM	131	Cultural Connections
PHL	243	Great World Religions
PLS	262	International Relations
PSY	152	Social Psychology *(or SOC 152 Social Psychology)*
SOC	246	Marriage & Family

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	130	General 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: Identify artistic, linguistic, and theoretical perspectives across the human experience (3 credits)

Choose one of the following:

ART	111	Art History: Prehistoric to 1400
ART	112	Art History: Renaissance to Present
ENG	210	Film in 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
ENG	261	Creative Writing
HUM	131	Cultural Connections
MUS	130	Music of Non-Western Cultures
MUS	131	Understanding Music
MUS	132	History of American Popular Music
MUS	151	Music Theory I
MUS	152	Music Theory II
PHL	231	Introduction to Philosophy
PHL	243	World Religions
SPN	131	Elementary Spanish I
SPN	132	Elementary Spanish II
SPN	231	Intermediate Spanish I
SPN	232	Intermediate Spanish II
THR	116	Introduction to Theatre
WRL	102	Portuguese Conversation I
WRL	103	Portuguese Conversation II
WRL	104	Mandarin I
WRL	105	Mandarin II

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
GEL	109	Earth Science
GEL	160	Introduction to Geology
GEO	131	Physical Geography
NSC	140	Contemporary Climate Science
BIO	140	Public Health and Disease

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

ENVIRONMENTAL SCIENCE ELECTIVES (8-11 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	231	Communication Fundamentals
COM	233	Argumentation & Debate
ECN	231	Macroeconomics
ECN	232	Microeconomics
EDU	100	Pre-teaching Pathway
EDU	221	Exploring Teaching
EGR	153	Engineering Drawing
HOC	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

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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: 9

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:

**If you choose to take GEL 109, you do not need to take GEL 160. If you choose to take BIO 140, you do not need to tale NSC 140.*

GEL	109	Earth Science
GEL	160	Introduction to Geology
BIO	140	Public Health and Disease
NSC	140	Contemporary Climate Science

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

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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: 32
Minimum cumulative GPA: 2.0
Minimum grade in all courses: 2.0
Minimum Jackson College credits: 8

FUNDAMENTALS OF ENGINEERING CORE REQUIREMENTS (32 CREDITS)

Take the following:

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

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PROFESSIONAL TRADES/INDUSTRY 4.0 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 Professional Trades and Industry 4.0 Pathway helps prepare you for these high demand jobs.

This pathway includes careers in electrical technology, manufacturing, energy systems, and agriculture. 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, to determining the proper GPS coordinates for crop planning, Professional Trades and Industry 4.0 covers it all.

DEGREES/CERTIFICATES:

- Advanced Manufacturing
- Industrial Systems, Certified Production Technician, and Welding Certificates
- Agriculture Technology
- Electrician
- Utilities Technician

Advanced Manufacturing – Associate in Applied Science (ADMA.AAS)

The Advanced Manufacturing – Associate in Applied Science degree 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: 60
Minimum cumulative GPA: 2.0
Minimum grade in all courses: 2.0
Minimum Jackson College credits: 15

GENERAL EDUCATION REQUIREMENTS (20 CREDITS)

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

Take the following:

ENG 131 Writing Experience I

GEO 2: Recognize the importance of effective communication in a dynamic and changing society (3 credits)

Choose one of the following:

COM 231 Communication Fundamentals
COM 240 Interpersonal Communication
COM 250 Intercultural Communication
HIS 211 Minority Groups in America
HUM 131 Cultural Connections
PHL 243 Great World Religions
PLS 262 International Relations
PSY 152 Social Psychology
OR SOC 152 Social Psychology
SOC 246 Marriage & Family

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, and the principles which govern them (3-4 credits)**

Take the following:

PSY 130 General Psychology

GEO 6: Identify artistic, linguistic, and theoretical perspectives across the human experience (3 credits)**

Choose one of the following:

ART 111 Art History: Prehistoric to 1400
ART 112 Art History: Renaissance to Present

CERTIFIED PRODUCTION TECHNICIAN CORE (16 CREDITS)

Take the following:

MFG 135 Industrial Safety
MFG 136 Blueprint Reading and Precision Measurement
MFG 137 Production Processes and Fabrication
ELT 106 Basic Electricity and Fluid Systems
CAD 152 SolidWorks I

CHOOSE ONE OF THE ADVANCED CONCENTRATIONS:

INDUSTRIAL SYSTEMS CORE (22 CREDITS)

Take the following:

CAD 172 SolidWorks II
CAD 252 SolidWorks III
ELT 220 Industrial Motion Control
ELT 260 Basic Programmable Controllers
ELT 261 Advanced PLC
MFG 211 Robotics Operation and Programming
MFG 216 Robotics Applications and Machine Vision
MFG 262 Introduction to IIOT, Industrial Internet of Things

CAD/CAM (15 CREDITS)

Take the following:

CAD 172 SolidWorks II
CAD 252 SolidWorks III
MFG 201 Principles of CNC Machining
MFG 202 Vises and Fixtures
MFG 203 Advanced CAM Programming

WELDING (8 CREDITS)

Take the following:

WLD 110 MIG/TIG Welding
WLD 115 Welding Aluminum and Stainless Steel

COMPUTER AIDED DESIGN (19 CREDITS)

Take the following:

CAD	151	AutoCad I
CAD	172	SolidWorks II
CAD	251	AutoCad II
CAD	252	SolidWorks III
CAD	253	Sheet Metal, Molds, Weldments, and Tooling
CAD	254	Visualization and Simulation

TECHNICAL ELECTIVES (2 – 16 CREDITS)

Any courses in AGT, ALT, CAD, CNS, ELT, EGY, MFG, STM, or WLD that have not been counted towards the core requirements or the advanced concentration that bring the total number of credits to 60. Other technical courses, such as those in CIS, MAT, CEM, BIO, NSC and PHY may be counted with written approval program director or department chair permission so long as they do not count elsewhere towards the degree requirements.

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Advanced Manufacturing – CAD/CAM – Certificate (CAAM.CERT)

The Advanced Manufacturing CAD/CAM program focuses on combining Computer Aided Design (CAD) technology with Computer Aided Manufacturing (CAM) technology. Students will learn how to design and model complex parts in CAD software and then use those models to program machines that will create the parts. Students will learn the ins and outs of 3D printing and CNC technology while learning how to design and create parts that meet real world quality standards.

Minimum credits: 18
Minimum cumulative GPA: 2.0
Minimum grade in all courses: 2.0
Minimum Jackson College credits: 6

CAD/CAM CORE REQUIREMENTS (18 CREDITS)

Take the following:

CAD	152	Solidworks 1
CAD	172	Solidworks 2
CAD	252	Solidworks 3
MFG	201	Principles of CNC Machining
MFG	202	Vises and Fixtures
MFG	203	Advanced CAM Programming

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Computer Automated Design – Certificate (MCAD.CERT)

This program prepares students for drafting and design roles in the fields of manufacturing, energy, architecture, and construction. Students will master multiple 2D and 3D design software programs and will use this software to generate blueprints and program additive and subtractive manufacturing machines.

Courses within this program will expose students to a variety of complex, real-world design problems, and advanced techniques for solving them to prepare them for the workplace.

Minimum credits: 22
Minimum cumulative GPA: 2.0
Minimum grade in all courses: 2.0
Minimum Jackson College credits: 15

Computer Automated Design CORE Requirements (22 Credits)

Take the following:

CAD	151	AutoCAD I
CAD	152	SolidWorks I
CAD	172	SolidWorks II
CAD	251	AutoCAD II
CAD	252	SolidWorks III
CAD	253	Sheet metal, Molds, Weldments, and Tooling
CAD	254	Visualization and Simulation

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Advanced Manufacturing – Industrial Systems – Certificate (ISAM.CERT)

The Industrial Systems Certificate builds on the Certified Production Technician certificate by focusing on the processes that drive modern industrial facilities. Classes focus on robotics, automation, and the Industrial Internet of Things. Students will learn how to program robots and machines and build industrial communication networks that gather and manage data. Additionally, students will earn credentials certified by FANUC Robotics, Rockwell Automation, and the Smart Automation Certification Alliance.

Minimum credits: 22
Minimum cumulative GPA: 2.0
Minimum grade in all courses: 2.0
Minimum Jackson College credits: 15

INDUSTRIAL SYSTEMS CORE REQUIREMENTS (22 CREDITS)

Take the following:

*If you choose to take CAD 151, you do not need to take CAD 172.

CAD	151	AutoCAD I
CAD	172	SolidWorks II
ELT	220	Industrial Motion Control
ELT	260	Basic Programmable Controllers
ELT	261	Advanced PLC
MFG	211	Robotics Operation and Programming
MFG	216	Robotics Applications and Machine Vision
MFG	262	Introduction to IIOT, Industrial Internet of Things

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Advanced Manufacturing – Welding – Certificate (WLAM.CERT)

The Advanced Manufacturing - Welding - Certificate prepares students for careers in the manufacturing field. Students who 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: 18
Minimum cumulative GPA: 2.0
Minimum grade in all courses: 2.0
Minimum Jackson College credits: 5

WELDING CORE REQUIREMENTS (15 CREDITS)

Take the following:

MFG	136	Blueprint Reading and Precision Measurement
MFG	137	Production Process and Fabrication
WLD	110	MIG/TIG Welding
WLD	115	Welding Aluminum & Stainless Steel

TECHNICAL ELECTIVE (3CR)

Take one additional elective course in a technical disciple such as CIS, CAD, MFG, ELT, EGY, ALT, or STM.

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Agriculture Technology – Associate in Applied Science (AGTE.AAS)

The Agriculture Technology Associate in Applied Science program prepares students for careers in skilled agricultural and agribusiness areas. This degree will provide students with the diverse skill set necessary to work competently within the various sectors of the agriculture-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: 60
Minimum grade in all courses: 2.0
Minimum cumulative GPA: 2.0
Minimum Jackson College credits: 15

GENERAL EDUCATION REQUIREMENTS (24-27 CREDITS)

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

Take the following:

ENG 131 Writing Experience I

GEO 2: Recognize the importance of effective communication in a dynamic and changing society (3 credits)

Choose one of the following:

COM 231 Communication Fundamentals
COM 240 Interpersonal Communication
COM 250 Intercultural Communication
HIS 211 Minority Groups in America
HUM 131 Cultural Connections
PHL 243 Great World Religions
PLS 262 International Relations
PSY 152 Social Psychology
OR SOC 152 Social Psychology
SOC 246 Marriage & Family

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: Identify artistic, linguistic, and theoretical perspectives across the human experience (3 credits)**

Choose one of the following:

SPN	131	Spanish I (or Higher)

RELATED REQUIREMENTS (15 CREDITS)

Take the following:

****If you choose to take COM 231, you do not need to take COM 250. If you choose to take ENT 101, you do not need to take AGT 245.***

ACC	131	Introductory Accounting for Non-Majors
COM	231	Communication Fundamentals
COM	250	Intercultural Communications (Preferred)
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)

AGRICULTURAL TECHNOLOGY CORE REQUIREMENTS (22 CREDITS)

Take the following:

AGT	111	Agricultural and Bio Safety
AGT	113	Introduction to Food Systems
AGT	209	Introduction to Precision Farming
AGT	212	Agricultural Policy and Practices
AGT	214	Integrated Pest Management
AGT	227	Introduction to Animal Science
AGT	231	Agricultural Finance
AGT	245	Agricultural Internship
STM	101	Introduction to Sustainability

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Agribusiness – Certificate (AGBU.CERT)

The Agribusiness Certificate program prepares students to actively engage in agribusiness. This degree will provide students with the diverse skill set necessary to work competently within the various sectors of the agriculture-food industry, including agricultural production (plant or livestock), agribusiness and finance, sales management, and agricultural entrepreneurship.

This degree is designed for students who seek employment in agribusiness industries or those who are looking to adopt a skill set to enhance their own agricultural operations or own an agricultural-related enterprise 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: 21
Minimum grade in all courses: 2.0
Minimum cumulative GPA: 2.0
Minimum Jackson College credits: 6

RELATED REQUIREMENTS (10 CREDITS)

Take the following:

ACC	131	Introductory Accounting for Non-Majors
BUA	220	Principles of Management
ENT	101	Entrepreneurship: Creating Your Own Job

AGRICULTURAL TECHNOLOGY CORE REQUIREMENTS (11 CREDITS)

Take the following:

AGT	111	Agricultural and Bio Safety
AGT	113	Introduction to Food Systems
AGT	209	Introduction to Precision Farming
AGT	212	Agricultural Policy and Practices
AGT	231	Agricultural Finance

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COMMERCIAL HVAC Technician (CHVA.CERT)

Minimum credits: 19
Minimum grade in all courses: 2.0
Minimum cumulative GPA: 2.0
Minimum Jackson College credits: 10

COMMERCIAL HVAC CORE REQUIREMENTS (19 CREDITS)

Take the following:

UTL	105	Air Conditioning II
UTL	106	Heating II
UTL	107	HVAC Design
UTL	108	Advanced HVAC Controls
UTL	109	Commercial HVAC Standards and Codes

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Residential HVAC Technician (RHVA.CERT)

Minimum credits: 24
Minimum grade in all courses: 2.0
Minimum cumulative GPA: 2.0
Minimum Jackson College credits: 12

RESIDENTIAL HVAC CORE REQUIREMENTS (24 CREDITS)

Take the following:

MFG	135	Industrial Safety
ELT	106	Basic Electricity and Fluid Systems
ALT	200	Principles of Alternative Energy
UTL	101	Introduction to HVAC
UTL	102	Heating Systems I
UTL	103	Air Conditioning I

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Industrial Agricultural Systems – Certificate (AGIS.CERT)

This program covers fundamental skills used in agricultural systems, including safety, class A driving, welding, electrical wiring, systems software, precision agriculture and integrated pest management. Students who complete this program will have the skills needed to work in applied agricultural occupations. At the end of the program, students will have the opportunity to earn stackable industry credentials in: OSHA safety, MDARD pesticide application, Michigan Class A Driver Certification and Production Technician Maintenance Awareness.

This certificate is designed for students who seek employment in applied agricultural industries like: fertilizer and pesticide application, grain transport, farm laborer, equipment operator, equipment maintenance, elevator operations, etc. 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: 18
Minimum cumulative GPA: 2.0
Minimum grade in all courses: 2.0
Minimum Jackson College credits: 6

INDUSTRIAL AGRICULTURAL SYSTEMS CORE (18 CREDITS)

Take the following:

AGT	111	Agricultural and Bio-Safety
AGT	209	Precision Farming
AGT	214	Integrated Pest Management
CDL	100	Commercial Driving
ELT	106	Basic Electrical & Fluid Circuits
ELT	260	Basic Programmable Controls OR
WLD	100	Fundamentals of Welding

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Certified Production Technician – Certificate (PTEC.CERT)

This program covers fundamental skills used in the manufacturing industry, including safety, quality, production processes, maintenance awareness, and CAD drafting. Students who complete this program will have the skills needed to work in manufacturing and production. At the end of each course, students will have the opportunity to earn a stackable Manufacturing Skills Standards Council (MSSC) credential, certifying their knowledge. Upon successful completion of all four MSSC assessments, students receive full Certified Production Technician (CPT) 4.0 certification.

Minimum credits: 16
Minimum cumulative GPA: 2.0
Minimum grade in all courses: 2.0
Minimum Jackson College credits: 4

CERTIFIED PRODUCTION TECHNICIAN CORE (16 CREDITS)

Take the following:

MFG	135	Industrial Safety
MFG	136	Blueprint Reading and Precision Measurement
MFG	137	Production Processes and Fabrication
ELT	106	Basic Electricity and Fluid Systems
CAD	151	AutoCad I or
CAD	152	SolidWorks I

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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 on each of these applications of electricity.

Minimum credits: 60
Minimum cumulative GPA: 2.0
Minimum grade in all courses: 2.0
Minimum Jackson College credits: 15

GENERAL EDUCATION REQUIREMENTS (20-23 CREDITS)

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

Take the following:

ENG	131	Writing Experience I

GEO 2: Recognize the importance of effective communication in a dynamic and changing society (3 credits)

Choose one of the following:

COM	231	Communication Fundamentals
COM	240	Interpersonal Communication
COM	250	Intercultural Communication
HIS	211	Minority Groups in America
HUM	131	Cultural Connections
PHL	243	Great World Religions
PLS	262	International Relations
PSY	152	Social Psychology
	OR	SOC 152 Social Psychology
SOC	246	Marriage & Family

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
CEM	131	Fundamentals of Chemistry
GEL	109	Earth Science
NSC	131	Contemporary Science
PHY	131	Conceptual Physics

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	130	General Psychology
SOC	231	Principles of Sociology

GEO 6: Identify artistic, linguistic, and theoretical perspectives across the human experience (3 credits)**

Choose one of the following:

ART	111	Art History: Prehistoric to 1400
ART	112	Art History: Renaissance to Present
HUM	131	Cultural Connections
MUS	131	Understanding Music
THR	116	Introduction to Theatre

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

HOC 110 Advanced First Aid & American Heart CPR OR Current Adult CPR and First Aid Certification

***We have listed the preferred course option(s) in this category, but other courses may be used to meet this requirement. Your student success navigator will assist you in making the best course selection based on your schedule and interests. You can view the complete list of approved GEO courses on pages 16-18.*

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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 on each of these applications of electricity.

Minimum credits: 30
Minimum cumulative GPA: 2.0
Minimum grade in all courses: 2.0
Minimum Jackson College credits: 8

ELECTRICIAN CORE REQUIREMENTS (30 CREDITS)

Take the following:

ELT 120 Circuit Analysis I
ELT 126 Circuit Analysis II
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 COURSES THAT CAN QUALIFY FOR STATE APPRENTICESHIP HOURS

(Not required for ELEC.CERT)

ELT 130 Electronics I
ELT 140 Introduction to Digital Electronics
ELT 261 Advanced PLC Programming

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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 (24 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: Recognize the importance of effective communication in a dynamic and changing society (3 credits)

Choose one of the following:

COM	231	Communication Fundamentals
COM	240	Interpersonal Communication
COM	250	Intercultural Communication
HIS	211	Minority Groups in America
HUM	131	Cultural Connections
PHL	243	Great World Religions
PLS	262	International Relations
PSY	152	Social Psychology *(or SOC 152 Social Psychology)*
SOC	246	Marriage & Family

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:

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	130	General Psychology

GEO 6: Identify artistic, linguistic, and theoretical perspectives across the human experience (3 credits)**

Choose one of the following:

ART	111	Art History: Prehistoric to 1400
ART	112	Art History: Renaissance to Present
MUS	131	Understanding Music
THR	116	Introduction to Theatre

CERTIFIED PRODUCTION TECHNICIAN RELATED REQUIREMENTS (16 CREDITS)

Take the following:

MFG	135	Industrial Safety
MFG	136	Blueprint Reading and Precision Measurement
MFG	137	Production Processes and Fabrication
ELT	106	Basic Electricity and Fluid Systems
CAD	152	SolidWorks I

ENERGY SYSTEMS TECHNOLOGY CORE REQUIREMENTS (15 CREDITS)

Take the following:

ALT	200	Principles of Alternative Energy
EGY	101	EIF Energy Industry Fundamentals
EGY	220	Energy Industry Experience
ELT	260	Basic Programmable Controllers
STM	101	Introduction to Sustainability

Choose 9 credits from the following:

CAD	151	AutoCAD I
EGY	110	Climbing Clinic
EGY	111	Climbing Orientation
EGY	112	Climbing School

ADDITIONAL PROGRAM REQUIREMENTS

CPR Training/Certification

***We have listed the preferred course option(s) in this category, but other courses may be used to meet this requirement. Your student success navigator will assist you in making the best course selection based on your schedule and interests. You can view the complete list of approved GEO courses on pages 16-18.*

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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 (20-23 CREDITS)

GEO 1: Write clearly, concisely and intelligibly

Take the following:

ENG 131 Writing Experience I

GEO 2: Recognize the importance of effective communication in a dynamic and changing society (3 credits)

Choose one of the following:

COM 231 Communication Fundamentals
COM 240 Interpersonal Communication
COM 250 Intercultural Communication
HIS 211 Minority Groups in America
HUM 131 Cultural Connections
PHL 243 Great World Religions
PLS 262 International Relations
PSY 152 Social Psychology
OR SOC 152 Social Psychology
SOC 246 Marriage & Family

GEO 3: Demonstrate computational skills and mathematical reasoning

Take the following:

MAT 13 Quantitative Reasoning (or higher)

GEO 4: Demonstrate scientific reasoning**

Choose one of the following:

BIO 110 Introductory Biology

CEM	131	Fundamentals of Chemistry
GEL	109	Earth Science
NSC	131	Contemporary Science
PHY	131	Conceptual Physics

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
PLS	141	American National Government
PSY	130	General Psychology
SOC	231	Principles of Sociology

GEO 6: Identify artistic, linguistic, and theoretical perspectives across the human experience **

Choose one of the following:

ART	111	Art History: Prehistoric to 1400
ART	112	Art History: Renaissance to Present
MUS	131	Understanding Music
THR	116	Introduction to Theatre

OCCUPATIONAL STUDIES ELECTIVE REQUIREMENTS (23 CREDITS)

OCCUPATIONAL STUDIES APPRENTICESHIP CREDIT (14 - 45 CREDITS): Credit for completed apprenticeship will be assessed on the following formula: On-the-job training (OJT) will be credited at a rate of 1 college credit hour per 150 hours of OJT, and then rounded up to the nearest whole number. Related training and instruction (RTI) will be credited at a rate of 1 college credit hour per 15 classroom hours of RTI, rounded up to the nearest whole credit hour. The maximum amount of credit awarded between RTI and OJT courses will be 45 credit hours. Example: An apprentice completes 1600 hours of OJT and 400 hours of RTI. 1600 hours of OJT/150 = 10.67, which rounds up to 11 credit hours, 400 hours of RTI/15 = 26.67, which rounds up to 27 credit hours. In this scenario, 38 credit hours would be awarded since 11+27 = 38.

Additional elective hours can be used from the following areas: Choose elective courses relevant to apprenticeship and career goals from among the following disciplines: ALT, BUA, CIS, CNS, CAD, EGY, ELT, MFG, NSC, STM, WLD. Other disciplines may be considered if deemed relevant and appropriate to the apprenticeship by faculty department chairs and program directors.

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Utilities Technician – Certificate (LINE.CERT)

This certificate was created in partnership with Consumers Energy.

Minimum credits: 20
Minimum cumulative GPA: 2.0

Minimum grade in all courses: 2.0
Minimum Jackson College credits: 5

LINEWORKER PRE-APPRENTICE CORE REQUIREMENTS (14 CREDITS)

Take the following:

MFG	135	Industrial Safety
ELT	106	Basic Electricity and Fluid Systems
EGY	101	Energy Industry Fundamentals
EGY	102	Foundation Utilities Work: Climbing, Communication, and Safety
EGY	103	Intermediate Utilities Work: Climbing, Communication, and Safety
EGY	104	Advanced Utilities Work: Climbing, Communication, and Safety
HPF	165	Lineworker Fitness

Complete the following:

ELECTIVES (6 CREDITS)

Technical Electives (Courses in ALT, CDL, EGY, ELT, MFG, STM, WLD): 6 CREDITS
Students will receive Credit for Prior Learning for attending Climbing Orientation (EGY 111) or Climbing School (EGY 112) with Consumers Energy.
Students will receive Credit for Prior Learning for attending Climbing Clinic A or B (EGY 110 A/B) with Jackson College through non-credit offerings.

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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.

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COURSE DESCRIPTIONS

ACCOUNTING (ACC)

ACC 131 INTRODUCTORY ACCOUNTING FOR NON-MAJORS (4 CR)
This course is designed for the business professional who must have an understanding of financial and managerial accounting as it is used in decision making. This course is not for transfer students seeking a bachelor's degree or for accounting majors. Learn about annual reports, financial statements, balance sheet accounts and accounting transactions. Focus is on how accounting information is used in decision making and not the mechanics behind that accounting information. This is an introductory accounting course required in some program areas. Students should consider their academic program and select either ACC 131 or ACC 231 for their first accounting course.

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.

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.

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 Generally Accepted Accounting Principles (GAAP) and recent Financial Accounting Standards Board (FASB) pronouncements.
Prerequisite: ACC 231

ACC 245 INTERNSHIP/EXTERNSHIP (1-3 CR)
Complete your accounting program with a choice of practical work experience or a comprehensive accounting capstone project.
Prerequisite: Instructor Permission Required

ACC 250 TECHNOLOGY APPLICATIONS FOR ACCOUNTING (3 CR)
Today nearly all businesses rely on computer software to facilitate the accounting process and provide on-demand financial information for effective decision making. Learn accounting software applications such as invoicing and working with customers, payables and working with vendors, month-end accounting and reports, as well as applications for inventory, banking, and payroll. Web-based software will be utilized on an online platform accessible to all users.
Prerequisite: ACC 131 or 231

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 131

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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 in 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.
Prerequisite: CEM 141 or NSC 120

AGT 209 PRECISION FARMING (3 CR)
Precision agriculture is farming management based on information and technology. It is site specific farming based on data related to soil, crops, moisture, pests and other environmental factors. The business of growing crops has become more and more complicated over time. More recently, farmers have been striving to meet demands of increased production and to be conscious of

environmental impacts. Precision agriculture will provide a comprehensive overview of present and emerging technologies, techniques and practices used for implementing precision agriculture programs. This course includes both online classroom and field experience components.
Prerequisite: 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 with where to locate and how to interpret and apply agricultural policies and best practices.
Prerequisite: AGT 111

AGT 214 PESTICIDES AND INTEGRATED PEST MANAGEMENT
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 IPM within crop production systems. Course will include applied coursework in commercial and private application of pesticides. Additional topics include pesticide laws, product labels, equipment and calibration, safe storage and handling, formulations, and necessary calculations. Applicator certification expected upon course completion through standardized exam.
Prerequisites: AGT 111, AGT 131 recommended

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. The 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.
Prerequisite: 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.
Prerequisite: Instructor Permission Required

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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 on how different sources for how energy is produced and distributed. A basic understanding of electricity is highly recommended.

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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.

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 21st century.

ART 112A ART HISTORY: RENAISSANCE TO PRESENT (3 CR)
This course is a survey of art history and aesthetics covering art from the Renaissance through the 21st century.

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

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

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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 climate change, population growth, cancer, nutrition, genetics, biotechnology, nutrient cycles, and evolution are presented in the context of current issues. The course is designed for non-science majors and includes a laboratory component.
Prerequisite: MAT 040* or higher

BIO 132 HUMAN BIOLOGY (4 CR)
Human Biology provides an introductory exploration of the structure, function, and behavior of the human body. Through lectures, labs, and interactive activities, students gain a comprehensive understanding of fundamental biological concepts, including cell biology, human anatomy and human physiology. The course emphasizes critical thinking, scientific inquiry, and ethical considerations, requiring students to analyze data, interpret research findings, and make informed decisions about personal health. By the end of the course, students develop a solid foundation in human biology, fostering an appreciation for the intricacies of the human body and its relevance to broader biological sciences and societal issues.

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.

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 the laboratory, the students will learn how to analyze quantitative environmental data through application. This class has a laboratory component.
Prerequisite: MAT 040 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 which includes dissection of preserved specimens.
Prerequisite: 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. Prerequisite: 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. The course includes a laboratory component.
Prerequisite: MAT 040* or higher

BIO 253 HUMAN ANATOMY AND PHYSIOLOGY I (4 CR)
This is the first course of a two-semester course sequence in which students study 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.
Prerequisite: MAT 040* 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 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.
Prerequisite: MTH 033* or higher

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BLOCKCHAIN (BLC)

BLC 110 BLOCKCHAIN & CRYPTOGRAPHY (3CR)
This course introduces the foundational concepts of blockchain technology, including distributed ledgers, cryptography, and consensus mechanisms. Students examine centralized and decentralized systems, model transaction flows using logical reasoning, and evaluate real-world scenarios to determine when blockchain solutions are appropriate. Emphasis is placed on critical thinking, ethical considerations, and professional decision-making to prepare students for further technical study or workforce applications.

BLC 120 SMART CONTRACTS & SOLIDITY (3CR)

Introduces smart contract development with Solidity (the industry-standard Ethereum smart contract language) to implement business logic, including functions and events. Students learn to implement secure contracts that serve as the backend logic for decentralized applications (dApps), applying programming logic, testing, and debugging practices. Emphasis is on secure coding practices, logical reasoning, and testing. Students apply logical reasoning and flow modeling, implement and test secure contracts, and develop foundational programming skills for blockchain applications and workforce roles.

BLC 130 WEB3 APPLICATIONS (3CR)
Students develop Web3 applications that integrate with smart contracts and blockchain networks. Students learn wallet connectivity, decentralized data workflows, and front-end integration. Emphasis is on building functional applications, usability, and preparing students for applied blockchain roles in professional environments.

BLC 255 BLOCKCHAIN/WEB3 CAPSTONE (4CR)
Capstone project requiring students to design, implement, justify, and present a blockchain or Web3 solution to a real-world industry use-case. Students integrate smart contracts, Web3 applications, and professional documentation into a portfolio-ready project. Emphasis is on solution justification, system integration, ethical considerations, and professional presentation to demonstrate mastery of technical, analytical, and workforce-ready competencies. *Prerequisite: BLC 110, BLC 120, BLC 130.*

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BUSINESS (BUA)

BUA 100 CONTEMPORARY BUSINESS (3 CR)
This course offers students an overview of today's modern business and the concepts required for managers and leaders to promote the success of today's dynamic workplace. Concepts include the economic environment, business ventures, management, leadership, human resource management, marketing, business law and finance. This course will offer each student the opportunity to explore their new skills as they identify their own business ideas.
Prerequisites: ENG 091

BUA 104 INTRODUCTION TO BUSINESS (3CR)
This course provides students with a comprehensive overview of modern business operations and the foundational concepts essential for effective management and leadership in today's dynamic and global business environment. Students examine key areas including the economic environment, entrepreneurship and business ventures, management and leadership principles, human resource management, marketing, business law, and finance.

BUA 109 INTRODUCTION TO PROJECT MANAGEMENT (3CR)
This introductory course covers the fundamentals of project management and leadership. Students learn how projects are planned, organized, executed, and completed, while developing essential leadership skills for working effectively within project teams. The course combines foundational concepts with practical, real-world applications to help students understand how projects operate across various organizational settings.

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.
Prerequisite: CIS 095

BUA 112 INTRODUCTION TO FINANCE (3CR)
This introduction to finance course will cover the broad study of money management. The personal, public, and corporate sectors will be discussed. The study and management of money, investments, and financial markets in a broad sense will be examined in the course. Activities such as investing, borrowing, lending, budgeting, saving, and forecasting in a broad sense will also be examined in the course. The various financial institutions and financial governing bodies will also be examined. This course is intended to provide the foundation knowledge necessary for an entry level career or an upper-level course preparation in business, accounting, management, or international business.

BUA 120 HUMAN RELATIONS IN BUSINESS (3 CR)
This course will examine human relations as they relate to business and industry. This course emphasizes the importance of human relations as it applies to work within an organization as well as to everyday life. This course will prepare the student to function within groups. It focuses on problem solving, group dynamics, teamwork, communication, leadership styles, and business etiquette. The impact of technology on human relations will also be discussed. Other topics discussed in this course include self-understanding, as well as the understanding of others, motivation, productivity, morale, conflict and change, stress, ethics, goal setting, the power of positive reinforcement, image building, emotional control, assertiveness, effective communication, and different leadership styles.

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 the development of your leadership skills, including effective use of power and influence, motivational tools, personality assessment, team communication, role modeling and performance appraisals.
Prerequisite: CIS 095

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.
Prerequisite: CIS 095

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.
Prerequisite: CIS 095

BUA 190 STRATEGIC BUSINESS MANAGEMENT (3 CR)
Why do some businesses succeed while others fail? How can you promote the growth and sustainability of your organization? What is your role as a future business owner or manager in the overall success of your organization? This course will outline and describe the strategies that a company's managers pursue to have a major impact on the company's performance and compete in the dynamic global nature of today's organizations. Students will explore the following topics as they gain an understanding of strategy: strategic management, competition and competitive advantage, developing strategies, and implementing strategies.

BUA 208 BUSINESS COMMUNICATION (3 CR)
This course is designed for students to examine and understand the principles, elements, and practices underlying effective business communications. The course focuses on approaches for planning, creating, and transmitting business information within a variety of business situations found in the global business environment. The areas of business communication that will be examined in this course include personal communication, practical business communication, and leadership communication.

BUA 210 DEVELOPING AND LEADING EFFECTIVE TEAM (3 CR)
This course focuses on the principles, skills, and practices required to develop, lead, and sustain effective teams in organizational settings. Students explore team dynamics, leadership styles, communication strategies, conflict management, and performance outcomes. Emphasis is placed on practical application, self-awareness, and ethical leadership within diverse and evolving work environments.

BUA 220 PRINCIPLES OF MANAGEMENT (3 CR)
This course is designed to provide students with foundational knowledge of basic management principles for business organizations. An overview of the principles, concepts, and theories underlying the management discipline will be examined. Students will explore the four universal functions of management which are planning, organizing, leading, and controlling. Current organizational trends in management and the approaches for planning, creating, and transmitting business information within a variety of business situations found in the global marketplace will also be examined. Finally, students will develop foundational skills to effectively manage globalization and change in technology.

BUA 221 HUMAN RESOURCES MANAGEMENT (3 CR)
Create and maintain a desirable and productive workplace 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.
Prerequisite: CIS 095

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.
Prerequisite: CIS 095

BUA 231 ADVERTISING, PROMOTION & PUBLIC RELATIONS (3 CR)
Students study the principles and practices of numerous promotional tools used in marketing communications. Topics include the 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.
Prerequisite: CIS 095

BUA 240 SMALL BUSINESS FINANCIAL MANAGEMENT (3CR)
This course provides an applied introduction to financial management practices essential for small businesses, nonprofit organizations, and entrepreneurial ventures. Students learn how to use financial information to support managerial decision-making, control costs, and promote organizational sustainability. Topics include budgeting, cash flow management, financial statement analysis, pricing strategies, break-even analysis, financing options, and financial controls.

BUA 243 FINANCE FOR MANAGERS (3)
This course introduces financial concepts and tools used by supervisors, managers, and emerging leaders to support effective organizational decision-making. Students learn to interpret financial statements, develop and manage budgets, analyze costs, and evaluate financial performance to support operational and strategic goals.

BUA 245 INTERNSHIP/EXTERNSHIP (3 CR)
Students will have a meaningful work experience with an appropriate company. The company and job must be approved by the supervising faculty member.
Prerequisite: Instructor Permission Required

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.
Prerequisite: CIS 095

BUA 255P BUSINESS ADMINISTRATION CAPSTONE (3 CR)
This course is a capstone seminar for business majors. The goal of the course is to apply and synthesize all previous business courses learning to manage organizations strategically. It will address the causes of an organization's success or failure. It will require students to examine all functions of an organization and harmonize prior learning from other business courses. The capstone allows students to integrate and apply knowledge from their academic studies through the comprehensive evaluation of the core curriculum of accounting, economics, marketing, management, human resources, and other learned fields.
Prerequisites: BUA 220, BUA 230, BUA 250

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

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COMPUTER ASSISTED DRAFTING (CAD)

CAD 151 AUTOCAD 1 (3 CR)
This course explores 2D drafting applications in the AutoCAD software. Students will learn to use commands that create and edit geometry; how to edit drawings using layers and object snaps; how to create and format dimensions and notes; how to import existing geometry using references and blocks; and how to export drawings to pdfs and plotters using plot style tables. A basic review of blueprint reading will take place in this course.

CAD 152 SOLIDWORKS I (3 CR)
This course introduces students to basic modeling, assembly, and drawing creation in SolidWorks.
Prerequisite: MFG 136 DESCRIPTION?

CAD 172 SOLIDWORKS II (3 CR)
This course introduces students to more advanced modeling and assembly topics in Solidworks including: lofts, sweeps, and boundaries; 3D printing; top down assemblies; and an introduction to sheet metal and molds. It will help prepare students for the CSWP certification.
Prerequisite: CAD 152

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. Students will use AutoCAD to produce 3D wireframes, solid models, and surfaces. They will learn how to interface with 3D printers and other prototyping equipment to construct design projects.
Prerequisite: CAD 151

CAD 252 SOLIDWORKS III (3 CR)
This course will increase student mastery of Solidworks by introducing advanced modeling techniques and workflows, as well as surfacing and simulation techniques. It will help prepare students for the CSWP and CSWPA certifications.
Prerequisite: CAD 172

CAD 253 SHEET METAL, MOLDS, WELDMENTS, and TOOLING (3 CR)
Students in this course will practice applying advanced CAD techniques to real-world manufacturing design problems in designing products that require the manipulation of sheet metal, molds, weldments, and tooling.
Prerequisite: CAD 252

CAD 254 VISUALIZATION AND SIMULATION (3 CR)
Students in this course will practice applying advanced CAD visualization, rendering, and simulation techniques to real world products. Students create realistic renderings and animations and use simulation to perform Finite Element Analysis as well as flow and thermal analysis in order to improve a part’s design.
Prerequisite: CAD 252

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COMMERCIAL DRIVER LICENSE (CDL)

CDL 100 COMMERCIAL DRIVER LICENSE A (4 CR)
A live course that provides experiential, hands-on training in the safety and operation of Class A semi-tractors and trailers. Students will earn CDL (Commercial Driver's License) certification at the completion of the course.

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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. The course includes a laboratory component.
Prerequisite: MAT 033 or higher

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. The 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. The course includes a laboratory component. Recent chemistry (high school or CEM 131) success strongly recommended.
Prerequisite: and MAT 139 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. The course includes a laboratory component.
Prerequisite: CEM 141

CEM 241 ORGANIC CHEMISTRY I (5 CR)
A comprehensive study of the major classes of organic compounds, their structures and reactions. The stero-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. The course includes a laboratory component.
Prerequisite: CEM 241

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COMPUTER INFORMATION SYSTEMS (CIS)

CIS 101 INTRODUCTION TO COMPUTER SYSTEMS (3 CR)
Enhance computer knowledge. The course covers computer system concepts with an emphasis on several software applications. Typing ability is necessary to be successful in this class.

CIS 104 KEYBOARD SPEED/ACCURACY (1 CR)
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 117 MICROSOFT® OUTLOOK WORKSHOP (1 CR)
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 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. Students 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.

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.

CIS 121 MICROSOFT® EXCEL COMPREHENSIVE - WINDOWS (3 CR)
Learn Microsoft 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. Prerequisite: MAT 040* or higher

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.
Prerequisite: MAT 040* or higher

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.
Prerequisite: MAT 033 or higher

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. *Students must have access to a laptop and Adobe Creative Cloud InDesign®

CIS 128 TYPOGRAPHY & LAYOUT (3 CR)
Learn principles of type identification, selection and use in the professional rendering of comprehensive print and digital layouts. Utilization of tools in technology, materials, and techniques of rendering emphasized.
Prerequisite: CIS 127

CIS 129 INTRODUCTION TO PRODUCTION FOR THE DESIGNER (3 CR)
This course introduces the graphic design student to the fundamentals of production printing processes.

CIS 134 GRAPHIC IMAGING (ADOBE® PHOTOSHOP®) (3 CR)
Learn the intricacies of building, retouching, and editing for producing practical and expressive images on a computer using Adobe PhotoShop® software

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 Adobe® Photoshop® or image-altering program applications.

CIS 139 INTERACTIVE DIGITAL DESIGN STUDIO (4CR)
This design course is focused on creating interactive and cross-platform visual solutions. Students build projects using Adobe Illustrator®, Adobe InDesign®, and Figma, while exploring emerging collaborative and design tools used in the creative industry. The course emphasizes digital prototyping, layout systems, vector graphics, UI/UX fundamentals, teamwork, design systems, and professional file preparation and delivery. Students develop work that spans branding, publication design, and interactive digital experiences, preparing them for transfer into advanced digital arts, design, and interactive media programs. *Prerequisites: CIS 126, CIS 127, CIS 128, CIS 134*

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 146 WEB DESIGN & DEVELOPMENT (3 CR)
Do you want to build web pages but have no previous experience? This course will start with the basics of web design and progress to creating a dynamic and interactive web site that adapts for mobile devices. You will learn how to use the latest techniques, best practices, and current web standards including HTML5, CSS#, and JavaScript.

CIS 158 PROGRAMMING LOGIC (3 CR)
Students explore the development of logic and theory for writing business programs that control the operation of a computer. The 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 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 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 Microsoft Windows O/S. Installation, configuration, troubleshooting, diagnostics, upgrade familiarity with necessary Microsoft product for A+ certification.
Prerequisite: CIS 174

CIS 183 INTRODUCTION TO ANIMATION (3 CR)
This course introduces students to the techniques necessary to produce animated digital image sequences. Using industry standard software tools, students develop graphics and initiate the movement of their 2D and 3D objects in frame animation by actions such as rotating, scaling and tweening.
Prerequisite: CIS 134

CIS 188 PRINT PRODUCTION (3 CR)
This course introduces students to technologies and techniques involved with the printing process. Concepts behind the printing press, ink, and color are addressed and methods are applied.
Prerequisites: CIS 127

CIS 201 ADVANCED INFORMATION TECHNOLOGIES (3 CR) ***(Same as ECM 201)***
This course develops electronic communication, web collaboration, and online brand management skills essential to e-business strategies. Students connect core business operations with mobile, web-based, and cross-platform technologies and assess the impact of social media, Web2.0/Web3, and blockchain on business operations, digital trust, and online transactions.

CIS 203 INTRODUCTION TO PROBABILITY & STATISTICS (4 CR) ***(Same as MAT 133)***
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 220 DATABASE SYSTEMS (3 CR)
This course covers the fundamental concepts of database systems focusing on design, implementation, and management. Relational, object-oriented, noSQL, and distributed database systems will be studied. Topics include data models, normalization, SQL, database administration, and connectivity to the Internet.

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 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 146 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 255 PORTFOLIO CAPSTONE (3CR)
The capstone experience is a culminating project course in which students integrate and apply learning from their chosen field of study in computer information systems to investigate a real-world problem and produce a practical, ethical, and professionally presented solution and/or portfolio.
Prerequisite: CIS 126, CIS 127, CIS 128, CIS 134, CIS 139, CIS 183, CIS 188, ECM 112.

CIS 265 ANDROID DEVELOPMENT (3 CR)
In this course, students will use the latest development languages for Android mobile application development. This course will introduce you to the basics of the Android platform, Android application components, activities and their lifecycle, UI design, multimedia, 2D graphics and networking support in Android. Prior programming experience is required.
Prerequisite: CIS 165

CIS 273 SYSTEMS CONCEPTS AND DESIGN CAPSTONE (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.
Prerequisite: CIS 165 or CIS 170

CIS 274 3D MODELING (3 CR)
Students will begin learning the basic low polygon modeling techniques in appropriate software. Special emphasis on character design and environmental modeling will be the key to this class along with a flow into topics of topology. This course is perfect for an artist or technically minded individual.
Prerequisite: CIS 134

CIS 279 METHODS IN LIGHTING AND TEXTURING (3 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.
Prerequisites: CIS 134 and CIS 274

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COMMUNICATIONS (COM)

COM 231 COMMUNICATION FUNDAMENTALS (3 CR)
Students will learn the basic principles of speech communication including speech development and delivery, interpersonal messages, non-verbal messages, and small group dynamics.

COM 231A COMMUNICATION FUNDAMENTALS (3 CR)
Students will learn the basic principles of speech communication including speech development and delivery, interpersonal messages, non-verbal messages, and small group dynamics.

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)
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.

COM 240 INTERPERSONAL COMMUNICATION (3 CR)
This course explores communication in one on one and small group situations. Students will examine interpersonal communication in personal as well as professional contexts.

COM 250 INTERCULTURAL COMMUNICATION (3 CR)
(Students cannot receive credit for both COM 250 and COM 350)
This course will explore how cultures influence the way we perceive and interact in a dynamic and changing world. Specific areas of discussion will include education business, and healthcare from a national perspective.

COM 251 INTERCULTURAL COMMUNICATION - IMMERSIVE (3 CR)
This course will explore how cultures influence the way we perceive and interact in a dynamic and changing world. Specific areas of discussion will include education business, and healthcare from a national perspective. This course will include a mandatory travel study experience organized by Jackson College.

COM 260 SMALL GROUP COMMUNICATION (3 CR)
In this course, students will examine small group communication theories and processes by observing and participating in group activities. As group members, students will apply communication theory to enhance their effectiveness as members and leaders.
Prerequisite: COM 231 or COM 240

COM 350 INTERCULTURAL COMMUNICATION FOR MANAGEMENT (3 CR)
(Students cannot receive credit for both COM 250 and COM 350)
This course will explore how cultures influence the way we perceive and interact in a dynamic and changing world. Specific areas of discussion will include education business, and healthcare from a national perspective. 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. This course is the first of three 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 will also help prepare students for the CompTIA Network+ certification exam.

CNS 106 COMPUTER NETWORKING II (4 CR)
This course covers the architecture, components, and operations of routers and switches in a small network. Students learn how to configure routers and switches for basic functionality. This course is the second of three courses that help prepare students for the Cisco CCNA certification exam.
Prerequisite: CNS 101

CNS 107 COMPUTER NETWORKING III (4 CR)
This course covers the architecture, components, and operations of routers and switches in larger and more complex networks. Students learn how to configure routers and switches for advanced functionality. This course is the third of three courses help prepare students for the Cisco Certified Network Associate (CCNA) certification exam.
Prerequisite: CNS 106

CNS 121 MICROSOFT® NETWORKING CLIENT I (3 CR)
This course will help students gain the knowledge and skills required to configure Microsoft Windows Vista for optimal performance on the desktop. This course focuses on installing 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.

CNS 123 MICROSOFT® NETWORKING SERVER I (3 CR)
This course covers installing Microsoft 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® Window Deployment Services images; creating virtual machines; and installing server core.
Prerequisites: CNS 101 and CNS 121

CNS 124 MICROSOFT® NETWORKING SERVER II (3 CR)
This course covers planning Microsoft Windows Server 2008 roles; maintaining 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.

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 210 PYTHON SCRIPTING FOR SECURITY (3 CR)
This course covers an overview of Python, including how to create and run scripts, use threads, and handle exceptions. It will progress on how-to networking, including using Python libraries for networking scripting and developing basic scripts with network functionality. HTTP programming and client, security scripting, Twisted Python, the Echo server, and forensic scripting are also covered. The course emphasizes debugging capability and security testing using Python.
Prerequisite: CNS 101

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 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.
Prerequisite: CNS 131

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 201

CNS 245 INTERNSHIP/EXTERNSHIP (3 CR)
The student will have meaningful work experience related to computer networking and security with an appropriate organization. The organization and position must be approved by supervising faculty member. Prerequisite: Instructor permission required.

CNS 251 CLOUD COMPUTING (3 CR)
This course covers the widest spectrum of topics starting from Classic Data Center to IT-as-a-Service. It provides a strong foundation for the understanding of virtualization and cloud computing technologies. You will learn about the transition from classic data center to virtualized data center to cloud computing. This would encompass virtualization technologies at computer, storage, network, desktop, and application level as well as cloud building blocks, which are created on virtualized infrastructure. The course emphasizes deployment models, business continuity solutions, infrastructure, service management and security in a cloud environment.
Prerequisite: CNS 101

CNS 252 VIRTUALIZATION I (3 CR)
This course features intensive hands-on training that focuses on installing, configuring, and managing VMware vSphere®, which includes VMware ESXi™ and VMware vCenter Server®. This course prepares you to administer a vSphere infrastructure for an organization of any size. It is the foundation for most other VMware technologies in the software-defined data center.
Prerequisite: CNS 101

CNS 253 VIRTUALIZATION II (3 CR)
This course will teach you advanced skills for configuring and maintaining a highly available and scalable virtual infrastructure. Through a mix of lectures and hands-on labs, you will configure and optimize the VMware vSphere® features that build a foundation for a truly scalable infrastructure, and you will discuss when and where these features have the greatest effect. This course will deepen your understanding of vSphere and how its advanced features and controls can benefit your organization.
Prerequisite: CNS 252

CNS 254 INFORMATION STORAGE AND MANAGEMENT (3 CR)
This course provides a comprehensive understanding of the various storage infrastructure components in data center environments. It enables participants to make informed decisions on storage-related technologies in an increasingly complex IT environment, which is fast changing with the adoption of software-defined infrastructure management and third platform technologies (cloud, Big Data, social, and mobile technologies). Participants will learn about storage networking technologies such as FC SAN, IP SAN, and FCoE SAN; backup and replication; the highly critical area of information security; and storage infrastructure management.
Prerequisite: CNS 101

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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.

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.

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.

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.

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.

CRJ 114 POLICE ADMINISTRATION & OPERATIONS (3 CR)
Administration and operation of a police department including line/staff activities are explored.

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.

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.

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.

CRJ 121 INTRODUCTION TO CORRECTIONS (3 CR)
A survey of the American corrections system as a component of the criminal justice system.

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.

CRJ 125 PAROLE & PROBATION (3 CR)
Pre- and post-institutional treatment and alternatives are presented. Consideration is also given to diversion and community-based correctional programs.

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.

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 grade point average and permission of the instructor.

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DENTAL HYGIENE (DHY)

DHY 101 PRINCIPLES IN DENTAL HYGIENE I (2 CR)
This course introduces the profession of dental hygiene, the dental hygiene code of ethics, principles of infection and exposure control and the CDC Bloodborne Pathogens Standard. Fundamental concepts on dental hygiene process of care including patient management, dental hygiene diagnosis, oral health education techniques, and disease prevention strategies will be discussed. Additionally, dental instrumentation and oral deposits are discussed.
Prerequisite: Admission into the DENT.AAS program

DHY 102 PRECLINICAL DENTAL HYGIENE (2 CR)
The principles, protocols, and components learned in DHY 101 will be performed in this clinical setting with an introduction in dental hygiene procedures, basic instrumentation, and development of manual dexterity, dental charting, and preventive education.
Prerequisite: Admission into the DENT.AAS program

DHY 103 HEAD, NECK AND ORAL ANATOMY (3 CR)
This course is designed for first-semester dental hygiene students. The topics include anatomy of the teeth and dental nomenclature, the development, eruption, function, and morphological characteristics of the human deciduous and secondary dentition, and a review of the bones and muscles of the orofacial complex. This examination of the temporomandibular joint and function, and dental occlusion classification will complete this course.
Prerequisite: Admission into the DENT.AAS program

DHY 104 BIOCHEMISTRY & NUTRITION (2 CR)
This course provides dental hygiene students with an overview of nutrition biochemistry, nutritional guidelines, diet analysis and planning. The role of nutrition in dental health and systemic diseases are emphasized along with the clinical application of nutritional counseling strategies.
Prerequisite: Admission into the DENT.AAS program & DHY 101, DHY 102, DHY 103, DHY 105, and DHY 113
Corequisites: DHY 101, DHY 102, DHY 103, and DHY 105

DHY 105 MEDICAL EMERGENCIES IN THE DENTAL OFFICE (1 CR)
Familiarity with critical steps in prevention, preparation, early recognition, and appropriate management of common medical emergencies in the dental office.
Prerequisite: Admission into the DENT.AAS program

DHY 111 PRINCIPLES IN DENTAL HYGIENE II (2 CR)
The development of a theoretical framework of dental hygiene treatment to begin attainment of proficiency in all areas of dental hygiene treatment. Presentation and discussion of case histories from patients and preventive measures employed against disease with emphasis on special needs patients.
Prerequisites: DHY 101, DHY 102, DHY 104, DHY 105 and DHY 113

DHY 112 CLINICAL DENTAL HYGIENE I (2 CR)
The principles, protocols and components of dental hygiene process of care are introduced in this clinical setting emphasizing patient care. The development of skills includes ultrasonic instrumentation, case management, treatment planning and dental hygiene prevention services.
Prerequisites: DHY 101, DHY 102, DHY 104 and DHY 105
Corequisites: DHY 111, DHY 113, and DHY 114

DHY 113 DENTAL RADIOLOGY (3 CR)
This course is designed to provide the student with the theory and procedures used in dental radiography. Topics include history of dental x-rays, radiation safety, and film exposure techniques, processing and mounting of radiographs, radiographic findings and patient management.
Prerequisites: DHY 101, DHY 102, DHY 104 and DHY 105

DHY 114 PERIODONTOLOGY (3 CR)
This course is designed to provide advanced study of the periodontium and its relationship to the pathogenesis of periodontal disease. It focuses on the relationships between periodontal disease, systemic health, prevention, risk assessments, classifications, current modalities of treatment and management strategies.
Prerequisites: DHY 104, DHY 111, DHY 115, DHY 120 and DHY 121

DHY 115 CLINICAL DENTAL HYGIENE I (3 CR)
The principles, protocols and components of dental hygiene process of care are introduced in this clinical setting emphasizing patient care. The development of skills includes ultrasonic instrumentation, case management, treatment planning and dental hygiene prevention services.
Prerequisites: DHY 101, DHY 102, DHY 103, DHY 105, and DHY 113

DHY 120 DENTAL MATERIALS (2 CR)
This course is designed for dental hygiene students and is the study of dental materials including their biological, physical, mechanical and chemical properties. The lab portion of this course includes proper manipulation and technique, handling, and storage of dental materials. The course is designed to discuss commonly used dental products.
Prerequisites: DHY 101, DHY 102, DHY 103, DHY 105 and DHY 113

DHY 121 PHARMACOLOGY FOR THE DENTAL HYGIENIST (2 CR)
Classifications and varieties of drugs, pharmacologic effects, adverse reactions, usual indications and contraindications. Discussion of drugs utilized to treat common diseases. Pharmacokinetics of local and general anesthetic agents and their use.
Prerequisites: DHY 101, DHY 102, DHY 103, DHY 105, and DHY 113

DHY 201 PRINCIPLES IN DENTAL HYGIENE III (2 CR)
Continued development of a theoretical framework of dental hygiene treatment with advancement of dental hygiene proficiency in all areas of dental hygiene treatment. Presentation and discussion of case histories from patients and preventive measures employed against disease with emphasis on special needs patients.
Prerequisites: DHY 104, DHY 111, DHY 115, DHY 120 and DHY 121

DHY 202 CLINICAL DENTAL HYGIENE III (3 CR)
The principles, protocols and components of dental hygiene process of care are continued in this clinical setting emphasizing patient care. The continued advancement of skills includes non-surgical periodontal treatment, ultrasonic instrumentation, case management, treatment planning and dental hygiene prevention services.
Prerequisites: DHY 120, DHY 121 and DHY 122
Corequisites: DHY 201, DHY 203 and DHY 204

DHY 203 PAIN MANAGEMENT (2 CR)
This course will provide the student with basic and current concepts of local anesthesia and pain control for the safe and effective administration of local anesthesia and nitrous oxide/oxygen sedation. Instruction in local anesthetic technique and an introduction to the use of nitrous oxide as an analgesia is included. Successful completion of this course confers eligibility to take the CDCA exams for Local Anesthesia and Nitrous Oxide/Oxygen sedation with program director approval.
Prerequisites: DHY 104, DHY 111, DHY 115, DHY 120 and DHY 121

DHY 204 ORAL PATHOLOGY (2 CR)
This course is designed for dental hygiene students. The topics incorporate important concepts in general pathology and their relationship to the oral cavity. Fundamental concepts stress comprehensive oral examination procedures, disease recognition, and identification of pathological conditions that affect the patient's systemic health in relation to the oral cavity.
Prerequisites: DHY 104, DHY 111, DHY 115, DHY 120 and DHY 121

DHY 205 CLINICAL DENTAL HYGIENE II (3 CR)
The principles, protocols and components of dental hygiene process of care are continued in this clinical setting emphasizing patient care. The continued advancement of skills includes non-surgical periodontal treatment, ultrasonic instrumentation, case management, treatment planning and dental hygiene prevention services.
Prerequisites: DHY 104, DHY 111, DHY 115 DHY 120 and DHY 121

DHY 211 PRINCIPLES IN DENTAL HYGIENE IV (2 CR)
Ethics, jurisprudence, and practice management concepts, including a study of state practice acts and business management procedures. Comprehensive review of formats and procedures involved in national, regional and state board examinations. Guidance will be given in developing employment-seeking skills, including résumé writing. The course includes case-based study questions relative to dental hygiene with emphasis on content and test-taking strategies.
Prerequisites: DHY 114, DHY 201, DHY 203, DHY 204 and DHY 205

DHY 213 COMMUNITY DENTAL HEALTH (2 CR)
This course is designed for the dental hygiene student to review the history, philosophy, administration and current events of community oral health. Topics include emphasis on health promotion, epidemiology of dental disease, community service, designing, implementing and assessing a community health project. Prerequisites: DHY 114, DHY 201, DHY 203, DHY 204 and DHY 205

DHY 215 CLINICAL DENTAL HYGIENE III (4 CR)
This course is designed for the dental hygiene student to review the history, philosophy, administration and current events of community oral health. Topics include emphasis on health promotion, epidemiology of dental disease, community service, designing, implementing and assessing a community health project.
Prerequisites: DHY 114, DHY 201, DHY 203, DHY 204 and DHY 205

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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 103 INTRODUCTION TO SONOGRAPHIC REASONING AND RESEARCH (2 CR)
In this course, students are introduced to the sonographic reasoning method framework. Using analytical framework, students will be provided with a fundamental approach to critical thinking and problem solving associated with vascular ultrasound examinations. This course explores basic research steps and the importance of contributing to sonography education and becoming lifelong learners. Students will become members of the Society of Vascular Ultrasound and begin exploring the process for writing abstracts and journal articles.
Prerequisite: Acceptance into VSON 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: MAT 130* 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 125 CLINICAL EXPERIENCE I (3CR)
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). Completion of professional and technical scanning proficiencies are required.
Prerequisite: DMS 101
Corequisite: DMS 105 and 200

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 will attend a 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.
Prerequisite: Acceptance into the DMS program. Corequisites: DMS 140 and DMS 141

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 146 ECHO CLINICAL II (3 CR)
In this course, students will attend a 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 competencies 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.
Prerequisite: DMS 142
Corequisite: DMS 144

DMS 159 INTRODUCTION to VASCULAR ANATOMY & PHYSIOLOGY, DOPPLER IMAGING (4 CR)
Doppler imaging techniques. Through a multidisciplinary approach, students will explore the intricate anatomy of venous and arterial systems, microcirculation, and variants within the human body. The focus extends to identifying normal and abnormal vascular functions, interpreting Doppler waveforms, color Doppler, and recognizing various pathological conditions, thereby equipping students with the skills necessary for success in the field of diagnostic medical sonography. Applications of Doppler principles and Sonographic will be practiced through virtual scanning labs.

DMS 159L INTRODUCTION to VASCULAR ANATOMY & PHYSIOLOGY, DOPPLER IMAGING (1 CR)
This laboratory course introduces students to the fundamental skills required in vascular sonographic imaging. Emphasis is placed on probe handling and manipulation, scan plane orientation, basic ultrasound system operation (knobology), image optimization, and ergonomic scanning practices. Students develop the ability to apply safe ergonomic techniques to obtain, acquire, and adjust sonographic images while recognizing normal vascular structures and observing basic blood flow characteristics. The course utilizes a structured imaging approach to help students understand the purpose and progression of sonographic images, emphasizing anatomy in B-mode with supportive use of color Doppler and Doppler imaging. The course focuses on building comfort and confidence with ultrasound equipment and scanning mechanics rather than teaching diagnostic criteria or formal examination protocols. This foundational experience prepares students to enter the pre-clinical scan lab (DMS 160) ready to focus on psychomotor skill development, protocol execution, image quality, and the integration of anatomy, hemodynamics, and clinical scanning procedures.

DMS 160 INTRODUCTION TO VASCULAR TECHNOLOGY AND PROFESSIONAL LAB PRACTICE (3 CR)
In this course, students are introduced to and practice the Intercostal Accreditation Commission (IAC) exam testing protocols of the venous duplex obstruction testing, carotid duplex testing (including manual blood pressure measurements) and ABI exam. The routines of the daily lab are simulated using various in-patient scenarios and outpatient scenarios. Students are introduced to practice oral communication in a concise, clear, and intelligent manner with students, faculty, and staff. Students actively explore ultrasound equipment and scanning techniques. The appropriate use of color, pulse-wave Doppler, and gray-scale settings is applied to obtain optimal images and Doppler waveform patterns. Students are assessed for proper ergonomics while manipulating the transducer and scanning in the transverse to sagittal scan plans. HIPAA, OSHA, blood-borne, university precautions, and basic patient transfer techniques are practiced. The affective, cognitive, and psychomotor skills are also assessed in this course.

DMS 171 VASCULAR ULTRASOUND CLINICAL I (3 CR)
In this course, students receive at least 360 hours of supervised clinical experience in an approved vascular laboratory. This course provides hands-on experience 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.
Prerequisite: Admittance into Sonography Program

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. Prerequisite: Admittance into Sonography Program

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.
Prerequisite: Admittance into Sonography Program

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 203 VENOUS DUPLEX TESTING (3 CR)
In this course, theories, techniques and venous testing procedures of the lower and upper extremity exams are covered. Other topics will include: differential diagnosis; other imaging modalities; identifying deep vein thrombosis; advanced exploration of venous anatomy and collateral pathways; pathology & pathophysiology; Color Doppler & PW Doppler waveforms techniques & principles; and preliminary writing. Assessment of these skills will occur in this didactic course and applied in the clinical course work.

DMS 205 ARTERIAL DUPLEX AND PHYSIOLOGICAL TESTING (3 CR)
In this course, theories, techniques and arterial testing procedures of the lower and upper extremity duplex and physiological exams are covered. Other topics include: bypass graft imaging; differential diagnosis; other imaging modalities; advanced exploration of arterial anatomy and collateral pathways; pathology and pathophysiology; techniques and principles of color, PW, CW Doppler waveforms; and preliminary writing. Assessment of these skills will occur in this didactic course and applied in the clinical coursework.

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. Prerequisite – DMS 104 and MAT 130 or higher.

DMS 207 CEREBROVASULAR PROCEDURES (3 CR)
In this course, theories, techniques and testing procedures (imaging and non-imaging) of the extracranial and intracranial exams are covered. Topics include: differential diagnosis; other imaging modalities; tests of accuracy; advanced exploration of arterial anatomy; collateral pathways, pathology and pathophysiology; techniques and principles of color and PW Doppler waveforms; and preliminary writing. Assessment of these skills will occur in this didactic course and applied in the clinical coursework.

DMS 208 ADVANCED IMAGING (3 CR)
In this course theories, techniques and testing procedures of the abdomen and post-operative exams are covered. Topics will include: post-operative procedures (abdominal, carotid, lower and upper extremities); abdominal arterial and venous visceral and aortic-iliac arterial disease using duplex ultrasound. Advanced exploration of abdominal arterial and venous anatomy, pathology & pathophysiology; Color Doppler, PW Doppler waveforms techniques and principles; preliminary writing. Assessment of these skills will occur in this didactic course and applied in the clinical course work.

DMS 209 VASCULAR TECHNOLOGY REVIEW CAPSTONE (4 CR)
This course is a seven-week learning plan designed to immerse students in lessons on how to learn, test-taking strategies, answer contextual style questions, and build a deeper understanding of the arterial and venous vascular system, disease processes, pathology and pathophysiology. The interactive comprehensive-progressive learning plan is created for various learning styles and is designed to prepare students for the rigors and endurance needed to complete the registry exam. The content on the course follows the American Registry of Diagnostic Medical Sonography (ARDMS) application and testing outlines. The learning plan includes an exam date. A computerized, 200-question mock exam is administered at the end of the program.

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 are given for ARDMS board applications. Extensive review of all facets of sonography is included in preparation for the ARDMS board exams.

DMS 216 CLINICAL EXPERIENCE II (3 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 pre-natal and maternal conditions as they relate to sonographic scanning and interpreting of images. Although the student is still under the supervision of an 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 are required.
Prerequisites: DMS 125 and DMS 200
Corequisite: DMS 201 and DMS 206

DMS 217CLINICAL EXPERIENCE III (2 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.
Prerequisites: DMS 216 and DMS 201
Corequisite: DMS 212

DMS 240 ADULT ECHO II (4 CR)
In this course, students will focus their studies 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 studied. Students will 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.
Prerequisite: DMS 144
Corequisite: DMS 244

DMS 246 ECHO Clinical III (3 CR)
In this course, students will attend a supervised clinical experience in an echo lab at an approved clinical education center. 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 competencies is required to graduate from the program. This clinical course is the final course in a sequence of three. The final objectives for the student to demonstrate are the skills required of the entry-level cardiac sonographer (independent performance and evaluation of the complete adult echocardiogram)
Prerequisite: DMS-146
Corequisite: DMS 240

DMS 271 VASCULAR ULTRASOUND II (3 CR)
This course continues with DMS 171. Students receive at least 384 hours of supervised clinical experience in an approved vascular laboratory. It also provides hands-on experience in basic and advanced color Doppler imaging (CDI), hemodynamics, segmental pressures and duplex sonography. Students are instructed and supervised by registered vascular technologists.
Prerequisite: Admittance into the VSON Program.

DMS 272 VASCULAR CLINICAL III (2 CR)
This course is a continuation of DMS 271. Students receive a maximum of 336 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.
Prerequisite: Admittance into the VSON Program.

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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. Students will apply concepts to real-life scenarios through active-learning strategies.
Prerequisites: CIS 095 and MAT 040 or higher

ECM 201 ADVANCED INFORMATION TECHNOLOGIES (3 CR) ***(Same as CIS 201)***
This course develops electronic communication, web collaboration, and online brand management skills essential to e-business strategies. Students connect core business operations with mobile, web-based, and cross-platform technologies and assess the impact of social media, Web2.0/Web3, and blockchain on business operations, digital trust, and online transactions.

ECM 218 ARTIFICIAL INTELLIGENCE (AI) IN MARKETING (3 CR)
The AI course will provide students with a practical and accessible introduction to artificial intelligence technologies and their application in the field of marketing. Topics include using AI to segment and target audiences, create content/ workflow that considers legal and ethical concerns, optimize content for AI enhanced search engines, measure social sentiment, and automate digital media campaigns. Security, legal and ethical concerns will be threaded throughout the curriculum. Students will need an Internet-connected computer, intermediate technology literacy, and fundamental knowledge of marketing principles to be successful in this class.
Prerequisite: CIS/ECM 201

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

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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: MAT 130 or higher

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: MAT 130 or higher

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EDUCATION (EDU)

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. A minimum of 16 hours of field experience is included.

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.

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 is required.

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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 usable energy such as electric power, emergent technologies, and the connection to careers in the energy industry. A CEWD-accredited EIF Certificate will be awarded upon successful completion of final certification exam.

EGY 102 FOUNDATIONS UTILITIES WORK: CLIMBING, COMMUNICATION, and SAFETY (1 CR)
This introductory course is a hands-on class designed to equip aspiring utility workers (power and communication) with the fundamental skills and knowledge necessary for a successful career in the utility industry. Students will learn essential climbing techniques and safety protocols, explore the operations of power equipment. The course also covers effective communication strategies, knot tying techniques, and an introduction to Commercial Driver's License (CDL) requirements.

EGY 103 INTERMEDIATE UTILITIES WORK: CLIMBING, COMMUNICATION, and SAFETY (1 CR)
This intermediate course builds on the foundational skills introduced previously, focusing on intermediate level climbing techniques and the operation of power equipment in the utility sector. Students will deepen their understanding of safety protocols and equipment operations, enhancing their ability to handle complex scenarios. The course further develops communication skills crucial for effective teamwork and emergency response. Students will also learn advanced knot tying techniques and continue preparing for the Commercial Driver's License (CDL) requirements through a blend of theoretical knowledge and hands-on practice, this course prepares students for higher-level responsibilities in the utility industry.
Prerequisite: EGY 102

EGY 104 ADVANCED UTILITIES WORK: CLIMBING, COMMUNICATION, and SAFETY (1 CR)
Building on foundational and intermediate skills, this advanced level course advances students' proficiency in climbing and power equipment operation in the utility sector. It enhances understanding of safety protocols and complex equipment handling, develops crucial communication skills for teamwork and emergency response, and teaches advanced knot tying. Students also progress in their preparation for the Commercial Driver's License (CDL) through a blend of theoretical learning and practical training.
Prerequisite: EGY 103

EGY 110 CLIMBING CLINIC (0.5 CR)
This course will introduce students to pole climbing safety and techniques for lineworkers.

EGY 111 CLIMBING ORIENTATION (1.5 CR)
This course will provide students with further instruction in pole climbing, including equipment maintenance and different climbing techniques, rescues, and knot-tying.
Prerequisite: EGY 110

EGY 112 CLIMBING SCHOOL (7 CR)
This course will help students achieve mastery of climbing techniques through practice and refinement under the supervision of climbing instructors.
Prerequisite: MFG 135, ELT 106, EGY 101, EGY 110, EGY 111, HPF 165, OR INSTRUCTOR APPROVAL

EGY 220 ENERGY INDUSTRY EXPERIENCE
This course investigates jobs and careers within the energy industry and related trades. It looks at the day-to-day work of different jobs, the types of facilities that different types of energy workers work in, and the skills and education required to attain these jobs. It is meant to help prepare students for their internship and future career goals
Prerequisite: EGY 101

EGY 345 ENERGY SYSTEMS INTERNSHIP (3 CR)
This course offers meaningful industry experience with a focus on skills such as project management, time management, communication, and planning. 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. If no internship site can be found, students may choose to work on a project that meets similar criteria and measures the student's ability to master essential personal and interpersonal management skills.
Prerequisites: Instructor permission required

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, micro grids and more.
Prerequisites: EGY 101

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. It will help students to connect the skills they have learned in the program to their future career goals and interests.
Prerequisites: senior standing in program

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ELECTRONIC TECHNOLOGY (ELT)

ELT 106 BASIC ELECTRICITY AND FLUID SYSTEMS (3 CR)
This course will cover the principles of basic electrical, hydraulic and pneumatic circuits. Students will learn how to identify components of electrical and fluid circuits, how to analyze circuits, and how to troubleshoot electrical systems. At the end of the course, they will be able to take the Certified Production Technical Maintenance Awareness exam.

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.

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: ELT 106 or ELT 120, or prior experience in electrical industry

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.
Prerequisite: ELT 150

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 LET 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 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 106 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 106, or ELT 126, or ELT 220, or prior industry experience.

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

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EMERGENCY MEDICAL SERVICES (EMS)

EMS 113 MEDICAL FIRST RESPONDER (5)
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 healthcare 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.

EMS 116 EMERGENCY MEDICAL RESPONDER (4 CR)
The Emergency Medical First Responder / Medical First Responder course is approved by the Michigan Department of Health and Human Services. This program provides the information and experience necessary to prepare the student to sit for the National Registry EMR Certification exam. Topics include legal responsibilities, anatomy, physiology, patient assessment, management of various emergency situations, extrication, and current standards for EMR/MFR in the field. Students will also participate in scenario-based education and computer-based testing and scenarios to reinforce skills learned within these areas. Corequisite: EMS 1160.

EMS 123 EMT BASIC TECHNOLOGY (12 CR)
The Basic Emergency Medical Technician course is approved by the Michigan Department of Health and Human Services. This program provides the information and experience necessary to prepare the student to sit for the National Registry EMT Basic 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.

EMS 124 EMERGENCY MEDICAL TECHNICIAN BASIC (9 CR)
The Basic Emergency Medical Technician course is a Michigan Department of Health and Human Services 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 three 12-hour clinical experiences in the ambulance setting with a pre-hospital life support agency. Laboratory and clinical experiences are included.

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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.

EGR 261 ENGINEERING MECHANICS I (4 CR)
Students survey the fundamentals of solid mechanics. This course covers equilibrium, static equivalence, stress, strain, material behavior, particular application to deflection of beams and axial, bending, torsion, shear and combined stresses, as well as an introduction to stability of columns. Prerequisite: MAT 151

EGR 262 ENGINEERING MECHANICS II (4 CR)
Students examine the principles of dynamics, including the motion of a particle, the kinematics and kinetics of plane motion of rigid bodies, the principle of work and energy, impulse, and momentum, and mechanical vibrations.
Prerequisite: EGR 261

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ENGLISH (ENG)

ENG 091 INTRODUCTION TO COLLEGE WRITING (3 CR)
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.
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.

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.
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.

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 include the narrative structure of films, cultural impact, and film techniques. Includes Jackson College Winter Film Series.
Prerequisite: 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.
Prerequisite: 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.
Prerequisite: 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.
Prerequisite: 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.
Prerequisite: 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.

ENG 252 SHAKESPEARE (3 CR)
Students read representative plays and are introduced to the Elizabethan world. The course emphasizes developing understanding, appreciation and critical analysis skills.
Prerequisite: ENG 131

ENG 254 CHILDREN'S LITERATURE (3 CR)
Students survey the various genres of children's literature from a critical point of view. The course emphasizes developing student competency in oral reading and presentation of children's literature.
Prerequisite: 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.
Prerequisite: 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 postmodern writing in narrative, poetic and critical modes.
Prerequisite: 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.

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.
Prerequisite: CIS 095

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 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

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.
Prerequisite: ENT 102

ENT 245 Internship/Externship (3 CR)
The student will have meaningful work experience with an appropriate organization and/or a trip exploring entrepreneurship in another county. The internship and/or trip must be approved by the supervising faculty member.
Prerequisite: Instructor Permission Required

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FRENCH (FRN)

FRN 131 ELMENTARY 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.

FRN 132 ELEMENTARY FRENCH II (4CR)
Provides increased practice in the basic language skills; listening, speaking, reading and writing.
Prerequisite: FRN 131

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FIRST YEAR SEMINAR (FYS)

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.

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 the laboratory, the students will learn how to apply basic scientific principles through active learning and application. This course has a laboratory component.

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. The course includes a laboratory component.

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.

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.

GEO 133 PHYSICAL GEOGRAPHY LAB (2 CR)
The physical geography laboratory covers basic physical elements of the environment and their regional and global distribution. Topics include an understanding of the interplay of the atmosphere, hydrosphere, lithosphere, biosphere, and cryosphere in areas of study that include seasons, weather, climate, landscape formation, distribution of plants and animals.

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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.

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

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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 Samaria to the end of the ancient world when the Western Roman Empire faded out of sight in 476 A.D.

HIS 125 AFRICAN-AMERICAN HISTORY (3 CR)
Examines the role African Americans have historically played in the political, economic and social construction of America.

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 humankind from the beginning to the 16th century.

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.

HIS 133 HISTORY OF THE WESTERN WORLD I (3CR)
This course surveys the development of the western world from pre-history through 1555. Employing both primary and secondary sources, students will examine the technological, religious, scientific, political, and cultural forces that shaped the Euro-Mediterranean world, beginning with the Ancient Near East, exploration continues through classical Greece and Rome, the rise of Christianity and Islam, to Medieval life and concludes with the Renaissance.

HIS 134 HISTORY OF THE WESTERN WORLD II (3CR)
This course surveys the development of the western world from 1555 to the modern era. Students will examine the religious, technological, political and cultural transformations, beginning with the Reformation, moving through the development of modern states, scientific and intellectual movements, colonial expansion and global wars.

HIS 211 MINORITY GROUPS IN AMERICA (3 CR) ***(Formerly SOC 235)***
This course examines the multitude of communities arriving in the United States and their interactions with receiving communities within a social-historical context. Students will explore historical events and exchanges that shape both arriving and host communities, while also considering categorical differences among individuals and the resulting rich tapestry of America.

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.

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 world affairs, and the Cold War.

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.

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HEALTH OCCUPATIONS (HOC)

HOC 110 CPR AND ADVANCED FIRST AID (2 CR) ***(Previously EMS 110)***
The course will prepare students to recognize when an emergency situation exists and how to properly respond until professional help arrives. Students will have the opportunity to obtain their American Heart Association BLS CPR certification. Extensive First Aid skills will be demonstrated for competency throughout the course. This course is suitable for students in any pathway.

HOC 130 INTRODUCTIONS 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 awareness.

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.

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.

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HEALTH & PHYSICAL FITNESS (HPF)

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 130 INTRODUCTION TO EXERCISE SCIENCE (3 CR)
This course is an introduction to the field of exercise science. The course explores elements from the basic and clinical sciences as they integrate with exercise science. Instruction will focus on (a) exercise science as a field of study; (b) sub-disciplines in exercises; (c) professional organizations and certification; (d) wellness and health related fitness; (e) physical exercise: an historical, sociological, and philosophical perspective; (f) exercise and aging; and (g) career options in exercise science.

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.

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 165 LINEWORKER FITNESS (2 CR)
This course combines strength, flexibility, and conditioning training to prepare students for pole climbing and lineworker fitness test. Proper technique will be emphasized to ensure safety and continued progress. There will be initial fitness testing and students will be responsible for tracking their progress.

HPF 168 WEIGHT TRAINING AND CONDITIONING (2 CR)
Includes both didactic and practical application of the principles of comprehensive exercise. Learn about the multidimensional 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.

HPF 186 WEIGHT TRAINING & WELLNESS (3 CR)
The principal 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.

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 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.

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.

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HONORS LEADERSHIP (HNL)

HNL 150 Introduction to Honors (1 CR)
This course introduces students to the values and opportunities of Phi Theta Kappa (PTK), the international honor society for community colleges. Students will learn about PTK and how the PTK initiatives align with the Honors Program at Jackson College.

HNL 200 LEADERSHIP FOUNDATIONS FOR COMMUNITY IMPACT (5 CR)
This course provides a comprehensive framework for students in the Honors Leadership program to plan, organize, and execute a large-scale community project or event. Students will explore leadership theories, project management principles, and strategies for stakeholder engagement. Students will work closely with the PTK advisors and Honors Leadership faculty mentors to identify an area of focus, conduct in-depth research, and engage in project execution and evaluation. As part of the project, students will apply their leadership and problem-solving skills to create a plan in which to drive meaningful change and community impact. By the end of the course, students will have a detailed project plan and the confidence to lead a transformative initiative.

HNL 250 COMMUNITY LEADERSHIP IN ACTION (4 CR)
In this course, students will apply their leadership skills and project plans developed in the foundational course to bring their vision to life. Emphasis will be placed on adaptive leadership, effective teamwork, real-time problem-solving, and impact evaluation. With the guidance of mentors, students will navigate the challenges of executing their initiatives, fostering community collaboration, and ensuring project sustainability. The course concludes with a reflective assessment of the project's outcomes and its influence on the community.

HNL 300 HONORS LEADERSHIP CAPSTONE (2 CR)
The Honors Leadership Capstone is the culminating experience for students in the honors program, designed to showcase their leadership development and real-world impact. In this course, students will present their capstone projects, detailing the inspiration behind their initiatives, the planning and implementation process, and the challenges they faced. Through reflective discussions and formal presentations, students will analyze the outcomes of their projects and assess their impact on the community. In addition to presenting their work, students will develop a professional employment portfolio highlighting their project, leadership experiences, and key accomplishments. This portfolio will include project documentation, reflections, resumes, and other materials that demonstrate their skills and readiness for future career or academic opportunities. Emphasis is placed on leadership growth, problem-solving, and civic engagement. This course fosters a collaborative environment where students learn from each other's experiences, celebrate successes, and consider ways to sustain or expand their initiatives beyond the classroom.

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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.

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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 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.

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.
Corequisite: MAT 133A

MAT 040 QUANTITATIVE REASONING FUNDAMENTALS (3 CR)
Quantitative Reasoning Fundamentals provides extra support for students concurrently enrolled in MAT 130 Quantitative Reasoning. The course will review mathematical topics needed to be successful in MAT 130, and will offer students the opportunity to review, ask questions, and receive additional help with the content of MAT 130.
Corequisite: MAT 130

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.
Prerequisite: MAT 030 or MAT 040
Corequisite: MAT 040

MAT 133 INTRODUCTION TO PROBABILITY & STATISTICS (4 CR) ***(Same as 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

MAT 133A INTRODUCTION TO PROBABILITY & STATISTICS (4 CR) ***(Same as MAT 133)***
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. This course is offered only as a co-requisite to MAT 033.
Corequisite: MAT 033

MAT 137 COLLEGE ALGEBRA I (2 CR)
This course investigates the concept of an algebraic function from a numerical, graphical and analytic perspective. Polynomial functions are studied in detail, with emphasis on linear, quadratic, cubic and quartic functions. Covered topics include simplifying expressions, solving equations, and graphing with transformations. There is an emphasis on mathematical modeling and problem solving throughout.

MAT 138 COLLEGE ALGEBRA II (2 CR)
This course investigates the concept of mathematical functions from a numerical, graphical and analytic perspective. It includes a detailed study of exponential, logarithmic, rational and radical functions. Covered topics include simplifying expressions, solving equations, and graphing with transformations. There is an emphasis on mathematical modeling and problem solving throughout.
Prerequisites: MAT 137

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

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

MAT 151 CALCULUS I (4 CR)
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)
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 to 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)
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 130 or higher

MAT 211 FOUNDATIONS OF MATHEMATICS II (4 CR)
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)
Course topics include the calculus of vector-valued functions, multivariable functions and vector fields. Solid analytic geometry and applications of the material are embedded throughout. Use of a computer algebra system is integrated into the course. 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)
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 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 136

MFG 135 INDUSTRIAL SAFETY (3 CR)
This course demonstrates methods of maintaining a safe work environment. It introduces students to best safety practices as well as communication and team building skills. Students will have the opportunity to take an MSSC certification exam as well as earn their OSHA 10 card.

MFG 136 BLUEPRINT READING AND PRECISION MEASUREMENT (3 CR)
This course will provide students with in depth knowledge of how to read blueprints and technical drawings, and use gauges to obtain precise measurements. Topics covered include print reading, measurement, tolerancing, and quality. Students may sit for Certified Production Technician exam in Production Quality at the end of the course.

MFG 137 PRODUCTION PROCESS and FABRICATION (3 CR)
This course will focus on production processes and machining, emphasizing planning, tooling, and materials. Students will learn how the basics of safely operating machines and producing precision parts. Students may sit for the Certified Production Technician exam for Processes and Production at the end of the course.

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 201 PRINCIPLES OF CNC MACHINING (3 CR)
This is the first course in the CAD/CAM/CNC series, students will learn about the various methods to design and machine projects for CNC machining. Concepts will be covered in the areas of programming, tooling, software set up, machining principles, G and M codes, techniques, custom designs, maintenance, and safety.
Prerequisite CAD 152

MFG 202 VISES AND FIXTURES (3 CR)
This is the middle course in the CAD/CAM/CNC series. Students will learn about the various methods to design and machine fixtures for CNC machining. Concepts will be uncovered in the areas of proper holding methods, vice jaws – powered and precision, table design and dimensioning, Mitee-bite holding techniques, types of clamps and locators, work supports, mounts – assembles and custom designs, maintenance, and safety.

MFG 203 ADVANCED CAM PROGRAMMING (3 CR)
This is the final course in a three course CNC/CAD/CAM sequence. Students will design parts with complex geometry and learn to use CAM software to program tool paths and account for different types of tooling. Students will use fixtures to create parts and will learn to check completed parts to ensure they meet quality standards.

MFG 211 ROBOTICS 1 (3CR)
This course is intended for the operator, technician, engineer, or programmer who must set up, record, and troubleshoot programs on a handling tool software package. The course covers the robot operations outline intermixed with tasks required to set up the handling tool application, test, run and refine the program and production setup.

MFG 216 ROBOTICS 2 (3CR)
This course covers the basic tasks and procedures required for an operator, technician, engineer or programmer to set up, teach, test, and modify iRVision applications. It teaches students to set up and calibrate cameras, and to create programs that respond to camera inputs using machine vision technology. At the end of this course, students who complete all lab and e-learning work are eligible for the FANUC CERT 2 irVision certification.
Prerequisite: MFG 211

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.

MFG 262 PRINCIPLES OF IIOT (4 CR)
This course introduces students to the principles of smart automation, networking, and the industrial Internet of things. Topics covered include networking, variable frequency drives, RFIDs, smart sensors, and databases.
Prerequisites: ELT 220

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MEDICAL INSURANCE CODER/ BILLER (MIC)

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, MED 125, Check with CRSE

MIC 241 PHYSICIAN OFFICE MEDICAL CODING (6 CR)
This online course teaches fundamental medical coding skills for professional services (physicians, mid-level providers, etc.) and prepares the student to take AAPC's CPC exam. The course covers CPT, HCPCS and CD-10-CM coding. Assures a broad knowledge in reviewing and assigning the correct procedure and diagnosis codes for professional (physician) services.
Prerequisites: MIC-141

MIC 255 CODER 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 241

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MEDICAL INSURANCE BILLING (MIB)

MIB 241 PROFESSIONAL MEDICAL BILLING (6 CR)
This course introduces the student to health insurance and reimbursement. In this course, the student will become familiar with the health insurance industry, legal and regulatory issues, and differences in reimbursement methodologies. The student will learn principles of medical billing related to proper claim form preparation, submission and payment processing, and the follow-up process. This course is recommended for anyone who is preparing for a career in a medical billing department at a physician's office, clinic, or similar position. This course is strongly recommended for anyone who is preparing for AAPC's CPB.
Prerequisite: MIC 141

MIB 255 BILLING CAPSTONE (3)
In the Capstone, you will not be performing hours at an external site but rather perform extensive billing exercises to prepare for the CPB 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.
Prerequisites: MIB 241

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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.

MED 120 MA MEDICAL TERMINOLOGY (3 CR)
This course provides an overview of medical terminology to include word roots, prefixes, and suffixes, building of words using word parts, words not built from word parts, common medical abbreviations, and proper spelling and pronunciation of medical terms. This class is not required if a previous medical terminology course has been taken and passed with a 2.5 grade or higher.

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*

MED 125 INTRODUCTION TO BODY SYSTEMS (3 CR)
This course provides foundational knowledge of body structures and their functions through a body systems approach. May be taken as part of a program or to help prepare the student for more advanced anatomy and physiology courses.

MED 132 FOUNDATIONS OF CLINICAL PRACTICE (3 CR)
This course provides students with an introduction to the medical and nurse assistant professions, emphasizing foundational skills essential for both roles. Students will learn basic clinical skills, including aseptic techniques, proper handwashing, OSHA and bloodborne pathogen training, and measuring vital signs. The course also covers patient communication, nutrition, healthy living, and key nurse assistant skills such as assisting with daily living activities, patient mobility, and basic care procedures, preparing students for versatile roles in MIC healthcare settings.
Prerequisites: Take MOA 120 or MED 120 2.5 or above GPA required. Also take MED 125 (minimum GPA 2.5) or take BIO 132 or BIO 253 and 254

MED 135 MA PHARMACOLOGY AND MEDICAL MATH (2 CR)
The course covers the top 50 prescribed medications along with how to perform math conversions and dosage calculations.
Prerequisites: Take MOA 120 or MED 120 2.5 or above GPA required. Also take MED 125 (minimum GPA 2.5) or take BIO 132 or BIO 253 and 254

MED 225 MA CLINICAL PROCEDURES I (4 CR)
This course will provide students with the clinical skills necessary to work in a medical practice. Topics will include preparing for exams, patient screening and assessment, cardiology and radiography procedures, physician office lab procedures, and phlebotomy.
Prerequisite: Take HOC 115 or MED 132 or CENA certification

MED 235 MA CLINICAL PROCEDURES II (4 CR)
In this course, students will learn the procedures and routines of specialty practices including well child examinations and immunizations, obstetrics/gynecology, geriatrics, administration of medications, along with emergency and surgical procedures.
Prerequisite: Take HOC 115 or MED 132 or CENA certification

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: Take MED 225 MED 235

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.
Prerequisite: 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: MED 120/MOA120 and MED 125

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: MED 225 and MED 235

MOA 255 HAIS 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.
Prerequisites: MIC 211 and instructor permission required

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MUSIC (MUS)

MUS 126 CONCERT CHOIR (2 CR)
Performance of choral music with enhanced emphasis on sight-reading skill, vocal production, and individual growth and musical contribution. Vocal Point is the varsity choral performing group, and as such operates in many ways like a varsity athletic organization. Professionalism and commitment to Vocal Point and Jackson College are expected at all times. Musical experience in high school choir is required as a prerequisite.

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.

MUS 131 UNDERSTANDING MUSIC (3 CR)
Lecture and directed listening on the elements, forms and historic chronology of Western music.

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 a historical context.

MUS 134 DRUMLINE (2 CR)
JC Drumline is an entertainment/musical ensemble that will be visible in our community. The group will learn performance pieces, visuals, and build on skills members bring to the class. Musicians of varying ability are encouraged to audition. The course is specifically designed for musicians with experience on snare drum, bass drum, tenor drums, and crash cymbals.

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 two times for credit.

MUS 137 JAZZ ENSEMBLE (2 CR)
Performance of jazz with emphasis on improvisational skill development. May be taken two 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 229 CONCERT BAND II (2 CR)
Study and Performance of concert band literature with enhanced emphasis on technical skill, individual growth, and musical contribution. Prerequisite: MUS 129

MUS 237 JAZZ ENSEMBLE II (2 CR)
Available to students who have already taken Jazz Ensemble I. Offers enhanced requirements of improvisation and mentoring of local music programs. May be taken two times for credit.
Prerequisite: MUS 137

MUS 238 AFRICAN DRUM ENSEMBLE II (2 CR)
Available to students who have already taken African Drum Ensemble I, but with enhanced requirements. May be taken two times for credit.
Prerequisite: MUS 135

MUS 267 APPLIED MUSIC (1 CR)
Private study of all instruments is open to all students. This is a requirement for music majors pursuing a bachelor's degree. All students must register with the music department at the beginning of each semester. Recital and jury required. Prerequisite: MUS 168 or MUS 178

MUS 268 APPLIED MUSIC (1 CR)
Private lessons taken for one credit, designed for music transfer students on primary or secondary instruments, or recreational players looking to further their instrumental or vocal skills. Each face-to-face lesson will be 30 minutes, once per week, will include extra outside work, and require an end-of-semester recital performance combined with other private lesson students.

MUS 277 APPLIED MUSIC (2 CR)
Private lessons taken for two credits, designed for music transfer students on primary or 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.

MUS 278 APPLIED MUSIC (2 CR)
Private lessons taken for two credits, designed for music transfer students on primary or 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.

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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. The course includes a lab component.
Prerequisite: MAT 040* (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. The course includes a laboratory component.
Prerequisites: MAT 040 or higher

NSC 140 CONTEMPORARY CLIMATE SCIENCE (3 CR)
This interdisciplinary and interactive course is designed to foster an interest in global environmental issues by informing the student of both the anthropogenic and natural causes for climate change. While focusing on the scientific aspects of climate change, a broader study will include issues pertaining to global policy and economics in order to engage the student in public policy debates.

NSC 141 SCIENTIFIC INQUIRY (3 CR)
An interdisciplinary science course that examines fundamental concepts in physics, chemistry, biology, and geology. Students deconstruct historically famous experiments in order to understand the scientific theories and methodologies as well as the nature of science itself.

NSC 141L SCIENTIFIC INQUIRY LAB (1 CR)
A hands-on investigative science laboratory course for non-science majors that emphasizes critical thinking and evidence evaluating skills. Students first explore the nature of science and the scientific method, and then apply these principles to design, conduct, and interpret basic scientific research experiments in physics, chemistry, biology and geology.
Corequisite: NSC 141

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NURSING (NRS)

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)
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: Admission into the NURS.AAS program

NRS 119 HEALTH ASSESSMENT (3 CR)
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 120 NURSING FUNDAMENTALS (4 CR)
This course introduces students to fundamental concepts of professional nursing, the nursing process, and advances with informatics. This course is designed to teach students the importance of evidence-based practice in providing client-centered and culturally responsive care. This course also examines the disease prevention and health maintenance programs available within the community while also addressing population health within assignments. Topics within this course include principles for building professional behaviors, advocating for the safety and well-being of clients, developing 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, skills, and the nursing process.

NRS 145 NORMAL/THERAPEUTIC NUTRITION (3 CR)
Basic nutritional concepts are presented with emphasis on application to client care. Selected nutritional disorders and fundamentals of diet therapy are also included.
Prerequisite: Admission into the NURS.AAS program

NRS 210 MEDICAL SURGICAL NURSING I (4 CR)
This course prepares the student to provide culturally responsive, safe, quality care while utilizing evidence-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.
Prerequisites: NRS 120, NRS 111, NRS 116, NRS 119

NRS 211 CARE OF WOMEN AND NEONATES (3 CR)
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.
Prerequisites: NRS 120, NRS 111, NRS 116, NRS 119

NRS 212 BEHAVIORAL HEALTH (3 CR)
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.
Prerequisites: NRS 210, NRS 211, and NRS 215

NRS 213 PEDIATRICS (3 CR)
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 client 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.
Prerequisites: NRS 210, NRS 211 and NRS 215

NRS 214 MEDICAL SURGICAL NURSING 2 (4 CR)
This course prepares the student to provide culturally 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 included in both acute care and community settings.
Prerequisites: NRS 212, NRS 213

NRS 215 PATHOPHYSIOLOGY (4 CR)
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.
Prerequisites: NRS 111, NRS 116, NRS 119, NRS 120

NRS 230 MEDICAL SURGICAL NURSING3 (4 CR)
This course prepares students to provide culturally responsive safe, quality, transitional care while utilizing nursing judgment 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. Prerequisites: NRS 212, NRS 213 and NRS 214

NRS 240 NURSING CAPSTONE (3 CR)
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.
Prerequisites: NRS 212 or 222, NRS 213 or 223, NRS 214 and NRS 230

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PUBLIC LEADERSHP AND ADMINISTRATION (PAM)

PAM 190 INTRODUCTION TO PUBLIC ADMNISTRATION (3 CR)
This course offers a comprehensive overview of public administration, emphasizing the principles, structures, and functions that underpin government operations and the implementation of public policy. Students will explore key topics, including the role of government agencies, policy, development, budgeting, human resource management, ethics, and the challenges of managing public programs effectively.

PAM 220 NONPROFIT LEADERSHIP AND BUDGETING (3 CR)
This course provides a focused introduction to leadership and financial management in the nonprofit sector. Students examine governance and accountability of nonprofit boards, funding challenges, program evaluation, strategic management theory and practice, the role of nonprofits in policymaking, and the unique aspects of nonprofit finance. With a focus on the intersection of leadership and financial management, students will explore critical aspects of nonprofit governance, strategic planning, and decision-making. Emphasis will be placed on budgeting practices, financial reporting, fundraising, and resource allocation, ensuring students understand how to develop and manage budgets that align with organizational missions. Additionally, students will examine leadership styles, managerial ethics, and stakeholder engagement, preparing them to navigate the unique challenges nonprofit leaders face. Real-world case studies and projects will allow students to apply concepts directly to nonprofit settings, gaining valuable, hands-on experience in the field.

PAM 230 HUMAN RESOURCES IN PUBLIC SECTOR (3 CR)
This course introduces students to the principles and practices of human resource management as applied in the public sector. Students will examine core HR functions, including recruitment, selection, training, performance management, and employee relations, focusing on public sector policies and regulations. Emphasis will be placed on understanding civil service systems, labor relations, workforce diversity, and ethical considerations in public employment. The course also covers strategic HR planning, addressing workforce development, retention, and the impact of changing governmental policies on HR practices.

PAM 240 PUBLIC POLICY MAKING & ANALYSIS (3 CR)
Public administrators face many policy issues today including social justice concerns, policy development and navigating through political and demographic shifts. In this course students will learn how to develop responses to public problems through policy making. Students will discuss challenges presented by a changing social and cultural environment such as cultural, racial, gender and value-related, financial, technological, institutional, and operational issues in which public organizations operate. This course will also provide students with the tools necessary to adapt public administration by taking a dynamic, pervasive, and proactive approach towards public policy that promotes organizational goals and community centered programming around critical issues.

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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?

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.

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.

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PHYSICS (PHY)

PHY 131 CONCEPTUAL PHYSICS (4 CR)
This course takes you on a journey through the amazing world of physics in a way that requires a minimal math background. You'll learn about a wide array of phenomenon: motion, forces, sound, electricity, magnetism, and light. It's perfect for students in the Humanities, the Arts, Design & Business, and other non-science areas. The course is designed with hands-on activities and experiments in the lab to make learning engaging and fun.
Prerequisite: MAT 040* 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.
Prerequisite: MAT 040 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.
Prerequisite: 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.
Prerequisite: 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. The course includes a laboratory component.
Prerequisite: MAT 130 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. The 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. The 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. The course includes a laboratory component.
Prerequisite: PHY 251

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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.

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.

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PRACTICAL NURSING (PNC)

PNC 110 FOUNDATIONS OF PRACTICAL NURSING (5 CR)
Students are introduced to the nursing process and their role as caregivers. Maslow's hierarchy of needs is explored along with nursing skills that meet basic physiologic and safety needs. Clinical experience provides the student an opportunity to demonstrate initial application of the roles of nursing judgment and professional identity in a highly structured, supervised setting.
Prerequisite: Admission into the PNCE.CERT program

PNC 111 FOUNDATIONS SKILLS LAB (1 CR)
This course introduces students to fundamental skills of practical nursing and the nursing process. The laboratory component will provide the student with visual demonstrations of procedures, as well as hands-on practice and group collaboration.
Prerequisites: Admission into the PNCE.CERT program

PNC 112 PRACTICAL NURSE PHARMACOLOGY I (2 CR)
This course introduces students to fundamental skills of practical nursing, health assessment, and the nursing process. The laboratory component will provide the student with visual demonstrations of procedures, as well as hands-on practice and group collaboration.
Prerequisite: PNC 111
Corequisite: PNC 110

PNC 113 PRACTICAL NURSE PHARMACOLOGY II (1 CR)
The student will explore the nursing process to understand the role of medications in relation to human disease, client education, and disease management.
Prerequisite: PNC 112
Corequisite: PNC 120

PNC 116 PRACTICAL NURSE PHARMACOLOGY (3CR)
This course introduces the PNC student to basic principles of drug actions and nursing implications when administering medications. Students will explore the nursing process to understand the role of medications in relation to human disease, client education, and disease management. Students will develop safe medication practices and accurate drug dosage computation skills in a culturally sensitive, client-centered manner.
Prerequisites: PNC 116, PNC 120, PNC 1201
Corequisite: PNC 110 and PNC 111

PNC 120 MEDICAL-SURGICAL NURSING I (5.5 CR)
Students use the nursing process to implement the caregiver role with adult clients experiencing basic physiologic needs. How disease states of core systems alter clients' needs and their ability to meet these needs will be explored. Clinical experience will provide the student with the opportunity to demonstrate the roles of nursing judgement and spirit of inquiry.
Prerequisites: PNC 110, PNC 1101 and PNC 111, PNC 116
Corequisite: PNC 1201

PNC 130 MEDICAL-SURGICAL NURSING II (5.5 CR)
The student will use the nursing process to implement the caregiver role with adult clients experiencing more complex physiologic needs. How disease states and co-morbidities affect clients' needs and their ability to meet those needs is explored. Clinical experience provides students the opportunity to demonstrate increasing organizational skills in their roles of nursing judgment and professional identity.
Prerequisites: PNC 112 PNC 120 and PNC 1201
Corequisite: PNC 1301

PNC 140 MEDICAL-SURGICAL NURSING III (3 CR)
Students use the nursing process to implement the nursing role with adult clients experiencing basic physical (sensory, renal, reproductive, musculoskeletal, and mental health) conditions. Emphasis will be placed on the special needs of elderly clients. Understanding of how client's response to disease states alters the safety, love and belonging, and self-esteem needs will be explored. Interventions helpful to the care of the elderly will be included.
Prerequisites: PNC 130 and PNC 1301

PNC 150 MATERNAL/NEWBORN CONCEPTS (2 CR)
Students will extend the use of the nursing process to women, obstetric clients, and neonates. Maslow's hierarchy of needs is utilized as a framework to care for the client who has a well-defined health care problem in a structured setting.
Prerequisites: PNC 140, PNC 170 and PNC 1701

PNC 160 PEDIATRIC CONCEPTS (2 CR)
Students will extend the use of the nursing process to children and childrearing clients. Maslow's hierarchy of human needs is utilized as a framework to care for the client who has a well-defined health care problem in a structured clinical setting.
Prerequisite: PNC 140

PNC 170 ENTRY INTO PRACTICE (2 CR)
Students will review the ethical/legal responsibilities of the LPN along with the scope of practice of the LPN as defined by the Michigan Nurse Practice Act. Issues related to types of health care organizations, LPN organizations, continuing education, and licensure will be covered. NCLEX-PN and licensure forms will be received with instructions regarding completion of forms as well as the testing / licensure process. Information on the search for employment and job-seeking skills will be included.
Prerequisite: PNC 130

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PRE- PHYSICIAN ASSISTANT (PPA)

PPA 101 INTRODUCTION TO PRE-PHYSICIAN ASSISTANT (3 CR)
This course is an introduction to the Physician Assistant/Associate Career. It will review what it is to be a PA and the core competencies it takes to be successful. Topics include: the history of the PA profession, what to look for when choosing a PA program, requirements related to standardized testing, the application and interview process, how to be successful in the PA program, and finally, how to effectively transition from student to practitioner.

PSYCHOLOGY (PSY)

PSY 130 GENERAL PSYCHOLOGY (3CR)
This course is designed as an introduction to the field of psychology. This course offers students the chance to explore fundamental psychological concepts and discoveries, understand the methods psychologists use to investigate and solve questions, and grasp the significance of these ideas in shaping relationships, work dynamics, personal well-being, and societal frameworks.

PSY 144 INTRODUCTION TO PROBABILITY & STATISTICS FOR BEHAVIORAL SCIENCE RESEARCH (4 CR)
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 skills against a backdrop of comparative theories and systems of counseling. Ethical, legal and practical issues included. Prerequisite: PSY 130

PSY 213 PSYCHOLOGY OF DEATH & DYING (3 CR)
Analysis of psychological and sociocultural perspectives on mortality, end-of-life practices, and grief. Examination of individual and cultural responses to death, dying, and bereavement across the lifespan with a focus on ethical, empathic communication for the support of others through loss.

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 130

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 130

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 130

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 130*

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.

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 130

PSY 344 ORGANIZATIONAL PSYCHOLOGY & LEADERSHIP (3 CR)
Apply the behaviorally based principles of organizational and leadership psychology to workplaces. Develop practical skills needed to apply evidence-based strategies to enhance individual and organizational performance. Key topics include performance management, employee motivation, job satisfaction, compensation strategies, rewards and recognition, managing employee behaviors, and effective leadership behaviors.
Prerequisites: ENG 131 and PSY 130

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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

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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 their 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, students 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.
Pre-Corequisites: RES 120, RES 125, RES 126

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 on 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 122 INTRODUCTION TO SERVICE ENGAGEMENT (1 CR)
This course aims to introduce and help students understand the concepts of teamwork and collaboration by actively participating with local non-profit organizations.

SEM 140 SEMINAR IN LIFE PATHWAYS (3 CR)
Seminar in Life Pathways is the gateway course to Jackson College. This course is designed to help all students develop both hard and 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.

SOCIAL WORK (SWK)

SWK 292 INTRODUCTION TO SOCIAL WORK (3 CR)
An introduction to the social work profession, code of ethics, values, and social welfare policy. This is an examination of the profession's responsibilities in correlation to the populations served. This includes a history of social work as well as the role of the social work profession and different settings of practice.

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SPORT MANAGEMENT (SMT)

SMT 100 INTRODUCTION TO SPORT 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.
Prerequisites: CIS 095 and MAT 033

SMT 110 ESPORT IN SOCIETY (3 CR)
This course is designed to explore the sociological factors that influence esport in our society. The purpose of the course is to provide the student with a basis and ability to examine sociological issues found within esport. Key areas that will be examined in this course are health & wellness, global issues, youth & teen experiences, and other current social issues in esport. This course is intended to provide the foundation knowledge necessary for an entry level career or an upper-level course preparation in sport , management, business, or esport management.

SMT 111 HISTORICAL AND SOCIOLOGICAL ISSUES IN SPORT (3 CR)
This course is designed for students to examine and understand the ways in which sport and physical activity are affected by historical and social forces, and in turn, how sport and physical activity influence society. This course also examines the sociological factors that influence sport in our society. The purpose of the course is to provide students with a sound theoretical basis and the ability to critically examine the sociological issues found within sport.

SMT 210 INTRODUCTION TO ESPORT MANAGEMENT (3 CR)
This course is designed to explore the various areas of the esport business industry. The course will examine the following areas in esport: business competencies, event management, league operations, fan engagement, coaching, team management, content creation and video production, sponsorship, and broadcasting and streaming. Other areas that will be examined in this course are health promotion and preventative care for esport gamers, influence of media on esport, and the history of esport. This course will introduce students to career opportunities and business concepts required to manage esport organizations and operations. The industry structure and challenges will also be discussed.

SMT 230 PRINCIPLES OF SPORT 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 and MAT 033

SMT 240 SPORT FACILITY AND EVENT MANAGEMENT (3 CR)
This course examines the principles of facility operations and event management in the industry of sport management. This course provides students with an in-depth investigation of the unique challenges and opportunities that are routinely faced by a business, facility or event manager in the context of events at sport and entertainment venues. This course offers an introduction to the planning, marketing, management, and evaluation of sporting and entertainment venues. This course offers an introduction to the planning, marketing, management, and evaluation of sporting and other entertainment venues. This course gives students an overview of the three major components of facility management: event management, risk management, and facility management.

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. Prerequisite: SMT 100 and SMT 230, and Instructor permission required.

SMT 255 SPORT MANAGEMENT CAPSTONE (3 CR)
This capstone course culminates the sport management degree program. The goal of the course is to apply all previous course learning to develop and enhance employability skills within the sport management industry. In this course, students will explore topics such as writing a cover letter, writing a resume, building a business plan, and understanding a personal financial statement. Students will also examine various entry level professional certificate opportunities. This course provides students with an opportunity to develop personal capabilities, professional competencies, and business acumen by integrating and applying knowledge to real-work organizational opportunities and issues. This course is intended to provide the foundation knowledge necessary for an entry-level career or an upper-level course preparation in sport management, exercise science, business, parks and recreation, and tourism or outdoor activities.

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SOCIOLOGY (SOC)

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.

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 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 across various ethnic and demographic groups.

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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.

SPN 132 ELEMENTARY SPANISH II (4 CR)
Provides increased practice in the basic language skills: listening, speaking, reading and writing.
Prerequisite: SPN 131

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

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SURGICAL TECHNOLOGY

SUR 101 INTRODUCTION TO SURGICAL TECHNOLOGY (3 CR)
This course is designed specifically for entry-level job training and is a combination of classroom studies and lab practice. This course is designed to offer education on an introduction to the operating room and the role of the surgical technologist in order to prepare for competent and safe patient care.

SUR 102 SURGICAL PROCEDURES I (4 CR)

This course provides the foundational knowledge of surgical core and specialty procedures. It examines the surgical anatomy, pathophysiology, diagnostic interventions, and surgical interventions for a variety of surgical procedures. The course will provide an emphasis with surgical procedures related to diagnostics, general, obstetric and gynecologic and plastic and reconstructive surgical specialties. This course also incorporates an introduction to operative care and complications of the surgical patient. Students apply these principles in a lab environment to practice and perform essential skills required in the surgical setting. This course instructs students to apply the principles of introductory surgical procedures in a lab environment.

SUR 103 SURGICAL PROCEDURES II (4 CR)
This course is designed to continue to develop the concepts from SUR 102 and provides the foundational knowledge of surgical core and specialty procedures. This examines the surgical anatomy, pathophysiology, diagnostic interventions, and surgical interventions for a variety of surgical procedures. The course will provide an emphasis with surgical procedures related to genitourinary, orthopedic, and neurosurgery surgical specialties. Students apply these principles in a lab environment to practice and perform essential skills required in the surgical setting. This course instructs students to apply the principles of introductory surgical procedures in a lab environment.

SUR 120 SURGICAL PHARMACOLOGY & ANESTHESIA (3 CR)
This course blends the essentials of basic pharmacology and education of anesthesia care provided to the surgical patients during surgery, organizes related drugs, and allows the student to learn about prototype. drugs and the important ways that related drugs differ. This course also introduces key issues pertaining to therapeutic rationale, basic pharmacologic principles, and clinical use of drugs. Safe practices and sterile techniques used in anesthesia procedures will be emphasized.

SUR 121 SURGICAL ANATOMY and PHYSIOLOGY (3 CR)
The Surgical Anatomy and Physiology course provides students with a comprehensive regional study of human anatomy as encountered in surgery. Emphasis is placed on the organizational structure of the body, organ systems, relevant surgical pathophysiology, and related medical terminology. Students compare the selected surgical pathologies of each body system and their implications to the surgical procedure and patient.

SUR 160 SURGICAL CLINICAL I (3 CR)
This course is designed to apply basic surgical anatomy, instrumentation and procedural steps combined with a consistent method of reinforcement in the clinical site. The students are assigned to a clinical site where they will apply theoretical knowledge while gaining aptitude, skills, and proficiency necessary to function in non-complex situations as a surgical technologist. Students will complete 360 clinical hours.
Prerequisite: SUR 102

SUR 161 SURGICAL CLINICAL II (3 CR)
The surgical technology student will continue to build on the concepts gained in SUR 160 during this course. Surgical anatomy, instrumentation, and procedural steps for each case are reinforced. The student will function as a part of the surgical team in an operating room setting applying theoretical knowledge while gaining the aptitude, skills, and proficiency necessary to function in complex situations and cases. Students will complete 360 clinical hours.
Prerequisite SUR 103

SUR 165 SURGICAL TECHNOLOGY SEMINAR (4 CR)

Preparation for entering the surgical technology profession encompasses knowledge, skill, professionalism, independent thinking, and the ability to react quickly under stressful situations. This course is designed to provide specialized instruction for the student preparing to transition into the field of surgical technology. Students will develop their personal resume, as well as work on interview skills. This course also emphasizes review of content specific to the practice of surgical technology and preparation for the NBSTSA certification examination. Students must sit for the National Board of Surgical Technology and Surgical Assisting Certification Exam as a requirement to complete the program. The student will have the opportunity to apply for membership to the Association of Surgical Technology (AST).
Prerequisites: SUR 103 and SUR 160
Corequisite: SUR 161

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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.

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

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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.

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.

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 soundtracks 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.

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

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UTILITIES (UTL)

UTL 101 INTRODUCTION TO HVAC (4 CR)
This course provides an introduction to the fundamental principles of HVAC systems, including heat transfer, refrigeration cycles, air conditioning processes, and system components. Students will explore basic HVAC theory, system operations, and industry best practices while developing foundational skills in system diagnostics, refrigeration calculations, and air conditioning principles. Prerequisite ELT 120, Corequisite MFG 135.

UTL 102 HEATING SYSTEMS 1 (4 CR)
This course will introduce students to the fundamental principles of heating systems, including the functionality, and basic installation and operation of systems.

UTL 103 AIR CONDITIONING 1 (4 CR)
This course introduces students to the fundamental principles of air conditioning systems, including their functionality, basic installation, operation, and troubleshooting techniques. Students will explore the refrigeration cycle, system components, and airflow dynamics, gaining hands-on experience in system setup, diagnostics, and maintenance procedures.

UTL 104 REFRIGERANT HANDLING AND RESIDENTIAL HVAC STANDARDS (3 CR)
This course prepares students for the EPA Section 608 Certification Exam, covering refrigerant handling regulations, environmental impact, and industry best practices. Students will learn the legal and technical requirements for refrigerant recovery, recycling, and disposal while developing hands-on skills in safe handling, leak detection, and system servicing. Additionally, students will explore fundamental residential HVAC codes and standards related to design, installation, and repair. Students will gain the necessary knowledge to comply with EPA, ASHRAE, and local HVAC regulations while ensuring environmental safety and system efficiency.

UTL 105 AIR CONDITIONING 2 (4 CR)
This course explores advanced concepts in air conditioning and refrigeration systems, with a focus on control systems, equipment diagnostics, and troubleshooting techniques for commercial applications. Students will analyze control sequences, system automation, and performance optimization while developing hands-on skills in equipment testing and fault detection. Through interactive lab exercises and real-world case studies, students will gain practical experience in diagnosing, repairing, and optimizing commercial HVACR systems to improve efficiency and reliability.

UTL 106 HEATING 2 (4 CR)
This course introduces students to advanced topics related to heating systems including controls of commercial heating systems and equipment testing, maintenance and troubleshooting.

UTL 107 HVAC DESIGN (4 CR)
This course introduces the HVAC design process for both residential and commercial systems. Students will learn to interpret HVAC blueprints, analyze system layouts, and apply fundamental design principles. The course also covers basic calculations for system planning, equipment sizing, and component selection, preparing students for practical applications in HVAC design and installation.

UTL 108 ADVANCED HVAC CONTROLS (4 CR)

This course provides an in-depth study of electrical systems used in commercial HVAC applications, focusing on advanced control systems, diagnostics, and troubleshooting. Students will learn to interpret wiring diagrams, analyze control sequences, and apply industry-standard troubleshooting techniques to resolve system malfunctions. Additionally, the course emphasizes the use of specialized tools for electrical diagnostics, testing, and repair in complex HVAC systems. Through hands-on lab work and real-world case studies, students will develop practical expertise in HVAC controls, automation, and energy management.

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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: WLD 100

WLD 115 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 hands-on experience with the use of GMAW and GTAW on aluminum and stainless steel. Prerequisite: WLD 110

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WORLD LANGUAGES (WRL)

WRL 104 MANDARIN CONVERSATION I (2 CR)
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.

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NONCREDIT COURSES

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.

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. The 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.