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Main Campus
1701 East Front Street
Traverse City, Michigan 49686
(231) 995-1000 or
(231) 995-1038 TDD
(Telecommunications Device for the Deaf)
Call toll-free (800) 748-0566
www.nmc.edu

Program Accreditations
• Accreditation Commission for Education in Nursing (https://www.acenursing.org/)
• American Culinary Federation (https://www.acfchefs.org/ACF/Education/Enrollment/Postsecondary/ACF/Education/Enrollment/Postsecondary/#MI)
• American Dental Association Commission on Dental Accreditation (https://www.ada.org/en/coda/find-a-program/search-dental-programs/#t=us&)
• Bureau of Automotive Regulation - State of Michigan
• Commission on Accreditation of Allied Health Education Programs as recommended by the Accreditation Review Council on Education in Surgical Technology and Surgical Assisting (http://www.arcstsa.org/)
• Electrical Apprenticeship Program with the State of Michigan (https://www.michigan.gov/lara/0,4601,7-154-10573_68301-328151--,00.html)
• Federal Aviation Administration (https://www.faa.gov/training_testing/schools/) / Federal Aviation Regulation Part 141 approved
• Great Lakes Maritime Academy approved by the United States Coast Guard as regulated and audited by the United States Maritime Administration
• Michigan Board of Nursing (https://www.michigan.gov/lara/0,4601,7-154-89334_72600_72603_27529_27542-182977--,00.html)
• Michigan Commission on Law Enforcement Standards (https://www.michigan.gov/mcoles/0,4607,7-229-41624_43157---,00.html)

Non-Discrimination Policy
Northwestern Michigan College does not discriminate in admission, campus activities, education, employment, housing, public accommodation or public service on the basis of age, color, creed, disability, handicap, height, marital or familial status, national origin, political affiliation, race, religion, sex, sexual orientation, service in the military, veteran’s status, weight, or any other legally protected status under federal, state, or local law. No act of retaliation shall occur to any person making a charge, filing a complaint, testifying or participating in any discrimination investigation or proceeding.

This catalog is in effect starting Fall Semester 2020 through Summer Semester 2021. The contents of this catalog are accurate at the time of publishing, March 2020. The NMC Board of Trustees reserves the right to make changes without notice.

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Mission
Northwestern Michigan College provides lifelong learning opportunities to our communities.

Institutional Accreditation
Accredited by the Higher Learning Commission and a member of the North Central Association.
230 S. LaSalle St., Suite 7-500
Chicago, IL 60604
(800) 621-7440
www.hlcommission.org (https://www.hlcommission.org/)
Welcome to NMC

Welcome Hawk Owls! We are excited to have you join our community of learners at Northwestern Michigan College!

At NMC, we are committed to improving the lives of people and strengthening the fabric of our region through the power of education. I feel privileged to be able to serve and be a steward of such an awesome, profound mission.

As a servant leader, my role is primarily to assist in the accomplishments and fulfillment of the hopes and expectations of others, especially you, our students. As a possibilitarian, I am dedicated to helping others to think and act beyond boundaries, and to achieve more than was originally imagined. Student success is our collective charge. Everything we do is designed to help you succeed! Whether you are coming to NMC to get the skills you need to advance your career, transfer to a 4-year college or university, or receive specialized training, our outstanding employees are here to help you achieve your goals.

NMC has many reasons to be proud, including awarding more than $1 million in scholarships each year, ranking #2 in the nation for our support of veterans, being top in the state for short-term study abroad, and offering several nationally recognized specialty programs. But most of all, we are proud of you. I look forward to helping you “Be What’s Possible” during your time at Northwestern Michigan College and beyond.

Nick Nissley, Ed. D.
President

Academic Calendar
2020-2021 Academic Calendar

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- Degree Requirements (p. 9)
- Course Learning Options (p. 11)
- Transfer Options (p. 12)

General Education

Philosophy

General Education at Northwestern Michigan College promotes the acquisition of knowledge, skills, and attitudes needed to function effectively in a changing world. This fosters intellectual curiosity, essential to lifelong learning.

Outcomes

To ensure students experience the benefits of our philosophy of general education, the faculty of NMC commits to instilling these practices throughout the curriculum.

Communication: Students will practice effective communication with an awareness of audience and sense of purpose.

Critical Thinking: Students will skillfully conceptualize, apply, analyze, synthesize, and evaluate information gathered from observation, experience, reflection, reasoning, or communication.

Quantitative Reasoning: Students will accurately use numbers, symbols, measurements, properties, and the relationships of quantities to make sound decisions, judgments, and/or predictions.

Assessment

General Education outcomes are measured in several ways:

- The Office of Research, Planning & Effectiveness aggregates institutional data so that faculty and departments can assess the level of achievement represented by the student work.
- Graduates are surveyed annually and are asked to provide their perceptions of achieving the General Education Outcomes.
- The faculty and teaching staff are charged with using the results of assessment to make curricular improvements.

Degrees & Certificates

NMC students may select from several educational options. Associate degrees, bachelor degrees, and certificates are awarded to those students who complete a prescribed set of courses in specific areas of study. Many programs, especially in occupational areas, also lead to additional career licenses or certifications. Maritime programs require four years of full-time study, including summer sessions, and result in a bachelor’s degree at NMC. Associate degree programs generally take two years of full-time study to complete. Certificate programs range 16-59 credits.

NMC offers the following degree and certificate options:

- Certificate of Achievement Programs
- Associate in Applied Science (AAS)
- Associate Degree in Nursing (ADN)
- Associate in General Studies (AGS)
- Associate in Science and Arts (ASA)
- Bachelor of Science (BS)

Earning a Second Associate Degree

Students may earn additional degrees at NMC. A minimum of 15 earned hours (credits) shall be earned from NMC in addition to the required credits for the previous degree.

Students seeking an additional associate degree shall be governed by the following stipulations:

- Students may earn only one Associate in Science and Arts degree
- Students may earn the Associate in General Studies degree only as their first associate degree with the exception of students who are enrolled in the AGS/Pre-ADN, AGS/Pre-PN, AGS/Pre-Dental or AGS/Pre-Surgical Tech program
- Program requirements for the additional degree will be based on the catalog that is in effect when the student officially switches to the new program
- Previous credits will be evaluated by the Records Office for transfer to the additional degree as applicable
- This policy does not apply to certificates

Reverse Transfer

A transfer student may complete an associate’s degree concurrent with his or her pursuit of a bachelor’s degree. This process is called reverse transfer. It enables NMC students who transfer to a four-year institution before completing an associate’s degree to use coursework and credits earned at the transfer school to fulfill degree requirements at NMC.

Students enrolled at one of NMC’s Reverse Transfer partners should submit the appropriate Reverse Transfer Release form to the partner school’s Office of the Registrar. Students enrolled at non-partner schools may also reverse transfer credits. To begin the process, submit a transcript from the four-year institution to NMC. After review, NMC will
inform students of their successful degree completion, or whether they have unsatisfied degree requirements remaining.

For more information, go to www.nmc.edu/student-services/records-registration/reverse-transfer.html (http://www.nmc.edu/student-services/records-registration/reverse-transfer.html)

Cultural Perspective/Diversity
Students will evaluate connections between worldviews, power structures, and experiences of multiple cultures historically or in contemporary contexts.

In order for NMC graduates to engage as educated and informed citizens of a diverse society, students pursuing the ASA, AGS, and BS degrees are required to take one Cultural Perspective/Diversity course.

Certificate Requirements
Certificate Programs typically include specialty courses and may include some general education requirements. In most cases, they are designed for concentrated proficiency in specialized areas. Certificates may range from 16 to 59 credit hours as established by individual program areas and/or the Curriculum Committee. Many certificate courses may apply toward an associate degree.

Certificate Program requirements include:

1. A specified group of credit hours in an area of specialization, as determined by the appropriate NMC academic area. These three levels are possible:
   • Level I: A minimum of 16 credits in a specialty area;
   • Level II: A minimum of 30 credits in a specialty area;
   • Level III: A minimum of 45 credits in a specialty area.
2. A minimum cumulative grade point average of 2.0. Higher GPA standards may be required for specific courses within individual academic areas.
3. Level I and II certificate programs require that a minimum of eight credit hours be completed at NMC (this may be waived in extenuating circumstances; contact the registrar). Level III certificate programs require that a minimum of 12 credit hours be completed at NMC (this may be waived in extenuating circumstances; contact the registrar).
4. Competency testing by the responsible academic area if the course work was not completed at NMC.

*Competency credit: Students with competency in a specific area should consult with their program coordinator for possible testing and/or credit.

Certificate programs are listed in the Occupational Programs section of this catalog.

Group 1 Courses
Excess credits may be applied toward Group 2 requirements.

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<thead>
<tr>
<th>Course</th>
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<td>History of Western Art I</td>
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<td>ART 112</td>
<td>History of Western Art II</td>
<td>4</td>
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<tr>
<td>ART 213</td>
<td>Modern Art History</td>
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<td>HST 101</td>
<td>Western Civilization to 1500AD</td>
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<td>HST 102</td>
<td>Western Civilization from 1500</td>
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<td>U S History to 1865</td>
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<td>HST 112</td>
<td>U S History Since 1865</td>
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<td>Native American History</td>
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<td>African-American History</td>
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<td>HST 213</td>
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<td>HST 225</td>
<td>American Civil War</td>
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<td>HST 228</td>
<td>The Vietnam War</td>
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<td>A History of Michigan</td>
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<td>20th Century Europe</td>
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<td>HUM 101</td>
<td>Introduction to Humanities</td>
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<td>HUM 102</td>
<td>Introduction to Humanities</td>
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<td>HUM 116</td>
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<td>ENG 241</td>
<td>World Mythology</td>
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<td>ENG 242</td>
<td>Introduction to Women Writers</td>
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<tr>
<td>ENG 246</td>
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<tr>
<td>ENG 254</td>
<td>Shakespeare</td>
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<td>ENG 256</td>
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<td>ENG 262</td>
<td>American Literature</td>
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<td>ENG 263</td>
<td>World Literature</td>
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<tr>
<td>ENG 265</td>
<td>Science Fiction and Fantasy</td>
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<td>ENG 266</td>
<td>Popular Culture</td>
<td>3</td>
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<tr>
<td>ENG 267</td>
<td>Film as Literature</td>
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</table>

Group 1 & 2 Courses
Group 1 General Education courses are designed to enhance skills and knowledge for students to succeed in academic, career and life goals. Students pursuing a two-year degree will need to fulfill specific general education requirements by selecting courses from Group 1 based on the degree requirements listed on the following pages. The Group 1 courses are listed below.

Group 2 courses are all remaining 100-level courses or above, which may fulfill occupational specialty program requirements, major area requirements, and elective requirements for degree and certificate programs.

1 Cultural Perspective/Diversity
One Cultural Perspective/Diversity course is required for the ASA, AGS, and BS degrees. To meet this requirement, choose any of these courses or a 100-level French, German, or Spanish course.
**Group 1 & 2 Courses**

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<tr>
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<td>MUS 110</td>
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<td>MUS 111</td>
<td>Music Appreciation Jazz</td>
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<td>MUS 129</td>
<td>History of Rock and Roll</td>
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<td>MUS 201</td>
<td>Theory of Music</td>
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<tr>
<td>MUS 202</td>
<td>Theory of Music</td>
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<td>Introduction to Philosophy</td>
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<tr>
<td>PHL 105</td>
<td>Critical Thinking</td>
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<td>PHL 121</td>
<td>Western Religions</td>
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<td>PHL 122</td>
<td>Eastern Religions</td>
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<tr>
<td>PHL 201</td>
<td>Ethics</td>
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<td>PHL 202</td>
<td>Contemporary Ethical Dilemmas</td>
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<td>PHL 203</td>
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<td><strong>World Language (Intermediate Level) Dept.</strong></td>
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<td>FRN 201</td>
<td>Intermediate French I</td>
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<td>FRN 202</td>
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<td>GRM 201</td>
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<tr>
<td>SPN 227A</td>
<td>Spanish for Environmental Mgmt</td>
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**Note:** Not all four-year schools will accept second year World Language courses as Humanities Distribution credits.

### Mathematics

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<td>College Algebra</td>
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<tr>
<td>MTH 122</td>
<td>Trigonometry</td>
<td>3</td>
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<tr>
<td>MTH 131</td>
<td>Intro to Prob &amp; Stats</td>
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<tr>
<td>MTH 141</td>
<td>Calculus I</td>
<td>5</td>
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<td>MTH 142</td>
<td>Calculus II</td>
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<td>MTH 241</td>
<td>Calculus III</td>
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<td>Differential Equations</td>
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### Natural Science

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<tr>
<td>AST 109</td>
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<td>AST 119</td>
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<td>and Astronomy Lab</td>
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<tr>
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<td>and Human Biology Lab</td>
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<td>BIO 108</td>
<td>Plant Biology</td>
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<td>&amp; 108L</td>
<td>and Plant Biology Lab</td>
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<td>BIO 110</td>
<td>Essential Biology</td>
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<td>&amp; 110L</td>
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<td>BIO 115</td>
<td>Cell, Plant &amp; Ecosystem Biology</td>
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<td>&amp; 115L</td>
<td>and Cell, Plant, Ecosystem Bio Lab</td>
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<td>BIO 116</td>
<td>Genetic, Evolution, Animal Bio</td>
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<td>&amp; 116L</td>
<td>and Genetic, Evolu, Animal Bio Lab</td>
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<td>BIO 208</td>
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<td>Human Anatomy &amp; Physiology I</td>
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<td>&amp; 150R</td>
<td>and General Chemistry I, Recitaton</td>
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<td>&amp; 151R</td>
<td>and General Chemistry II Recitaton</td>
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<td>ENV 103</td>
<td>Earth Science</td>
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<td>ENV 131</td>
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<td>ENV 140</td>
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<td>ENV 270A</td>
<td>Michigan Basin Geology (lab only)</td>
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<td>ENV 270B</td>
<td>Field Mapping Techniques (lab only)</td>
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<td>ENV 270C</td>
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<td>PHY 105</td>
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<td>Problems &amp; Princ.of Physics I</td>
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### Social Science

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<td>ANT 113</td>
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<td>ECO 201</td>
<td>Principles of Macroeconomics</td>
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<td>GEO 105</td>
<td>Physical Geography</td>
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<td>and Physical Geography Lab</td>
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<td>GEO 108</td>
<td>Geography of U.S. &amp; Canada</td>
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<td>GEO 109</td>
<td>World Regional Geography</td>
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<tr>
<td>PLS 132</td>
<td>Comparative Politics</td>
<td>3</td>
</tr>
<tr>
<td>PLS 211</td>
<td>International Relations</td>
<td>3</td>
</tr>
<tr>
<td>PLS 222</td>
<td>Intro to Political Theory</td>
<td>3</td>
</tr>
<tr>
<td>PLS 233</td>
<td>U.S. Foreign Policy</td>
<td>3</td>
</tr>
<tr>
<td><strong>Psychology Dept.</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PSY 101</td>
<td>Introduction to Psychology</td>
<td>3</td>
</tr>
<tr>
<td>PSY 211</td>
<td>Developmental Psychology</td>
<td>3</td>
</tr>
<tr>
<td>PSY 221</td>
<td>Psychology of Personality</td>
<td>3</td>
</tr>
<tr>
<td>PSY 223</td>
<td>Intro to Social Psychology</td>
<td>3</td>
</tr>
<tr>
<td>PSY 225</td>
<td>Human Sexuality</td>
<td>3</td>
</tr>
<tr>
<td>PSY 231</td>
<td>Psychology of Adjustment</td>
<td>3</td>
</tr>
<tr>
<td>PSY 250</td>
<td>Abnormal Psychology</td>
<td>3</td>
</tr>
<tr>
<td><strong>Sociology Dept.</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SOC 101</td>
<td>Introduction to Sociology</td>
<td>3</td>
</tr>
<tr>
<td>SOC 201</td>
<td>Modern Social Problems</td>
<td>3</td>
</tr>
<tr>
<td>SOC 211</td>
<td>Marriage and the Family</td>
<td>3</td>
</tr>
<tr>
<td>SOC 220</td>
<td>Gender and Society</td>
<td>3</td>
</tr>
<tr>
<td>SOC 231</td>
<td>Deviance and Criminal Behavior</td>
<td>3</td>
</tr>
</tbody>
</table>

### Group 2 Courses

All 100-level or higher courses not listed in the Group 1 section are Group 2 courses.

### Degree Requirements

- Associate in Science & Arts Degree (ASA) (p. 9)
- Associate in General Studies Degree (AGS) (p. 10)
- Associate in Applied Science Degree (AAS) (p. 10)
- Associate Degree in Nursing (ADN) (p. 11)
- Bachelor of Science (BS) (p. 11)

### Associate in Science & Arts Degree (ASA)

The Associate in Science and Arts degree is generally pursued by students who are planning to transfer to a four-year college or university to complete a baccalaureate degree. Students who want to explore the curriculum also frequently pursue the ASA degree.

### General Education Requirements

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENG 111</td>
<td>English Composition</td>
<td>4</td>
</tr>
<tr>
<td>ENG 112</td>
<td>English Composition</td>
<td>4</td>
</tr>
<tr>
<td><strong>Humanities</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Two Group 1 classes from different departments: art, history, humanities, literature, music, philosophy, second-year foreign language</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Mathematics</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>One Group 1 mathematics class</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td><strong>Science</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Two Group 1 classes from different departments: astronomy, biology, chemistry, environmental science, physics. One class must include a lecture/lab</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Electives</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A combination of credits from Group 1 or Group 2 to equal the minimum earned credits for the degree.</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td><strong>Total Credits</strong></td>
<td></td>
<td>60</td>
</tr>
<tr>
<td>1 MTH 120 Mathematical Explorations or higher</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Degree Credits: Minimum of 60 earned semester credits

Group 1 and 2 courses (p. 7)

Completing the General Education Requirements of 30 credits will qualify for the Michigan Transfer Agreement (MTA).

### Other Requirements

- Complete a minimum of 60 credit hours with a 2.0 or higher cumulative grade point average.
- Complete one course designated as Cultural Perspective/Diversity.
- Complete a minimum 15 of the 60 credits through NMC classes.

### Notes

- A maximum of two physical education credits, two professional development seminar credits, and four Academic Service Learning Internship credits may be used toward a degree.
- Courses with numbers below 100 level do not count toward graduation, but the grades do count toward your cumulative GPA. They may be prerequisites for other courses needed to complete degree or certificate requirements and may add to the total number of credits taken. Review course prerequisites carefully.
• For elective courses to count toward graduation, a course must be completed with a grade of 1.0 or higher.

• To receive the MTA with the ASA, a minimum grade of 2.0 is required for all General Education Requirements.

Associate in General Studies Degree (AGS)

The Associate in General Studies Degree is designed for students interested in obtaining a degree that can be customized based on varying areas of interest.

Note: This degree is not designed to meet the needs of the transfer student. Consult an advisor to discuss your educational goals and determine if this degree is right for you.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENG 111</td>
<td>English Composition</td>
<td>4</td>
</tr>
<tr>
<td>Select one of the following:</td>
<td>3-4</td>
<td></td>
</tr>
<tr>
<td>BUS 231</td>
<td>Professional Communications</td>
<td></td>
</tr>
<tr>
<td>ENG 112</td>
<td>English Composition</td>
<td></td>
</tr>
<tr>
<td>ENG 220</td>
<td>Technical Writing</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Humanities</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Group 1 Humanities course.</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Science</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Group 1 Science lecture/lab course.</td>
<td>3-4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Social Science</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Group 1 Social Science course.</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Electives</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Additional credit courses in the college curriculum for a combined total of no less than 60 earned semester hours.</td>
<td>44</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Math Competency Required</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Math Competency may be fulfilled in one of two ways:</td>
<td></td>
</tr>
<tr>
<td>• Placement scores into MTH 111 Intermediate Algebra or higher, or</td>
<td></td>
</tr>
<tr>
<td>• Successful completion of MTH 23 Beginning Algebra with a grade of 2.0 or higher.</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits: 60-62

Math Competency Required

1 Math Competency may be fulfilled in one of two ways:
   • Placement scores into MTH 111 Intermediate Algebra or higher, or
   • Successful completion of MTH 23 Beginning Algebra with a grade of 2.0 or higher.

Total Degree Credits: Minimum of 60

Group 1 and 2 courses (p. 7)

Other Requirements

• Complete at least 60 credit hours with a 2.0 or higher cumulative grade point average.

• Complete one course designated as Cultural Perspective/Diversity.

• Complete a minimum of 15 of the 60 credits through NMC classes.

Notes

• A maximum of two physical education credits, two professional development seminar credits, and four Academic Service Learning Internship credits may be used toward a degree.

• Courses with numbers below 100 level do not count toward graduation, but the grades do count toward your cumulative GPA. They may be prerequisites for other courses needed to complete degree or certificate requirements and may add to the total number of credits taken. Review course prerequisites carefully.

• To count toward graduation, a course must be completed with a grade of 1.0 or higher, unless otherwise stated.

Associate in Applied Science Degree (AAS)

The Associate in Applied Science degree is generally pursued by those students who plan to enter the workforce following graduation from NMC. A career specialty emphasis is the dominant characteristic of the Applied Science Degree. Although some students pursuing the AAS degree may transfer to a four-year college or university to pursue a baccalaureate degree, many AAS courses are not granted transfer equivalency credit at Michigan universities. Students considering the AAS degree who may wish to transfer should see an advisor.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENG 111</td>
<td>English Composition</td>
<td>4</td>
</tr>
<tr>
<td>Select one of the following:</td>
<td>3-4</td>
<td></td>
</tr>
<tr>
<td>BUS 231</td>
<td>Professional Communications</td>
<td></td>
</tr>
<tr>
<td>ENG 112</td>
<td>English Composition</td>
<td></td>
</tr>
<tr>
<td>ENG 220</td>
<td>Technical Writing</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Humanities</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Group 1 Humanities course.</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Science</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Group 1 Science lecture/lab course.</td>
<td>3-4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Social Science</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Group 1 Social Science course.</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Electives</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Additional credit courses in the college curriculum for a combined total of no less than 60 earned semester hours.</td>
<td>44</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Major Area Requirements</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>44 or more earned occupational specialty semester credits.</td>
<td>44</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Math Competency Required</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Math Competency may be fulfilled in one of two ways:</td>
<td></td>
</tr>
<tr>
<td>• Placement scores into MTH 111 Intermediate Algebra or higher, or</td>
<td></td>
</tr>
<tr>
<td>• Successful completion of MTH 23 Beginning Algebra with a grade of 2.0 or higher.</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits: Minimum of 60

Group 1 and 2 Courses

Other Requirements

• Complete at least 60 credit hours with a 2.0 or higher cumulative grade point average.

• Complete a minimum of 15 of the 60 credits through NMC classes.

Notes

• A maximum of two physical education credits, two professional development seminar credits, and four Academic Service Learning Internship credits may be used toward a degree.

• Courses with numbers below 100 level do not count toward graduation, but the grades do count toward your cumulative GPA.
They may be prerequisites for other courses needed to complete degree or certificate requirements and may add to the total number of credits taken. Review course prerequisites carefully.

• To count toward graduation, a course must be completed with a grade of 1.0 or higher, unless otherwise stated.

### Associate Degree in Nursing (ADN)

The Associate Degree in Nursing program is generally pursued by those students who plan to enter the nursing workforce following graduation. After successful completion of this program, graduates take the National Council Licensure Examination (NCLEX-RN). With passing scores, graduates are awarded licensure as a Registered Nurse.

Some students pursuing the ADN degree may decide to transfer to a four-year college or university to pursue a baccalaureate degree. Students considering the ADN degree who may wish to transfer should see an advisor.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENG 111</td>
<td>English Composition</td>
<td>4</td>
</tr>
<tr>
<td>ENG 112</td>
<td>English Composition</td>
<td>4</td>
</tr>
<tr>
<td>Group 1 Humanities course.</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>BIO 227</td>
<td>Human Anatomy &amp; Physiology I</td>
<td>4</td>
</tr>
<tr>
<td>BIO 228</td>
<td>Human Anatomy &amp; Physiology II</td>
<td>4</td>
</tr>
<tr>
<td>PSY 101</td>
<td>Introduction to Psychology</td>
<td>3</td>
</tr>
<tr>
<td>Semester credit hours in HNR and HAH courses</td>
<td></td>
<td>44</td>
</tr>
</tbody>
</table>

**Major Area Requirements**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENG 111</td>
<td>English Composition</td>
<td>4</td>
</tr>
<tr>
<td>ENG 112</td>
<td>English Composition</td>
<td>4</td>
</tr>
<tr>
<td>ENG 220</td>
<td>Technical Writing</td>
<td>3</td>
</tr>
<tr>
<td>Group 1 Humanities course.</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Group 1 Science lecture/lab course.</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Group 1 Social Science course.</td>
<td></td>
<td>3</td>
</tr>
</tbody>
</table>

**Math Competency Required**

As listed in the Associate Degree in Nursing Program requirements.

1 Math Competency may be fulfilled in one of two ways:
   • Placement scores into MTH 121 College Algebra or higher, or
   • Successful completion of MTH 111 Intermediate Algebra with a grade of 2.0 or higher. If required, completion of MTH 111 Intermediate Algebra will add 4 additional credits/contacts to the program.

Total Degree Credits: Minimum of 64-70

### Other Requirements

- Complete a minimum of 64 credit hours with a cumulative grade point average of 2.0.
- Complete each nursing course at 2.5 or higher.
- Complete a minimum of 16 degree credits through NMC classes.

### Notes

- A maximum of two physical education credits, two professional development seminar credits, and four Academic Service Learning Internship credits may be used toward a degree.
- Courses with numbers below 100 level do not count toward graduation, but the grades do count toward your cumulative GPA. They may be prerequisites for other courses needed to complete degree or certificate requirements and may add to the total number of credits taken. Review course prerequisites carefully.

- To count toward graduation, a course must be completed with a grade of 1.0 or higher, unless otherwise stated.

- Grades of 2.0 or higher are required for ENG 111 English Composition and PSY 101 Introduction to Psychology. Grades of 2.5 or higher are required for each of the courses in the Anatomy and Physiology sequence (BIO 227 Human Anatomy & Physiology I, BIO 228 Human Anatomy & Physiology II).

### Bachelor of Science (BS)

The Bachelor of Science (BS) is for students whose goal is to pursue a select professional field of study at the baccalaureate level. The program requirements for Maritime Deck Officer, Maritime Engineering Officer, Maritime Power System and Marine Technology vary and are listed on their program specific pages.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum 24-35 Group 1 credits with at least a 2.0 grade for each course</td>
<td></td>
<td>24-35</td>
</tr>
<tr>
<td>ENG 111</td>
<td>English Composition</td>
<td>4</td>
</tr>
<tr>
<td>Select one of the following:</td>
<td></td>
<td>3-4</td>
</tr>
<tr>
<td>ENG 112</td>
<td>English Composition</td>
<td></td>
</tr>
<tr>
<td>ENG 220</td>
<td>Technical Writing</td>
<td></td>
</tr>
<tr>
<td>Group 1 Humanities course.</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Group 1 Science lecture/lab course.</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>Group 1 Social Science course.</td>
<td></td>
<td>3</td>
</tr>
</tbody>
</table>

**Math Competency Required**

As listed in the Associate Degree in Nursing Program requirements.

1 Program of Study will specify.

1 Math Competency may be fulfilled in one of two ways:
   • Placement scores into MTH 121 College Algebra, or higher, or
   • Successful completion of MTH 111 Intermediate Algebra with a grade of 2.0 or higher.

Total Degree Credits: Minimum of 120

### Other Requirements

- Complete a minimum of 120 credit hours with a minimum grade of 2.0 or higher in all required courses.
- Complete one course designated as Cultural Perspective/Diversity, see program of study requirements.
- Complete a minimum 30 of the 120 credits through NMC courses.

### Course Learning Options

**Work-Based Learning**

NMC provides various work-based learning options.
Internships
Internship opportunities are offered for students who wish to integrate academics with professional work experience. Students can earn college credit while working in positions related to their academic and career goals. Contact the Office Manager in the academic area where you would like to pursue your internship.

Service Learning
(For credit or non-credit)
Service Learning is an initiative to instill a sense of civic responsibility in students. It's volunteerism with a learning twist, centered on the benefits students receive while providing services to their community and/or college. It is an opportunity for students to explore career or interest areas, apply classroom theory to a real situation, and gain practical experience for resume building. Up to four service learning elective credits can be applied to graduation. Students may also do non-credit volunteering using the same process. Information: (231) 995-2524.

International Services
www.nmc.edu/international-services (https://www.nmc.edu/international-services/)
(231) 995-2524
Seeking to prepare students with a foundation to create a broader understanding of the world in which we live, International Services includes:

Global Endorsement
NMC offers a Global Endorsement on the college transcript for students who have acquired a minimum of 100 Global Endorsement points prior to graduation. Depending on one's degree, points may be earned in a variety of ways, but must be made up of a minimum number in each of the three following categories: academic coursework, on- and off-campus global experiences, and international events. Visit the International Services web page for complete details on the requirements needed to complete the endorsement. For a list of qualifying courses please visit www.nmc.edu/international-services/ (http://www.nmc.edu/international-services/).

Study Abroad
NMC offers short-term opportunities to multiple destinations affiliated with various academic programs. Check online for current opportunities.

Global Events on Campus
International Affairs Forum lectures, Dennos Museum Center concerts and exhibits and more. Current events are posted online.

Michigan Transfer Agreement (MTA)
In an effort to improve the transferability of college courses between Michigan public community colleges and universities, MTA took effect beginning the fall of 2014. Students who began prior to fall of 2014 will be able to complete the existing MACRAO agreement until the end of summer 2019. If a student already has the MACRAO agreement stamp on their transcript it is expected that the receiving institution will still honor it.

To fulfill the Michigan Transfer Agreement (MTA) students must successfully complete at least 30 Group 1 semester credit hours. Students must earn a grade of 2.0 or higher in each MTA course in order for it to count toward the minimum MTA requirements. Credits are distributed as follows:

- English Composition: Two courses - 6 credits.
- Humanities: Two Group 1 courses - 6 credits taken from two different departments excluding studio and performance classes.
- Mathematics: One Group 1 course – 3 credits – MTH 120 Mathematical Explorations or higher.
- Natural Sciences: Two Group 1 courses - 6 credits from two different departments. One course must include a lecture/lab.
- Social Sciences: Two Group 1 courses - 6 credits from two different departments.

Students are required to complete at least one for-credit course at NMC before requesting the MTA Satisfied endorsement. It must be a college level course but need not be from the areas represented in the MTA. When students have completed the MTA requirements, they should notify the NMC Records Office so their transcripts will be noted “MTA SATISFIED.” Students are not required to complete an associate degree in order to satisfy the MTA.

Some students select a course of study that requires a four-year degree of which two years may be completed at NMC through completion of the Associate in Science and Arts degree (ASA). Students completing the ASA will also complete the MTA. Visit www.nmc.edu/student-services/records-registration/policies/michigan-transfer-agreement.html (http://www.nmc.edu/student-services/records-registration/policies/michigan-transfer-agreement.html) for additional information.

Transfer Options

Accounting
NMC Code 733
The Accounting Program contains a blend of specialized classes and liberal arts studies to prepare students for today’s competitive, complex, and changing business world. Students who plan to pursue a bachelor’s degree should refer to NMC's degree requirements for the Associate in Science and Arts degree (ASA). Students who plan to pursue a bachelor’s degree should refer to NMC's degree requirements for the Associate in Science and Arts degree (ASA). Also, transfer students should familiarize themselves with the requirements of the school where they plan to complete their bachelor’s degree. Students interested in a bachelor’s degree may also elect to stay in Traverse City and transfer to the University Center.

Anthropology
Anthropology is the study of humanity. Archaeology is the study of the material humans leave behind. Students planning to pursue degrees in anthropology or archaeology at four-year colleges or universities should take these courses. Introduction to Cultural Anthropology (ANT 113 Intro to Cultural Anthropology) is a required course for many areas of study.

NMC offers specialty courses in Nautical and Underwater Archaeology that may not be found at larger institutions. The Nautical Archaeology Society courses that are taught at NMC offer an internationally recognized certificate in nautical archaeology. This area of study can include field-work and research activities in northwestern Michigan, as well as application of advanced technologies. Students planning careers in the following field may find these courses useful: offshore oil and gas industry, underwater search and recovery (such as police divers), maritime and naval, university research, homeland security, commercial surveying, remote sensing (applied water-related technologies), cultural
heritage development and management. Contact Mark Holley for more information at mholley@nmc.edu. See course descriptions (p. 190) beginning with ANT.

**Art/Fine Arts**  
*NMC Code 711*

The Fine Arts and Visual Communications courses are designed for students who plan to transfer to a four-year college or university for a Bachelor’s or Master’s degree in Fine Arts (BFA or MFA). Careers for students specializing in Fine Arts include education, museum/gallery management, commercial illustration, animation and character development, film and graphic arts.

Students specializing in Fine Arts while completing an Associate in Science and Arts degree at NMC will pursue a program of study which includes Drawing, 2-D Design and 3-D Design while offering tracks in Fine Studio Arts and Ceramics, Illustration, Photo, Animation/Character Design, Photography, Visual Communications, Painting and Art History. Students are urged to discuss course selection early with transfer schools since portfolio requirements for admission vary.

**Astronomy**  
*NMC Code 717*

NMC offers courses that focus on Observational, Planetary, and Stellar Astronomy. Students planning on transferring to pursue a bachelor’s degree in this area should also take coursework in Mathematics and Physics. See course descriptions (p. 190).

**Biology**  
*NMC Code 702*

Individuals planning to pursue a bachelor’s degree in Biology should select from courses beginning with BIO. In addition, students should select courses in Math, Chemistry and Physics. See course descriptions (p. 190).

**Business Administration**  
*NMC Code 734*

Students planning to pursue a four-year degree in Business Administration should follow NMC’s degree requirements for the ASA and familiarize themselves with the requirements of the school of choice for their bachelor’s degree.

**Chemistry**  
*NMC Code 727*

Students planning to pursue a bachelor’s degree in Chemistry will choose coursework that includes credits selected from courses beginning with CHM. See course descriptions (p. 190). In addition to taking Chemistry courses, students with an emphasis in Chemistry gain a solid background in Math and Physics.

**Communications**  
*NMC Code 704*

Communications as a separate field of study may include a variety of careers and specialties, ranging from media and public relations to technical writing. It is also an important component of other programs of study or careers, including computer science, human services, health occupations and art therapy.

**Criminal Justice**  
*NMC Code 706*

Students can complete an Associate in Science and Arts degree from Northwestern Michigan College (NMC) with a focus in Criminal Justice. Students will take 24 credits in criminal justice related courses and gain career opportunities at the local, state and national level in criminal justice; the profession is turning to college educated personnel. It is recommended that students wishing to transfer to a four-year college review the transfer guides for the college of choice since transfer requirements might differ between institutions.

NMC and Ferris State University (FSU) have partnered to offer the Bachelor of Science degree in Criminal Justice where students complete 85 credits at NMC and 35 credits at FSU, which can be completed at the University Center in Traverse City.

NMC also offers a Criminal Justice program in collaboration with other colleges through the Michigan Colleges Online. Visit www.nmc.edu/online (http://www.nmc.edu/online/) for current information on the status of this program, the courses, program requirements, or articulation agreements.

**Dance**  
*NMC Code 707*

Students wishing to pursue an interest in the field of dance should take courses beginning with DNC and consult with an advisor and the dance faculty member before their first semester at NMC. See course descriptions (p. 190).

**Early Childhood Education**  
*NMC Code 722*

Early Childhood Education courses are designed to prepare students to work with children and their families in early care and education settings. Students may seek a career as the director of a child care program, a paraprofessional/teacher’s aide in the school system, a lead teacher in a daycare/preschool setting, a daycare teacher’s aide, or preparing for a bachelor’s degree in Early Childhood Education. If you are pursuing elementary education, please consult the Elementary Education transfer guide from the transfer school or see an advisor.

**Economics**  
*NMC Code 732*

The most basic and enduring strength of economics is that it provides a logical and orderly way of analyzing contemporary economic issues. It draws upon geography, history, philosophy, and mathematics to address topics ranging from how an individual, household or firm, can make rational decisions regarding spending, saving, investment and profits to how a society can make optimal decisions regarding economic growth, inflation, unemployment, trade, and environment. As a result, economics is widely recognized as a solid background for many jobs and professions in the private and public sectors. Students interested in this field of study will select courses beginning with ECO. See course descriptions (p. 190).
Education  
**NMC Code 708**

NMC offers two introductory courses related to the field of elementary and secondary education. The Introduction to Teaching course serves as a primer to teaching as a career, and the Educating the Exceptional Child course is designed to address the complexity of understanding and teaching the exceptional child (one with special needs, disabilities and differing abilities including the gifted and talented). Both courses prepare students for further study in education at transfer institutions. Transfer requirements may vary. Go to www.nmc.edu/advising (http://www.nmc.edu/advising/) to view NMC transfer guides.

Engineering  
The NMC engineering curriculum parallels engineering programs offered during the first two years at other colleges and universities. Traditionally, these first two years emphasize the tools and theories that provide background for all engineering fields.

Engineering Certificate  
**NMC Code 079**

Completion of the certificate program requirements will prepare most students for transfer to a four-year engineering program. Students are required to meet with an advisor for completion of this certificate.

Engineering ASA  
**NMC Code 709**

General Education Credits as required for ASA 30-32  
Plus completion of Engineering certificate requirements

English  
**NMC Code 710**

Students wishing to concentrate their studies in the field of English may be preparing for careers in writing or teaching. English is also crucial to many other careers since writing and reading are high-demand skills in most professions. Students planning to transfer to complete a bachelor’s degree in English should pursue an Associate in Science and Arts degree program that includes credits selected from among the courses beginning with ENG. See course descriptions (p. 190).

Environmental Science  
**NMC Code 717**

The study of Environmental Science includes courses in Geology, Biology, Meteorology, Chemistry, Soils, Oceanography and Watershed Science. Students planning on transferring to pursue a bachelor’s degree in any of these areas will choose a program of study which includes courses selected from those beginning with ENV. See course descriptions (p. 190). Students are encouraged to contact a faculty member in the Science department to learn more about employment opportunities and for assistance with class scheduling.

Freshwater Studies  
**NMC Code 590**

Students planning to transfer to complete a bachelor’s degree in Freshwater Studies should follow NMC’s ASA degree requirements.

Geography  
**NMC Code 726**

NMC offers coursework in Physical Geography and Introduction to Geography. Regional courses are also offered that focus on the United States and Canada and the world. In addition, a tools course concentrating on Geographic Information Systems (GIS) is offered. Students planning on pursuing a rewarding career in Geography are encouraged to meet with the Geography Department Head for help in course selection. See course descriptions (p. 190) for GEO courses.

History  
**NMC Code 730**

As a separate field of study within the humanities, history will prepare students to enter secondary education, journalism, the archival and museum professions, and a variety of public history positions upon completion of at least a bachelor’s degree. It will also prepare students for entering professional and graduate schools in law and in fields that will enable graduates to teach and do research in institutions of higher learning.

Liberal Arts/Science  
**NMC Code 712**

Students interested in transferring to pursue a bachelor’s degree should enroll in the General Liberal Arts/Science area of study if they are undecided. Students planning on pursuing this avenue will select at least 30 credits of Group 1 courses.

Mathematics  
**NMC Code 715**

Students planning on transferring to complete a bachelor’s degree in Mathematics will pursue coursework that includes Calculus I, Calculus II, Calculus III, and Differential Equations. Other suggested courses could include Problems & Princ. of Physics I and Problems & Princ. of Physics II.

Music  
**NMC Code 716**

Professional opportunities for a skilled musician are endless in that music, in some way, touches our lives every day in many ways. The study of music offers a vast variety of career options including: music education, instrumental music, vocal performance, conducting, composing, music for worship, music business, instrument making and repair, music publishing, music communications, recording industry, an in the TV and radio industry.
NMC offers students the opportunity to complete the first two years of music-major coursework in a creative and supportive environment. Students receive individualized instruction from our dynamic faculty in classes designed for students’ success. Standard music-major coursework includes: Music Theory, Sight Singing and Ear Training, Group Piano Instruction, Applied Instruction (private lessons), and participation in NMC Music Ensembles. Upon successful completion of the two-year program, students will have earned an Associate in Science and the Arts degree that is transferable to most four-year institutions of higher learning.

NMC also offers many opportunities for those students pursuing non-music degree paths, but interested in continuing their participation in a music program. Any NMC student (music-major or not) may enroll for Applied Instruction and may participate in any of our NMC Music Ensembles: NMC Chamber Singers, NMC Grand Traverse Chorale, NMC Concert Band, NMC Jazz Ensemble, and the NMC Vocal Jazz Ensemble. Other opportunities (chamber groups, percussion ensembles, jazz combos, etc.) are also available for interested NMC students.

**Philosophy and Religion**  
*NMC Code 729*

Careers in the fields of philosophy and religion include college teaching and research, secondary education, as well as positions as ministers, priests, or rabbis. Other potential careers for those who specialize in religion are pastoral administration, religious education, church office management, and church mission work. The fields of clinical medicine and medical research as well as commercial business fields like accounting are employing ethicists, a specialized branch of philosophy.

Students planning to transfer to a four-year college or university to major in philosophy or religion may complete basic coursework while at NMC. That coursework will include credits selected from those courses that begin with PHL. See course descriptions (p. 190).

**Physics**  
*NMC Code 717*

Students planning to transfer to complete a bachelor’s degree in physics will pursue coursework, which includes PHY 221 Problems & Princ.of Physics I & PHY 222 Prob. & Princ. of Physics II, with Calculus I, II, & III, Differential Equations, and General Chemistry I & II.

**Plant Science, Applied**  
*NMC Code 581*  
*Landscape Management NMC Code 582*  
*Viticulture NMC Code 580*

Students planning to transfer to complete a four-year degree in Horticulture should follow a general education curriculum with courses in science, including Chemistry and Biology. In addition, students may take technical courses in soils, plants and plant diseases from Michigan State University, and can do so here at NMC.

**Political Science**  
*NMC Code 725*

Political science as a field includes the study of American politics, comparative politics, international relations, political theory, and political economy. Undergraduate courses in political science are an important component of any liberal arts education as students gain important knowledge concerning the political structures that shape our world. Courses in political science are especially useful for students pursuing careers or advanced degrees in public policy, law, business, economics, social work, education, history, and, of course, politics. Bachelor’s and graduate degrees in political science and public policy offer career opportunities in a variety of areas such as education, policy research, law, and international business. Students interested in political science courses select courses that begin with PLS. See course descriptions (p. 190).

**Pre-Law**  
*NMC Code 718*

Pre-Law is a major often selected by students interested in pursuing careers in government or law.

**Pre-Med, Pre-Dental, Pre-Vet**  
*NMC Code 713*

The Pre-Professional program prepares the student for continuing study in a number of medical professional fields, including Pre-PA, Pre-Vet, Pre-Dental, and Pre-Med. While there is no Pre-Professional degree, students interested in the medical profession will typically major in Biology, Chemistry or Psychology.

**Psychology**  
*NMC Code 724*

Students interested in the following fields of psychology, such as counseling, social work, research or teaching, may select from courses such as Introduction to Psychology, Introduction to Social Psychology, Developmental Psychology, Human Sexuality, Abnormal Psychology, Psychology of Personality and Psychology of Adjustment.

**Social Work**  
*NMC Code 723*

The social work courses are designed to transfer to other four-year schools with certified social work programs. It is specifically designed to fit into the Ferris State University Social Work Program at the University Center in Traverse City and on the Ferris main campus in Big Rapids. When choosing this program of study, it is highly recommended to meet with the social work coordinator; call (231) 995-1294. This will assist you in building a program that will transfer smoothly. Social work is a rapidly growing field that employs people in many different areas of work and requires very specific training and coursework. Students interested in this field of study will select courses from among those beginning with SWK. See course descriptions (p. 190).

**Sociology**  
*NMC Code 720*

Sociology is the study of the social context of human behavior. It includes the study of social change; socialization of group attributes such as social class, race, gender and age; and the workings of our social institutions. Courses in sociology are an important component of any liberal arts education, especially involving critical thinking and an understanding of diversity. It is also a major study for those interested in a wide variety of careers including teaching, social work, public policy, criminal justice, law, non-profit organizations, and social research.
Students interested in sociology courses select courses that begin with SOC. See course descriptions (p. 190).

**World Languages**

*NMC Code 731*

World Languages as a field of study at NMC includes specialization in American Sign Language, French, German, and Spanish. In a world of international telecommunications and interdependent economies, language specialization is an important component for those planning careers in business, communication, or teaching.

**Programs A-Z**

Occupational programs and certificate programs prepare students to enter the workforce through development of technical specialties and related skills appropriate to the chosen occupational area. See the following program listings for specific program requirements.

Each occupational program has specific learning outcomes that are assessed each year. Specific outcomes are available on the course syllabus. Students who would like to know how a specific academic area meets those outcomes should contact the instructor.

**A**

- Accounting - Fraud Investigation, Associate in Applied Science Degree (p. 33)
- Accounting, Associate in Applied Science Degree - General (p. 34)
- Accounting, Certificate of Achievement (Level II) (p. 36)
- Audio Technology, Associate in Applied Science Degree (p. 111)
- Audio Technology, Certificate of Achievement (Level II) (p. 113)
- Automotive - Automotive Service Technology, Associate in Applied Science Degree (p. 163)
- Automotive - Electrical & Drivability Specialist, Certificate of Achievement (Level II) (p. 164)
- Automotive - Hybrid Technology Specialist, Certificate of Achievement (Level II) (p. 166)
- Automotive - Master Automotive Technician, Certificate of Achievement (Level III) (p. 165)
- Automotive - Under Car Specialist, Certificate of Achievement (Level II) (p. 166)
- Aviation - Unmanned Aircraft Systems, Certificate of Achievement (Level I) (p. 20)
- Aviation, Associate in Applied Science Degree (p. 21)

**B**

- Business Administration - Online, Associate in Applied Science Degree (p. 36)
- Business Administration, Associate in Applied Science Degree (p. 37)

**C**

- Computer Information Technology - Assistant Developer, Certificate of Achievement (Level I) (p. 39)
- Computer Information Technology - Assistant Web Developer, Certificate of Achievement (Level I) (p. 39)
- Computer Information Technology - Associate Developer, Certificate of Achievement (Level II) (p. 40)
- Computer Information Technology - Associate Web Developer, Certificate of Achievement (Level II) (p. 40)
- Computer Information Technology - Computer Support Specialist, Certificate of Achievement (Level III) (p. 41)
- Computer Information Technology - Developer, Associate in Applied Science Degree (p. 42)
- Computer Information Technology - Industry Certifications (p. 43)
- Computer Information Technology - Infrastructure and Security, Associate in Applied Science Degree (p. 45)
- Computer Information Technology - Infrastructure Specialist I, Certificate of Achievement (Level I) (p. 46)
- Computer Information Technology - Infrastructure Specialist II, Certificate of Achievement (Level II) (p. 47)
- Computer Information Technology - Infrastructure Specialist III, Certificate of Achievement (Level III) (p. 47)
- Computer Information Technology - Microsoft Office™ Applications Specialist, Certificate of Achievement (Level I) (p. 48)
- Computer Information Technology - Web Developer, Certificate of Achievement (Level III) (p. 49)
- Construction Technology - Carpentry Technology, Certificate of Achievement (Level I) (p. 167)
- Construction Technology - Carpentry Technology, Certificate of Achievement (Level II) (p. 167)
- Construction Technology - Construction Management, Associate in Applied Science Degree (p. 168)
- Construction Technology - Electrical Technology, Certificate of Achievement (Level II) (p. 169)
- Construction Technology - Electrical, Associate in Applied Science Degree (p. 169)
- Construction Technology - Facilities Maintenance, Certificate of Achievement (Level II) (p. 171)
- Construction Technology - HVAC/R Technology, Certificate of Achievement (Level I) (p. 172)
- Construction Technology - HVAC/R, Associate in Applied Science Degree (p. 172)
- Construction Technology - Renewable Energy Technology - Electrical, Certificate of Achievement (Level II) (p. 173)
- Construction Technology - Renewable Energy Technology - HVAC/R, Certificate of Achievement (Level II) (p. 174)
- Culinary Arts - Baking - Great Lakes Culinary Institute, Certificate of Achievement (Level I) (p. 49)
- Culinary Arts - Culinary Sales and Marketing, Associate in Applied Science Degree (p. 50)
- Culinary Arts - Great Lakes Culinary Institute, Associate in Applied Science Degree (p. 51)
- Culinary Arts - Great Lakes Culinary Institute, Certificate of Achievement (Level III) (p. 52)

**D**

- Dental Assistant, Associate in Applied Science Degree (p. 67)
- Dental Assistant, Certificate of Achievement (Level II) (p. 68)
- Digital Administration and Marketing, Certificate of Achievement (Level I) (p. 53)
E
- Early Childhood Education and Care, Certificate of Achievement (Level II) and CDA Cohort (p. 150)
- Early Childhood Education, Associate in Applied Science Degree (p. 152)
- Engineering Technology - Biomedical Technician, Associate of Applied Science (p. 175)
- Engineering Technology - Computer Technology, Associate of Applied Science (p. 176)
- Engineering Technology - Electronics Technology, Associate of Applied Science (p. 177)
- Engineering Technology - General, Associate in Applied Science Degree (p. 178)
- Engineering Technology - Marine Technology, Associate of Applied Science (p. 179)
- Engineering Technology - Programmable Logic Controllers (PLC), Certificate of Achievement (Level I) (p. 180)
- Engineering Technology - Robotics & Automation Technology, Associate of Applied Science (p. 181)
- Engineering Technology - Unmanned Aerial Systems Technology, Associate of Applied Science (p. 182)
- Freshwater Studies, Associate in Applied Science Degree (p. 183)

L
- Law Enforcement, Associate in Applied Science Degree (p. 152)
- Law Enforcement, Certificate of Achievement (Level II) (p. 153)

M
- Manufacturing Technology, Associate in Applied Science Degree (p. 184)
- Marine Technology, Bachelor of Science (p. 188)
- Maritime - Bachelor of Science Degrees (p. 123)
- Maritime - Deck Officer, Bachelor of Science (p. 124)
- Maritime - Engineering Officer, Bachelor of Science (p. 127)
- Maritime - Power Systems, Bachelor of Science (p. 129)

N
- Nursing - ADN Completion Option (p. 69)
- Nursing - Practical, Certificate of Achievement (p. 71)
- Nursing, Associate Degree in Nursing (p. 72)

O
- Office Administration, Certificate of Achievement (Level II) (p. 54)

P
- Paramedic, Associate in Applied Science Degree (p. 75)
- Plant Science - Fruit and Vegetable Crop Management, Associate in Applied Science Degree (p. 140)
- Plant Science - Landscape Management, Associate in Applied Science Degree (p. 141)
- Plant Science - Viticulture, Associate in Applied Science Degree (p. 141)

R
- Respiratory Therapy - RT, Associate in Applied Science Degree (p. 75)

S
- Surgical Technology, Associate in Applied Science Degree (p. 76)
- Surveying, Associate in Applied Science Degree (p. 186)

T
- Technical Management Administration, Associate in Applied Science Degree (p. 54)

V
- Visual Communications - Creative Management in Art Direction, Associate in Applied Science Degree (p. 113)
- Visual Communications, Associate in Applied Science Degree (p. 114)

W
- Welding Technology, Associate in Applied Science Degree (p. 187)
- Welding Technology, Certificate of Achievement (Level I) (p. 187)
- Welding Technology, Certificate of Achievement (Level II) (p. 188)

Aviation
Programs
- Aviation - Unmanned Aircraft Systems, Certificate of Achievement (Level I) (p. 20)
- Aviation, Associate in Applied Science Degree (p. 21)

Courses
Aviation Flight
AVF 111 - Private Flight
Credit Hours: 5, Contact Hours: 5
Division: Aviation
A flight course structured to provide a minimum of 40 dual and solo flight hours to meet the aeronautical experience requirements for a private pilot. Upon completion of this course, the student will have attained the FAA Private Pilot Rating. Course requires 42.4 hours of flight time, 8.0 hours of pre/post, and 17.5 hours of ground instruction. Hourly rates effective March 2018 are $59/hour for ground instruction and $230/hour for the aircraft and flight instructor. Group 2 course.
Required Prerequisites: Instructor Permission Required

AVF 132 - Instrument Flight
Credit Hours: 4, Contact Hours: 4
Division: Aviation
A flight course designed to meet the aeronautical experience requirements for the FAA Instrument check ride. Upon completion of this course, the student will have attained the FAA Instrument Rating. Course requires 39.8 flight hours, 9.8 hours of pre/post, and 17.7 hours of ground instruction. Hourly rates effective March 2018 are $59/hour for ground instruction and $230/hour for the aircraft and flight instructor. Group 2 course.
Required Prerequisites: Private Pilot Rating; AVF 111 and AVG 101
AVF 141 - Remote Pilot Flight  
Credit Hours: 3, Contact Hours: 4  
Division: Aviation  
Students will be introduced to the world of Unmanned Aerial Systems. This course takes a look at everything from current Unmanned Aircraft Systems to future civilian applications. In addition to learning about this new industry, students will be introduced to flying remotely piloted aircraft and operating entry level Unmanned Aerial Vehicles. Group 2 course.

AVF 211 - Commercial Drone Operations  
Credit Hours: 4, Contact Hours: 4  
Division: Aviation  
This course will guide students deeper into the Unmanned Aerial Systems Industry. Topics will include Federal Regulations for UAS, components of Unmanned Aerial Vehicles, autopilot programming and flight plan development. Students will be working with UAS autopilot simulators and also be introduced to flying professional UAS systems. Group 2 course.  
Required Prerequisites: AVF 141, AVG 142  
Recommended Prerequisites: AVG 101

AVF 230 - Commercial Flight I  
Credit Hours: 2, Contact Hours: 2  
Division: Aviation  
The student will advance their skills required by the FAA to obtain a Commercial Pilot Certificate. They will gain experience in different aircraft with the opportunity to gain a Tailwheel Endorsement or Seaplane Rating. Students will increase their instrument proficiency while conducting cross country flights. Course requires 35 flight hours, 6 of pre/post, and 7 hours of ground instruction. Hourly rates effective March 2018 are $59/hour for ground instruction and $230/hour for the aircraft and flight instructor. Group 2 course.  
Required Prerequisites: AVF 130 or AVF 132 and AVG 252, both with a 2.0 or better or equivalent rating.

AVF 232 - Commercial Flight II  
Credit Hours: 3, Contact Hours: 3  
Division: Aviation  
A flight course structured to provide a dual and solo flight hours to partially fulfill the flight hour requirements for the FAA Commercial Pilot Certificate. This course will provide a review of VFR cross country navigation procedures and introduce the student to multi-engine flight. Course requires 35 flight hours, 3.0 hours of pre/post, and 27.8 hours of ground instruction. Hourly rates effective March 2018 are $59/hour for single engine ground instruction and $69/hour for multi-engine flight instruction and $230/hour for the single aircraft and flight instructor and $340/hour for the multi-engine aircraft and instructor. Group 2 course.  
Required Prerequisites: AVF 230 with a 2.0 or better - may be taken concurrently.

AVF 234 - Commercial Flight III  
Credit Hours: 2, Contact Hours: 2  
Division: Aviation  
This course is the last of three flight courses required to obtain the FAA Commercial Pilot Certificate. This course consists of flight hours with an emphasis on commercial flight maneuvers in preparation for the Commercial Pilot FAA Practical Test. Upon completion of this course, the student will have attained the FAA Commercial Pilot Certificate. Course requires 24.6 flight hours, 3.6 hours of pre/post, and 8.0 hours of ground instruction. Hourly rates effective March 2018 are $59/hour for ground instruction and $230/hour for the aircraft and flight instructor. Group 2 course.  
Required Prerequisites: AVF 232 with a 2.0 or better.

AVF 241 - Advanced Drone Operations  
Credit Hours: 3, Contact Hours: 4  
Division: Aviation  
Students will apply what they have learned in previous courses by working largely in the field conducting simulated and real life flight missions. This course focuses on applying Unmanned Aerial Systems to future civilian applications such as inspections, aerial mapping, and aerial photography. Group 2 course.  
Required Prerequisites: AVF 141 and either AVF 211 or AVG 210

AVF 261 - Aerosonde UAS Flight Training  
Credit Hours: 3, Contact Hours: 4  
Division: Aviation  
This hands on flight course allows students to earn a manufactures certification from one of the leading UAS platform manufacturers in the U.S. Students will participate in live flight training utilizing the Aerosonde Small UAS platform, a leading platform currently operated for U.S Department of Defense customers around the globe. Group 2 course.  
Required Prerequisites: AVF 241 - may be taken concurrently and AVG 260

AVF 271 - Multi-Engine Flight  
Credit Hours: 1, Contact Hours: 1  
Division: Aviation  
This flight course is designed to give the student the aeronautical knowledge, proficiency, and experience required to meet the FAA Practical Test Standards for the Private or Commercial Multi-engine rating. Upon completion of this course, the student will have attained the FAA Multi-engine Land Rating. Course requires 4 flight hours, 1 hour of pre/post, and 1 ground hour. Hourly rates effective March 2018 are $69/hour for ground instruction and $340/hour for the aircraft and flight instructor. Group 2 course.  
Required Prerequisites: AVF 234 with a 2.0 or better.

AVF 272 - Multi Engine Instructor  
Credit Hours: 2, Contact Hours: 2  
Division: Aviation  
In this course, the student will learn the skills to be a Certified Multi Engine Flight Instructor (MEI). They will master the skills of the Private and Commercial Pilot ratings. In addition, they will learn how to be an effective teacher and understand all FAA rules and regulations that accompany being an instructor. Course requires 5 flight hours, 1.3 hours of pre/post, and 5 hours of ground instruction. Hourly rates effective March 2018 are $69/hour for ground instruction and $271/hour for the aircraft and flight instructor. Group 2 course.  
Required Prerequisites: AVF 382

AVF 274 - Tailwheel Flight  
Credit Hours: 1, Contact Hours: 1  
Division: Aviation  
This course is designed to provide the student with the skills, knowledge, and experience to receive a logbook endorsement to fly tailwheel aircraft. Course requires 4 flight hours and 1 hour of pre/post. Hourly rate effective March 2018 is $209/hour for the aircraft and flight instructor. Group 2 course.  
Required Prerequisites: AVF 111 and AVG 101 - both with a 2.0 or better.
AVF 275 - Seaplane Flight
Credit Hours: 2, Contact Hours: 2
Division: Aviation
In this course, the student will gain the skills, knowledge, and experience to receive endorsement for the FAA Practical Test. Students will learn in a Piper Super Cub on floats as they demonstrate maneuvers and landings. Course requires 5 flight hours, 1.2 hours of pre/post, and 1 hour of ground instruction. Hourly rates effective March 2018 are $59/hour for ground instruction and $209/hour for the aircraft and flight instructor. Group 2 course.
Required Prerequisites: AVF 234 with a 2.0 or better.

AVF 283 - Upset Maneuver Training
Credit Hours: 1, Contact Hours: 1
Division: Aviation
In this course, the student will learn the foundations to safely perform basic aerobatic maneuvers. Also, the student will gain confidence and skills necessary to recover from various unusual flight attitudes that will increase the students’ overall flight safety. Course requires 6 flight hours, 1.5 hours of pre/post, and 2 hours of ground instruction. Hourly rates effective March 2018 are $59/hour for ground instruction and $209/hour for the aircraft and flight instructor. Group 2 course.
Required Prerequisites: AVF 234 with a 2.0 or better.

AVF 284 - Instrument Flight Instructor
Credit Hours: 2, Contact Hours: 2
Division: Aviation
The student perfects both teaching and instrument flying skills while sitting in the right seat of the cockpit. The student develops the knowledge and ability to teach others instrument flying procedures. Course requires 6 flight hours, 1.2 hours of pre/post, and 8 hours of ground instruction. Hourly rates effective March 2018 are $59/hour for ground instruction and $230/hour for the aircraft and flight instructor.
Group 2 course.
Required Prerequisites: AVF 382 with a 2.0 or better

AVF 382 - Flight Instructor Rating
Credit Hours: 4, Contact Hours: 4
Division: Aviation
In this course the student will learn the skills to be a Certified Flight Instructor (CFI). They will master the skills of the Private and Commercial Pilot ratings. In addition they will learn how to be an effective teacher and understand all FAA rules and regulations that accompany being an instructor. Course requires 18 flight hours, 4.5 hours of pre/post, and 20 hours of ground instruction. Hourly rates for effective March 2018 are $59/hour for ground instruction and $212/hour for the aircraft and flight instructor.
Group 2 course.
Required Prerequisites: AVF 234 with a 2.0 or better and instructor permission.

AVG 101 - Leadership in Aviation
Credit Hours: 2, Contact Hours: 2
Division: Aviation
This course identifies and develops leadership characteristics specifically applicable to professional pilots. This course is designed to teach students how to combine strong technical knowledge, aeronautical decision-making and ethics to be a successful leader and contributor in the aviation industry. Group 2 course.
Required Prerequisites: AVF 111, may be taken concurrently.

AVG 142 - Remote Pilot Ground
Credit Hours: 3, Contact Hours: 3
Division: Aviation
An online course structured to provide the aeronautical knowledge required of a remote pilot and to prepare the student to take the FAA Unmanned Aircraft General written examination. Topics include: airport operations, aircraft performance, regulations, meteorology, airspace, maintenance, sUAS operations, risk assessment/management. This course will be completed upon the student passing the FAA Unmanned Aircraft General written examination. Group 2 course.

AVG 161 - Mechanics for Pilots
Credit Hours: 3, Contact Hours: 3
Division: Aviation
This course will teach the students about the systems, components, safe repair, and regulations involved with maintaining and operating small aircraft. Students will learn in the classroom and in the maintenance hangar. Group 2 course.

AVG 190 - Aviation Weather
Credit Hours: 3, Contact Hours: 3
Division: Aviation
This course offers thorough coverage in the application and analysis of meteorological charts and how they pertain to aviation. It emphasizes the need for advanced knowledge on how NWS/NOAA charts are derived and how to understand their use in aviation today. Additional emphasis will be placed on predominant weather patterns, associated weather and planning flights to avoid severe weather. A basic understanding in the theory of meteorology is desired. Group 2 course.
Recommended Prerequisites: AVG 101

AVG 201 - International Aviation
Credit Hours: 3, Contact Hours: 3
Division: Aviation
This course will provide an overview and analysis of the international aviation industry. International oversight organizations will be reviewed along with interactions with national regulations. Students will evaluate country differences with regard to aviation regulations, global aviation safety and business forecasts. An analysis of cultural differences for International Aviation Operations will be covered with case studies from current international pilots. Group 2 course.
Recommended Prerequisites: Placement into ENG 111

AVG 202 - Advanced Aircraft Systems
Credit Hours: 3, Contact Hours: 3
Division: Aviation
This course is designed to prepare those students seeking to be career pilots to be successful in the intense aircraft systems ground schools offered by the airlines, manufacturers, and private training providers such as Flight Safety. Each major system of large turbine aircraft will be studied, first, in a general overview and then for a specific model, large transport category, jet aircraft. Group 2 course.
Recommended Prerequisites: AVG 101
AVG 204 - Airline Aircraft Ground School
Credit Hours: 3, Contact Hours: 3
Division: Aviation
This course is designed to prepare those students seeking to be career pilots to be successful in the intense aircraft ground schools provided by the airlines. Canadair Regional Jet systems, limitations, normal and emergency checklist, and flows and flight procedures will be covered in this course. Group 2 course.
Recommended Prerequisites: AVG 202
Credit Hours: 3

AVG 231 - Aviation Law
Credit Hours: 3, Contact Hours: 3
Division: Aviation
A study of fundamental legal and aviation law principles as they apply to the various segments of the aviation industry. There will be special emphasis on contemporary aviation legal issues. Group 2 course.

AVG 240 - Corporate Aviation Ground
Credit Hours: 3, Contact Hours: 3
Division: Aviation
Students taking this course will learn about the aspects of business aviation. Aircraft types, regulations, business customs, and future outlooks of corporate aviation will be presented. Group 2 course.
Recommended Prerequisites: AVG 202

AVG 251 - Commercial Ground School
Credit Hours: 4, Contact Hours: 4
Division: Aviation
This course is an advanced study of aviation topics including: GPS, meteorology, radio communications, airspace, and Federal Aviation Regulations. In addition, aircraft systems, career opportunities, aviation safety, aircraft weight and balance, performance charts, and aerodynamics are reviewed with emphasis on commercial pilot operations. Group 2 course.
Required Prerequisites: AVG 252 with a 2.0 or higher

AVG 252 - Instrument Ground School
Credit Hours: 4, Contact Hours: 4
Division: Aviation
This course provides the aeronautical knowledge required for the instrument rating and prepare the student to take the FAA Instrument Rating - Airplane written examination. Topics include: flight instruments, radio navigation, departure, enroute and arrival procedures, VOR, NDB, ILS, and GPS approaches, IFR emergencies, aviation weather, and IFR cross-country flight planning. Group 2 course.
Required Prerequisites: AVF 111 and AVG 101 both with a 2.0 or higher; or equivalent rating.

AVG 260 - Aerosonde UAS Ground
Credit Hours: 4, Contact Hours: 5
Division: Aviation
This ground school and simulator course will provide the foundation training on the Textron Aerosonde UAS platform, one of the leading UAS platforms in the U.S. Students will learn the systems and operational procedures along with in-depth simulator training that will prepare them for the Aerosonde UAS Flight Course. Group 2 course.
Required Prerequisites: AVF 211 may be taken concurrently

AVG 285 - Crew Resource Management
Credit Hours: 3, Contact Hours: 3
Division: Aviation
This course is an introduction to the principles of crew resource management (CRM) and will acquaint students with the concepts and skills required of aircrew members in safely operating multi-place aircraft. Topics will include flight safety concepts, communications skills, effective teamwork principles, and aircraft accident case studies. Students will practice CRM concepts in the Frasca flight training device. Group 2 course.
Required Prerequisites: AVG 252-may be taken concurrently

AVG 381 - Instructor Ground School
Credit Hours: 5, Contact Hours: 5
Division: Aviation
A course of study that will provide basic education principles and a review of the aeronautical knowledge required for the flight instructor (airplane single engine) certificate and prepare the student to take the FAA Fundamentals of Instruction (FOI) and the Flight Instructor-Airplane Single Engine written examinations. Through classroom presentations and one-on-one student teaching, students will gain practical teaching experience. Group 2 course.
Required Prerequisites: AVF 230 and AVG 251 both with a 2.0 or higher

**Aviation - Unmanned Aircraft Systems, Certificate of Achievement (Level I)**

_NMC Code 050_

Drones have become more of an everyday tool used in industry and are less of a novelty than ever before. Learn about this new industry and be prepared for the future.

This certificate is designed to provide a concentrated study for students who plan to enter the UAS (drone) industry. NMC UAS certificate students receive practical training in all aspects of commercial UAS operations and applications. The program includes hands-on courses that will provide the student with the essential and fundamental skills needed to be successful in this new and exciting industry. Students will earn a Remote Pilot certificate from the FAA that is required for the commercial operation of a drone system. In addition, the student will be guided from entry level skills and knowledge to the operation of commercial grade systems. Students will also learn how to use drones in commercial applications such as land survey, agriculture, and industrial inspections.

**Requirements**

**Certificate Requirements**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AVF 141</td>
<td>Remote Pilot Flight</td>
<td>3</td>
</tr>
<tr>
<td>AVF 211</td>
<td>Commercial Drone Operations</td>
<td>4</td>
</tr>
<tr>
<td>AVF 241</td>
<td>Advanced Drone Operations</td>
<td>3</td>
</tr>
<tr>
<td>AVG 142</td>
<td>Remote Pilot Ground</td>
<td>3</td>
</tr>
</tbody>
</table>

**Directed Electives**

Select any 3 or 4 credit course from the list 3-4

**Total Credits**

16-17
### Directed Electives

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ART 174</td>
<td>Digital Photography I</td>
<td>3</td>
</tr>
<tr>
<td>AVF 261</td>
<td>Aerosonde UAS Flight Training</td>
<td>3</td>
</tr>
<tr>
<td>AVG 260</td>
<td>Aerosonde UAS Ground</td>
<td>4</td>
</tr>
<tr>
<td>BUS 101</td>
<td>Introduction to Business</td>
<td>3</td>
</tr>
<tr>
<td>CMT 107</td>
<td>Construction Supervision</td>
<td>4</td>
</tr>
<tr>
<td>EET 103</td>
<td>Electrical Studies I</td>
<td>3</td>
</tr>
<tr>
<td>EGY 101</td>
<td>Principles of Renewable Energy</td>
<td>3</td>
</tr>
<tr>
<td>GEO 115</td>
<td>Introduction to GIS</td>
<td>3</td>
</tr>
<tr>
<td>LWE 102</td>
<td>Police Operations</td>
<td>4</td>
</tr>
<tr>
<td>RAM 155</td>
<td>Microcontroller Programming</td>
<td>3</td>
</tr>
<tr>
<td>WSI 200</td>
<td>GL Research Technologies</td>
<td>3</td>
</tr>
<tr>
<td>WSI 240</td>
<td>ROV Systems and Operations</td>
<td>3</td>
</tr>
</tbody>
</table>

### Course Sequence Guide

#### Year 1

**Fall**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AVF 141</td>
<td>Remote Pilot Flight</td>
<td>3</td>
</tr>
<tr>
<td>AVG 142</td>
<td>Remote Pilot Ground</td>
<td>3</td>
</tr>
</tbody>
</table>

**Spring**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AVF 211</td>
<td>Commercial Drone Operations</td>
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<tr>
<td>Approved Course Elective</td>
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<td>3-4</td>
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</tbody>
</table>

**Summer**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AVF 241</td>
<td>Advanced Drone Operations</td>
<td>3</td>
</tr>
</tbody>
</table>

**Total Credits**

| Credits | 16-17 |

### Approved Course Electives

Choose any 3 or 4 credit course from list below

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ART 174</td>
<td>Digital Photography I</td>
<td>3</td>
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<td>AVF 261</td>
<td>Aerosonde UAS Flight Training</td>
<td>3</td>
</tr>
<tr>
<td>AVG 260</td>
<td>Aerosonde UAS Ground</td>
<td>4</td>
</tr>
<tr>
<td>BUS 101</td>
<td>Introduction to Business</td>
<td>3</td>
</tr>
<tr>
<td>CMT 107</td>
<td>Construction Supervision</td>
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<td>Principles of Renewable Energy</td>
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<td>GEO 115</td>
<td>Introduction to GIS</td>
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<tr>
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<td>GL Research Technologies</td>
<td>3</td>
</tr>
<tr>
<td>WSI 240</td>
<td>ROV Systems and Operations</td>
<td>3</td>
</tr>
</tbody>
</table>

### Admission Requirements

NMC’s Aviation Program has a competitive admissions process. Please see the Competitive Points Rubric for additional details. All students applying to the Aviation program will need to complete an NMC general application by selecting Pre Aviation, NMC Code 920. An additional application is required for the Aviation program. Contact program advisor at aviation@nmc.edu (%20aviation@nmc.edu) for details.

Complete the admission process for Aviation:

- Review Competitive Points Rubric (p. 23)
- Complete Aviation application by submitting the following:
  - Birth Certificate or Passport
  - Driver’s License or State ID
  - First Class Medical
  - Financial Plan
  - Student Information Sheet

Prior to beginning Aviation coursework it is recommended that students complete the following required general education courses. Refer to the Competitive Points Rubric to see how these courses apply to the admissions process.

- ENG 111 English Composition with a 2.0 grade or higher
- Choice of ENG 112 English Composition or ENG 220 Technical Writing or BUS 231 Professional Communications
- MTH 23 Beginning Algebra with a 2.0 grade or higher
- Any Group One Humanities course (p. 7)
- Any Group One Science course with a lab (p. 7)
- Any Group One Social Science course (p. 7)

Before beginning flight training, students must obtain a medical certificate from an FAA-approved medical examiner. Visit www.flightphysical.com (http://www.flightphysical.com) or www.faa.gov (http://www.faa.gov) for a list of FAA-approved medical examiners. Students must be cleared to fly by the TSA before receiving flight instruction.

### Requirements

#### Major Requirements

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENG 111</td>
<td>English Composition</td>
<td>4</td>
</tr>
</tbody>
</table>

Select one of the following:

- 3-4
Course Title Credits
AVF 111 Private Flight 5
AVG 101 Private Ground School 5
AVG 231 Aviation Law 3

Course Title Credits
AVG 190 Aviation Weather 3
AVG 252 Instrument Ground School 4

Directed Electives

Course Title Credits
AVF 141 Remote Pilot Flight 3
AVF 211 Commercial Drone Operations 4
AVF 230 Commercial Flight I 2
AVF 232 Commercial Flight II 3
AVF 234 Commercial Flight III 2
AVF 241 Advanced Drone Operations 3
AVF 271 Multi-Engine Flight 1
AVF 274 Tailwheel Flight 1
AVF 275 Seaplane Flight 2
AVF 283 Upset Maneuver Training 1
AVF 284 Instrument Flight Instructor 2
AVF 382 Flight Instructor Rating 4
AVG 102 Leadership in Aviation 2
AVG 161 Mechanics for Pilots 3
AVG 190 Aviation Weather 3
AVG 201 International Aviation 3
AVG 204 Airline Aircraft Ground School 3
AVG 231 Aviation Law 3
AVG 240 Corporate Aviation Ground 3
AVG 251 Commercial Ground School 4
AVG 285 Crew Resource Management 3
AVG 381 Instructor Ground School 5

Directed Electives

Course Title Credits
AVF 132 Instrument Flight 4
AVG 190 Aviation Weather 3
AVG 202 Advanced Aircraft Systems 3
AVG 252 Instrument Ground School 4

Total Credits 64-65

1 Placing into MTH 111 Intermediate Algebra or higher, or completion of MTH 23 Beginning Algebra.

3. NMC competency testing - maximum of 17 aviation credits may be obtained through competency testing, not including AVF 271 Multi-Engine Flight, AVF 284 Instrument Flight Instructor, AVG 382 Flight Instructor Rating and AVG 381 Instructor Ground School. Testing is allowed only with director's approval.

To obtain the AAS Degree, students must complete a minimum of three flight courses listed in this catalog through the normal process for obtaining credit. All AVF and AVG courses must be completed with a 2.0 grade or higher. Please consult an aviation advisor for scheduling guidelines.

Independent study and specialty courses are also available. Examples: Airline Transport Pilot (ATP), Unmanned Systems, and Advanced Aviation topics.

Before beginning flight training, students must obtain a medical certificate from an FAA-approved doctor. Visit flightphysical.com or faa.gov for a list of FAA-approved doctors. Students must be cleared to fly by the TSA before receiving flight instruction.

Course Sequence Guide

Year 1

Fall
AVF 111 Private Flight 5
AVG 101 Private Ground School 5
AVG 231 Aviation Law 3

Credits 13

Spring
AVF 132 Instrument Flight 4
AVG 190 Aviation Weather 3
AVG 252 Instrument Ground School 4

Select one of the following:

ENG 112 English Composition 3-4
ENG 220 Technical Writing
BUS 231 Professional Communications

Credits 14-15

Summer
AVF 230 Commercial Flight I 2
AVF 232 Commercial Flight II 3
AVG 251 Commercial Ground School 4

Credits 9

Year 2

Fall
AVF 234 Commercial Flight III 2
AVF 271 Multi-Engine Flight 1
AVG 202 Advanced Aircraft Systems 3

Group 1 Social Science course 3

Group 1 Science with Lab 4

Credits 13

Spring
AVF 382 Flight Instructor Rating 4
AVG 202 Advanced Aircraft Systems 3
AVG 381 Instructor Ground School 5

Students seeking an AAS Degree in Aviation from NMC shall earn the required aviation credits listed for their degree or a combination of three methods:

1. Aviation courses listed in the NMC catalog;
2. Approved transfer credit;
Group 1 Humanities course

| Credits | 3 |

Total Credits

| 64-65 |

Estimated Flight Time: 225 hours

Special Notes:

- Flight time varies by student. Flight times listed are expected completion times.
- Students are encouraged to fly during the summer term to ensure program completion on time.
- Students may start the Aviation program in Fall, Spring or Summer semester. This Course Sequence Guide is a general guide for appropriate course selection.
- Contact the Aviation Academic Advisor for more information at 231-995-2911.

**Competitive Points Rubric**

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Possible Points</th>
<th>Max Points Possible</th>
<th>Notes</th>
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</thead>
<tbody>
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<td>Previous Academic Degree</td>
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<tr>
<td>Bachelor Degree</td>
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<td></td>
</tr>
<tr>
<td>Associate Degree</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Private Pilot License and/or Ground Completed</td>
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<tr>
<td>Private Pilot License</td>
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<tr>
<td>Private Ground 2 Completed</td>
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<td>General Education Credits Earned Toward Aviation Degree</td>
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<tr>
<td>17 Credits</td>
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<td>12 Credits</td>
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<td>4 Credits</td>
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<td></td>
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<tr>
<td>3.0 to 3.49</td>
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<tr>
<td>2.5 to 2.99</td>
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<tr>
<td>2.0 to 2.49</td>
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</tr>
<tr>
<td>Other Requirements Completed</td>
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<td></td>
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<tr>
<td>First Class Medical</td>
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<td>Verified by Advisor</td>
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<tr>
<td>Financial Plan Signed</td>
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<td>Verified by Advisor</td>
<td></td>
</tr>
<tr>
<td>Total Maximum Points</td>
<td>18</td>
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</tr>
</tbody>
</table>

**Business Programs**

- Accounting - Fraud Investigation, Associate in Applied Science Degree (p. 33)
- Accounting, Associate in Applied Science Degree - General (p. 34)
- Accounting, Certificate of Achievement (Level II) (p. 36)
- Business Administration - Online, Associate in Applied Science Degree (p. 36)
- Business Administration, Associate in Applied Science Degree (p. 37)
- Computer Information Technology - Assistant Developer, Certificate of Achievement (Level I) (p. 39)
- Computer Information Technology - Assistant Web Developer, Certificate of Achievement (Level I) (p. 39)
- Computer Information Technology - Associate Developer, Certificate of Achievement (Level II) (p. 40)
- Computer Information Technology - Associate Web Developer, Certificate of Achievement (Level II) (p. 40)
- Computer Information Technology - Computer Support Specialist, Certificate of Achievement (Level III) (p. 41)
- Computer Information Technology - Developer, Associate in Applied Science Degree (p. 42)
- Computer Information Technology - Industry Certifications (p. 43)
- Computer Information Technology - Infrastructure and Security, Associate in Applied Science Degree (p. 45)
- Computer Information Technology - Infrastructure Specialist I, Certificate of Achievement (Level I) (p. 46)
- Computer Information Technology - Infrastructure Specialist II, Certificate of Achievement (Level II) (p. 47)
- Computer Information Technology - Infrastructure Specialist III, Certificate of Achievement (Level III) (p. 47)
- Computer Information Technology - Microsoft Office™ Applications Specialist, Certificate of Achievement (Level I) (p. 48)
- Computer Information Technology - Web Developer, Certificate of Achievement (Level III) (p. 49)
- Culinary Arts - Baking - Great Lakes Culinary Institute, Certificate of Achievement (Level I) (p. 49)
- Culinary Arts - Culinary Sales and Marketing, Associate in Applied Science Degree (p. 50)
- Culinary Arts - Great Lakes Culinary Institute, Associate in Applied Science Degree (p. 51)
- Culinary Arts - Great Lakes Culinary Institute, Certificate of Achievement (Level III) (p. 52)
- Digital Administration and Marketing, Certificate of Achievement (Level I) (p. 53)
- Office Administration, Certificate of Achievement (Level II) (p. 54)
- Technical Management Administration, Associate in Applied Science Degree (p. 54)
Courses

Accounting (ACC)

ACC 121 - Accounting Principles I
Credit Hours: 4, Contact Hours: 4
Division: Business
Introduction to financial accounting covering the accounting cycle, preparation of financial statements, and accounting for merchandising operations. It includes accounting for cash, receivables, inventory, property plant and equipment, current liabilities, payroll, long-term liabilities and corporations. Group 2 course. Quantitative Reasoning.
Required Prerequisites: ACC 123, CIT 210, CIT 216

ACC 123 - Accounting Principles II
Credit Hours: 4, Contact Hours: 4
Division: Business
Required Prerequisites: ACC 121
Recommended Prerequisites: MTH 111

ACC 199 - Accounting Practicum
Credit Hours: 3, Contact Hours: 3
Division: Business
This course expands upon previously learned computerized general ledger accounting. Focuses on developing skills for application through the continued use of accounting software, including chart of accounts, journal entries, sales/receivables, expenses/accounts payable, payroll, and automated general ledger. Various projects are used and integrated to guide students through the accounting cycle including financial statements and a variety of special reports. Special emphasis is placed upon the preparation, interpretation, evaluation, and forecasting of financial information. This course requires students to have an electronic device capable of processing QuickBooks as well as spreadsheet software. Students are required to bring their own device to class. Group 2 course. Quantitative Reasoning.
Required Prerequisites: ACC 123, CIT 210, CIT 216

ACC 221 - Intermediate Accounting I
Credit Hours: 4, Contact Hours: 4
Division: Business
A detailed analysis of the content of financial statements covering problems related to revenue recognition, time value of money, cash, receivables, and inventories including calculation and analysis of financial ratios. US and international reporting standards are compared. The course begins with a brief review of the fundamental accounting process. Group 2 course. Quantitative Reasoning.
Required Prerequisites: ACC 123
Recommended Prerequisites: Students should possess the ability to write business communications, such as research memos and reports to management. Students should also have competency in algebra at the intermediate level.

ACC 222 - Intermediate Accounting II
Credit Hours: 4, Contact Hours: 4
Division: Business
A detailed analysis of the content of financial statements covering problems related to property, plant and equipment, investments, current liabilities and contingencies, bonds and long-term notes, leases, income taxes, and shareholders’ equity. US and international reporting standards are compared. Group 2 course. Quantitative Reasoning.
Required Prerequisites: ACC 221
Recommended Prerequisites: Students should possess the ability to write business communications, such as research memos and reports to management. Students should also have competency in algebra at the intermediate level.

ACC 223 - Cost Accounting
Credit Hours: 4, Contact Hours: 4
Division: Business
This course explores cost accounting from a managerial perspective. Job costing, activity-based costing, and process costing are analyzed. Budgeting and variance analysis for management control are examined. Cost volume-profit analysis, inventory costing and capacity, and inventory management techniques are investigated. Group 2 course. Quantitative Reasoning.
Required Prerequisites: ACC 122 or ACC 123
Recommended Prerequisites: MTH 111

ACC 231 - Federal Income Tax Problems
Credit Hours: 3, Contact Hours: 3
Division: Business
In this course, the student will learn income tax practices and procedures necessary to prepare an accurate individual income tax return. Basic tax research and planning will be incorporated. Payroll tax laws and procedures will be examined including computing wages and withholdings, computing unemployment taxes and analyzing and journalizing payroll transactions. The course includes preparation of individual and payroll tax returns. Group 2 course. Quantitative Reasoning.
Required Prerequisites: ACC 123

ACC 241 - Principles Fraud Examination
Credit Hours: 3, Contact Hours: 3
Division: Business
This course is an introduction to the field of forensic accounting. Topics include the history of forensic accounting, the fraud triangle theory, financial statement misrepresentation, and fraud examination techniques, including fraud prevention and control. Students will be exposed to real-world cases in the area of forensic accounting. Group 2 course. Critical Thinking - Direct.
Required Prerequisites: ACC 123 with a 2.0 or higher
Recommended Prerequisites: ACC 221, ACC 222, ENG 112, critical reading ability is beneficial.
BUS 101 - Introduction to Business
Credit Hours: 3, Contact Hours: 3
Division: Business
American business in the 21st century is exciting and challenging. Students will be introduced to a variety of opportunities by exploring ownership, free enterprise, the world economy, management, marketing, international business, social responsibility and business ethics, and entrepreneurship. Group 2 course. Communications - Direct.
Recommended Prerequisites: BUS 251A

BUS 105 - Business Math
Credit Hours: 3, Contact Hours: 3
Division: Business
Apply basic mathematical principles to solve problems in modern business practice. Topics include trade pricing, markups, profit and loss, interest, payroll, taxes, and investments. It is designed for day-to-day business applications. Group 2 course. Quantitative Reasoning.
Required Prerequisites: MTH 08 with grade 2.0 or higher, or placement into MTH 23.

BUS 155 - Interpersonal Communications
Credit Hours: 3, Contact Hours: 3
Division: Business
To be well prepared for employment in the 21st century it will be mandatory for students to demonstrate effective human relations. Individuals who enter the workforce in any field will need to possess interpersonal and customer service skills. The global workplace will demand competence in interpersonal or ‘soft’ skills. Excellent customer service and relationship building skills are a necessary component of overall business communication. Topics include: communication and identity, conflict and communication climates, and how to build and maintain effective relationships with external and internal customers. Group 2 course. Communications - Direct.
Recommended Prerequisites: ENG 11/111 minimum placement

BUS 231 - Professional Communications
Credit Hours: 3, Contact Hours: 3
Division: Business
Communicating professionally is a critical skill in today’s world. This course is designed to help students understand communication theory and its application in their professional lives. Students will develop effective writing skills by analyzing complex issues, organizing thoughts logically, and communicating those ideas concisely—both oral and written form. Students will also practice effective listening skills, understand the components of a successful job search, and use teamwork skills in solving communication problems. Group 2 course. Communications - Direct, Infused: Writing Intensive.
Recommended Prerequisites: CIT 100, ENG 111 minimum placement

BUS 251A - Lean Office Facilitation
Credit Hours: 1, Contact Hours: 1
Division: Business
Through structured classroom and hands-on skill building, the student will learn the concepts and application of Lean Office philosophies, processes and tools. These include team chartering, problem solving, and facilitating improvement teams. Group 2 course. Communications - Direct, Critical Thinking - Direct.
Recommended Prerequisites: BUS 251D

BUS 251B - Lean Office Intro to VSM
Credit Hours: 1, Contact Hours: 1
Division: Business
Through structured classroom and hands-on skill building, the student will learn the concepts and application of Lean Office philosophies, processes and tools. This course includes an introduction to creating value stream maps and data gathering. Group 2 course. Communications - Direct, Critical Thinking - Direct.
Recommended Prerequisites: BUS 251A

BUS 251C - Lean Office Advanced VSM
Credit Hours: 1, Contact Hours: 1
Division: Business
Through structured classroom and hands-on skill building, the student will learn the concepts and application of Lean Office philosophies, processes and tools. These include analyzing value stream maps, measuring and documenting results. Group 2 course. Communications - Direct, Critical Thinking - Direct.
Recommended Prerequisites: BUS 251B

BUS 251D - Lean Office 5S Workplace Org
Credit Hours: 1, Contact Hours: 1
Division: Business
Through structured classroom and hands-on skill building, the student will learn the concepts and application of Lean Office philosophies, processes and tools. These include records and file management, creating standardized work, and ergonomics. Group 2 course. Communications - Direct, Critical Thinking - Direct.
Recommended Prerequisites: BUS 251C

BUS 251E - Lean Office Cell Flow & Hoshin
Credit Hours: 1, Contact Hours: 1
Division: Business
Through structured classroom and hands-on skill building, the student will learn the concepts and application of Lean Office philosophies, processes and tools. These include workflow optimization, planning deployment, and culture change. Group 2 course. Communications - Direct, Critical Thinking - Direct.
Recommended Prerequisites: BUS 251D
BUS 251F - Lean Office Coaching & PDCA
Credit Hours: 1, Contact Hours: 1
Division: Business
Through structured classroom and hands-on skill building, the student will learn the concepts and application of Lean Office philosophies, processes and tools. These include leading change, problem solving, and project coaching. Group 2 course. Communications - Direct.
Recommended Prerequisites: BUS 251E

BUS 261 - Business Law I
Credit Hours: 3, Contact Hours: 3
Division: Business
This course is a study of the U.S. legal system and specific areas of law related to business, with an emphasis on the techniques of legal decision-making. Topics include the judicial system, torts, contracts, and criminal law. Group 2 course. Critical Thinking - Direct.
Recommended Prerequisites: ACC 121, or ACC 122, or ACC 123, or BUS 231, or associated non-trip course. Group 2 course. Communications - Direct, Critical Thinking - Direct.

BUS 290 - Business Admin Internship
Credit Hours: 3, Contact Hours: 3
Division: Business
This course is a requirement for the Associate of Applied Science degree in Business Administration. The objective of the internship is to assess the Business Administration Program Outcomes, and to provide an on-the-job experience for the student pursuing a career in business. At the end of the semester students take a third party assessment to measure their knowledge of business operations, the business organization and business procedures. Students will spend 150 hours over the semester in a supervised training experience. In addition students will meet with the Experiential Learning Coordinator as needed throughout the semester for: internship support, feedback, review of professional employment documents and an internship exit interview. Group 2 course. Communications - Direct.
Required Prerequisites: 30 credit hours towards program requirements and a 2.0 GPA in occupational courses

BUS 294 - Business Study Abroad
Credit Hours: 1, Contact Hours: 1
Division: Business
In this class, students are provided the opportunity to travel to a specified destination affiliated with the corresponding business non-trip course. This course will serve to integrate the student learning experience and provide a sense of cultural perspective, diversity and regional awareness. The course is an opportunity for students to explore other areas around the world while applying discipline-specific course content. For a more specific course description, please review the course description of the associated non-trip course. Group 2 course.
Required Prerequisites: ACC 121, or ACC 122, or ACC 123, or BUS 231, or MGT 241, or MGT 251, or MKT 201

BUS 295 - Business Study Abroad
Credit Hours: 3, Contact Hours: 3
Division: Business
In this class, students are provided the opportunity to travel to a specified destination affiliated with the corresponding business non-trip course. This course will serve to integrate the student learning experience and provide a sense of cultural perspective, diversity and regional awareness. The course is an opportunity for students to explore other areas around the world while applying discipline-specific course content. For a more specific course description, please review the course description of the associated non-trip course. Group 2 course.
Required Prerequisites: ACC 121, or ACC 122, or ACC 123, or BUS 231, or MGT 241, or MGT 251, or MKT 201

BUS 296 - Business Study Abroad
Credit Hours: 2, Contact Hours: 2
Division: Business
In this class, students are provided the opportunity to travel to a specified destination affiliated with the corresponding business non-trip course. This course will serve to integrate the student learning experience and provide a sense of cultural perspective, diversity and regional awareness. The course is an opportunity for students to explore other areas around the world while applying discipline-specific course content. For a more specific course description, please review the course description of the associated non-trip course. Group 2 course.
Required Prerequisites: ACC 121, or ACC 122, or ACC 123, or BUS 231, or MGT 241, or MGT 251, or MKT 201

Computer Information Technology

CIT 100 - Computers in Business-An Intro
Credit Hours: 3, Contact Hours: 3
Division: Business
A first exposure to the world of computer applications in business, this course covers the hands-on use of word processing, spreadsheets, database, and presentation graphics programs. In addition, the Windows operating system, file and folder management, basic concepts, terminology and security threats will be covered. Group 2 course.
Communications - Direct, Critical Thinking - Direct.

CIT 110 - Programming Logic and Design
Credit Hours: 3, Contact Hours: 4
Division: Business
The student is introduced to topics in programming logic and design in preparation for subsequent programming courses. The course lecture material is presented via readings and videos, with activities being largely focused on coding, testing, debugging, and documenting applications. Good coding practices and simple design pattern are emphasized. Topics covered include: Simple Data Types, Control Structures, Decisions and Conditionals, Arrays, Lists, Methods, Functions, Enums, Classes, and File I/O. Group 2 course. Critical Thinking - Direct.

CIT 111 - Scripting and Automation
Credit Hours: 3, Contact Hours: 4
Division: Business
This course introduces students to scripting and programming to achieve realizable goals in a networked environment. Students will write programs that will be reusable, scalable, and efficient for interfacing with a system, retrieving information from various networked resources, and performing routine tasks. Group 2 Course.
Required Prerequisites: CIT 110, may be taken concurrently.

CIT 118 - Microsoft Office - Word Intro
Credit Hours: 1, Contact Hours: 1
Division: Business
This course is designed to provide students with an introduction to word processing using Microsoft Word. Skills students will learn include preparing documents, formatting characters and paragraphs, customizing paragraphs, and formatting pages. Group 2 course.

CIT 119 - Microsoft Office - Word
Credit Hours: 3, Contact Hours: 3
Division: Business
This course teaches students how to use Microsoft Word and prepares them to pass the Microsoft Office Specialist (MOS) Word certification exam. Skills students will learn include preparing documents, customizing and formatting text, paragraphs and pages, inserting objects, maintaining and proofing documents, performing mail merge operations, document sharing and management, tracking and referencing documents, and managing macros and forms. Students enrolling in this course will take the Microsoft Office certification exam. Group 2 course.

CIT 122 - Computer & Internet Basics I
Credit Hours: 1, Contact Hours: 1
Division: Business
Students will learn the essential skills required to use a computer with the Microsoft Windows operating system. The student will learn to interact with the Windows desktop to access software and data. The course emphasizes the importance of file and folder maintenance. The course also includes introductions to the World Wide Web, e-mail and searching. Students completing this course will master skills required for online courses. This course requires a Windows PC or a Mac with a Windows partition. Group 2 course.
CIT 124 - Microsoft Office - PowerPoint
Credit Hours: 2, Contact Hours: 2
Division: Business
This course teaches students how to use Microsoft PowerPoint and prepares them to pass the Microsoft Office Specialist (MOS) PowerPoint certification exam. Skills students will learn include preparing and modifying a presentation, using help, formatting slides and inserting elements in slides, creating tables, charts, and SmartArt graphics, using slide masters and action buttons, applying custom animation and setting up shows, and integrating, reviewing, protecting and saving presentations. Students enrolling in this course will take the certification exam. Group 2 course.

CIT 131 - Game Development and Design
Credit Hours: 3, Contact Hours: 3
Division: Business
Introductory course exploring the concepts of game design before building fully functional, working prototypes after learning modern game development techniques within a 2D game engine. Game design investigates topics such as objective, narrative, genre, challenge and reward. Once students have developed a solid concept, the game development portion of the class will look at how to turn that into a working reality by creating sprite sheets, artwork, audio or other game assets before adding functionality. Completed games may be published to the web or for mobile devices for testing and feedback. Group 2 course. Communications - Direct, Critical Thinking - Direct.

CIT 156 - CompTIA A+ Certification I
Credit Hours: 3, Contact Hours: 4
Division: Business
This course, in conjunction with CIT 157, covers the current objectives of the two CompTIA A+ Certification exams. Major topics include PC hardware, networking, laptops, printers, operational procedures, operating systems, security, mobile devices, troubleshooting, safety and professionalism. Group 2 course. Critical Thinking - Direct.
Recommended Prerequisites: Recommended competency: Windows skills

CIT 157 - CompTIA A+ Certification II
Credit Hours: 3, Contact Hours: 4
Division: Business
This course, in conjunction with CIT 156, covers the current objectives of the two CompTIA A+ Certification exams. Major topics include PC hardware, networking, laptops, printers, operational procedures, operating systems, security, mobile devices, troubleshooting, safety and professionalism. Group 2 course. Critical Thinking - Direct.
Recommended Prerequisites: CIT 156

CIT 160 - Cisco Internetworking I
Credit Hours: 3, Contact Hours: 4
Division: Business
This course, in conjunction with CIT 161 and CIT 260, provides the necessary preparation to pass the Cisco CCNA Routing & Switching Exam (Cisco Certified Network Associate). The following topics are covered in detail: router and switch configuration, VLANs, inter-VLAN routing, EtherChannel, STP, DHCP, SLAAC, FHRP, WLAN concepts and configuration, routing concepts, LAN security concepts, and static routing. This course utilizes the Cisco Networking Academy 'CCNA Routing and Switching: Routing, Switching, and Wireless Essentials’ curriculum and integrates online curriculum, classroom activities, hands-on lab exercises, and group projects. Group 2 course. Critical Thinking - Direct.
Recommended Prerequisites: CIT 213

CIT 161 - Cisco Internetworking II
Credit Hours: 3, Contact Hours: 4
Division: Business
This course, in conjunction with CIT 160 and CIT 260, provides the necessary preparation to pass the Cisco CCNA Routing & Switching Exam (Cisco Certified Network Associate). The following topics are covered in detail: router and switch configuration, VLANs, inter-VLAN routing, EtherChannel, STP, DHCP, SLAAC, FHRP, WLAN concepts and configuration, routing concepts, LAN security concepts, and static routing. This course utilizes the Cisco Networking Academy 'CCNA Routing and Switching: Routing, Switching, and Wireless Essentials’ curriculum and integrates online curriculum, classroom activities, hands-on lab exercises, and group projects. Group 2 course. Critical Thinking - Direct.
Recommended Prerequisites: CIT 160 may be taken concurrently

CIT 170 - Microsoft Office - Access
Credit Hours: 3, Contact Hours: 3
Division: Business
This course introduces database management using Microsoft Access. Students will design, construct, and administer databases. Students will create and modify database objects including tables, queries, forms and reports. Students will enter, delete, modify, import, and export data. Students will configure database features such as security and backup. Course content is mapped to the current Microsoft Office Specialist (MOS) Access learning objectives and students enrolled in this course will take the certification exam. Group 2 course. Critical Thinking - Direct.

CIT 178 - Relational Databases
Credit Hours: 3, Contact Hours: 4
Division: Business
This course introduces students to core database concepts including data, data types, and relationships. Students will interpret and create relational data structures and use SQL language to perform basic create, read, update, and delete operations. Students will perform, administrative, backup and security functions. Students will recognize the value of optimized data and produce normalized designs. Course content is mapped to the MTA 98-364 Database Fundamentals learning objectives and students enrolled in this course will take the certification exam. Group 2 course. Critical Thinking - Direct.

CIT 180 - Web Development
Credit Hours: 3, Contact Hours: 4
Division: Business
This course covers how to plan, develop and publish websites using industry standard software. Students will learn responsive web design using HTML5 (Hypertext Markup Language) and CSS3 (Cascading Style Sheets). Students will develop a wide variety of web projects, which include navigation menus, multimedia, forms, lists, tables and CSS animation. Interactivity will be achieved through CSS and beginning JavaScript. Emphasis will be placed on Industry standard coding practices, ADA compliance, semantic HTML5, beginning, intermediate and advanced CSS. Course content is mapped to the MTA 98-383 Introduction to Programming using HTML and CSS learning objectives and students enrolled in this course will take the certification exam. Group 2 course. Critical Thinking - Direct.
CIT 215 - Windows Server Environment  
Credit Hours: 3, Contact Hours: 4  
Division: Business  
In this course students will learn about the latest Windows Server operating system. Students will install many server roles and features. Concepts studied include remote administration, storage, virtualization, Windows Containers, Windows Server Update Services, and high-availability. Students will have an opportunity to work with different types of server installations. Windows PowerShell and Hyper-V will also be introduced. This course maps to the Microsoft 70-740 Installation, Storage and Compute with Windows Server 2016 certification exam. Group 2 course. Critical Thinking - Direct.  
Required Prerequisites: CIT 213 or instructor permission.

CIT 216 - Computerized Acctg Systems  
Credit Hours: 3, Contact Hours: 3  
Division: Business  
This course is designed to give the student experience with setting up an accounting system on the computer. QuickBooks software will be used. Accounts receivable, accounts payable, general ledger, inventory and payroll will be covered, with an emphasis on conversion from manual accounting systems to both desktop and/or cloud-based platforms. Group 2 course.  
Required Prerequisites: ACC 121

CIT 218 - Web Application Development  
Credit Hours: 3, Contact Hours: 4  
Division: Business  
The student will develop multi-tier web applications using client-server technologies in a variety of frameworks. Development will include design patterns such as MVC and MVVM with students writing client-side and server-side code to create a functional, consistent, and robust web application. As a capstone project, the students will develop and deploy a functional web application. Group 2 course. Critical Thinking - Direct.  
Required Prerequisites: CIT 190 with a grade of 2.0 or higher, CIT 195 with a grade of 2.0 or higher  
Recommended Prerequisites: CIT 228, CIT 255

CIT 228 - Advanced Database Systems  
Credit Hours: 3, Contact Hours: 4  
Division: Business  
This course builds upon database knowledge gained in CIT 178 by extending into other data sources and connection technologies. Students will be able to identify and evaluate data options and access data via code. Group 2 course. Critical Thinking - Direct.  
Required Prerequisites: CIT 110, CIT 180 and either CIT 178 or CIT 248, all with a grade of 2.0 or higher.

CIT 231 - Current Topics in IT  
Credit Hours: 3, Contact Hours: 3  
Division: Business  
The student is introduced to IT topics, each presented in five week modules, that are both timely and relevant to the IT industry. The course uses these modules to both present the new technologies and provide opportunity for the student to identify skills and resources relevant to profession development in the IT industry. Group 2 course. Critical Thinking - Direct.
CIT 233 - Project Management  
Credit Hours: 3, Contact Hours: 3  
Division: Business  
This course is intended for CIT students and business professionals who need to manage project activities or resources on time, on budget, and according to performance standards. Students use a variety of project management tools to schedule tasks, and monitor resources, cost, and project progress. Group 2 course. Critical Thinking - Direct.

CIT 240 - Network Security Management  
Credit Hours: 3, Contact Hours: 4  
Division: Business  
This course covers the knowledge and skills required to install and configure systems to secure applications, networks, and devices while supporting the principles of confidentiality, integrity, and availability. Additional topics include threat analysis and mitigation, risk assessments, and compliance. Course content is mapped to the CompTIA Security+ certification exam objective. Group 2 course. Critical Thinking - Direct.  
Required Prerequisites: CIT 213  
Recommended Prerequisites: CIT 243  
This course maps to the 70-742 Identity with Windows Server 2016 Certification Exam. Group 2 course. Critical Thinking - Direct.

CIT 243 - Cloud Technologies  
Credit Hours: 3, Contact Hours: 3  
Division: Business  
Students will explore cloud topics including cloud concepts, virtualization, infrastructure, resource and security management, security, and cloud system management. Cloud concepts will be explored using Microsoft Azure, Amazon Web Services, and Google Cloud Services. This course will prepare students for the CompTIA Cloud+ certification exam. Group 2 course.  
Required Prerequisites: CIT 213

CIT 246 - Windows Server Infrastructure  
Credit Hours: 3, Contact Hours: 4  
Division: Business  
Students taking this course will learn how to setup, configure, and maintain a Windows Server Infrastructure. Topics covered include Dynamic Host Configuration Protocol (DHCP), Domain Name Systems (DNS), Distributed File Systems (DFS), and Virtual Private Networks. This course maps to the 70-741 Networking with Windows Server 2016 certification exam. Group 2 course. Critical Thinking - Direct.  
Required Prerequisites: CIT 213 or instructor permission

CIT 247 - Enterprise Solutions  
Credit Hours: 3, Contact Hours: 4  
Division: Business  
In this course students will gain practical experience building enterprise systems using Identity solutions. Students will study Active Directory, Group Policy, Certificate Services and Federation and access solutions. This course maps to the 70-742 Identity with Windows Server 2016 certification exam. Group 2 course. Critical Thinking - Direct.  
Required Prerequisites: CIT 213 or instructor permission

CIT 255 - Object-Oriented Programming  
Credit Hours: 3, Contact Hours: 4  
Division: Business  
The student builds on object-oriented fundamentals learned in CIT 195, focusing on implementing SOLID Principles throughout the course. Projects will explore design patterns, UI/UX considerations, multiple forms of desktop and online persistence, and the integration of various technologies to form a complete solution. Group 2 course. Critical Thinking - Direct.  
Required Prerequisites: CIT 178 with a grade of 2.0 or higher, CIT 195 with a grade of 2.0 or higher

CIT 256 - Linux Administration  
Credit Hours: 3, Contact Hours: 4  
Division: Business  
In this course students will take an in-depth look at Linux, focusing on proper installation, command line usage, and administration of the Operating System. Students will examine the concepts common to all Linux systems. Exploration will take the form of a practical, hands-on approach, using a mix of hands-on projects as well as web resources. This course will prepare students for the CompTIA Linux+ Exam. Group 2 course.  
Required Prerequisites: CIT 213

CIT 257 - Linux Administration II  
Credit Hours: 3, Contact Hours: 4  
Division: Business  
In this course students will take an in-depth look at Linux, focusing on proper installation, command line usage, and administration of the operating system. Students will examine various server technologies, including BASH scripting, X11, display managers, localization settings, printing, and security. Exploration will take the form of a practical, hands-on approach, using a mix of hands-on projects as well as web resources. This course will prepare students for the second CompTIA Linux+ exam. Group 2 course.  
Required Prerequisites: CIT 256

CIT 260 - Cisco Internetworking III  
Credit Hours: 3, Contact Hours: 4  
Division: Business  
This course, in conjunction with CIT 160 and CIT 161 prepares the student for the Cisco CCNA Exam (Cisco Certified Network Associate). Describes the architectures and considerations related to designing, securing, operating, and troubleshooting enterprise networks. Students will configure and troubleshoot routers and switches and resolve common issues with OSPF, ACLs, NAT, VPNs, and QoS for IPv4 and IPv6 networks, while also implementing network management, design, troubleshooting, virtualization, and automation techniques. This course utilizes the Cisco Networking Academy ‘CCNA Routing & Switching: Enterprise Networking, Security, and Automation’ curriculum and integrates online curriculum, classroom activities, hands-on lab exercises and group projects. Group 2 course. Critical Thinking - Direct.  
Required Prerequisites: CIT 161

CIT 263 - Security ASMT. and Compliance  
Credit Hours: 3, Contact Hours: 4  
Division: Business  
In this course, students will learn and practice current security assessment techniques. This includes the ability to plan/Scope an assessment, understand legal/compliance requirements, perform vulnerability scanning/penetrations tests and analyze/report on their findings. This course aligns with the CompTIA PenTest+ certification exam. Group 2 course. Critical Thinking - Direct.  
Required Prerequisites: CIT 240, or instructor permission.  
Recommended Prerequisites: Passing of CompTIA Security+ certification exam.
CIT 290 - Required Prerequisites: CIT 255 with a grade of 2.0 or higher and instructor permission.

CIT 266 - Required Prerequisites: 20 credits with a minimum of 3.0 GPA in CIT and instructor permission.

CIT 280 - Recommended Prerequisites: CIT 256

CIT 291 - Required Prerequisites: CIT 240, or instructor permission.

CIT 292 - Recommended Prerequisites: Passing of CompTIA Security+ certification exam.

CUL 101 - This course is designed for students who wish to pursue a career in the hospitality industry. It introduces the student to segments of the industry and the different career tracks within each one. The course will acquaint the student with the rigor of hospitality and the particular nature of this people-oriented industry. A foundation course in the study of resort and resort settings, the course provides the student with an awareness of the unique problems associated with the development, management and marketing of a resort. Also, the seasonal nature of most resorts and the challenges presented by this issue are discussed. The nature and unique characteristics of the hospitality industry as a career choice are discussed. Group 2 course. Communications - Direct.

CUL 110 - This course is designed for students who wish to pursue a career in culinary arts or hotel and restaurant management. With today's complex safety and health laws, it is essential as well as required by many firms to have an in-depth understanding and certification in safety and sanitation. This course provides the students with both. Students study food service safety including fire safety and kitchen and dining room safety. Students also learn all aspects of food service sanitation and earn the NRA Educational Institute ServSafe Sanitation Certificate. Group 2 course. Critical Thinking - Direct.
CUL 111 - Professional Cookery
Credit Hours: 5, Contact Hours: 10
Division: Business
An intensive study of foods and cooking, this course exposes the student to commercial equipment, quality food production, and professional presentation. It provides the chef training student with the practice and theory involved in the preparation of foods in a commercial operation. Basic cooking terminology, methods and procedures are introduced. The course also includes kitchen safety and sanitation, knife and equipment identification and technique, preparation of stocks, soups, and mother sauces, meats, poultry and seafood, and the presentation of a complete meal. Uniforms and knives will need to be purchased through the department for this course. Group 2 course. Quantitative Reasoning.
Required Prerequisites: ENG 99/108 or higher, MTH 08 or higher, CUL 110 may be taken concurrently

CUL 118 - Introduction to Baking
Credit Hours: 4, Contact Hours: 8
Division: Business
This course is designed for students seeking a career in Culinary Arts. In this intensive study of fundamental baking techniques, students will become familiar with baking operation and production. This course covers fundamental pastry and dessert recipes as well as the preparation of yeast dough. Also included are tortes, pies, tarts, and other desserts. Group 2 course. Quantitative Reasoning.
Required Prerequisites: ENG 99/108 or higher, MTH 08 or higher, CUL 110 may be taken concurrently
Corequisites: CUL 110

CUL 190 - Culinary Internship
Credit Hours: 2, Contact Hours: 2
Division: Business
A culinary internship integrates academics with professional work experience. Students earn college credit while working in varied culinary-focused businesses, gaining valuable hands-on experience. Students are encouraged to contact the internship coordinator at least two months prior to the semester they are requesting placement. Culinary internships require a minimum of 320 hours of work during the enrolled semester. Group 2 course. Communications - Direct.
Required Prerequisites: CUL 110, CUL 111
Recommended Prerequisites: Placement into ENG 99/108

CUL 210 - Nutrition for Culinary Arts
Credit Hours: 2, Contact Hours: 2
Division: Business
This course is designed for students who wish to pursue a career in culinary arts. Healthy eating is attracting more attention as Americans struggle with the problems of obesity and disease prevention. In this atmosphere it is essential for prospective chefs to be aware of the needs of their customers. This course presents the principles of nutrition within the context of professional food preparation. Various ingredients and their role in good nutrition, planning healthy menus and alternative eating styles are discussed. Group 2 course. Communications - Direct, Quantitative Reasoning.

CUL 211 - Menu Planning and Purchasing
Credit Hours: 3, Contact Hours: 3
Division: Business
This course provides the student with the understanding of the menu as the center of the food outlet, around which is built the facility. Menu theme is the driver for food, non-food, and equipment purchases, staffing, location and floor plan. An understanding of this complex item is vital to anyone involved in food service. This course is designed to familiarize the student with all aspects of planning a modern menu - from market research to the physical layout of the document. Various types of menus are covered including A’La Carte, Table d’Hote, Institutional and Special Occasion. Menus will be analyzed for effectiveness and pricing strategies. Group 2 course. Quantitative Reasoning.
Required Prerequisites: CUL 110, CUL 111
Recommended Prerequisites: Placement into ENG 99

CUL 213 - World Cuisine
Credit Hours: 5, Contact Hours: 10
Division: Business
This course is designed for the student who wishes to be a chef. It comprises the study, preparation and presentation of foods and cooking methods from selected countries. These countries have been selected based on their current popularity in restaurants. In this course, students develop knowledge and basic understanding of ethnic cooking including the cooking styles of Italy, France, Mexico, China, and various other Asian and American regions. In the process of learning these multinational cuisines, the student develops additional technical skills in the preparation of the different foods. Group 2 course. Quantitative Reasoning, Degree Req:Cultural Persp/Div.
Required Prerequisites: CUL 110, CUL 111

CUL 215 - Garde Manger
Credit Hours: 4, Contact Hours: 8
Division: Business
This course is designed for students who wish to pursue a career in culinary arts. As America’s sophistication regarding food has increased, it is essential that students training to be chefs be exposed to the most up-to-date cooking and presentation techniques. Students prepare cold foods for display, pates, galantines, terrines and mousses. Decorative garnishes and other functional banquet presentations are covered in this course. Meat and seafood fabrication is also practiced. Projects made will be used and displayed at various functions and events at the Great Lakes Campus and at other special occasions. Group 2 course. Quantitative Reasoning.
Required Prerequisites: CUL 110, CUL 111, CUL 218, CUL 213

CUL 217 - Kitchen and Dining Room Mgmt
Credit Hours: 3, Contact Hours: 3
Division: Business
This course is designed for students who wish to pursue a career in the food service industry. Its focus is the control of the dynamics of the kitchen and dining room in a modern restaurant. In the highly competitive restaurant business, it is necessary for prospective food and beverage professionals to have a thorough understanding of this aspect of the industry. Many restaurants fail because of a lack of coordination between the front and back of the house. The course focuses on the basic principles of management as applied to kitchen and dining room situations. Other topics include management techniques, team building, motivational techniques, stress management, production management, and styles of table service. Group 2 course. Communications - Direct.
Recommended Prerequisites: CUL 101
CUL 218 - Advanced Baking
Credit Hours: 4, Contact Hours: 8
Division: Business
This course is designed for students seeking a career in culinary and/ or pastry arts. In this intensive study of advanced baking techniques, students become familiar with baking operations and production, dessert and pastry finishing, and plate presentation. This course covers advanced pastry and dessert recipes, yeast and sourdoughs, dessert sauces, cake making, icing and decorating, tortes, mousses, Bavarians, tarts, and other desserts. Group 2 course. Quantitative Reasoning.
Required Prerequisites: CUL 110, CUL 118
CUL 221 - Chocolate and Cake Design
Credit Hours: 4, Contact Hours: 8
Division: Business
This course is designed for students who wish to pursue a career in pastry arts. It is designed for students that would like to expand their creative talents in areas of chocolate artistry and cake decorating. In this course students will learn through lecture, demonstrations and lab work the characteristics of chocolate, chocolate tempering and modeling, candies, fillings, centerpieces, molds & decorations. The cake decoration portion of the course will cover buttercream recipes, history of cake decorating and tools, preparation of boards, papers, columns, boxes, etc., the art of icing a cake, basic cake covering using combs and spatulas, basic piping skills and the use of decorating tips, border skills, floral piping skills, art of swag and drapery applications, art of writing and coloring on a cake. Course includes how to create and display wedding cakes, icings, fondant, pastillage, and gum paste. Group 2 course. Quantitative Reasoning.
Required Prerequisites: CUL 110, CUL 118, CUL 218 may be taken concurrently
CUL 222 - Cafe Operations
Credit Hours: 3, Contact Hours: 6
Division: Business
This course focuses on practical bakery training. Students rotate through the front-of-the-house and the bakery in this intensive course. Front-of-the-house students learn barista and cafe service. Menu merchandising is stressed throughout the course. Guest relations and timing of service are also emphasized as advanced students serve lunch to guests in Lobdell's, the Great Lakes Culinary Institute's teaching restaurant. Heart-of-the-house students learn classical food preparation preparing designated menu items. Other areas covered include recipe construction and costing, the use and care of equipment, the pressure of a la carte preparation and service, and the effective handling and use of supplies. Group 2 course. Quantitative Reasoning.
Required Prerequisites: CUL 110, CUL 118, CUL 218
CUL 293 - Contemporary Service & Cuisine
Credit Hours: 12, Contact Hours: 24
Division: Business
This course focuses on practical hands-on training. Students rotate through the front-of-the-house and the restaurant kitchen in this intensive semester-long course. Front-of-the-house students learn various styles of table, wine and beverage service. Menu merchandising is stressed throughout the course. Guest relations and timing of service are also emphasized as advanced students serve lunch to guests in Lobdell’s, the Great Lakes Culinary Institute’s teaching restaurant. Heart-of-the-house students learn classical food preparation preparing designated menu items. Other areas covered include recipe construction and costing, the use and care of equipment, the pressure of a la carte preparation and service, and the effective handling and use of supplies. Group 2 course. Quantitative Reasoning.
Required Prerequisites: CUL 110, CUL 118, CUL 211, CUL 213

Management
MGT 241 - Principles of Management
Credit Hours: 3, Contact Hours: 3
Division: Business
This applications-oriented course will teach students the basics of day-to-day managerial work-planning, organization, leading, and controlling. Realistic scenarios are explored in areas of leadership, communication, planning, conflict, strategy, problem solving, and working in teams. Group 2 course. Communications - Direct, Critical Thinking - Direct, Infused: Writing Intensive.
Recommended Prerequisites: BUS 101, Critical Thinking - Direct
MGT 245 - Principles of Entrepreneurship
Credit Hours: 3, Contact Hours: 3
Division: Business
This course provides practical knowledge needed for entrepreneurs with special attention focusing on creativity, opportunity, and feasibility of a new start up. Sources of funding and resources for small ventures are addressed in depth in this course to prepare the learner for practical application. This course primarily focuses on idea generation and start up of the business including risk, funding sources, cash flow, and awareness of external environmental factors that impact the business. The course project is the development of a feasibility study or related project. Feasibility studies include the extent to which an idea is viable, realistic, and the extent to which the entrepreneur is aware of internal and external forces that could affect the business. Group 2 course. Communications - Direct, Critical Thinking - Direct.
Recommended Prerequisites: BUS 101, MKT 201
MGT 246 - Entrepreneur Marketing/Finance
Credit Hours: 4, Contact Hours: 4
Division: Business
This course provides the student with a micro-business experience in which teams will start, manage, and close an enterprise in 15 weeks. An in-depth focus and experience on marketing and finance issues unique to entrepreneurs will be provided. Topics include niche marketing, guerilla marketing, strategic partnerships, social media, e-marketing to international markets, capital resource acquisition, cash flow, pro-forma planning, strategic ownership models, sales skills and strategy. The topics are put into play by the assignment of a community business mentor. Group 2 course. Communications - Direct, Critical Thinking - Direct.
Required Prerequisites: MGT 245 or instructor permission
Recommended Prerequisites: ACC 121, MKT 201
MGT 251 - Human Resources Management  
**Credit Hours:** 3, **Contact Hours:** 3  
Division: Business  
Human Resource managers are especially challenged today navigating employment waters that require expertise in employment legislation, recruitment, selection, training and development, compensation, labor relations, safety and health. Theory and practice of these topics are explored with special emphasis on day-to-day applications in the workplace. Group 2 course. Communications - Direct, Critical Thinking - Direct, Infused: Writing Intensive.  
Recommended Prerequisites: BUS 101, ENG 111 minimum placement

MKT 201 - Principles of Marketing  
**Credit Hours:** 3, **Contact Hours:** 3  
Division: Business  
This course surveys the wide scope of marketing as it influences both profit and nonprofit firms with emphasis on the marketing concept as a business philosophy. Ethics, globalization, and technological advances in marketing will be explored. Elements of the marketing mix and the elements of the promotional mix will be studied and incorporated into a marketing plan. Target marketing and segmentation of consumer markets along with consumer buying behavior will be studied in this course. Group 2 course. Communications - Direct, Critical Thinking - Direct, Infused: Writing Intensive.  
Recommended Prerequisites: BUS 101, ENG 111 minimum placement

MKT 208 - Digital Marketing  
**Credit Hours:** 2, **Contact Hours:** 2  
Division: Business  
Students will learn how to develop a digital marketing strategy which may include display ads, search marketing, content marketing, email marketing and social media marketing. Developing an awareness of digital marketing strategies leads to an informed, critical internet consumer. Basic email and internet usage skills required. Group 2 course. Communications - Direct, Critical Thinking - Direct.  
Recommended Prerequisites: ENG 111 minimum placement

MKT 241 - Principles of Advertising  
**Credit Hours:** 3, **Contact Hours:** 3  
Division: Business  
This course will prepare the learner with an understanding of the real economic, social, and cultural impact of advertising and conversely, the impact of society's values on advertising. The strategic function of advertising within the broader context of business and marketing will be discussed in this course. The creative aspects of advertising will be studied, and students will develop an advertising campaign or related project. The global effect of marketing and advertising on business and national economies will be addressed along with ethical issues related to truth in advertising in today's society. Group 2 course. Communications - Direct, Critical Thinking - Direct, Infused: Writing Intensive.  
Recommended Prerequisites: BUS 101, ENG 111 minimum placement

MKT 290 - Management Internship  
**Credit Hours:** 3, **Contact Hours:** 3  
Division: Business  
The purpose of the internship is to provide on-the-job training for the student who wishes to pursue a career in Management. The internship will be customized to meet the learning needs of the student and the job requirements of the sponsoring firm. Students spend 10-15 hours per week in this supervised on-the-job training experience. In addition to the required 50 hours per credit in a work site, students will meet with the Experiential Coordinator as needed throughout the semester for internship support feedback, review of professional employment documents and an internship exit interview. Students must apply one month prior to the semester in which they will complete the internship. Group 2 course. Communications - Direct.  
Required Prerequisites: 30 credits of program specific courses with a GPA of 2.0 or higher.

**Marketing**

MKT 201 - Principles of Marketing  
**Credit Hours:** 3, **Contact Hours:** 3  
Division: Business  
This course surveys the wide scope of marketing as it influences both profit and nonprofit firms with emphasis on the marketing concept as a business philosophy. Ethics, globalization, and technological advances in marketing will be explored. Elements of the marketing mix and the elements of the promotional mix will be studied and incorporated into a marketing plan. Target marketing and segmentation of consumer markets along with consumer buying behavior will be studied in this course. Group 2 course. Communications - Direct, Critical Thinking - Direct, Infused: Writing Intensive.  
Recommended Prerequisites: BUS 101, ENG 111 minimum placement

MKT 208 - Digital Marketing  
**Credit Hours:** 2, **Contact Hours:** 2  
Division: Business  
Students will learn how to develop a digital marketing strategy which may include display ads, search marketing, content marketing, email marketing and social media marketing. Developing an awareness of digital marketing strategies leads to an informed, critical internet consumer. Basic email and internet usage skills required. Group 2 course. Communications - Direct, Critical Thinking - Direct.  
Recommended Prerequisites: ENG 111 minimum placement

Accounting - Fraud Investigation, Associate in Applied Science Degree

**NMC Code 133**

An exclusive partnership between Northwestern Michigan College and Davenport University allows us to offer students interested in forensic accounting the ability to earn an AAS in Fraud Investigation, which leads to further coursework at Davenport University before completing a Bachelor of Business Administration degree in Accounting Fraud Investigation. You will gain experience in communication, teamwork and leadership, as well as the skills necessary for criminal investigation techniques needed by the fraud investigation professional.

**Program Note**

- In order to complete the program requirements in two years, students must average 16 credits per semester.

**Requirements**

**Major Requirements**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>EN 111</td>
<td>English Composition</td>
<td>4</td>
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<tr>
<td>BUS 231</td>
<td>Professional Communications</td>
<td>3-4</td>
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<tr>
<td>or ENG 112</td>
<td>English Composition</td>
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<td>PHL 105</td>
<td>Critical Thinking</td>
<td>3</td>
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</table>

Select one of the following:

**General Education Requirements**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENG 111</td>
<td>English Composition</td>
<td>4</td>
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<tr>
<td>BUS 231</td>
<td>Professional Communications</td>
<td>3-4</td>
</tr>
<tr>
<td>or ENG 112</td>
<td>English Composition</td>
<td></td>
</tr>
<tr>
<td>PHL 105</td>
<td>Critical Thinking</td>
<td>3</td>
</tr>
</tbody>
</table>

Select one of the following:
Accounting, Associate in Applied Science Degree - General

NMC Code 103

This program will prepare students to begin a career in accounting. Graduates will be prepared to work as bookkeepers and entry-level accountants in accounts receivable, accounts payable, payroll, and other entry-level areas of accounting. Students considering transfer should see an advisor.

Program Note
- In order to complete the program requirements in two years, students must average 16 credits per semester.

Requirements

Major Requirements

General Education Requirements

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>ENG 111</td>
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<tr>
<td>ENG 112</td>
<td>English Composition</td>
<td>3-4</td>
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</table>

Select one of the following:

- BUS 231 Professional Communications
- EN 112 English Composition

Select one of the following:

- PHL 105 Critical Thinking
- PHL 201 Ethics

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<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
<td>ACC 121</td>
<td>Accounting Principles I</td>
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<tr>
<td>ACC 123</td>
<td>Accounting Principles II</td>
<td>4</td>
</tr>
<tr>
<td>ACC 221</td>
<td>Intermediate Accounting I</td>
<td>4</td>
</tr>
<tr>
<td>ACC 222</td>
<td>Intermediate Accounting II</td>
<td>4</td>
</tr>
<tr>
<td>ACC 223</td>
<td>Cost Accounting</td>
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<tr>
<td>ACC 241</td>
<td>Principles Fraud Examination</td>
<td>3</td>
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<tr>
<td>CJ 211</td>
<td>Criminal Law</td>
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<tr>
<td>ECO 201</td>
<td>Principles of Microeconomics</td>
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<tr>
<td>SOC 231</td>
<td>Deviance and Criminal Behavior</td>
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</table>

Total Credits: 64-65

1. Math Competency: Students must place into MTH 111 Intermediate Algebra or higher, or complete MTH 23 Beginning Algebra with a 2.0 or higher (4 credits). These credits do not count toward the degree requirements.
2. Transfer students will want to take ENG 112 English Composition to complete the ENG 111 English Composition/ENG 112 English Composition sequence.
3. Transfer students will want to take either PHL 201 Ethics or PHL 202 Contemporary Ethical Dilemmas to complete this requirement.
Northwestern Michigan College

Math Competency

Any Group 1 Science course with a lab
ECO 201 Principles of Macroeconomics

Occupational Specialty Requirements

ACC 121 Accounting Principles I
ACC 123 Accounting Principles II
ACC 221 Intermediate Accounting I
ACC 222 Intermediate Accounting II
ACC 223 Cost Accounting
BUS 101 Introduction to Business
BUS 261 Business Law I
CIT 210 Microsoft Office - Excel
CIT 216 Computerized Acctg Systems

Course Title Credits

ACC 121 Accounting Principles I 4
ACC 123 Accounting Principles II 4
ACC 221 Intermediate Accounting I 4
ACC 222 Intermediate Accounting II 4
ACC 223 Cost Accounting 4
BUS 101 Introduction to Business 3
BUS 261 Business Law I 3
CIT 210 Microsoft Office - Excel 3
CIT 216 Computerized Acctg Systems 3

Total Credits 61-62

Directed Electives

Course Title Credits

ACC 231 Federal Income Tax Problems 3
ACC 241 Principles Fraud Examination 3
ACC 290 Accounting Internship 3
ECO 202 Principles of Microeconomics 3
MGT 241 Principles of Management 3
MKT 201 Principles of Marketing 3
MTH 131 Intro to Prob & Stats 3

Course Title Credits

ACC 199 Accounting Practicum 3
BUS 105 Business Math 4
BUS 155 Interpersonal Communications 3

Total Credits 16

Year 2

Fall

ACC 199 Accounting Practicum 3
ACC 221 Intermediate Accounting I 4
ACC 223 Cost Accounting 4
ENG 111 English Composition 4

Credits 15

Spring

ACC 222 Intermediate Accounting II 4

Select one of the following:

BUS 231 Professional Communications
ENG 112 English Composition 4
BUS 261 Business Law I 3

Any Group 1 Science course with a lab 4

Credits 14-15

Total Credits 61-62

Math Competency: Students must place into MTH 111 Intermediate Algebra Intermediate Algebra or higher, or complete MTH 23 Beginning Algebra with a 2.0 or higher (4 credits). These credits do not count toward the degree requirements.

Transfer students will want to meet with an advisor to discuss selection.

Transfer students will want to take ENG 112 English Composition to complete the ENG 111 English Composition/ENG 112 English Composition sequence.

Directed Electives

Select one of the following:

Course Title Credits

ACC 231 Federal Income Tax Problems 3
ACC 241 Principles Fraud Examination 3
ACC 290 Accounting Internship 3
ECO 202 Principles of Microeconomics 3
MGT 241 Principles of Management 3
MKT 201 Principles of Marketing 3
MTH 131 Intro to Prob & Stats 3

Credits 16

Directed Electives

Select one of the following:

Course Title Credits

ACC 231 Federal Income Tax Problems 3
ACC 241 Principles Fraud Examination 3
ACC 290 Accounting Internship 3
ECO 202 Principles of Microeconomics 3
MGT 241 Principles of Management 3
MKT 201 Principles of Marketing 3
MTH 131 Intro to Prob & Stats 3

Credits 16
Accounting, Certificate of Achievement (Level II)

NMC Code 073

The accounting certificate helps meet demand for qualified and knowledgeable people in today’s workplace. It helps students acquire the necessary skills to begin entry-level positions in accounting. Students may elect to continue their education and obtain their Associate in Applied Science degree in accounting.

Program Note
- Completion of this certificate may lead to an AAS degree in Accounting by taking additional courses. See an advisor for details.

Requirements

Certificate Requirements

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<thead>
<tr>
<th>Course</th>
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<td>ACC 123</td>
<td>Accounting Principles II</td>
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<td>ACC 199</td>
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<td>Introduction to Business</td>
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<tr>
<td>BUS 105</td>
<td>Business Math 1</td>
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<td>BUS 155</td>
<td>Interpersonal Communications or BUS 231</td>
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<td>CIT 210</td>
<td>Microsoft Office - Excel</td>
<td>3</td>
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<td>CIT 216</td>
<td>Computerized Acctg Systems</td>
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<tr>
<td>PHL 105</td>
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<td>PHL 201</td>
<td>Ethics</td>
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<tr>
<td>PHL 202</td>
<td>Contemporary Ethical Dilemmas</td>
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</table>

Directed Elective

Select one course from the list 3-4

Total Credits 32-33

1 It is recommended that BUS 105 Business Math be taken before or concurrently with ACC 121 Accounting Principles I.

Directed Electives

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<thead>
<tr>
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<td>ACC 290</td>
<td>Accounting Internship</td>
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<td>ECO 201</td>
<td>Principles of Macroeconomics</td>
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<td>MGT 241</td>
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<td>MKT 201</td>
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Course Sequence Guide

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<td>ACC 121</td>
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<td>BUS 101</td>
<td>Introduction to Business</td>
<td>3</td>
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<tr>
<td>BUS 105</td>
<td>Business Math 1</td>
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<tr>
<td>CIT 210</td>
<td>Microsoft Office - Excel</td>
<td>3</td>
</tr>
<tr>
<td>BUS 155</td>
<td>Interpersonal Communications or BUS 231</td>
<td>3</td>
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<tr>
<td>CIT 216</td>
<td>Computerized Acctg Systems</td>
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<tr>
<td>Select one of the following:</td>
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<tr>
<td>PHL 105</td>
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<td>PHL 201</td>
<td>Ethics</td>
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</tr>
<tr>
<td>PHL 202</td>
<td>Contemporary Ethical Dilemmas</td>
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</tbody>
</table>

Business Administration - Online, Associate in Applied Science Degree

NMC Code 105

NMC offers an online alternative for students pursuing an Associate in Applied Science degree in Business Administration. Students are strongly encouraged to meet with an academic advisor because not all classes are offered online every semester, and students must complete an internship, which requires on-site attendance.

If you are seeking online courses for your specific program that are not currently offered online, visit Michigan Colleges Online at www.micollegesonline.org (http://www.micollegesonline.org) for online course options.

Requirements

Major Requirements

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>General Education Requirements</td>
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<tr>
<td>ENG 111</td>
<td>English Composition</td>
<td>4</td>
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<tr>
<td>BUS 231</td>
<td>Professional Communications</td>
<td>3</td>
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</tbody>
</table>
PHL 201 Ethics 3
or PHL 202 Contemporary Ethical Dilemmas
Math competency 1
Any Group 1 Science course with a lab 4
ECO 201 Principles of Macroeconomics 3

Occupational Specialty Requirements
ACC 121 Accounting Principles I 4
ACC 123 Accounting Principles II 4
BUS 101 Introduction to Business 3
BUS 105 Business Math 3
BUS 155 Interpersonal Communications 3
BUS 261 Business Law I 3
BUS 290 Business Admin Internship (requires on-site attendance) 3

Directed Electives
Select any combination of at least 5 credits from the list below 5

Total Credits 60

1 Placement into MTH 111 Intermediate Algebra or higher, or completion of MTH 23 Beginning Algebra (requires on-site attendance) with a 2.0 or higher.

Directed Electives
Course Title Credits
ACC 223 Cost Accounting 4
CIT 119 Microsoft Office - Word 3
CIT 122A Computer & Internet Basics I 1
CIT 124 Microsoft Office - PowerPoint 2
ECO 202 Principles of Microeconomics 3
ENG 112 English Composition 4
MKT 208 Digital Marketing 2
MKT 241 Principles of Advertising 3
MTH 111 Intermediate Algebra (or a higher level math course) 4
MTH 131 Intro to Prob & Stats 3

Course Sequence Guide
Course Title Credits
Year 1
Fall
BUS 101 Introduction to Business 3
BUS 105 Business Math 1 3
CIT 100 Computers in Business-An Intro 3
ENG 111 English Composition 4
Math competency 2

Credits 13
Spring
BUS 155 Interpersonal Communications 3

Year 2
Fall
ACC 121 Accounting Principles I 4
BUS 231 Professional Communications 3
BUS 261 Business Law I 3
MKT 201 Principles of Marketing 3
PHL 201 Ethics 3
or PHL 202 Contemporary Ethical Dilemmas 3

Directed Electives
Select any combination of at least 5 credits from the list below 5

Total Credits 16

1 It is recommended that BUS 105 Business Math be taken before or concurrently with ACC 121 Accounting Principles I.
2 Students must place into MTH 111 Intermediate Algebra or a higher level math course or complete MTH 23 Beginning Algebra with a 2.0 or higher (4 credits). These credits do not count toward degree requirements.
3 Internship classes require on site attendance.

Directed Electives
Course Title Credits
ACC 223 Cost Accounting 4
CIT 119 Microsoft Office - Word 3
CIT 122A Computer & Internet Basics I 1
CIT 124 Microsoft Office - PowerPoint 2
ECO 202 Principles of Microeconomics 3
ENG 112 English Composition 4
MKT 241 Principles of Advertising 3
MTH 111 Intermediate Algebra (Or a higher level math course) 4
MTH 131 Intro to Prob & Stats 3
MKT 208 Digital Marketing 2
MKT 241 Principles of Advertising 3

Business Administration, Associate in Applied Science Degree

This program prepares students for the challenges of the ever-changing world of business. Specialized courses and liberal arts studies provide students with a foundation needed to pursue careers characterized by technology, constant change, and increasing competition.
The order in which courses are taken is not critical except where prerequisites are involved. Course substitutions may be made only with the approval of the program coordinator or the academic area chair.

Students planning to pursue a four-year degree in Business Administration should follow NMC’s degree requirements for the ASA degree and familiarize themselves with the requirements of the school of choice for their bachelor’s degree.

Students planning to enter the business world upon completion of a two-year degree should pursue an AAS degree in Business Administration.

**Requirements**

**Major Requirements**

<table>
<thead>
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<tbody>
<tr>
<td>ENG 111</td>
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<td>BUS 231</td>
<td>Professional Communications</td>
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<td>PHL 201</td>
<td>Ethics</td>
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<td>PHL 202</td>
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<tr>
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<td>BUS 101</td>
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<td>BUS 105</td>
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<td>BUS 155</td>
<td>Interpersonal Communications</td>
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<td>BUS 261</td>
<td>Business Law I</td>
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<td>BUS 290</td>
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<td>CIT 100</td>
<td>Computers in Business-An Intro</td>
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<td>CIT 210</td>
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<td>MGT 241</td>
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<td>CIT 213</td>
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<td>CIT 216</td>
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<td>COM 111</td>
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<td>ENG 112</td>
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<td>MTH 111</td>
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**Course Sequence Guide**

**Year 1**

**Fall**

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<tr>
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<td>Math competency</td>
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**Spring**

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<tr>
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**Year 2**

**Fall**

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**Spring**

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</tr>
<tr>
<td>MGT 251</td>
<td>Human Resources Management</td>
<td>3</td>
</tr>
<tr>
<td>Any Group 1 Science course with lab</td>
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<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>CIT 213</td>
<td>Networking Technologies</td>
<td>4</td>
</tr>
<tr>
<td>CIT 216</td>
<td>Computerized Accctg Systems</td>
<td>3</td>
</tr>
<tr>
<td>COM 111</td>
<td>Public Speaking</td>
<td>4</td>
</tr>
<tr>
<td>ECO 202</td>
<td>Principles of Microeconomics</td>
<td>3</td>
</tr>
<tr>
<td>ENG 112</td>
<td>English Composition</td>
<td>4</td>
</tr>
<tr>
<td>MKT 208</td>
<td>Digital Marketing</td>
<td>2</td>
</tr>
<tr>
<td>MKT 241</td>
<td>Principles of Advertising</td>
<td>3</td>
</tr>
<tr>
<td>MTH 111</td>
<td>Intermediate Algebra (Or a higher level math course)</td>
<td>4</td>
</tr>
<tr>
<td>MTH 131</td>
<td>Intro to Prob &amp; Stats</td>
<td>3</td>
</tr>
<tr>
<td>VCA 150</td>
<td>Digital Graphics Design I</td>
<td>3</td>
</tr>
</tbody>
</table>

**Total Credits**

1 Placement into MTH 111 Intermediate Algebra or higher, or completion of MTH 23 Beginning Algebra with a 2.0 or higher.

2 Students intending to transfer to another college should take ENG 112 English Composition.

It is recommended that BUS 105 Business Math be taken before or concurrently with ACC 121 Accounting Principles I.
Students must place into MTH 111 Intermediate Algebra or a higher level math course or complete MTH 23 Beginning Algebra with a 2.0 or higher (4 credits). These credits do not count toward degree requirements.

**Directed Electives**

Select any combination for 5 credits:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACC 223</td>
<td>Cost Accounting</td>
<td>4</td>
</tr>
<tr>
<td>ACC 231</td>
<td>Federal Income Tax Problems</td>
<td>3</td>
</tr>
<tr>
<td>ACC 241</td>
<td>Principles Fraud Examination</td>
<td>3</td>
</tr>
<tr>
<td>CIT 119</td>
<td>Microsoft Office - Word</td>
<td>3</td>
</tr>
<tr>
<td>CIT 122A</td>
<td>Computer &amp; Internet Basics I</td>
<td>1</td>
</tr>
<tr>
<td>CIT 124</td>
<td>Microsoft Office - PowerPoint</td>
<td>2</td>
</tr>
<tr>
<td>CIT 213</td>
<td>Networking Technologies</td>
<td>4</td>
</tr>
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</tr>
<tr>
<td>VCA 150</td>
<td>Digital Graphics Design I</td>
<td>3</td>
</tr>
</tbody>
</table>

**Computer Information Technology - Assistant Developer, Certificate of Achievement (Level I)**

*NMC Code 095*

The CIT Assistant Developer Certificate prepares students for the workplace by concentrating on foundational level skills in web, programming and database technologies. Students in this program will have an opportunity to develop a systems portfolio as well as earn several industry recognized certifications.

**Program Note**

- Completion of this certificate may lead to an AAS degree in CIT-Developer by taking additional courses. See an advisor for details.

**Requirements**

**Certificate Requirements**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level I Certificate Requirements</td>
<td>Programming Logic and Design</td>
<td>3</td>
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<tr>
<td>CIT 110</td>
<td>Relational Databases</td>
<td>3</td>
</tr>
<tr>
<td>CIT 178</td>
<td>Web Development</td>
<td>3</td>
</tr>
<tr>
<td>CIT 190</td>
<td>JavaScript Programming</td>
<td>3</td>
</tr>
<tr>
<td>VCA 127</td>
<td>Digital Imaging</td>
<td>3</td>
</tr>
<tr>
<td>VCA 147</td>
<td>Web Design I</td>
<td>3</td>
</tr>
<tr>
<td>VCA 150</td>
<td>Digital Graphics Design I</td>
<td>3</td>
</tr>
<tr>
<td>Total Credits</td>
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<td>19</td>
</tr>
</tbody>
</table>

1. Microsoft Technology Associate Certification Exam included.

**Course Sequence Guide**

**Year 1**

**Fall**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIT 110</td>
<td>Programming Logic and Design</td>
<td>3</td>
</tr>
<tr>
<td>CIT 178</td>
<td>Relational Databases</td>
<td>3</td>
</tr>
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<td>CIT 180</td>
<td>Web Development</td>
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**Spring**

<table>
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<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>CIT 190</td>
<td>JavaScript Programming</td>
<td>3</td>
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<tr>
<td>CIT 195</td>
<td>Application Development</td>
<td>3</td>
</tr>
<tr>
<td>CIT 213</td>
<td>Networking Technologies</td>
<td>4</td>
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<tr>
<td></td>
<td>Credits</td>
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<tr>
<td>Total Credits</td>
<td></td>
<td>19</td>
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</table>

1. Microsoft Technology Associate Certification Exam included.

**Computer Information Technology - Assistant Web Developer, Certificate of Achievement (Level I)**

*NMC Code 053*

This series of Web Developer certificates provides an introduction to both website design and website development. Visual Communication courses enable students to create visually effective sites using graphic design principles and tools. Information Technology courses provide the technical ability to develop interactive, data-driven sites and applications. Students interested in this profession are usually detail and result oriented, self-directed and enjoy working with both people and technology. The certificates may be completed as stand-alone certificates, taken in order, or applied to electives or major area requirements for an Associate in General Studies or an Associate in Applied Science degree.

**Requirements**

**Certificate Requirements**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level I Certificate Requirements</td>
<td>Programming Logic and Design</td>
<td>3</td>
</tr>
<tr>
<td>CIT 110</td>
<td>Web Development</td>
<td>3</td>
</tr>
<tr>
<td>CIT 190</td>
<td>JavaScript Programming</td>
<td>3</td>
</tr>
<tr>
<td>VCA 127</td>
<td>Digital Imaging</td>
<td>3</td>
</tr>
<tr>
<td>VCA 147</td>
<td>Web Design I</td>
<td>3</td>
</tr>
<tr>
<td>VCA 150</td>
<td>Digital Graphics Design I</td>
<td>3</td>
</tr>
<tr>
<td>Total Credits</td>
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</tr>
</tbody>
</table>
Course Sequence Guide

Year 1

Fall

Course | Title |
--- | --- |
CIT 110 | Programming Logic and Design | 3
CIT 180 | Web Development | 3
VCA 127 | Digital Imaging | 3
VCA 150 | Digital Graphics Design I | 3

Total Credits | 12

Spring

Course | Title |
--- | --- |
CIT 190 | JavaScript Programming | 3
VCA 147 | Web Design I | 3

Total Credits | 6

Year 2

Fall

Select one of the following: 2-3

Course | Title |
--- | --- |
Any CIT course
MKT 208 | Digital Marketing |
VCA 125 | Typography I |
VCA 127 | Digital Imaging |
VCA 150 | Digital Graphics Design I |
CIT 218 | Web Application Development | 3
CIT 255 | Object-Oriented Programming | 3

Total Credits | 8-9

Spring

Course | Title |
--- | --- |
CIT 228 | Advanced Database Systems | 3

Total Credits | 3

Total Credits | 30-31

Computer Information Technology - Associate Developer, Certificate of Achievement (Level II)

NMC Code 094

Students completing the CIT Assistant Developer Certificate may elect to continue their education and obtain a Level II Certificate. This program prepares students for careers as software and web developers using the latest industry technologies.

Program Note

- Completion of this certificate may lead to an AAS degree in CIT-Developer by taking additional courses. See an advisor for details.

Requirements

Certificate Requirements

Course | Title |
--- | --- |
Complete Level I Certificate Requirements | 19

Level II Certification Requirements

Course | Title |
--- | --- |
CIT 218 | Web Application Development | 3
CIT 228 | Advanced Database Systems | 3
CIT 255 | Object-Oriented Programming | 3

CIT Elective

Select one CIT elective 2-3

Total Credits | 30-31

CIT Electives

Course | Title |
--- | --- |
Any CIT course | 2-3 |
MKT 208 | Digital Marketing | 2
VCA 125 | Typography I | 3
VCA 127 | Digital Imaging | 3
VCA 150 | Digital Graphics Design I | 3

Computer Information Technology - Associate Web Developer, Certificate of Achievement (Level II)

NMC Code 054

The Associate Web Developer Certificate is designed for students seeking entry level employment, and includes advanced web design and development skills such as data connectivity, responsive design, interactive graphics and animation.

Requirements

Certificate Requirements

Course | Title |
--- | --- |
Complete Level I Certificate Requirements | 18

Level II Certificate Requirements

Course | Title |
--- | --- |
ART 131 | 2-D Design |
CIT 195 | Application Development |
VCA 125 | Typography I |
VCA 146 | Interactive Animation |

Total Credits | 30
### Course Sequence Guide

<table>
<thead>
<tr>
<th>Year 1</th>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall</td>
<td>ART 131</td>
<td>2-D Design</td>
<td>3</td>
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<td></td>
<td>CIT 110</td>
<td>Programming Logic and Design</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>CIT 180</td>
<td>Web Development</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>VCA 127</td>
<td>Digital Imaging</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>VCA 150</td>
<td>Digital Graphics Design I</td>
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<tr>
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<td><strong>Credits</strong></td>
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</tr>
<tr>
<td>Spring</td>
<td>CIT 190</td>
<td>JavaScript Programming</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>CIT 195</td>
<td>Application Development</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>VCA 125</td>
<td>Typography I</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>VCA 146</td>
<td>Interactive Animation</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>VCA 147</td>
<td>Web Design I</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td><strong>Credits</strong></td>
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</tr>
<tr>
<td><strong>Total Credits</strong></td>
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</tbody>
</table>

**Computer Information Technology**

- **Computer Support Specialist, Certificate of Achievement (Level III)**

*NMC Code 006*

Students complete course work in business and computer operations leading to a certificate. This program is designed to provide students with the necessary skills to work as support specialist or computer technician. Students will have an opportunity to acquire skills using current operating systems, application software, and gain experience using Local Area Networks. Students will also learn troubleshooting methodologies and a basic understanding of computer and network security.

This program requires Microsoft Office™ 2016 on a Windows computer (or on a Mac with a Windows partition). The software is available for download and is also at campus computer labs.

**PROGRAM NOTE**

- Students selecting this certificate program need beginning keyboarding skills.

**Requirements**

**Certificate Requirements**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIT 122A</td>
<td>Computer &amp; Internet Basics I</td>
<td>1</td>
</tr>
<tr>
<td>CIT 119</td>
<td>Microsoft Office - Word</td>
<td>3</td>
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<tr>
<td>CIT 124</td>
<td>Microsoft Office - PowerPoint</td>
<td>2</td>
</tr>
<tr>
<td>CIT 210</td>
<td>Microsoft Office - Excel</td>
<td>3</td>
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<tr>
<td>BUS 155</td>
<td>Interpersonal Communications</td>
<td>3</td>
</tr>
<tr>
<td><strong>Credits</strong></td>
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</table>

**Year 2**

<table>
<thead>
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<th>Fall</th>
<th>Course</th>
<th>Title</th>
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<tbody>
<tr>
<td>BUS 231</td>
<td>Professional Communications</td>
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<tr>
<td>BUS 105</td>
<td>Business Math</td>
<td>3</td>
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<tr>
<td>Any 3-credit CIT Elective Course</td>
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<tr>
<td>PHL 105</td>
<td>Critical Thinking</td>
<td>3</td>
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<tr>
<td>MKT 208</td>
<td>Digital Marketing</td>
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<td><strong>Credits</strong></td>
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<table>
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<th>Spring</th>
<th>Course</th>
<th>Title</th>
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</thead>
<tbody>
<tr>
<td>CIT 240</td>
<td>Network Security Management</td>
<td>3</td>
<td></td>
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<tr>
<td>CIT 243</td>
<td>Cloud Technologies</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>CIT 292</td>
<td>Support Specialist Internship</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>ENG 220</td>
<td>Technical Writing</td>
<td>3</td>
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<tr>
<td><strong>Credits</strong></td>
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</tr>
<tr>
<td><strong>Total Credits</strong></td>
<td></td>
<td><strong>51</strong></td>
<td></td>
</tr>
</tbody>
</table>

1. Microsoft Technology Associate Certification Exam included.
2. Students should see their advisor for recommendations before signing up for a course.
3. Students planning to take the internship class require department approval and are required to have a GPA of 3.0 in their CIT classes. It is also recommended that students have 20 credits in CIT classes and an overall GPA of 2.0. While a 3.0 GPA in CIT classes is required for this internship, an alternative, campus-based internship opportunity is available for students who do not meet this requirement.
4. This Course Requires ENG 111 English Composition as a prerequisite.
Students planning to take the internship class require department approval and are required to have a GPA of 3.0 in their CIT classes. It is also recommended that students have 20 credits in CIT classes and an overall GPA of 2.0. While a 3.0 GPA in CIT classes is required for this internship, an alternative, campus-based internship opportunity is available for students who do not meet this requirement.

This Course Requires ENG 111 English Composition as a prerequisite.

Computer Information Technology - Developer, Associate in Applied Science Degree

NMC Code 108

As everyone and everything becomes networked, the demand for software applications continues to expand. The CIT Developer program targets this need by producing graduates who are effective programmers and solution architects. Courses in the Developer Program utilize various languages, frameworks, and technologies to deliver practical knowledge of application development and data access. The program's focus on a solid understanding of good design practices enables students to easily transition into new development environments. Students considering transfer should see an advisor.

Program Notes

- Some CIT courses include industry certification exams. See the current course descriptions.
- Some advanced CIT courses require students to bring their own Windows computer. See course descriptions.
- Transfer students should consult with their university advisor about the best choice of electives.
- This program requires a minimum of 60 credits. Courses tested out or waived must be replaced with approved program electives.

Requirements

Major Requirements

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENG 111</td>
<td>English Composition</td>
<td>4</td>
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<td>ENG 112</td>
<td>English Composition or ENG 220</td>
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<td>PHL 105</td>
<td>Critical Thinking or PHL 202</td>
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<tr>
<td>Math Competency</td>
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<td>Any Group 1 Science course with lab</td>
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<td></td>
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<tr>
<td>Any Group 1 Social Sciences course</td>
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<table>
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<tr>
<th>Occupational Specialty Courses</th>
<th>Title</th>
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<tbody>
<tr>
<td>CIT 110</td>
<td>Programming Logic and Design</td>
<td>3</td>
</tr>
<tr>
<td>CIT 178</td>
<td>Relational Databases</td>
<td>3</td>
</tr>
<tr>
<td>CIT 180</td>
<td>Web Development</td>
<td>3</td>
</tr>
<tr>
<td>CIT 190</td>
<td>JavaScript Programming</td>
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<td>CIT 195</td>
<td>Application Development</td>
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</tr>
<tr>
<td>CIT 213</td>
<td>Networking Technologies</td>
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Course Sequence Guide

Year 1

Fall

<table>
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<tr>
<th>Course</th>
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<tbody>
<tr>
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Spring

<table>
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<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIT 190</td>
<td>JavaScript Programming</td>
<td>3</td>
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<tr>
<td>CIT 195</td>
<td>Application Development</td>
<td>3</td>
</tr>
<tr>
<td>CIT 213</td>
<td>Networking Technologies</td>
<td>4</td>
</tr>
<tr>
<td>CIT 228</td>
<td>Advanced Database Systems</td>
<td>3</td>
</tr>
</tbody>
</table>
Northwestern Michigan College

Year 2

Fall
Select two of the following Occupational Specialty Electives: 5-6
- Any CIT course
- MKT 208 Digital Marketing
- VCA 125 Typography I
- VCA 127 Digital Imaging
- VCA 150 Digital Graphics Design I
- CIT 218 Web Application Development 3
- CIT 255 Object-Oriented Programming 3

Select one of the following Directed Electives: 3-4
- ACC 121 Accounting Principles I
- BUS 155 Interpersonal Communications
- BUS 231 Professional Communications
- COM 111 Public Speaking
- Science with lab (see Gen Ed requirements) 2

Credits 18-20

Spring
CIT 280 Systems Analysis and Design 4
CIT 290 CIT Internship 3
PHL 105 Critical Thinking 3
or PHL 202
or Contemporary Ethical Dilemmas
Social Science (see Gen Ed Requirements) 2

Credits 13

Total Credits 60-63

1 Placement into MTH 121 College Algebra or higher, or completion of MTH 111 Intermediate Algebra. The four credits of MTH 111 Intermediate Algebra do not count toward total CIT program credits.
2 Microsoft Technology Associate Certification Exams included.
3 Students planning to take the internship class require department approval and are required to have a GPA of 3.0 in their CIT classes. It is also recommended that students have 20 credits in CIT classes and an overall GPA of 2.0. While a 3.0 GPA in CIT classes is required for this internship, an alternative, campus-based internship opportunity is available for students who do not meet this requirement.

Computer Information Technology - Industry Certifications

Industry certifications validate a candidate’s technical knowledge and skills. Many NMC courses include opportunities for students to become certified. For additional information on testing and/or training for any of the certification opportunities listed below, call (231) 995-1169 or email CIT@nmc.edu. NMC is an authorized Certiport, Pearson-VUE, and Prometric testing center.

Cisco CCNA Routing & Switching Certification – The CCNA certification (Cisco Certified Network Associate) indicates a foundation in, and apprentice knowledge of networking. CCNA certified professionals can install, configure, operate LAN and WAN services for small and medium-sized networks, including but not limited to use of these technologies: IP, IPv6, OSPF, Ethernet, Access Lists, Software-Designed Networking, and Network Virtualization.

Cisco Internetworking I (CIT 160), Cisco Internetworking II (CIT 161), and Cisco Internetworking III (CIT 260) are courses offered by the NMC Cisco Networking Academy and provide preparation for the CCNA Routing & Switching Exam.

CompTIA A+® Certification – This certification is the industry standard for validating vendor-neutral skills expected of an entry-level IT technician. CompTIA A+ Certification I (CIT 156) and CompTIA A+ Certification II (CIT 157) are NMC courses and provide the necessary preparation to pass the A+ Core 1 and A+ Core 2 Certification exams.

CompTIA Network+® Certification – This certification validates technical competency in network infrastructure and support. Those holding Network+ certification demonstrate critical knowledge of network concepts, network installation and configuration, network media and topologies, network management and network security. Networking Technologies (CIT 213) is an NMC course that provides the necessary preparation to pass the Network+ Certification exam.

CompTIA Security+® Certification – This certification validates technical knowledge of an individual with experience in network security. The CompTIA Security+ certification validates technical competency in security and covers industry-wide topics including communication security, infrastructure security, cryptography, access control, authentication, external attack, operational and organization...
Network Security Management (CIT 240) provides the necessary preparation to pass the Security+ Certification exam.

**CompTIA PenTest+ ® Certification** - This certification validates competencies in penetration testing and vulnerability management. The CompTIA PenTest+ ® certification assesses the most up-to-date penetration testing, and vulnerability assessment and management skills necessary to determine the resiliency of the network against attacks. Security ASMT. and Compliance (CIT 263) is an NMC course that provides the necessary preparation to pass the PenTest+ Certification exam.

**CompTIA CySA+ ® Certification** - This certification validates competencies in security analytics and threat management. The CompTIA CySA+ ® is an IT workforce certification that applies behavioral analytics to networks and devices to prevent, detect, and combat cybersecurity threats. Security Analytics & Assurance (CIT 264) is an NMC course that provides the necessary preparation to pass the CySA+ Certification exam.

**CompTIA CASP+ ® Certification** - This certification validates competencies in risk management, enterprise security operations and architecture, research and collaboration, and integration of enterprise security. Advanced Enterprise Security (CIT 266) is an NMC course that provides the necessary preparation to pass the CASP+ Certification exam.

**CompTIA Linux+ ® Certification** - This certification validates competencies required for a systems administrator supporting Linux Systems. Linux Administration (CIT 256) is an NMC course that provides the necessary preparation to pass the Linux+ Certification exam.

**CompTIA Cloud+ ® Certification** – This certification validates the skills and expertise of IT practitioners in implementing and maintaining cloud technologies. Cloud+ accredits IT professionals with the constantly changing and advancing knowledge they need to be successful in today's cloud computing environment. Cloud Technologies (CIT 243) is an NMC course that provides the necessary preparation to pass the Cloud+ certification exam.

**Microsoft Office Specialist (MOS)** – Microsoft Office Specialist certification proves expertise in Microsoft applications. Microsoft Office - Word (CIT 119), Microsoft Office - Excel (CIT 210), and Microsoft Office - PowerPoint (CIT 124) are NMC courses that provide the necessary preparation to pass the individual Microsoft Office Specialist certifications.

**Microsoft Technology Associate (MTA)** – The Microsoft Technology Associate (MTA) certification is an entry-level credential from Microsoft that validates essential technology knowledge, enabling students to explore academic and career options, and take the first step toward building a successful career in technology. MTA certifications are embedded into the CIT Developer and CIT Infrastructure and Security degree programs and certificates. Students are able to earn the following Microsoft Technology Associate Exams:

**98-361 Software Development Fundamentals** - The certification validates competencies in software development fundamentals. Topics include knowledge of core programming, object-oriented programming, general software development, web applications, desktop applications and databases. Application Development (CIT 195) and Object-Oriented Programming (CIT 255) are NMC courses that provide the necessary preparation to pass this MTA certification.

**98-381 Introduction to Programming Using Python** - The certification validates competencies in python development fundamentals. Topics...
include knowledge of data types and operators, decisions and loops, input and output operations, structured code, error handling, and development tools. Scripting and Automation (CIT 112) or Advanced Database Systems (CIT 228) are NMC courses that provide the necessary preparation to pass this MTA certification.

98-382 Introduction to Programming using JavaScript - This certification validates competencies in programming using Javascript. Topics include Operators Methods and keywords, data types and values, decisions and loops, document object models, and HTML Forms. JavaScript Programming (CIT 190) is an NMC course that provides the necessary preparation to pass this MTA certification.

98-364 Database Fundamentals - This certification validates competencies in Database fundamentals. Topics include database concepts, database objects, data storage, and administering a database. Relational Databases (CIT 178) is the course that provides the necessary preparation to pass this MTA certification.

98-383 Introduction to Programming Using HTML and CSS - This certification validates competencies in programming using HTML and CSS. Topics include HTML fundamentals, CSS fundamentals, multimedia, and style web pages using CSS. Web Development (CIT 180) is an NMC course that provides the necessary preparation to pass this MTA certification.

98-366 Networking Fundamentals - This certification validates competencies in network fundamentals and concepts. Topics include network infrastructure, network hardware, and protocols and services. Networking Technologies (CIT 213) is an NMC course that provides the necessary preparation to pass this MTA certification.

98-367 Security Fundamentals - This certification validates competencies in security fundamentals. Topics include security layers, operating system security, network security and security software. Network Security Management (CIT 240) is an NMC course that provides the necessary preparation to pass this MTA certification.

98-365 Windows Server Administration Fundamentals - This certification validates competencies in server administration fundamentals. Topics include server installation, server roles, Active Directory, storage, performance, and maintenance. Enterprise Solutions (CIT 247) provides the necessary preparation to pass this MTA certification.

This degree program is designed to prepare students for the following internationally recognized certifications:

**Foundation:**
- MTA - Microsoft Technology Associate

**Networking:**
- CompTIA Network+® Certification
- Cisco Certified Network Associate (CCNA)

**Operating Systems:**
- CompTIA Linux+® Certification
- MCP - Microsoft Certified Professional
- Microsoft Certified Solutions Associate (MCSA)

**Cloud Computing:**
- CompTIA Cloud+® Certification

**Cybersecurity:**
- CompTIA Security+® Certification
- CompTIA PenTest+® Certification
- CompTIA CySA+® Certification
- CompTIA CASP+® Certification

**Program Note**
- This program requires a minimum of 60 credits. Courses tested out or waived must be replaced with approved program electives.

## Requirements

### Major Requirements

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>ENG 111</td>
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<tr>
<td>ENG 220</td>
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<td>3-4</td>
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<tr>
<td>PHL 105</td>
<td>Critical Thinking</td>
<td>3</td>
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<td>Math Competency</td>
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<tr>
<td>Any Group 1 Science course with a lab</td>
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<tr>
<td>Any Group 1 Social Sciences course</td>
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### General Education Requirements

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<thead>
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<tbody>
<tr>
<td>CIT 110</td>
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<td>CIT 112</td>
<td>Scripting and Automation</td>
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<tr>
<td>CIT 160</td>
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<tr>
<td>CIT 161</td>
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<td>3</td>
</tr>
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<td>CIT 213</td>
<td>Networking Technologies</td>
<td>4</td>
</tr>
<tr>
<td>CIT 215</td>
<td>Windows Server Environment</td>
<td>3</td>
</tr>
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<td>CIT 240</td>
<td>Network Security Management</td>
<td>3</td>
</tr>
<tr>
<td>CIT 243</td>
<td>Cloud Technologies</td>
<td>3</td>
</tr>
<tr>
<td>CIT 246</td>
<td>Windows Server Infrastructure</td>
<td>3</td>
</tr>
<tr>
<td>CIT 247</td>
<td>Enterprise Solutions</td>
<td>3</td>
</tr>
<tr>
<td>CIT 256</td>
<td>Linux Administration</td>
<td>3</td>
</tr>
<tr>
<td>CIT 260</td>
<td>Cisco Internetworking III</td>
<td>3</td>
</tr>
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</table>
The Infrastructure Specialist I Certificate of Achievement prepares students to work with Local Area Networks and to learn about scripting and automation. The program is designed to prepare students for the following internationally recognized certifications:

- Microsoft MTA Certification
- CompTIA Network+® Certification
- Cisco Certified Network Associate (CCNA)

**PROGRAM NOTE**

- Completion of this certificate may lead to an AAS degree in CIT-Infrastructure and Security by taking additional courses. See an advisor for details.

## Requirements

### Certificate Requirements

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<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
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<td>CIT Internship</td>
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<tr>
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</table>

- Microsoft Technology Associate certification exam included.
- Placement into MTH 121 College Algebra or higher or completion of MTH 111 Intermediate Algebra – the four credits of MTH 111 Intermediate Algebra do not count toward total CIT program credits.
- Students should take ENG 112 and PHL 202 if they plan to pursue the Ferris State University (FSU) CIT degree.
- Students planning to take the internship class require department approval and are required to have a GPA of 3.0 in their CIT classes. It is also recommended that students have 20 credits in CIT classes and an overall GPA of 2.0. While a 3.0 GPA in CIT classes is required for this internship, an alternative, campus-based internship opportunity is available for students who do not meet this requirement.
- ECO 201 Principles of Macroeconomics recommended.

## Course Sequence Guide

### Year 1

#### Fall

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<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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</thead>
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#### Spring

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<td>CIT 215</td>
<td>Windows Server Environment</td>
<td>3</td>
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<tr>
<td>CIT 256</td>
<td>Linux Administration</td>
<td>3</td>
</tr>
<tr>
<td>CIT 240</td>
<td>Network Security Management</td>
<td>3</td>
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<tr>
<td>CIT 260</td>
<td>Cisco Internetworking III</td>
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<tr>
<td>ENG 111</td>
<td>English Composition</td>
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<td>or PHL 202</td>
<td>Contemporary Ethical Dilemmas</td>
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</tr>
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### Year 2

#### Fall

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<td>CIT 246</td>
<td>Windows Server Infrastructure</td>
<td>3</td>
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<tr>
<td>CIT 263</td>
<td>Security ASMT. and Compliance</td>
<td>3</td>
</tr>
<tr>
<td>CIT 264</td>
<td>Security Analytics &amp; Assurance</td>
<td>3</td>
</tr>
<tr>
<td>ENG 112</td>
<td>English Composition</td>
<td>4</td>
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<tr>
<td>or ENG 220</td>
<td>Technical Writing</td>
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<tr>
<td>Any Group 1 Social Sciences course</td>
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#### Spring

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<th>Course</th>
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<tr>
<td>CIT 243</td>
<td>Cloud Technologies</td>
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<tr>
<td>CIT 247</td>
<td>Enterprise Solutions</td>
<td>1</td>
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</table>

- Microsoft Technology Associate certification exam included.
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- ECO 201 Principles of Macroeconomics recommended.
CIT 260  Cisco Internetworking III  3

Total Credits  19

1  Microsoft Technology Associate certification exam included.

Course Sequence Guide

<table>
<thead>
<tr>
<th>Year 1</th>
<th></th>
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</thead>
<tbody>
<tr>
<td>Fall</td>
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<tr>
<td>CIT 110</td>
<td>Programming Logic and Design</td>
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<td>CIT 112</td>
<td>Scripting and Automation</td>
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<td>CIT 160</td>
<td>Cisco Internetworking I</td>
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<td>CIT 161</td>
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</table>

1  Microsoft Technology Associate certification exam included.

Computer Information Technology
- Infrastructure Specialist II,
Certificate of Achievement (Level II)

NMC Code 030

Students completing the Infrastructure Specialist I Certificate may elect to continue their education and obtain a Level II Certificate. This certificate prepares students for additional skills and knowledge in areas such as operating systems and cloud computing. The content in this certificate prepares students for the following additional internationally recognized certifications.

- Microsoft Certified Professional (MCP)
- Microsoft Certified Solutions Associate (MSCA)
- CompTIA Linux+ ® Certification
- CompTIA Cloud+ ® Certification

PROGRAM NOTE
- Completion of this certificate may lead to an AAS degree in CIT-Infrastructure and Security by taking additional courses. See an advisor for details.

Requirements
Certificate Requirements

<table>
<thead>
<tr>
<th>Year 1</th>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
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<tbody>
<tr>
<td>Fall</td>
<td>CIT 110</td>
<td>Programming Logic and Design</td>
<td>3</td>
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<td>CIT 112</td>
<td>Scripting and Automation</td>
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<td>CIT 160</td>
<td>Cisco Internetworking I</td>
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<td>Spring</td>
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<td>CIT 260</td>
<td>Cisco Internetworking III</td>
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1  Microsoft Technology Associate certification exam included.

Computer Information Technology
- Infrastructure Specialist III,
Certificate of Achievement (Level III)

NMC Code 024

After completing the Infrastructure Specialist II Certificate students may elect to obtain a Level III certificate. This certificate prepares students for additional skills and knowledge in areas such as cybersecurity. The content in this certificate prepares students for the following additional internationally recognized certifications.

- CompTIA Security+ ®
- CompTIA PenTest+ ®
- CompTIA CySA+ ®
- CompTIA CASP+ ®

PROGRAM NOTE
- Completion of this certificate may lead to an AAS degree in CIT-Infrastructure and Security by taking additional courses. See an advisor for details.

Requirements
Certificate Requirements

<table>
<thead>
<tr>
<th>Year 2</th>
<th>Course</th>
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<td>Fall</td>
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<td>Windows Server Infrastructure</td>
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1  Microsoft Technology Associate certification exam included.
Requirements
Certificate Requirements

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<td>Complete Level II Certificate Requirements</td>
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For CompTIA Security+®

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<tbody>
<tr>
<td>CIT 240</td>
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For CompTIA PenTest+® Certification

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<tr>
<th>Course</th>
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For CompTIA CySA+® Certification

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<tbody>
<tr>
<td>CIT 264</td>
<td>Security Analytics &amp; Assurance</td>
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For CompTIA CASP+® Certification

<table>
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Occupational Requirements

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<tbody>
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<td>CIT 290</td>
<td>CIT Internship ²</td>
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Total Credits 49

¹ Microsoft Technology Associate certification exam included.
² Students planning to take the internship class require department approval and are required to have a GPA of 3.0 in their CIT classes. It is also recommended that students have 20 credits in CIT classes and an overall GPA of 2.0. While a 3.0 GPA in CIT classes is required for this internship, an alternative, campus-based internship opportunity is available for students who do not meet this requirement.

Course Sequence Guide

<table>
<thead>
<tr>
<th>Course</th>
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<tbody>
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<td>CIT 110</td>
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<td>Scripting and Automation ¹</td>
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<tr>
<td>Spring</td>
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<tr>
<td>CIT 215</td>
<td>Windows Server Environment</td>
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Computer Information Technology - Microsoft Office™ Applications Specialist, Certificate of Achievement (Level I)

NMC Code 035

The Microsoft Office™ Applications Specialist Certificate helps meet the demand for qualified and knowledgeable people in today's workplace. It helps students to acquire the desktop applications expertise and basic computer skills needed to work more productively and efficiently with Microsoft Office™.

This program requires Microsoft Office™ 2016 on a Windows computer (or on a Mac with a Windows partition). The software is available for download and is also at campus computer labs.

This NMC credential also serves to train candidates for the globally recognized Microsoft Specialist series of certifications. NMC is a Microsoft Office approved testing center, and the certification exams are administered at the Aero Park campus. For more information: (231) 995-2017.

Program Notes

- Students need beginning keyboarding skills. An online course is offered through our Extended Education Program.
- All courses in this certificate are required for the Level II Office Administration and the Level III Computer Support Specialist certificates.

Requirements
Certificate Requirements

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
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<tbody>
<tr>
<td>Level I Certificate Requirements</td>
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<tr>
<td>BUS 155</td>
<td>Interpersonal Communications</td>
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<td>CIT 119</td>
<td>Microsoft Office - Word</td>
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</table>
### Computer Information Technology - Web Developer, Certificate of Achievement (Level III)

**NMC Code 041**

The Web Developer Certificate is designed for students seeking employment requiring more advanced skills including server-side development, advanced database connectivity, and advanced animation. This certificate also includes a semester long internship experience.

#### Requirements

**Certificate Requirements**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<td>Course Sequence Guide</td>
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**Level III Certificate Requirements**

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<td>CIT 255</td>
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<td>CIT 291</td>
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Total Credits: 45-46

¹ Students planning to take the internship class require department approval and are required to have a GPA of 3.0 in their CIT classes.

### Culinary Arts - Baking - Great Lakes Culinary Institute, Certificate of Achievement (Level I)

**NMC Code 037**

This program is designed to provide rigorous and concentrated study for those students who plan to enter the baking industry. GLCI baking certificate students receive practical training in all aspects of commercial baking preparation and presentation. The program includes laboratory courses in baking that will provide the student with the essential and fundamental skills needed to be a successful baker. The curriculum also includes lecture courses in sanitation, menu development and purchasing, and management. Graduates of this program are prepared to accept jobs as bakers in commercial bakeries, restaurants, hotels, resorts and institutions.

*Note: Admission to the Culinary Arts program requires placement into MTH 08 Pre-Algebra or higher and placement into ENG 99 Intro to College Writing/ENG 108 Critical Reading Strategies or higher.*
**Requirements**

**Certificate Requirements**

<table>
<thead>
<tr>
<th>Course</th>
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<td>CUL 118</td>
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<td>4</td>
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<td>CUL 211</td>
<td>Menu Planning and Purchasing</td>
<td>3</td>
</tr>
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<td>CUL 217</td>
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<td>3</td>
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<td>CUL 218</td>
<td>Advanced Baking</td>
<td>4</td>
</tr>
<tr>
<td>CUL 221</td>
<td>Chocolate and Cake Design</td>
<td>4</td>
</tr>
<tr>
<td>CUL 222</td>
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All courses lead to the Culinary Arts Associate in Applied Science (AAS) Degree.

**Course Sequence Guide**

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<th>Credits</th>
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</table>

**Program Note**

GLCI Lab Courses require work outside of regular class hours.

Completion of this certificate may lead to an AAS degree in Culinary Arts by taking additional courses. See an advisor for details.

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**Note:** Admission to the Culinary Arts program requires placement into MTH 08 Pre-Algebra or higher and placement into ENG 99 Intro to College Writing/ENG 108 Critical Reading Strategies or higher.

**Requirements**

**Major Requirements**

<table>
<thead>
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<td>or ENG 112</td>
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<tr>
<td>Any Group 1 Humanities course</td>
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**Occupational Specialty Requirements**

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<td>CUL 190</td>
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<td>CUL 211</td>
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<td>3</td>
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<tr>
<td>CUL 213</td>
<td>World Cuisine</td>
<td>5</td>
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<tr>
<td>CUL 215</td>
<td>Garde Manger</td>
<td>4</td>
</tr>
<tr>
<td>CUL 295</td>
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<tr>
<td>MKT 201</td>
<td>Principles of Marketing</td>
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1 Placement into MTH 111 Intermediate Algebra or higher, or completion of MTH 23 Beginning Algebra

**Course Sequence Guide**

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<td>CUL 110</td>
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<td>CUL 111</td>
<td>Professional Cookery</td>
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<td>CUL 118</td>
<td>Introduction to Baking</td>
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<td>ENG 111</td>
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<td>CUL 211</td>
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<td>3</td>
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<tr>
<td>BUS 231</td>
<td>Professional Communications</td>
<td>3-4</td>
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<td>or ENG 112</td>
<td>English Composition</td>
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<td>CUL 295</td>
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<td>Business Math</td>
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<tr>
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</table>

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**Culinary Arts - Culinary Sales and Marketing, Associate in Applied Science Degree**

*NMC Code 129*

The Culinary Sales and Marketing program will prepare students for food sales, marketing, and procurement positions within the food industry. If you are interested in a sales career within in the food service industry, the more you know about the products you sell and to whom you are selling to, the better prepared you will be. By combining an education in food preparation with business courses, this program will position you one step ahead of the competition.
Spring

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CUL 215</td>
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<td>MKT 201</td>
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Summer

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</table>

Program Notes

**Mathematics requirement:** Completion of MTH 23 Beginning Algebra or Placement into MTH 111 Intermediate Algebra is required for graduation.

Placement into college level English & MTH 23 Beginning Algebra are required for many culinary classes.

**GLCI Lab Courses require work outside of regular class hours.**

Culinary Arts - Great Lakes Culinary Institute, Associate in Applied Science Degree

NMC Code 109

The Great Lakes Culinary Institute believes in the principle of learning by doing. Extensive hands-on training will give students a competitive advantage in this highly competitive field.

This program is designed to provide rigorous and concentrated study for those students who plan careers in the rapidly-growing food service industry. The program’s main emphasis is to prepare students for entry-level chef and kitchen management positions. Consideration is given to the science and techniques associated with the selection, preparation, and serving of foods to large and small groups.

The Great Lakes Culinary Institute is located on NMC’s Great Lakes Campus. It is comprised of five culinary labs: a bakery, introductory and food skills kitchen, an advanced cooking kitchen, a garde manger kitchen, an à la carte kitchen, and Lobdell’s, a 90-seat training restaurant. Upon graduation, students will have a combination of knowledge, skills, and work experience.

The Great Lakes Culinary Institute is accredited by the American Culinary Federation.

**Note:** Admission to the Culinary Arts program requires placement into MTH 08 Pre-Algebra or higher and placement into ENG 99 Intro to College Writing/ENG 108 Critical Reading Strategies or higher.

Requirements

**Major Requirements**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>ENG 111</td>
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**Occupational Specialty Requirements**

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<td>CUL 101</td>
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<td>CUL 110</td>
<td>Safety and Sanitation</td>
<td>2</td>
</tr>
<tr>
<td>CUL 111</td>
<td>Professional Cookery</td>
<td>5</td>
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<tr>
<td>CUL 118</td>
<td>Introduction to Baking</td>
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<td>CUL 190</td>
<td>Culinary Internship</td>
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<td>Nutrition for Culinary Arts</td>
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<td>CUL 211</td>
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<td>CUL 213</td>
<td>World Cuisine</td>
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<tr>
<td>CUL 295</td>
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1 Placement into MTH 111 Intermediate Algebra or higher, or completion of MTH 23 Beginning Algebra

Course Sequence Guide

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## Summer

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## Year 2

### Fall

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<td>CUL 218</td>
<td>Advanced Baking</td>
<td>4</td>
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<td>Science with Lab Elective</td>
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### Spring

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<td>or English Composition</td>
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## Program Notes

Placement into college level English & MTH 23 Beginning Algebra are required for many culinary classes. Additional coursework may be required so that students are prepared to be successful in culinary courses.

GLCI Lab Courses require work outside of regular class hours.

# Culinary Arts - Great Lakes Culinary Institute, Certificate of Achievement (Level III)

*NMC Code 029*

This program is designed to provide rigorous and concentrated study for those students who plan to enter the culinary industry. GLCI Certificate students receive practical training in all aspects of commercial food preparation and presentation. The program includes laboratory courses in classical and American regional cookery, baking and, in our teaching restaurant, Lobdell's, dining room service restaurant operations. The curriculum also includes lecture courses in nutrition, sanitation, purchasing, and management. Graduates of this program are prepared to accept jobs as prep cooks and line cooks in fine restaurants, hotels, resorts and institutions. Promotions are often rapid and salaries are often high for talented and enthusiastic people. The Great Lakes Culinary Institute is accredited by the American Culinary Federation.

*See note under AAS degree for admission requirements.*

## Requirements

### Certificate Requirements

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tr>
<td>CUL 101</td>
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</tr>
<tr>
<td>CUL 190</td>
<td>Culinary Internship</td>
<td>2</td>
</tr>
<tr>
<td>CUL 210</td>
<td>Nutrition for Culinary Arts</td>
<td>2</td>
</tr>
<tr>
<td>CUL 211</td>
<td>Menu Planning and Purchasing</td>
<td>3</td>
</tr>
<tr>
<td>CUL 213</td>
<td>World Cuisine</td>
<td>5</td>
</tr>
<tr>
<td>CUL 215</td>
<td>Garde Manger</td>
<td>4</td>
</tr>
<tr>
<td>CUL 217</td>
<td>Kitchen and Dining Room Mgmt</td>
<td>3</td>
</tr>
<tr>
<td>CUL 218</td>
<td>Advanced Baking</td>
<td>4</td>
</tr>
<tr>
<td>CUL 295</td>
<td>Contemporary Service &amp; Cuisine</td>
<td>12</td>
</tr>
<tr>
<td><strong>Total Credits</strong></td>
<td></td>
<td><strong>49</strong></td>
</tr>
</tbody>
</table>
Course Sequence Guide

Year 1

Fall
- CUL 101 Today’s Hospitality Industry 3
- CUL 110 Safety and Sanitation 2
- CUL 111 Professional Cookery 5
- CUL 118 Introduction to Baking 4

Credits: 14

Spring
- CUL 211 Menu Planning and Purchasing 3
- CUL 213 World Cuisine 5
- CUL 217 Kitchen and Dining Room Mgmt 3

Credits: 11

Summer
- CUL 190 Culinary Internship 2

Credits: 2

Year 2

Fall
- CUL 210 Nutrition for Culinary Arts 2
- CUL 215 Garde Manger 4
- CUL 218 Advanced Baking 4

Credits: 10

Spring
- CUL 295 Contemporary Service & Cuisine 12

Credits: 12

Total Credits: 49

Program Notes
Placement into college level English & MTH 23 Beginning Algebra are required for many culinary classes. Additional coursework may be required so that students are prepared to be successful in culinary courses.

GLCI Lab Courses require work outside of regular class hours.

Completion of this certificate may lead to an AAS degree in Culinary Arts by taking additional courses. See an advisor for details.

Digital Administration and Marketing, Certificate of Achievement (Level I)

NMC Code 048

This certificate combines existing courses in accounting, the Microsoft Office suite, computers in business, computer programming, advertising, marketing and graphic design.

It is intended to help address the needs of currently employed and underemployed white-collar workers who want to improve their digital skills for professional advancement, and their employers, who are interested in forestalling the loss of employees to competitors.

Requirements

Certificate Requirements

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIT 100</td>
<td>Computers in Business-An Intro</td>
<td>3</td>
</tr>
<tr>
<td>CIT 180</td>
<td>Web Development</td>
<td>3</td>
</tr>
<tr>
<td>MKT 201</td>
<td>Principles of Marketing</td>
<td>3</td>
</tr>
<tr>
<td>MKT 208</td>
<td>Digital Marketing</td>
<td>2</td>
</tr>
</tbody>
</table>

Directed Electives

Select any combination of 6-7 credits from the list

Total Credits: 17-18

Directed Electives

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACC 121</td>
<td>Accounting Principles I ¹</td>
<td>4</td>
</tr>
<tr>
<td>BUS 231</td>
<td>Professional Communications</td>
<td>3</td>
</tr>
<tr>
<td>CIT 110</td>
<td>Programming Logic and Design</td>
<td>3</td>
</tr>
<tr>
<td>CIT 119</td>
<td>Microsoft Office - Word</td>
<td>3</td>
</tr>
<tr>
<td>CIT 178</td>
<td>Relational Databases</td>
<td>3</td>
</tr>
<tr>
<td>CIT 210</td>
<td>Microsoft Office - Excel</td>
<td>3</td>
</tr>
<tr>
<td>CIT 216</td>
<td>Computerized Accctg Systems ¹</td>
<td>3</td>
</tr>
<tr>
<td>MKT 241</td>
<td>Principles of Advertising</td>
<td>3</td>
</tr>
<tr>
<td>VCA 127</td>
<td>Digital Imaging</td>
<td>3</td>
</tr>
<tr>
<td>VCA 150</td>
<td>Digital Graphics Design I</td>
<td>3</td>
</tr>
</tbody>
</table>

¹ ACC 121 Accounting Principles I is a required prerequisite

Course Sequence Guide

Year 1

Fall
- CIT 100 Computers in Business-An Intro 3
- MKT 201 Principles of Marketing 3
- Directed Elective (see list) 3-4

Credits: 9-10

Spring
- CIT 180 Web Development 3
- MKT 208 Digital Marketing 2
- Directed Elective (see list) 3

Credits: 8

Total Credits: 17-18

Directed Electives

Select any combination for 6 credits:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACC 121</td>
<td>Accounting Principles I ¹</td>
<td>4</td>
</tr>
<tr>
<td>BUS 231</td>
<td>Professional Communications</td>
<td>3</td>
</tr>
<tr>
<td>CIT 110</td>
<td>Programming Logic and Design</td>
<td>3</td>
</tr>
<tr>
<td>CIT 119</td>
<td>Microsoft Office - Word</td>
<td>3</td>
</tr>
<tr>
<td>CIT 178</td>
<td>Relational Databases</td>
<td>3</td>
</tr>
<tr>
<td>CIT 210</td>
<td>Microsoft Office - Excel</td>
<td>3</td>
</tr>
</tbody>
</table>
Office Administration, Certificate of Achievement (Level II)

NMC Code 044

Well-trained office professionals continue to be in demand and play an integral role in the successful operation of an organization. They work as a team with managers, professionals, and other support staff to control and manage administrative operations.

The Office Administration Certificate builds on the Microsoft Office™ Applications Specialist Certificate and focuses on specific skills that area employers consider essential.

This program requires Microsoft Office™ 2016 on a Windows computer (or on a Mac with a Windows partition). The software is available for download and is also at campus computer labs.

Requirements

Certificate Requirements

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
</table>

Microsoft Office™ Applications Specialist Level I Certificate Requirements

Complete Level I Certificate Requirements 17

Office Administration Level II Certificate Requirements

ACC 121 Accounting Principles I 4

BUS 101 Introduction to Business 3

BUS 231 Professional Communications 3

Select one of the following: 3

- PHL 105 Critical Thinking
- PHL 201 Ethics
- PHL 202 Contemporary Ethical Dilemmas

Total Credits 30

Note: Students selecting this certificate program need beginning keyboarding skills, which is available through an Extended Education class if needed.

Course Sequence Guide

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
</table>

Year 1

Fall

BUS 101 Introduction to Business 3

BUS 155 Interpersonal Communications 3

CIT 119 Microsoft Office - Word 3

CIT 122A Computer & Internet Basics I 1

CIT 124 Microsoft Office - PowerPoint 2

Select one of the following: 3

- PHL 105 Critical Thinking
- PHL 201 Ethics

Spring

ACC 121 Accounting Principles I 4

BUS 231 Professional Communications 3

CIT 210 Microsoft Office - Excel 3

MKT 251 Human Resources Management 3

MKT 208 Digital Marketing 2

Total Credits 15

Note: Placement into MTH 23 Beginning Algebra or completion of MTH 08 Pre-Algebra with a 2.0 or higher is required for the ACC 121 Accounting Principles I course.

Program Notes

Students selecting this certificate program need beginning keyboarding skills, which is available through an Extended Learning class if needed.

Completion of this certificate also results in the Microsoft Office™ Application Specialist Certificate.

Technical Management Administration, Associate in Applied Science Degree

NMC Code 573

Adding technical training to a business background has long been recognized as a powerful combination in the job market. Technicians often work with non-technical personnel such as accountants, managers, and data processors.

In order to obtain this successful combination of technical and business skills, students who have earned an Associate in Applied Science degree in a technical program may earn a second AAS degree in Technical Management Administration by completing 32 additional credits with a business emphasis.

Please note: This program is available only to students who have already completed an associate degree program in a technical area (Technical, Health, and Visual Communications programs). This program is not available to the student whose first degree is from a Business program.
Course Sequence Guide

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MGT 241</td>
<td>Principles of Management</td>
<td>3</td>
</tr>
<tr>
<td>MGT 251</td>
<td>Human Resources Management</td>
<td>3</td>
</tr>
<tr>
<td>MKT 201</td>
<td>Principles of Marketing</td>
<td>3</td>
</tr>
<tr>
<td>Any Business Area Elective (BUS, MGT, MKT)</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 92-96

Program Notes

This program is available only to students who have already completed an Associate degree program in a Technical area (Commercial Art, Health, and Technical programs). This program is not available to the student whose first degree is from a Business Academic Area program.

Total Program Credits: AAS Degree from a Technical, Health, or the Visual Communications program, plus 32 additional credits as listed.

Communications Programs

- Public Speaking and Communications Studies (https://catalog.nmc.edu/programs-az/transfer-options/#Communications)
- English (https://catalog.nmc.edu/programs-az/transfer-options/#English)
- World Languages (https://catalog.nmc.edu/programs-az/transfer-options/#World)

Courses

American Sign Language

ASL 101 - American Sign Language I

Credit Hours: 4, Contact Hours: 4

Division: Communications

ASL 101 introduces students to the language and culture of Deaf people in the United States and most of Canada. This course will focus on building vocabulary and dialogue structures needed for introductory conversations about purposeful topics, the use of non-manual grammatical markers such as facial expression, use of fingers spelling and numbers, and an introduction to the rich history and culture of the Deaf community. Students will participate in interactive classroom activities using a ‘voices off’ policy to ensure ASL immersion. Group 2 course. Communications - Direct, Critical Thinking - Direct, Degree Req: Cultural Persp/Div.

Recommended Prerequisites: Students will be required to communicate in sign language; need a minimal amount of technological knowledge and skill to take advantage of outside-of-class requirements; need to be able to play a course-required DVD; and need internet access as much of the course is supported by Moodle.

ASL 102 - American Sign Language II

Credit Hours: 4, Contact Hours: 4

Division: Communications

ASL 102 furthers student knowledge and experience of the language and culture of Deaf people in the United States and most of Canada. The introduction of additional vocabulary and grammar structures furthers students’ ability to communicate meaningfully with ASL users. Students will develop greater insight into the Deaf culture through the context of ASL literature and current topics relevant to the Deaf community are explored. ‘Voice off’ policy is used for more extended periods of time. While developing communication skills, students will simultaneously mature in their understanding of the Deaf experience. Group 2 course. Communications - Direct, Critical Thinking - Direct, Degree Req: Cultural Persp/Div.

Required Prerequisites: ASL 101 or instructor permission

Recommended Prerequisites: Students will be required to communicate in sign language; need a minimal amount of technological knowledge and skill to take advantage of outside-of-class requirements; need to be able to play a course-required DVD; and need internet access as much of the course is supported by Moodle.

ASL 103 - American Sign Language III

Credit Hours: 4, Contact Hours: 4

Division: Communications

ASL 103 is a continuation of ASL 101 and ASL 102, expanding the emphasis on ASL grammar, vocabulary development, and Deaf culture. Dialogue, short stories, narratives, and short conversation, both receptive and expressive, will be featured throughout the course. Meaningful conversational topic development is emphasized. Group 2 course. Communications - Direct, Critical Thinking - Direct, Degree Req: Cultural Persp/Div.

Required Prerequisites: ASL 102 or instructor permission

Recommended Prerequisites: Students will be required to communicate in sign language; need a minimal amount of technological knowledge and skill to take advantage of outside-of-class requirements; need to be able to play a course-required DVD; and need internet access as much of the course is supported by Moodle.
ASL 104 - American Sign Language IV  
**Credit Hours:** 4, **Contact Hours:** 4  
*Division: Communications*  
ASL 104 is a continuation of ASL 101, ASL 102, and ASL 103. Students will further develop ASL grammar, vocabulary development, and Deaf culture. Dialogue, short stories, narratives, and short conversation, both receptive and expressive, will be featured through the course. Meaningful conversational topic development is emphasized. Group 2 course. Communications - Direct, Critical Thinking - Direct.  
*Required Prerequisites:* ASL 103 or instructor permission  
*Recommended Prerequisites:* Students will be required to communicate in sign language; need a minimal amount of technological knowledge and skill to take advantage of outside-of-class requirements; need to be able to play a course-required DVD; and need internet access as much of the course is supported by Moodle.

### Communications

**COM 101 - Introduction to Communication**  
**Credit Hours:** 4, **Contact Hours:** 4  
*Division: Communications*  
The course is designed to introduce the student to the basic components of the communication process as they operate in four contexts: interpersonal, group, organizational and mass media. The four contexts will be integrated under the rubric of Meaning Theory in the latter part of the course. The direct application of theories to the student's individual career choice or personal life experience is stressed. Group 2 course. Communications - Direct, Critical Thinking - Direct.  
*Recommended Prerequisites:* Placement into ENG 111, ENG 11/111, or successful completion of ENG 99/108.  

**COM 111 - Public Speaking**  
**Credit Hours:** 4, **Contact Hours:** 4  
*Division: Communications*  
Designed to acquaint students with the fundamentals of the discipline and to give them confidence in speech situations. This course considers voice, platform technique, message organization and audience analysis. Emphasis is upon the formal speaking situation. Group 2 course. Communications - Direct, Critical Thinking - Direct.  

**COM 121 - Broadcasting Practicum I**  
**Credit Hours:** 2, **Contact Hours:** 2  
*Division: Communications*  
Practical experience in underwriting, announcing, script writing, 'on-air' studio operations and the management of the non-profit college radio station are all part of this course. Internships with local radio stations may be arranged. Group 2 course. Communications - Direct.  
*Recommended Prerequisites:* College level reading and writing skills.

**COM 122 - Broadcasting Practicum II**  
**Credit Hours:** 2, **Contact Hours:** 2  
*Division: Communications*  
This course continues practical experience in underwriting, announcing, script writing, 'on-air' studio operations and management. Internships with local radio stations may be arranged. Group 2 course. Communications - Direct.  
*Recommended Prerequisites:* College-level reading and writing skills.

**COM 201 - Mass Communication and Culture**  
**Credit Hours:** 4, **Contact Hours:** 4  
*Division: Communications*  
The course is designed to introduce the student to various perspectives on the analysis, evaluation and understanding of mediated communication in mass culture. The course is divided into two major parts. The first focuses on industrial-age theories of mass communication and culture. The second part is designed to give the student the necessary tools to make information-age adaptations to the explanatory/predictive models of the effects of mass communication and culture. The direct application of theories, critical thinking and analysis of communication having relevance to the student's individual career choice of life experience is stressed. Group 2 course. Communications - Direct, Critical Thinking - Direct.  
*Recommended Prerequisites:* Placement into ENG 111, ENG 11/111, or successful completion of ENG 99/108.

### English

**ENG 11 - English/Writing Methods**  
**Credit Hours:** 2, **Contact Hours:** 2  
*Division: Communications*  
ENG 11 is to be taken concurrently with ENG 111, and helps facilitate the objectives of ENG 111. Special attention is given to individual student needs in the conventions of standard written prose. An additional two (2) credits provided by ENG 11 are non-transferable hours.  
*Required Prerequisites:* Placement into ENG 11/111 or successful completion of ENG 99 and ENG 108. Based on placement testing. See advisor.  
*Corequisites:* ENG 111

**ENG 12 - English/Writing Methods**  
**Credit Hours:** 2, **Contact Hours:** 2  
*Division: Communications*  
ENG 12 is to be taken concurrently with ENG 112 and will help to facilitate the objectives of ENG 112. Special attention is given to individual student needs in the conventions of standard written prose, argumentation, and research. An additional two (2) credits provided by ENG 12 are non-transferable hours.  
*Required Prerequisites:* Successful completion of ENG 111 or ENG 11 and ENG 111.  
*Recommended Prerequisites:* This course is highly recommended (but not required) for students who complete their first semester of freshman composition with a 1.0 or 1.5, or for students who simply express a need to work on the ENG 112 curriculum in a smaller class, with more time and individual attention.  
*Corequisites:* ENG 112
ENG 97 - Fundamentals of Reading/Writing  
Credit Hours: 4, Contact Hours: 4  
Division: Communications  
This course is to be taken concurrently with ENG 107 and will provide an overview to reading, writing and college readiness. The course will provide students with basic skills required for college success, thereby empowering them to become more responsible and actively engaged in their own education. Students will learn and practice basic reading skills such as annotation, think-aloud, and main idea identification. Students will also be introduced to the writing process and learn a variety of methods such as free writing, invention, essay planning, drafting, and revision. In addition, they will learn strategies to assist them in successful college completion by learning the following skills: time management, goal setting, note taking, organization, and motivation.  
Required Prerequisites: Appropriate placement score  
Corequisites: ENG 107

ENG 99 - Intro to College Writing  
Credit Hours: 3, Contact Hours: 3  
Division: Communications  
This is an introductory writing course. Students will engage with the writing process as they write a variety of responses, analyses and thesis-driven essays. This course builds on skills students already have and prepares them for college composition courses. It also focuses on grammar, punctuation and sentence construction and variety. ENG 99 also covers a broad range of thematic topics to help students develop critical writing and thinking skills.  
Required Prerequisites: Students are placed in this course according to placement guidelines set by NMC.  
Corequisites: ENG 108

ENG 107 - Academic Study Methods  
Credit Hours: 2, Contact Hours: 2  
Division: Communications  
This course is designed to provide students with the strategies necessary to succeed in college. Participants will examine the characteristics of successful students as well as learn strategies for taking greater responsibility for their own learning. Additionally, the course will provide ways of developing greater intrinsic motivation, increased perseverance, and more effective time management skills, as well as help them discover and revise limiting beliefs and self-defeating behaviors. Practical skills will include a variety of note taking and study strategies as well as confident and effective test preparation. Group 2 course.  
Communications - Direct, Critical Thinking - Direct.

ENG 108 - Critical Reading Strategies  
Credit Hours: 3, Contact Hours: 3  
Division: Communications  
The focus of this course is on improving college-level reading skills. Students read and interact with complex texts including fiction, non-fiction memoir, articles, and books. Students also learn to employ a variety of reading strategies to enhance comprehension and critical thinking. Group 2 course.  
Communications - Direct, Critical Thinking - Direct.  
Required Prerequisites: Students are placed in this course according to placement guidelines set by NMC.  
Corequisites: ENG 99

ENG 111 - English Composition  
Credit Hours: 4, Contact Hours: 4  
Division: Communications  
ENG 111 is the first semester of a two-semester composition sequence introducing analytical and information literacy skills that lay a foundation for success in all disciplines. ENG 111 introduces and emphasizes rhetorical knowledge (including audience and purpose), invention, and reading/writing processes. Group 1 course.  
Communications - Direct, Critical Thinking - Direct, Infused: Writing Intensive.  
Required Prerequisites: Successful completion of ENG 111 or ENG 111/11.

ENG 210 - Children's Literature  
Credit Hours: 3, Contact Hours: 3  
Division: Communications  
Focus is on developing criteria, terminology and resources for evaluation and selection of good quality children's literature and on developing methods for sharing that literature with children. The course surveys both picture books and novels from a variety of genres and cultures and also examines the impact of social change on children's literature. Humanities or English credit. Group 1 course.  
Communications - Direct, Critical Thinking - Direct, Degree Req:Cultural Persp/Div, Infused: Writing Intensive.  
Required Prerequisites: Placement into ENG 111

ENG 211 - Introduction to Linguistics  
Credit Hours: 3, Contact Hours: 3  
Division: Communications  
This course is designed to acquaint students with modern developments in the science and philosophy of language, and to improve their understanding of the intersection of culture and language. It addresses issues of sound, word formation, syntax, semantics, language acquisition, language variation and change, and more. Group 2 course.  
Communications - Direct, Critical Thinking - Direct, Infused: Writing Intensive.  
Required Prerequisites: Placement into ENG 111

ENG 220 - Technical Writing  
Credit Hours: 3, Contact Hours: 3  
Division: Communications  
This course introduces students to a variety of technical writing situations in business, industry, science, and education. It emphasizes audience awareness, research methods, problem solving, critical thinking, professional ethics, and types of formal reports including proposals, analytical reports, progress reports, and technical instructions and descriptions. Group 2 course.  
Communications - Direct, Critical Thinking - Direct, Infused: Writing Intensive.  
Required Prerequisites: ENG 111
ENG 221 - Creative Writing  
Credit Hours: 3, Contact Hours: 3  
Division: Communications  
Study and practice of the basic techniques of effective imaginative creative writing: concrete language, conflict, characterization, point of view, narrative, lyricism, pace, and setting. Course focuses on multiple genres of creative writing. Employs workshop format to develop reading and feedback skills. Skills developed include close reading, close observation, craft in above-described techniques, revision, discipline and practice, giving and receiving feedback, developing access to imaginative powers. Text is supplemented with additional examples of contemporary creative writing. Group 2 course. Communications - Direct, Critical Thinking - Direct, Infused: Writing Intensive.  
Required Prerequisites: ENG 112 or permission of instructor  
Recommended Prerequisites: Students should have language skills at least equivalent to ENG 112.

ENG 222 - Advanced Creative Writing  
Credit Hours: 3, Contact Hours: 3  
Division: Communications  
Continued study and practice of basic techniques of effective imaginative prose learned in ENG 221: concrete language, conflict, characterization, point of view, narrative arc, pace and setting. Focus on fiction, but allowance for nonfiction. Employs workshop format to develop reading and feedback skills. Skills developed include close reading, close observation, craft techniques, revision, discipline and practice, giving and receiving feedback, developing access to imaginative powers. Explores ways to suggest and shape meaning in fiction. Group 2 course. Communications - Direct, Critical Thinking - Direct, Degree Req:Cultural Persp/Div, Infused: Writing Intensive.  
Required Prerequisites: ENG 221 or instructor permission  
Recommended Prerequisites: Students should have language skills at least equivalent to ENG 112.

ENG 223 - Creative Writing - Poetry  
Credit Hours: 3, Contact Hours: 3  
Division: Communications  
Study and practice of basic elements of poetic composition, by reading and writing a variety of forms. Employs workshop format to develop reading and feedback skills. Skills developed include close reading, close observation, craft techniques, revision, discipline and practice, giving and receiving feedback, developing access to imaginative powers. Engages deeply with several works of contemporary poetry. Group 2 course. Communications - Direct, Critical Thinking - Direct, Degree Req:Cultural Persp/Div, Infused: Writing Intensive.  
Required Prerequisites: ENG 221 or permission of instructor  
Recommended Prerequisites: Students should have language skills at least equivalent to ENG 112.

ENG 224 - Journalism Fundamentals  
Credit Hours: 3, Contact Hours: 3  
Division: Communications  
This course examines the changing face of journalism and media today, providing students with theory and practice in four core areas: interviewing, newswriting, reporting and research. Students will learn the form and conventions of hard news, opinion/editorial, feature writing and alternative story formats across media platforms: print, on-line blog, radio and video. Students will examine the history of journalism, press law and ethic while exploring the changing roles of journalism and how its processes and products impact readers in our highly mediated contemporary society. Group 2 course. Communications - Direct, Critical Thinking - Direct, Infused: Writing Intensive.  
Required Prerequisites: Placement into ENG 111  
Recommended Prerequisites: Interest in or curiosity about print and digital media and reporting; knowledge of word processing, preferably in Windows and/or Macintosh environments.

ENG 240 - Introduction to Literature  
Credit Hours: 3, Contact Hours: 3  
Division: Communications  
An introduction to a variety of literary styles, themes, and forms such as fiction, drama, and poetry. Intended to develop an understanding and enjoyment of reading as well as an understanding of current critical approaches to the study of literature. Humanities or English credit. Group 1 course. Communications - Direct, Critical Thinking - Direct, Infused: Writing Intensive.  
Required Prerequisites: Placement into ENG 111

ENG 241 - World Mythology  
Credit Hours: 3, Contact Hours: 3  
Division: Communications  
This course features a study of central and recurring patterns of human concern as revealed in the mythic content of various forms of literature. Examination of archetypical structures embedded in works of culture ranging from ancient Babylonian to contemporary eras is central to course goals and outcomes. Areas to be investigated will include myths of the quest, of power, of origins, of love, and of art. Humanities or English credit. Group 1 course. Communications - Direct, Critical Thinking - Direct, Degree Req:Cultural Persp/Div, Infused: Writing Intensive.  
Required Prerequisites: Placement into ENG 111

ENG 242 - Introduction to Women Writers  
Credit Hours: 3, Contact Hours: 3  
Division: Communications  
This course features an examination of essays, novels, stories, and poems written by women from various socioeconomic, racial, and historical backgrounds. Examination of how women writers have reshaped definitions of literary genres and themes. Humanities or English credit. Group 1 course. Communications - Direct, Critical Thinking - Direct, Degree Req:Cultural Persp/Div, Infused: Writing Intensive.  
Required Prerequisites: Placement into ENG 111

ENG 246 - British Literature I  
Credit Hours: 3, Contact Hours: 3  
Division: Communications  
This course offers intensive readings of works from British authors spanning from early medieval works such as Beowulf through the Neoclassical era. Literature will be analyzed as artifacts within sociocultural and historical contexts and as representatives of styles and genres within this literary tradition. English or Humanities credit. Group 1 course. Communications - Direct, Critical Thinking - Direct, Degree Req:Cultural Persp/Div, Infused: Writing Intensive.  
Required Prerequisites: Placement into ENG 111
ENG 247 - British Literature II
Credit Hours: 3, Contact Hours: 3
Division: Communications
This course offers intensive readings of works from British authors spanning from the Romantic era through contemporary times. Literature will be analyzed as artifacts within sociocultural and historical contexts and as representatives of styles and genres within this literary tradition. English or Humanities credit. Group 1 course. Communications - Direct, Critical Thinking - Direct, Degree Req; Cultural Persp/Div, Infused: Writing Intensive.
Required Prerequisites: Placement into ENG 111

ENG 254 - Shakespeare
Credit Hours: 3, Contact Hours: 3
Division: Communications
This course is an introduction to representative major dramatic works of Shakespeare and the Elizabethan Age, and includes lecture, film, and discussion. Humanities or English credit. Group 1 course. Communications - Direct, Critical Thinking - Direct, Infused: Writing Intensive.
Required Prerequisites: Placement into ENG 111

ENG 256 - Environmental Literature
Credit Hours: 3, Contact Hours: 3
Division: Communications
This course will explore the changing perceptions and definitions of wilderness and nature in American literature and culture. Students will read and discuss poetry, fiction, and nonfiction by American authors, including Emerson, Thoreau, Muir, Leopold, Austin, Carson, Stegner, Jefferis, Silko, Snyder, Oliver, Abbey, and Williams. We will also explore the interaction between literature and environmental activism, and consider the impact of nature and wilderness on American art. Group 1 course. Communications - Direct, Critical Thinking - Direct, Degree Req; Cultural Persp/Div, Infused: Writing Intensive.
Required Prerequisites: Placement into ENG 111

ENG 262 - American Literature
Credit Hours: 3, Contact Hours: 3
Division: Communications
Students in this course study the American tradition, early and modern, in prose and poetry. Selections will emphasize the cultural and intellectual background giving rise to our national literature, the major phases or movements in that literature, and how certain writers transcended those movements to create work of universal value. Humanities or English credit. Group 1 course. Communications - Direct, Critical Thinking - Direct, Infused: Writing Intensive.
Required Prerequisites: Placement into ENG 111

ENG 263 - World Literature
Credit Hours: 3, Contact Hours: 3
Division: Communications
This course exposes students to a variety of readings drawn from Africa, Asia, Europe, and Latin America, and/or Oceania. While the reading and writing assignments will certainly require close literary analysis, the class will also attempt to situate the works culturally, historically, and theoretically. Humanities or English credit. Group 1 course. Communications - Direct, Critical Thinking - Direct, Degree Req; Cultural Persp/Div, Infused: Writing Intensive.
Required Prerequisites: Placement into ENG 111

ENG 265 - Science Fiction and Fantasy
Credit Hours: 3, Contact Hours: 3
Division: Communications
The primary emphasis of this course are reading and writing about Science Fiction and Fantasy stories as they are found in a range of cultural texts like print, motion pictures, radio drama, television, and more. Students will learn to identify and discuss mythologies and related symbols, and genre and formula conventions such as icons, stereotypes, rituals, plots, motifs, settings, and more as they investigate the social history of these stories. Humanities or English credit. Group 1 course. Communications - Direct, Critical Thinking - Direct, Infused: Writing Intensive.
Required Prerequisites: Placement into ENG 111

ENG 266 - Popular Culture
Credit Hours: 3, Contact Hours: 3
Division: Communications
The primary emphasis of this course is on the critical reading of and writing about popular culture and its historical development in United States and world cultures. Topics to be addressed include myth and mythmaking, iconography, stereotypes, rituals, genres and formulas, the mass media and more. Humanities or English credit. Group 1 course. Communications - Direct, Critical Thinking - Direct, Infused: Writing Intensive.
Required Prerequisites: Placement into ENG 111

ENG 267 - Adolescent Literature
Credit Hours: 3, Contact Hours: 3
Division: Communications
This course offers students the opportunity to examine and critique a selection of films through discussion and writing by employing techniques similar to those used in literary analysis. Humanities or English credit. Group 1 course. Communications - Direct, Critical Thinking - Direct, Infused: Writing Intensive.
Required Prerequisites: Placement into ENG 111

FRN 101 - Elementary French I
Credit Hours: 4, Contact Hours: 4
Division: Communications
This course represents a comprehensive introduction to the French language for the true beginner. Students will develop the ability to communicate in French in everyday practical situations while acquiring some of the necessary skills for reading, writing, listening, and speaking. Cultural topics are integrated in each unit. Group 2 course. Communications - Direct, Critical Thinking - Direct, Degree Req; Cultural Persp/Div.
Recommended Prerequisites: Students will be required to read, write, listen, and speak in French. You will need a minimal ability using technology to take advantage of outside-of-class requirements.
FRN 102 - Elementary French II  
Credit Hours: 4, Contact Hours: 4  
Division: Communications  
FRN 102 is a continuation of FRN 101 and focuses on the expansion of the communication skills of reading, writing, listening, and speaking. Cultural topics are integrated in each unit. Group 2 course. Communications - Direct, Critical Thinking - Direct, Degree Req:Cultural Persp/Div.  
Required Prerequisites: FRN 101 with a minimum grade of 2.0 or required score on the NMC placement test or instructor permission  
Recommended Prerequisites: Students will be required to read, write, listen, and speak in French. You will need a minimal ability using technology to take advantage of outside-of-class requirements.

FRN 201 - Intermediate French I  
Credit Hours: 4, Contact Hours: 4  
Division: Communications  
FRN 201 is designed to further develop language proficiency in reading, writing, listening, and speaking. A deeper exploration of French culture is presented in this course, allowing students to transform themselves into truly active and proficient language users. Group 1 course. Communications - Direct, Critical Thinking - Direct, Degree Req:Cultural Persp/Div.  
Required Prerequisites: FRN 102 with a minimum grade of 2.0 or required score on the NMC placement test or instructor permission  
Recommended Prerequisites: You will be required to read, write, listen, and speak in French. You will need a minimal ability using technology to take advantage of outside-of-class requirements.

FRN 202 - Intermediate French II  
Credit Hours: 4, Contact Hours: 4  
Division: Communications  
FRN 202 is a continuation of FRN 201 and focuses on the application of the communication skills of reading, writing, listening, and speaking within cultural contexts. Group 1 course. Communications - Direct, Critical Thinking - Direct, Degree Req:Cultural Persp/Div.  
Required Prerequisites: FRN 201 with a minimum grade of 2.0 or required score on the NMC placement test or instructor permission  
Recommended Prerequisites: Students will be required to read, write, listen, and speak in French. You will need a minimal ability using technology to take advantage of outside-of-class requirements.

German

GRM 101 - Elementary German I  
Credit Hours: 4, Contact Hours: 4  
Division: Communications  
This course represents a comprehensive introduction to the German language for the true beginner. Students will develop the ability to communicate in German in everyday practical situations while acquiring some of the necessary skills for reading, writing, listening, and speaking. Cultural topics are integrated into each unit. Group 2 course. Communications - Direct, Critical Thinking - Direct, Degree Req:Cultural Persp/Div.  
Recommended Prerequisites: Students will be required to read, write, listen and speak in German. You will need a minimal ability using technology to take advantage of outside-of-class requirements.

GRM 102 - Elementary German II  
Credit Hours: 4, Contact Hours: 4  
Division: Communications  
GRM 102 is a continuation of GRM 101 and focuses on the expansion of the communication skills of reading, writing, listening, and speaking. Cultural topics are integrated into each unit. Group 2 course. Communications - Direct, Critical Thinking - Direct, Degree Req:Cultural Persp/Div.  
Required Prerequisites: GRM 101 with a minimum of 2.0, required score on the NMC language placement test or instructor permission.  
Recommended Prerequisites: Students will be required to read, write, listen and speak in German. You will need a minimal ability using technology to take advantage of outside-of-class requirements.

Spanish

SPN 101 - Elementary Spanish I  
Credit Hours: 4, Contact Hours: 4  
Division: Communications  
This course represents a comprehensive introduction to the Spanish language for the true beginner. Students will develop the ability to communicate in Spanish in everyday practical situations while acquiring some of the necessary skills for reading, writing, listening, and speaking. Cultural topics are integrated into each unit. Group 2 course. Communications - Direct, Critical Thinking - Direct, Degree Req:Cultural Persp/Div.  
Recommended Prerequisites: Students will be required to read, write, listen, and speak in Spanish. You will need a minimal ability using technology to take advantage of outside-of-class requirements.
SPN 102 - Elementary Spanish II  
**Credit Hours:** 4, **Contact Hours:** 4  
**Division:** Communications  
SPN 102 is a continuation of SPN 101 and focuses on the expansion of the communication skills of reading, writing, listening, and speaking. Cultural topics are integrated in each unit. Group 2 course. Communications - Direct, Critical Thinking - Direct, Degree Req:Cultural Persp/Div.  
Required Prerequisites: SPN 101 with a minimum grade of 2.0 or required score on the NMC language placement test or instructor permission  
Recommended Prerequisites: Students will be required to read, write, listen, and speak in Spanish. You will need a minimal ability using technology to take advantage of outside-of-class requirements.

SPN 201 - Intermediate Spanish I  
**Credit Hours:** 4, **Contact Hours:** 4  
**Division:** Communications  
SPN 201 is designed to further develop language proficiency in reading, writing, listening, and speaking. A deeper exploration of Hispanic culture is presented in this course, allowing students to transform themselves into truly active and proficient language users. Group 1 course. Communications - Direct, Critical Thinking - Direct, Degree Req:Cultural Persp/Div.  
Required Prerequisites: SPN 102 with a minimum grade of 2.0 or required score on the NMC language placement test or instructor permission  
Recommended Prerequisites: Students will be required to read, write, listen, and speak in Spanish. You will need a minimal ability using technology to take advantage of outside-of-class requirements.

SPN 202 - Intermediate Spanish II  
**Credit Hours:** 4, **Contact Hours:** 4  
**Division:** Communications  
SPN 202 is a continuation of SPN 201 and focuses on the application of the communication skills of reading, writing, listening, and speaking within cultural contexts. Group 1 course. Communications - Direct, Critical Thinking - Direct, Degree Req:Cultural Persp/Div.  
Required Prerequisites: SPN 201 with a minimum grade of 2.0 or required score on the NMC language placement test or instructor permission  
Recommended Prerequisites: Students will be required to read, write, listen, and speak in Spanish. You will need a minimal ability using technology to take advantage of outside-of-class requirements.

SPN 227A - Spanish for Environmental Mgmt  
**Credit Hours:** 3, **Contact Hours:** 3  
**Division:** Communications  
This course focuses on global environmental issues as an entry point for further development of Spanish technical vocabulary, conversational skills and global competencies. Through an exploration of current freshwater issues in Spanish-speaking countries, and an experience studying overseas, students will address relevant issues concerning environmental resource management, and engage in community projects. Group 1 course. Communications - Direct, Critical Thinking - Direct, Degree Req:Cultural Persp/Div.  
Required Prerequisites: 3-4 years of high school Spanish  
Recommended Prerequisites: Listening Skills-understand sentence-length utterances; Reading Skills-able to understand main ideas and/or some facts from the simplest connected text; Speaking Skills-able to handle successfully a limited number of uncomplicated communicative tasks by creating with the language in straightforward social situations; Writing Skills-able to meet limited practical writing needs.  
Corequisites: WSI 290

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**Health Occupations**

**Programs**

- Dental Assistant, Associate in Applied Science Degree (p. 67)
- Dental Assistant, Certificate of Achievement (Level II) (p. 68)
- Nursing - ADN Completion Option (p. 69)
- Nursing - Practical, Certificate of Achievement (p. 71)
- Nursing, Associate Degree in Nursing (p. 72)
- Paramedic, Associate in Applied Science Degree (p. 75)
- Respiratory Therapy - RT, Associate in Applied Science Degree (p. 75)
- Surgical Technology, Associate in Applied Science Degree (p. 76)

**Courses**

**Allied Health**

The following courses are appropriate for students in pre-professional medical studies in many health careers, and for those health professionals who wish professional continuing education course work. The content of these courses provides a broad background and can be a useful tool in the medical field. Students who wish credits from these courses transferred to other college or university health programs should consult with a NMC counselor to facilitate the process. Admission to a NMC Health Occupations program is not required to enroll in most of these elective courses.

**HAH 100C - Informatics Essentials**  
**Credit Hours:** 1, **Contact Hours:** 1  
**Division:** Health Occupations  
This course will introduce students to informatics in health care and, in particular, nursing. Students will enhance their ability to use modern informatics such as computer and Internet resources as well as Electronic Medical Record (EMR) software, in the health care environment. This course will be offered in a hybrid online and face-to-face format. Group 2 course.  
Required Prerequisites: Admission to ADN, PN, or LPN Completion nursing programs  
Recommended Prerequisites: HNR 102 may be taken concurrently

**HAH 101 - Medical Terminology**  
**Credit Hours:** 3, **Contact Hours:** 3  
**Division:** Health Occupations  
The student will learn the basic construction of medical words through the use of medical prefixes, suffixes, combining vowels and root words. This foundation will facilitate the understanding of new medical vocabulary encountered in other course work or work situations. Group 2 course.

**HAH 120 - Infection Control**  
**Credit Hours:** 2, **Contact Hours:** 2  
**Division:** Health Occupations  
This course details the structure of infectious organisms and mechanisms of disease transmission, including host defenses against disease and specific diseases of concern to dental and medical personnel. In addition, the course provides an overview of MIOSHA (Michigan Occupational Safety and Health Administration) regulations and occupational safety measures as they relate to the dental and medical fields. Group 2 course.
**Dental Assistant**

**HDA 101 - Introduction to Dentistry**  
Credit Hours: 2, Contact Hours: 2  
Division: Health Occupations  
Students are introduced to the role of the dental assistant and the dental team and opportunities for employment. Students will be informed of the requirements for certification and registration and the various organizations and associations within dentistry and dental assisting. Other areas studied will include dental specialties, dental terminology, applied psychology in the dental office, office preparedness to manage medical and dental emergencies, instrument and equipment identification and charting. The student will have an opportunity to view a dental office to see the set up and to observe the roles of each person on the dental team. Group 2 course. Communications - Direct.

**HDA 112 - Dental Materials**  
Credit Hours: 2, Contact Hours: 2  
Division: Health Occupations  
Students learn the preparation, manipulation, and use of dental materials commonly found in the dental office. There will be discussion regarding the equipment needed, mixing techniques, and proper usage of waxes, restorative materials, impression materials, gypsum products, cements, metals and therapeutic materials. Preparation of each material will be demonstrated. Group 2 course.  
Recommended Prerequisites: HAH 120, HDA 120  
Corequisites: HDA 113

**HDA 113 - Dental Materials Lab**  
Credit Hours: 1, Contact Hours: 2  
Division: Health Occupations  
This course familiarizes the student with the handling of dental materials commonly used in the dental office. Opportunities are provided in the laboratory to develop skills in mixing techniques, impression taking, construction of study models, bleach and acrylic trays, and cleaning and polishing appliances. Group 2 course.  
Corequisites: HDA 112

**HDA 120 - Dental Anatomy**  
Credit Hours: 3, Contact Hours: 3  
Division: Health Occupations  
The student will learn the anatomy and physiology of the oral cavity, teeth and head. Students will learn the histology of the teeth and surrounding structures, the bones of the skull, the nerves and blood supply of the head and neck, the muscles of mastication, and the names and functions of the teeth and oral structures. This class will also provide detailed information on the anatomy of the individual teeth. Group 2 course.

**HDA 140 - Oral Pathology/Pharmacology**  
Credit Hours: 2, Contact Hours: 2  
Division: Health Occupations  
The purpose of this course is to familiarize the student with disease processes related to the oral cavity and to enable the student to identify these diseases. The student will become familiar with various drugs and their uses in dentistry, prescription writing and documentation, the sources of drugs, routes of administration, and the conditions that modify the reactions of drugs. Group 2 course.  
Recommended Prerequisites: HDA 120

**HDA 150 - Dental Office Management**  
Credit Hours: 2, Contact Hours: 2  
Division: Health Occupations  
Students are acquainted with the procedures necessary for efficient dental office management. Topics include appointment book control, accounts receivable and payable, payroll, dental record keeping, third party payment, patient recall, inventory control, telephone techniques, and use of computer hardware and software unique to the dental office. This course is offered in a self-paced format. Group 2 course.

**HDA 160 - Dental Emergencies**  
Credit Hours: 1, Contact Hours: 1  
Division: Health Occupations  
This course acquaints the student with the types of emergencies that may arise in the dental office. The students will learn the procedures to follow when medical and dental emergencies occur, the importance and significance of obtaining accurate and complete patient histories, the proper emergency equipment necessary in a dental office to manage these emergencies and the maintenance of that equipment, and the taking and recording of vital signs. Group 2 course.

**HDA 170 - Preventive Dentistry**  
Credit Hours: 2, Contact Hours: 2  
Division: Health Occupations  
This course deals with educating dental patients in proper oral hygiene and nutrition. The topics of discussion will include vitamins, minerals, fats, carbohydrates, proteins, food groups, fluoride treatments, oral examinations, pit and fissure sealants, public health dentistry, and oral hygiene instructions. Student demonstration and participation is emphasized. A dietary analysis will be learned and demonstrated by students. Two community presentations will be designed and presented by each student. Group 2 course. Communications - Direct.

**HDA 240 - Chairside Procedures**  
Credit Hours: 5, Contact Hours: 5  
Division: Health Occupations  
This course provides the foundation for dental assistant clinical procedures performed in both general and specialty dental offices. Topics include theory and application of four-handed dentistry; application of infection control procedures; an overview of procedures and techniques unique to dental specialties; and background information and technical skills performed by the Registered Dental Assistant. In addition, local dental specialists serve as guest speakers. Group 2 course.  
Recommended Prerequisites: HAH 120, HDA 101, HDA 120, HDA 160, HDA 242, HDA 243  
Corequisites: HDA 241
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
<th>Contact Hours</th>
<th>Division</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>HDA 241</td>
<td>Chairside Procedures Lab</td>
<td></td>
<td></td>
<td>Health Occupations</td>
<td>This is the clinical component of Chairside Procedures. Students learn and practice operative and specialty chairside techniques in a fully equipped dental clinic. Students assist our staff dentist during simulated dental procedures. Expanded duties for dental assistants are also introduced in this course. Group 2 course.</td>
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<tr>
<td>HDA 242</td>
<td>Dental Radiography</td>
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<td></td>
<td>Health Occupations</td>
<td>The fundamentals of radiology as applied to dentistry will be presented. Special consideration will be given to radiation physics, hazards, biological effects, protection and quality control methods. Basic interpretation and radiographic anatomy will also be included. While extraoral techniques are discussed, emphasis will be given to the proper techniques for exposing, processing, and mounting traditional and digital intraoral radiographs of diagnostic quality. Group 2 course. Recommended Prerequisites: HHA 120, HDA 120, HDA 160. Corequisites: HDA 243</td>
</tr>
<tr>
<td>HDA 243</td>
<td>Dental Radiography Lab</td>
<td>1.5</td>
<td>3</td>
<td>Health Occupations</td>
<td>Clinical component of Dental Radiography lecture. Students will be introduced to a variety of radiography techniques and will learn how to expose, process and mount radiographs of diagnostic quality. Requirements include multiple sets on dental manikins and four FMX sets on dental patients utilizing digital and traditional techniques. Group 2 course. Corequisites: HDA 242</td>
</tr>
<tr>
<td>HDA 248</td>
<td>CDA/RDA Written Exam Prep</td>
<td>2</td>
<td>2</td>
<td>Health Occupations</td>
<td>The purpose of this course is to prepare students and working dental assistants for the CDA and RDA written exams. Included are review sessions covering General Chairside, Infection Control, and Radiography for both exams and additional specific topics that relate directly to Michigan's expanded functions for dental assistants. Group 2 course. Recommended Prerequisites: HHA 120, HDA 101, HDA 112, HDA 113, HDA 120, HDA 140, HDA 150, HDA 160, HDA 242, HDA 243</td>
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<tr>
<td>HDA 286</td>
<td>RDA Clinical Exam Prep</td>
<td>1</td>
<td>1</td>
<td>Health Occupations</td>
<td>This course will provide dental assistant students with study/application sessions for the clinical portion of the state licensure exam. Expanded functions of special interest are dental amalgams, temporary crowns, and dental dams. Must be a current dental assisting student or graduate of a post-secondary dental assisting program approved by the State Board of Dentistry. Group 2 course. Required Prerequisites: HDA 282</td>
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<tr>
<td>HDA 290</td>
<td>Dental Assistant Internship</td>
<td>5</td>
<td>5</td>
<td>Health Occupations</td>
<td>Students are assigned to dental offices in the community. 300 hours of hands-on experience includes chairside assisting in general offices, office management, laboratory techniques and expanded functions. A minimum of 200 hours must be completed in a general practice and the additional 100 hours can be in a specialty practice. Each student must also observe for four hours in each of the following: endodontics, oral surgery, orthodontics and periodontics. This course includes 6 hours of internship meetings with the instructor and classmates. During the internship experience, students must show progression from 'O' (observed) to 'W' (with assistance) to 'A' (assisted alone) on their journal entries. Group 2 course. Corequisites: HDA 240, HDA 241</td>
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</table>

**Nursing**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
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<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>HNR 101</td>
<td>Fundamentals of Nursing-Lecturer</td>
<td>4</td>
<td>4</td>
<td>Health Occupations</td>
<td>The students learn the foundation for professional nursing practice. Emphasis is placed on the principles and skills needed to apply the clinical judgment required for safe patient-centered care. Communication is emphasized as an essential aspect of the professional role. Group 2 course. Required Prerequisites: Admission to the nursing program; BIO 228 w/ grade of 2.5 or higher, may be taken concurrently. Corequisites: HNR 102, HNR 106</td>
</tr>
<tr>
<td>HNR 102</td>
<td>Fund of Nursing-Clinical</td>
<td>4</td>
<td>12</td>
<td>Health Occupations</td>
<td>Through laboratory and/or clinical experience students learn about the professional identity of the nurse while acquiring and applying basic nursing knowledge, judgment, and skills in order to provide safe patient-centered care. Group 2 course. Critical Thinking - Direct, Quantitative Reasoning. Required Prerequisites: Admission to the nursing program; BIO 228 with a grade of 2.5 or higher, may be taken concurrently. Corequisites: HAH 100C, HNR 101, HNR 106, HPD 110</td>
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<tr>
<td>HNR 106</td>
<td>Pharmacology I</td>
<td>1</td>
<td>1</td>
<td>Health Occupations</td>
<td>Students learn an overview of pharmacology with emphasis on clinical applications within the context of the nursing process. The course explores pharmacological principles, including indications, modes of action, side effects, contraindications and medical calculations for the safe administration of medications. Specific nursing judgment and collaborative responsibilities for drug administration are emphasized. Legal statutes and standards regulating drug administration within the scope of nursing professional identity are presented. Individualized patient variables across the lifespan will also be a focus of study. Group 2 course. Quantitative Reasoning. Required Prerequisites: Admission to the nursing program, BIO 228 with grade of 2.5 or better, may be taken concurrently. Corequisites: HNR 101, HNR 102</td>
</tr>
</tbody>
</table>
HNR 107 - Pharmacology II
Credit Hours: 2, Contact Hours: 2
Division: Health Occupations
Students learn an overview of pharmacology with emphasis on clinical applications within the context of the nursing process. The course is organized by medication classification. It explores indications, modes of action, side effects, contraindications and interactions for the safe administration of select drugs. Specific individualized patient care, nursing judgment, and collaborative responsibilities to drug administration are emphasized. Group 2 course.
Required Prerequisites: HAH 100C, HNR 101, and HNR 106 with a grade of 2.5 or above; HNR 102 with an S
Corequisites: HNR 125, HNR 126

HNR 125 - Lifespan Nursing Lecture
Credit Hours: 5, Contact Hours: 5
Division: Health Occupations
Presentation of nursing management of health care issues related to uncomplicated pregnancy, birth, and neonatal period. Introduction of nursing management of common health alterations found in both chronically and acutely ill clients across the lifespan. Emphasis will be made on utilizing evidence-based practice to identify appropriate nursing interventions to achieve the desired outcome for the client based on their developmental level across the lifespan. Group 2 course.
Required Prerequisites: BIO 228, HAH 100C, HNR 101, and HNR 106 with a grade of 2.5 or higher; HNR 102 with an S
Corequisites: HNR 107, HNR 126

HNR 126 - Lifespan Nursing-Clinical
Credit Hours: 5, Contact Hours: 15
Division: Health Occupations
Clinical experiences providing opportunities to apply principles studied in HNR 125. Clinical learning environments will include the opportunity to apply medical-surgical, pediatric, and obstetric nursing interventions in a variety of settings, including acute care and simulation experiences. Group 2 course. Quantitative Reasoning.
Required Prerequisites: BIO 228, HAH 100C, HNR 101, and HNR 106 with a grade of 2.5 or higher; HNR 102 with an S
Corequisites: HNR 107, HNR 125

HNR 145 - Practical Nursing Roles & Issu
Credit Hours: 1, Contact Hours: 1
Division: Health Occupations
Reviews ethical/legal responsibilities of the LPN. Presents issues and trends related to LPN practice, nursing organizations, continuing education; and licensure. Discusses occupational opportunities and provides information on employment search, job-seeking skills and transition issues. Group 2 course. Critical Thinking - Direct.
Required Prerequisites: HNR 125 with a grade of 2.5 or higher, and HNR 126 with an S, may be taken concurrently

HNR 221 - Acute Care Nursing I
Credit Hours: 1.5, Contact Hours: 1.5
Division: Health Occupations
Presentation of nursing interventions and concepts required for adult patients with complex medical-surgical disorders. Emphasizes advanced assessment, analysis, nursing judgment, and nursing accountability. The focus is on adult patients with multiple complex requirements. Geriatric considerations are presented and integrated throughout. Group 2 course.
Required Prerequisites: HNR 251 with a grade of 2.5 or higher, and HNR 252 with an S
Corequisites: HNR 241, HNR 242

HNR 222 - Acute Care Nursing II
Credit Hours: 1.5, Contact Hours: 1.5
Division: Health Occupations
A continuation of presentation of nursing interventions and concepts required for adult patients with complex medical-surgical disorders. Emphasizes advanced assessment, analysis, nursing judgment, and nursing accountability. The focus is on adult patients with multiple complex requirements. Geriatric considerations are presented and integrated throughout. Group 2 course.
Required Prerequisites: HNR 221 and HNR 241 with a grade of 2.5 or higher, HNR 242 with an S
Corequisites: HNR 248, HNR 261

HNR 241 - Adv Maternal Child Nursing-Lec
Credit Hours: 3, Contact Hours: 3
Division: Health Occupations
This course provides information on complex problems facing families coping with complications during the childbearing/childrearing process, including an identification of at-risk families. These concepts will be applied to review of complications occurring during childhood and the prenatal, intrapartum and postpartum periods. Group 2 course.
Required Prerequisites: HNR 251 with a grade of 2.5 or higher and HNR 252 with an S
Corequisites: HNR 221, HNR 242

HNR 242 - Adv Maternal Child Nursing-Cli
Credit Hours: 2, Contact Hours: 6
Division: Health Occupations
This course provides for the clinical application of the principles presented in the co requisite: HNR 241. Maternity clinical time will occur in an inpatient unit and pediatric clinical time will be in an acute or community pediatric setting observing and caring for pediatric patients. Students will complete a detailed family assessment, be involved in clinical simulations, and participate in these experiences by observing and/or directly providing care to at-risk families coping with childbearing and/or childrearing stressors/issues. Group 2 course. Communications - Direct, Quantitative Reasoning.
Required Prerequisites: HNR 251 with a grade of 2.5 or higher and HNR 252 with an S
Corequisites: HNR 221, HNR 241

HNR 248 - Acute Care Nursing - Clinical
Credit Hours: 4, Contact Hours: 12
Division: Health Occupations
Clinical experience providing opportunities to apply principles presented in HNR 221 and HNR 222. Emphasis is upon refinement of organization, decision-making, critical thinking, and priority-setting skills in the care of multiple clients with complex medical-surgical disorders. Group 2 course. Communications - Direct, Quantitative Reasoning.
Required Prerequisites: HNR 221, HNR 241, HNR 242
Corequisites: HNR 222, HNR 261
HNR 251 - Mental Health Nursing - Lec
Credit Hours: 2, Contact Hours: 2
Division: Health Occupations
This course is designed to enable the student to better understand behavior exhibited by persons with mental disorders. Classifications, causes, and symptoms of mental diseases are presented and treatments such as individual, group, and activity therapies are explored. Emphasis is placed on the ways by which the nurse determines, develops, implements, and evaluates a therapeutic environment for the client. The implementing of theories of human behavior is the scientific aspect of mental health-psychiatric nursing; the purposeful use of the self in the performance of care is the artful aspect. The goal is preventative and corrective impact upon mental illness and the restoration of optimal mental health for individuals. Group 2 course.
Required Prerequisites: HNR 125 and HNR 107 with a grade of 2.5 or higher; HNR 126 with a grade of S
Corequisites: HNR 252

HNR 252 - Mental Health Nursing-Clinical
Credit Hours: 1, Contact Hours: 3
Division: Health Occupations
Clinical experience providing opportunities to apply principles presented in HNR 251. A variety of clinical settings addressing mental health issues in acute care, long-term care, and in community agencies are utilized. Emphasis is placed upon the exercise of critical thinking in addressing mental health issues and concerns. Additionally, students identify and analyze community resources of use to persons with mental health issues. Group 2 course. Communications - Direct, Quantitative Reasoning.
Required Prerequisites: HNR 125 and HNR 107 with a grade of 2.5 or higher; HNR 126 with a grade of S
Corequisites: HNR 251

HNR 261 - Nursing Management
Credit Hours: 3, Contact Hours: 3
Division: Health Occupations
Introduces principles of leadership and management as these relate to providing nursing care to a group of patients. The principles of delegation, communication, and priority-setting are reviewed and a variety of nursing management challenges are discussed, including team building, managing change, conflict resolution, power and authority, political action, economic aspects of health care, legal/ethical issues, and emergency preparedness. Job-seeking skills, NCLEX-RN preparation, and issues related to role transition are discussed. Group 2 course.
Required Prerequisites: HNR 221 and HNR 241 with a grade of 2.5 or higher; HNR 242 with S
Corequisites: HNR 222, HNR 248, HNR 262

HNR 262 - Nursing Management Clinical
Credit Hours: 4, Contact Hours: 12
Division: Health Occupations
Clinical experience providing opportunities to apply principles presented in HNR 261. Emphasis is placed upon organizational skills, time management, critical thinking, and the exercise of clinical judgment in managing the care for a normal RN caseload of patients. Students perform nursing care in the clinical area 24 hours per week for eight weeks with the goal of promoting a successful role transition from student to entry-level professional nurse. Group 2 course. Quantitative Reasoning.
Required Prerequisites: HNR 222 with a grade of 2.5 or higher; HNR 248 with S
Corequisites: HNR 261

Health Professional Development

HPD 110 - BLS for Health Care Providers
Credit Hours: 0.2, Contact Hours: 0.2
Division: Health Occupations
Provides basic life support training, certification, and re-certification for students in the healthcare field who will need these skills in clinical practice. Students will take an online class through the American Heart Association (AHA), complete the post test, and print the certificate. Once the post test is successfully completed, students will sign up for a lab time to complete a practical exam to demonstrate the skills they learned. The certificate will be required to take the practical exam. Group 2 course. Required Prerequisites: Admission to the ADN or PN programs or the Dental Assisting program, or by instructor permission.

Surgical Technology

SRG 101 - Intro to Surgical Technology
Credit Hours: 3, Contact Hours: 3
Division: Health Occupations
In this course students will learn the primary functions of the surgical technologist in multiple roles within the operating room environment. Points of focus will include effective communication, professional interactions with the patient and surgical team, proper personal protective equipment, introduction to asepsis, safety precautions, All-Hazard preparation, instrumentation, equipment, supplies, stapling devices, suture, and infection control and wound healing. Group 2 course. Required Prerequisites: BIO 227, BIO 227L, HAH 101, HPD 110 or equivalent; SRG 102 and SRG 103 may be taken concurrently
Recommended Prerequisites: BIO 228
Corequisites: SRG 101L

SRG 101L - Intro to Surg Tech Lab
Credit Hours: 2, Contact Hours: 4
Division: Health Occupations
In this course students will learn and practice in the laboratory environment the skills required to perform in the surgical setting. Emphasis will be placed on introductory skills, instrumentation, equipment and procedures relevant to general, gynecological, and genitourinary procedures. Students will be evaluated on their sterile and aseptic technique as well as case management skills. Group 2 course. Corequisites: SRG 101

SRG 102 - Surgical Microbiology
Credit Hours: 1.5, Contact Hours: 1.5
Division: Health Occupations
Students in this course will learn about the cell, cell organelles and processes, and transport. This course will also cover varying types of organisms that cause infection, the infection process, and microbe identification. The body’s natural defense system as well as common bacteria, viruses, and fungi that cause disease will be covered including the response. Group 2 course. Critical Thinking - Direct.
Required Prerequisites: SRG 101, SRG 101L, and SRG 103 may be taken concurrently
SRG 103 - Surgical Pharmacology  
Credit Hours: 1.5, Contact Hours: 1.5  
Division: Health Occupations  
In this course students will learn the pharmaceuticals used in surgical practice to include their actions, use, effects, contraindications and administration. The anesthesia process will be covered in defining the stages of general anesthesia as well as the different types of agents used. The course will cover the equipment, safe practices, sterile technique and terminology used in relation to pharmacology. Students will also cover practices relating to alternative therapies such as herbal medication, acupuncture, massage, and music therapy and their effect on the surgical patient. Group 2 course. Critical Thinking - Direct.  
Required Prerequisites: SRG 101, SRG 101L, and SRG 102 may be taken concurrently  

SRG 121 - Surgical Procedures I  
Credit Hours: 4, Contact Hours: 4  
Division: Health Occupations  
Students in this course will study the relevant surgical anatomy and physiology, pathophysiology, supplies, equipment, and instrumentation needed for a variety of procedures in the areas of general, obstetrics and gynecological, genitourinary, and orthopedic surgery. Group 2 course.  
Required Prerequisites: SRG 101, SRG 101L, SRG 102, SRG 103; SRG 122 and SRG 123 may be taken concurrently  
Corequisites: SRG 121L  

SRG 121L - Surgical Procedures I Lab  
Credit Hours: 3.5, Contact Hours: 7  
Division: Health Occupations  
Students in this course will learn and practice in the laboratory environment the skills required to perform in the surgical setting. Emphasis will be placed on advanced skills concerning instrumentation, equipment and procedures relevant to orthopedic, ENT, plastic, reconstructive, minimally invasive, and vascular procedures. Students will also practice patient transport, transfer, urinary catheterization, skin prep, patient positioning and draping procedures. Students will be evaluated on their sterile technique and case management skills. This course will also include a clinical observation component of the relevant areas of the perioperative environment. Group 2 course.  
Corequisites: SRG 121  

SRG 122 - The Surgical Patient  
Credit Hours: 0.5, Contact Hours: 0.5  
Division: Health Occupations  
In this course students will define patient-centered care to determine the differing needs of the various patient populations that visit the surgical department. Important areas that will be described include appropriate communication, cultural and spiritual competence, and grief advocacy. This course will cover the aspects of the death in the operating room along with the organ transplant process. Students will also cover patient transport, transfer, urinary catheterization, skin prep, patient positioning and draping procedures. Group 2 course. Critical Thinking - Direct.  
Required Prerequisites: SRG 121, SRG 121L, SRG 123; may be taken concurrently  

SRG 123 - Biomed Sciences and MIS  
Credit Hours: 1.5, Contact Hours: 1.5  
Division: Health Occupations  
Students in this course are introduced to the basic concepts of physics to include the elements of motion, energy, light, sound and electricity and how they apply to surgical practice. Further study will include aspects of minimally invasive surgery including laparoscopy and robotic surgery. Students will also be introduced to the cases performed in interventional radiology and how they are integrated within surgical practice. The course will conclude with the study of diagnostic interventions integral in surgical practice as well as diagnosing pathologies preoperatively. Group 2 course.  
Required Prerequisites: SRG 121, SRG 121L, SRG 122 may be taken concurrently  

SRG 201 - Surgical Procedures II  
Credit Hours: 3, Contact Hours: 3  
Division: Health Occupations  
Students will study the relevant surgical anatomy and physiology, pathophysiology, supplies, equipment, and instrumentation needed for a variety of procedures. Surgical procedures covered will include the areas of otorhinolaryngology, neurology, and ophthalmic surgery. Group 2 course.  
Required Prerequisites: SRG 121, SRG 121L, SRG 122, SRG 123; SRG 202 and SRG 204 may be taken concurrently  

SRG 202 - Surg Procedures II Clinical  
Credit Hours: 5, Contact Hours: 15  
Division: Health Occupations  
In this course students will be in the clinical environment practicing to and performing essential skills required in the perioperative environment. While under the supervision of a surgical technologist or RN the student will observe, scrub, and assist on procedures as directed by the surgical team. Group 2 course. Critical Thinking - Direct.  
Required Prerequisites: SRG 201 and SRG 204 may be taken concurrently  

SRG 204 - Professional Career Prep I  
Credit Hours: 0.5, Contact Hours: 0.5  
Division: Health Occupations  
In this course students will work with the Office of Career Services to complete a career portfolio and employment training. Major topics in this course include resume creation both written and online portfolios, interview preparation, job search strategies, and professional attire. Group 2 course. Communications - Direct.  
Required Prerequisites: SRG 201 and SRG 202 may be taken concurrently  

SRG 221 - Surgical Procedures III  
Credit Hours: 3, Contact Hours: 3  
Division: Health Occupations  
Students in this course will study the relevant surgical anatomy and physiology, factors unique to surgical procedures, pathophysiology, supplies, equipment, and instrumentation needed for a variety of procedures. Surgical procedures covered include the disciplines of neurology, vascular and cardiothoracic surgical procedure categories. Group 2 course.  
Required Prerequisites: SRG 201, SRG 202, SRG 204; SRG 222 and SRG 224 may be taken concurrently
SRG 222 - Surg Procedures III Clinical
Credit Hours: 6, Contact Hours: 18
Division: Health Occupations
In this course students will continue working in the surgical environment under the direction of a surgical technologist or RN. The student will observe, scrub, and assist on more complex surgical cases as directed by the surgical team. The progression from student to entry level surgical technologist is the goal for the completion of this course along with the successful completion of the 120 scrubbed case requirements. Group 2 course. Critical Thinking - Direct.
Required Prerequisites: SRG 221 and SRG 224 may be taken concurrently.

SRG 224 - Professional Career Prep II
Credit Hours: 1, Contact Hours: 1
Division: Health Occupations
In this course the students will focus on exam preparation for the certification exam given by the National Board of Surgical Technology and Surgical Assisting (NBSTSA) that will be taken electronically on campus the last week of the program. Testing strategies and studying techniques will be a large focus point as well as written and online practice exams. Group 2 course.
Required Prerequisites: SRG 221 and SRG 222 may be taken concurrently.

Dental Assistant, Associate in Applied Science Degree

NMC Code 300

Dental Assistants are members of a highly qualified health team whose varied duties require knowledge of the basic dental sciences, proficiency in laboratory and clinical skills, and practical experience in meeting patient needs. Both the associate and the certificate programs are accredited by the Commission on Dental Accreditation (CODA) and approved by the Michigan Board of Dentistry. Completion of the program qualifies students for the state board exam and after passing the exam, they may practice as Registered Dental Assistants. In addition, program completers are eligible for the National Certification Exam, which is recognized nationwide.

Few jobs offer the diversity and flexibility found in dental assisting. While most dental assistants work as chairside or business assistants in general or specialty dental practices such as orthodontics or oral surgery, other career paths include the following: lab technicians, sales representatives in dental supply companies, and as teachers in vocational or college dental auxiliary programs.

Enrollment in any Dental Assistant (HDA) course requires admission to the dental assistant program or approval from the dental assistant program director.

The following are required for admission:

1. High school or college transcript 2.0 minimum GPA, or successful GED completion.
2. Mathematics: MTH 23 Beginning Algebra or placement into MTH 111 Intermediate Algebra or higher.
3. Communications: Placement into ENG 111 English Composition or higher.

### Requirements

#### Major Requirements

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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</thead>
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<tr>
<td>ENG 111</td>
<td>English Composition</td>
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</tr>
<tr>
<td>ENG 112</td>
<td>English Composition</td>
<td>4</td>
</tr>
<tr>
<td>Any Group 1 Humanities course</td>
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<tr>
<td>Math Competency</td>
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<tr>
<td>BIO 106</td>
<td>Human Biology</td>
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<tr>
<td>PSY 101</td>
<td>Introduction to Psychology</td>
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<tr>
<td>Elective course(s) 100 level or above</td>
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#### Occupational Specialty Requirements

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<td>BUS 155</td>
<td>Interpersonal Communications</td>
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</tr>
<tr>
<td>or COM 111</td>
<td>Public Speaking</td>
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</tr>
<tr>
<td>HAH 120</td>
<td>Infection Control</td>
<td>2</td>
</tr>
<tr>
<td>HDA 101</td>
<td>Introduction to Dentistry</td>
<td>2</td>
</tr>
<tr>
<td>HDA 112</td>
<td>Dental Materials</td>
<td>2</td>
</tr>
<tr>
<td>HDA 113</td>
<td>Dental Materials Lab</td>
<td>1</td>
</tr>
<tr>
<td>HDA 120</td>
<td>Dental Anatomy</td>
<td>3</td>
</tr>
<tr>
<td>HDA 140</td>
<td>Oral Pathology/Pharmacology</td>
<td>2</td>
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<tr>
<td>HDA 150</td>
<td>Dental Office Management</td>
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<tr>
<td>HDA 160</td>
<td>Dental Emergencies</td>
<td>1</td>
</tr>
<tr>
<td>HDA 170</td>
<td>Preventive Dentistry</td>
<td>2</td>
</tr>
<tr>
<td>HDA 240</td>
<td>Chairside Procedures</td>
<td>5</td>
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<td>HDA 241</td>
<td>Chairside Procedures Lab</td>
<td>2</td>
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<td>HDA 242</td>
<td>Dental Radiography</td>
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<td>HDA 243</td>
<td>Dental Radiography Lab</td>
<td>1.5</td>
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<tr>
<td>HDA 282</td>
<td>CDA/RDA Written Exam Prep</td>
<td>2</td>
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<td>HDA 286</td>
<td>RDA Clinical Exam Prep</td>
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<td>HDA 290</td>
<td>Dental Assistant Internship</td>
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<tr>
<td>HPD 110</td>
<td>BLS for Health Care Providers (or equivalent)</td>
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</tbody>
</table>

Total Credits: 59.7-61.7

Note: A 2.0 grade or higher is required in HDA & HAH courses.

### Course Sequence Guide

#### Placement Requirements

Program admission requires a 2.0 minimum GPA on high school or college transcript, or pass GED.
Mathematics: Placement into MTH 111 Intermediate Algebra or higher
Communications: Placement into ENG 111 English Composition

### General Education Requirements

The following courses may be taken before entering the program, after completing the program, or in any semester prior to graduation:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSY 101</td>
<td>Introduction to Psychology</td>
<td>3</td>
</tr>
<tr>
<td>ENG 111</td>
<td>English Composition</td>
<td>4</td>
</tr>
<tr>
<td>ENG 112</td>
<td>English Composition</td>
<td>4</td>
</tr>
</tbody>
</table>
Dental Assistant, Certificate of Achievement (Level II)

NMC Code 070

The following coursework must be taken in order to qualify for the Certificate of Achievement in Dental Assisting. Completion of the program qualifies students for the state board exam and after passing the exam, they may practice as Registered Dental Assistants. In addition, program completers are eligible for the National Certification Exam, which is recognized nationwide. While the associate degree is not required for either of these exams, students can complete the associate degree after completion of the certificate.

Admission Requirements
Enrollment in any Dental Assistant (HDA) course requires admission to the dental assistant program or approval from the dental assistant program director.

The following are required for admission:

1. High school or college transcript 2.0 minimum GPA, or successful GED completion.
2. Mathematics: MTH 23 Beginning Algebra or placement into MTH 111 Intermediate Algebra or higher.
3. Communications: Placement into ENG 111 English Composition or higher.

Requirements
Certificate Requirements

<table>
<thead>
<tr>
<th>Course</th>
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</thead>
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<tr>
<td>BUS 155</td>
<td>Interpersonal Communications or COM 111</td>
<td>3-4</td>
</tr>
<tr>
<td>HAH 120</td>
<td>Infection Control</td>
<td>2</td>
</tr>
<tr>
<td>HDA 120</td>
<td>Dental Anatomy</td>
<td>3</td>
</tr>
<tr>
<td>HDA 150</td>
<td>Dental Office Management</td>
<td>2</td>
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<tr>
<td>HDA 160</td>
<td>Dental Emergencies</td>
<td>1</td>
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<tr>
<td>HDA 242</td>
<td>Dental Radiography (Lecture)</td>
<td>2</td>
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<tr>
<td>HDA 243</td>
<td>Dental Radiography Lab</td>
<td>1.5</td>
</tr>
<tr>
<td>HDA 290</td>
<td>Dental Assistant Internship</td>
<td>5</td>
</tr>
<tr>
<td>HDA 286</td>
<td>RDA Clinical Exam Prep</td>
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</tbody>
</table>

Note: A grade of 2.0 or higher is required in HDA and HAH courses.

Course Sequence Guide
Placement Requirements

Program admission requires a 2.0 minimum GPA on high school or college transcripts, or pass GED Mathematics: Placement into MTH 111 Intermediate Algebra or higher Communications: Placement into ENG 111 English Composition

Model Schedule

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<thead>
<tr>
<th>Course</th>
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<th>Credits</th>
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<tr>
<td>Fall</td>
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<tr>
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<td>HAH 120</td>
<td>Infection Control</td>
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<tr>
<td>HDA 101</td>
<td>Introduction to Dentistry</td>
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</tr>
<tr>
<td>Summer</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HDA 112</td>
<td>Dental Materials (Lecture)</td>
<td>2</td>
</tr>
<tr>
<td>HDA 113</td>
<td>Dental Materials Lab</td>
<td>1</td>
</tr>
<tr>
<td>HDA 140</td>
<td>Oral Pathology/Pharmacology</td>
<td>2</td>
</tr>
<tr>
<td>HDA 170</td>
<td>Preventive Dentistry</td>
<td>2</td>
</tr>
<tr>
<td>HDA 240</td>
<td>Chairside Procedures (Lecture)</td>
<td>5</td>
</tr>
<tr>
<td>HDA 241</td>
<td>Chairside Procedures Lab</td>
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</tr>
<tr>
<td>HDA 282</td>
<td>CDA/RDA Written Exam Prep</td>
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<tr>
<td>Total</td>
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<tr>
<td>Summer</td>
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<tr>
<td>HDA 290</td>
<td>Dental Assistant Internship</td>
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<td>HDA 286</td>
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<tr>
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</table>

General Information

- An overall GPA of 2.0 must be maintained throughout the program.
- A 2.0 grade or higher is required in all HDA and HAH classes.

Dental Assistant, Certificate of Achievement (Level II)
General Information

- An overall GPA of 2.0 must be maintained throughout the program.
- A 2.0 grade or higher is required in all HDA and HAH classes.

Nursing - ADN Completion Option

NMC Code 302

The ADN Completion Option is designed for Licensed Practical Nurses to expand upon their previous education and prepare them for practice as a professional nurse. LPNs that have graduated in the past three years, or those that have current clinical work experience, can complete the ADN coursework in two semesters after prerequisites are met. Completion of the ADN program will certify the graduate is eligible to apply for the National Council License Examination (NCLEX-RN) for licensing as a registered nurse.

Student clinical experiences may include assignments at Munson Medical Center and a variety of other agencies. The ADN program is approved by the Michigan Board of Nursing and accredited through the Accreditation Commission for Education in Nursing (ACEN).

Admission Requirements

Admission Requirements include the following:

- Submission of a current Michigan LPN license.
- Completion of the admission process for the pre-ADN for LPN AGS Degree for NMC.
- Transfer students must submit official transcripts to determine eligibility.
- Completion of prerequisite requirements.

The ADN Completion Option has a wait list admission process. Detailed information, including deadlines, can be found on the NMC website under Nursing – ADN Completion Option. Space in the nursing program is limited. Completion of prerequisites does not guarantee admission to the nursing program. Students will be placed on the wait list only after all prerequisite requirements are complete and eligibility has been met. It is recommended that students create a plan to complete prerequisite requirements with the Advising Department.

General Information

- Current CPR certification, a physical examination indicating good mental and physical health, immunization records, criminal background checks and drug screens are required by the start of the program. Nursing students are responsible for the costs associated with these tasks.
- The Board of Nursing may deny graduates the ability to take the licensure exam for a previous felony conviction, previous treatment for drug or alcohol abuse, or after finding the existence of one or more grounds for board action listed in 333.16221 of the Public Health Code, Act 368 of 1978.
• The clinical facilities used by NMC have the right to accept or reject a student. This action could result in a student being delayed or unable to complete the nursing program. This decision may be made just prior to the clinical rotation.

• Nursing students must adhere to the policies referenced in the Nursing Program Policy Manual associated with their admission semester. If a student is readmitted due to a program fail, they must adhere to the policies referenced in the Nursing Program Policy Manual associated with their readmission semester.

• Nursing program tuition is charged by the contact hour.

• All nursing courses must be completed within five years of taking the first nursing class.

Requirements
Prerequisite Requirements
Prerequisite requirements include the following:

• 2.5 overall GPA or higher ("Nursing GPA" is calculated by including all NMC courses and transfer courses that count toward the ADN degree).

• ENG 111 English Composition (2.0 grade or higher)

• PSY 101 Introduction to Psychology (2.0 grade or higher)

• BIO 227 Human Anatomy & Physiology I (2.5 grade or higher. Must have been completed within five years of program entry, or successfully complete a competency exam if the class is older than five years.)

• Math Competency. Placement into MTH 121 College Algebra or higher with qualifying test scores or completion of MTH 111 Intermediate Algebra (2.0 grade or higher. Must have been completed within five years of program entry.)

The nursing department enforces a repeat policy that states: Any math and/or science class may only be repeated once. This includes fails, drops, withdrawals or transferred classes (effective June 1, 2012).

Recommended Courses to Take Prior to Starting the ADN Program
• ENG 112 English Composition

• One Group 1 Humanities course

• BIO 228 Human Anatomy & Physiology II (2.5 grade or higher. Must have been completed within five years of program entry, or successfully complete a competency exam if the class is older than five years.)

• HPD 110 BLS for Health Care Providers or equivalent class is: AHA Basic Life Support for Health Care Providers

Note: Current CPR certification must be documented by the start of the program, and maintained throughout the program.

Major Requirements

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENG 111</td>
<td>English Composition</td>
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</tr>
<tr>
<td>ENG 112</td>
<td>English Composition</td>
<td>4</td>
</tr>
<tr>
<td>Any Group 1 Humanities course</td>
<td>3</td>
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<tr>
<td>Math Competency ¹</td>
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<tr>
<td>BIO 227</td>
<td>Human Anatomy &amp; Physiology I</td>
<td>4</td>
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</table>

BIO 228 Human Anatomy & Physiology II 4
PSY 101 Introduction to Psychology 3

Nursing Specialty Requirements

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<tr>
<th>Course</th>
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<tbody>
<tr>
<td>HAH 100C</td>
<td>Informatics Essentials</td>
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<tr>
<td>HNR 101</td>
<td>Fundamentals of Nursing-Lectur</td>
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<tr>
<td>HNR 102</td>
<td>Fund of Nursing-Clinical</td>
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<td>HNR 106</td>
<td>Pharmacology I</td>
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<td>HNR 107</td>
<td>Pharmacology II</td>
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<td>HNR 125</td>
<td>Lifespan Nursing Lecture</td>
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<td>HNR 126</td>
<td>Lifespan Nursing-Clinical</td>
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<td>HNR 241</td>
<td>Adv Maternal Child Nursing-Lec</td>
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<td>Adv Maternal Child Nursing-Cli</td>
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<td>Nursing Management</td>
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<td>HNR 262</td>
<td>Nursing Management Clinical</td>
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<tr>
<td>HPD 110</td>
<td>BLS for Health Care Providers ², ³ (0.2)</td>
<td></td>
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Total Credits 70

¹ Math Competency may be fulfilled in one of two ways:
• Placement scores into MTH 121 College Algebra or higher, or
• Successful completion of MTH 111 Intermediate Algebra with a grade of 2.0 or higher. If required, completion of MTH 111 Intermediate Algebra will add 4 additional credits/contacts to the program.

² Equivalent class is AHA Basic Life Support for Health Care Providers
³ These credits do not count toward degree requirements.

Note: A 2.5 grade or higher is required in all Nursing (HNR and HAH) courses. Nursing course completion with a grade less than 2.5 is considered a course fail and requires readmission. Failing more than one HNR or HAH nursing course will result in nursing program dismissal.

Course Sequence Guide

Prerequisites

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
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<tbody>
<tr>
<td>ENG 111</td>
<td>English Composition</td>
<td>4</td>
</tr>
<tr>
<td>PSY 101</td>
<td>Introduction to Psychology</td>
<td>3</td>
</tr>
<tr>
<td>BIO 227</td>
<td>Human Anatomy &amp; Physiology I</td>
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<td>BIO 228</td>
<td>Human Anatomy &amp; Physiology II</td>
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<td>HPD 110</td>
<td>BLS for Health Care Providers</td>
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<td>MTH 111</td>
<td>Intermediate Algebra</td>
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<td>Level One Nursing Coursework</td>
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Total Credits 41

Courses Arranged by Nursing Director or Designee

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<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>HAH 100C</td>
<td>Informatics Essentials</td>
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</tr>
<tr>
<td>HNR 106</td>
<td>Pharmacology I</td>
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</tbody>
</table>
Northwestern Michigan College's Practical Nursing (PN) program is a certificate program that consists of two semesters of nursing classes after prerequisites are met. It is designed to give the student the knowledge and skills which will certify them to be eligible to take the National Council License Exam (NCLEX-PN). After successfully completing the NCLEX-PN exam, graduates are able to enter the workforce in various health care settings. The program is approved by the Michigan Board of Nursing and accredited through the Accreditation Commission for Education in Nursing (ACEN). Licensed Practical Nurses often work in offices, long-term care, and home health care facilities.

**Admission Requirements**

Admission requirements include the following:

- Completion of the admission process for the pre-Practical Nursing AGS Degree for NMC.
- Transfer students must submit official transcripts to determine eligibility.
- Completion of prerequisite requirements.

The PN program has a wait list admission process. Detailed information, including deadlines can be found on the NMC website under Nursing – Practical. Space in the nursing program is limited. Completion of prerequisites does not guarantee admission to the nursing program. Students will be placed on the wait list only after all prerequisite requirements are complete and eligibility has been met. It is recommended that students create a plan to complete prerequisite requirements with the Advising Department.

**Requirements**

**Prerequisite Requirements**

Prerequisite requirements include the following:
• 2.5 overall GPA or higher ("Nursing GPA" is calculated by including all NMC courses and transfer courses that count toward the ADN degree).
• ENG 111 English Composition (2.0 grade or higher)
• BIO 227 Human Anatomy & Physiology I (2.5 grade or higher. Must have been completed within five years of program entry, or successfully complete a competency exam if the class is older than five years.)
• Math Competency: Placement into MTH 121 College Algebra or higher with qualifying test scores or completion of MTH 111 Intermediate Algebra (2.0 grade or higher. Must have been completed within five years of program entry.)

The nursing department enforces a repeat policy that states: Any math and/or science class may only be repeated once. This includes fails, drops, withdrawals or transferred classes (effective June 1, 2012).

General Information
• Current CPR certification, a physical examination indicating good mental and physical health, immunization records, criminal background checks and drug screens are required by the start of the program. Nursing students are responsible for the costs associated with these tasks.
• The Board of Nursing may deny graduates the ability to take the licensure exam for a previous felony conviction, previous treatment for drug or alcohol abuse, or after finding the existence of one or more grounds for board action listed in 333.16221 of the Public Health Code, Act 368 of 1978.
• The clinical facilities used by NMC have the right to accept or reject a student. This action could result in a student being delayed or unable to complete the nursing program. This decision may be made just prior to the clinical rotation.
• Nursing students must adhere to the policies referenced in the Nursing Program Policy Manual associated with their admission semester. If a student is readmitted due to a program fail, they must adhere to the policies referenced in the Nursing Program Policy Manual associated with their readmission semester.
• The nursing program tuition is charged by the contact hour.
• All nursing courses must be completed within five years of taking the first nursing class.

Certificate Requirements
<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>ENG 111</td>
<td>English Composition</td>
<td>4</td>
</tr>
<tr>
<td>Math competency</td>
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</tr>
<tr>
<td>BIO 227</td>
<td>Human Anatomy &amp; Physiology I</td>
<td>4</td>
</tr>
<tr>
<td>&amp; 227L and Human Anatomy &amp; Phys I Lab</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BIO 228</td>
<td>Human Anatomy &amp; Physiology II</td>
<td>4</td>
</tr>
<tr>
<td>&amp; 228L and Human Anatomy &amp; Phys II Lab</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HNR 101</td>
<td>Fundamentals of Nursing-Lectur</td>
<td>4</td>
</tr>
<tr>
<td>HNR 102</td>
<td>Fund of Nursing-Clinical</td>
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</tr>
<tr>
<td>HNR 106</td>
<td>Pharmacology I</td>
<td>1</td>
</tr>
<tr>
<td>HNR 107</td>
<td>Pharmacology II</td>
<td>2</td>
</tr>
<tr>
<td>HNR 125</td>
<td>Lifespan Nursing Lecture</td>
<td>5</td>
</tr>
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<td>HNR 126</td>
<td>Lifespan Nursing-Clinical</td>
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</tr>
<tr>
<td>HNR 145</td>
<td>Practical Nursing Roles &amp; Issu</td>
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</tr>
<tr>
<td>HAH 100C</td>
<td>Informatics Essentials</td>
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<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HPD 110</td>
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<td>(0.2)</td>
</tr>
</tbody>
</table>

Total Credits 39

1 Placement into MTH 121 College Algebra or higher, or completion of MTH 111 Intermediate Algebra
2 Equivalent course is AHA Basic Life Support for Health Care Providers
3 These credits do not count toward degree requirements.

Note: A 2.5 grade or higher is required in all Nursing (HNR and HAH) courses. Nursing course completion with a grade less than 2.5 is considered a course fail and requires readmission. Failing more than one HNR or HAH nursing course will result in nursing program dismissal.

Course Sequence Guide
Prerequisites

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENG 111</td>
<td>English Composition</td>
<td>4</td>
</tr>
<tr>
<td>BIO 227</td>
<td>Human Anatomy &amp; Physiology I</td>
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</tr>
<tr>
<td>MTH 111</td>
<td>Intermediate Algebra</td>
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<tr>
<td>Total Credits 12</td>
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</table>

Model Schedule

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
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<tbody>
<tr>
<td>Fall</td>
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<tr>
<td>HAH 100C</td>
<td>Informatics Essentials</td>
<td>1</td>
</tr>
<tr>
<td>HNR 101</td>
<td>Fundamentals of Nursing-Lectur</td>
<td>4</td>
</tr>
<tr>
<td>HNR 102</td>
<td>Fund of Nursing-Clinical</td>
<td>4</td>
</tr>
<tr>
<td>HNR 106</td>
<td>Pharmacology I</td>
<td>1</td>
</tr>
<tr>
<td>The following courses will be added to Fall Semester if not taken prior to admission:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HNR 125</td>
<td>Lifespan Nursing Lecture</td>
<td>5</td>
</tr>
<tr>
<td>HNR 126</td>
<td>Lifespan Nursing-Clinical</td>
<td>5</td>
</tr>
<tr>
<td>HNR 107</td>
<td>Pharmacology II</td>
<td>2</td>
</tr>
<tr>
<td>HNR 145</td>
<td>Practical Nursing Roles &amp; Issu</td>
<td>1</td>
</tr>
<tr>
<td>Total Credits 13</td>
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<td></td>
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</table>

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spring</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BIO 228</td>
<td>Human Anatomy &amp; Physiology II</td>
<td>4</td>
</tr>
</tbody>
</table>

Total Credits 14

Program Total 27

Nursing, Associate Degree in Nursing

NMC Code 302
Northwestern Michigan College's Associate Degree in Nursing (ADN) program consists of two years of nursing classes after prerequisites are met. It is designed to give the student the skills necessary to prepare for employment after graduation. Graduates of the ADN program are eligible to apply for the National Council License Examination (NCLEX-RN) for licensing as a registered nurse. Student clinical experiences may include assignments at Munson Medical Center and a variety of other agencies. The program is approved by the Michigan Board of Nursing and accredited through the Accreditation Commission for Education in Nursing (ACEN).

**Admission Requirements**

Admission requirements include the following:

- Completion of the admission process for the pre-Associate Degree Nursing AGS Degree for NMC.
- Transfer students must submit official transcripts to determine eligibility.
- Completion of prerequisite requirements.

ADN students must submit the ADN application. Students may review the Competitive Points Rubric to determine how points are earned. The Competitive Points Rubric, application deadlines, and further details can be found on the NMC website under Nursing – Associate Degree (ADN). Space in the nursing program is limited. Completion of prerequisites does not guarantee admission to the nursing program. Students are granted access to the online competitive ADN application only after all prerequisite requirements are complete and eligibility has been met. It is recommended that students create a plan to complete prerequisite requirements with the Advising Department.

**General Information**

- Current CPR certification, a physical examination indicating good mental and physical health, immunization records, criminal background checks and drug screens are required by the start of the program. Nursing students are responsible for the costs associated with these program requirements.
- The Board of Nursing may deny graduates the ability to take the licensure exam for a previous felony conviction, previous treatment for drug or alcohol abuse, or after finding the existence of one or more grounds for board action listed in 333.16221 of the Public Health Code, Act 368 of 1978.
- The clinical facilities used by NMC have the right to accept or reject a student. This action could result in a student being delayed or unable to complete the nursing program. This decision may be made just prior to the clinical rotation.
- Nursing students must adhere to the policies referenced in the Nursing Program Policy Manual associated with their admission semester. If a student is readmitted due to a course failure, they must adhere to the policies referenced in the Nursing Program Policy Manual associated with their readmission semester.
- Nursing program tuition is charged by the contact hour.
- All nursing courses must be completed within five years of taking the first nursing class.

**Online Nursing Option**

NMC admits students to an online version of its traditional ADN curriculum each fall semester. The online option provides all of the nursing theory courses in an online format. It requires attendance in person for the lab and clinical courses. The labs and clinical courses are generally scheduled in the Traverse City area and will require 2-3 days per week of attendance.

Once students begin the ADN online option, the college will ensure that the online courses will be available until students complete the program, as long as the model schedule is followed. If students become out of sequence for any reason, they will need to move into the traditional program.

*Note: The ADN online option is not available to ADN students beginning the program spring semester. It is not available to students pursuing the Practical Nursing certificate or ADN Completion Option.*

**Requirements**

**Prerequisite Requirements**

Prerequisite requirements include the following:

- 2.5 overall GPA or higher ("Nursing GPA" is calculated by including all NMC courses and transfer courses that count toward the ADN degree).
- ENG 111 English Composition (2.0 grade or higher)
- PSY 101 Introduction to Psychology (2.0 grade or higher)
- BIO 227 Human Anatomy & Physiology I (2.5 grade or higher. Must have been completed within five years of program entry, or successfully complete a competency exam if the class is older than five years.)
- Math Competency: Placement into MTH 121 College Algebra or higher with qualifying test scores or completion of MTH 111 Intermediate Algebra (2.0 grade or higher. Must have been completed within five years of program entry.)

The nursing department enforces a repeat policy that states: Any math and/or science class may only be repeated once. This includes fails, drops, withdrawals or transferred classes (effective June 1, 2012).
Recommended Courses to Take Prior to Starting the ADN Program

- ENG 112 English Composition
- One Group 1 Humanities course
- BIO 228 Human Anatomy & Physiology II (2.5 grade or higher.
  Must have been completed within five years of program entry, or
  successfully complete a competency exam if the class is older than
  five years.)
- HPD 110 BLS for Health Care Providers or equivalent class:
  - AHA Basic Life Support for Health Care Providers

Note: Current CPR certification must be documented by the start of the program, and maintained throughout the program.

Major Requirements

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENG 111</td>
<td>English Composition</td>
<td>4</td>
</tr>
<tr>
<td>ENG 112</td>
<td>English Composition</td>
<td>4</td>
</tr>
<tr>
<td>Any Group 1 Humanities Course</td>
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<td>3</td>
</tr>
<tr>
<td>Math Competency¹</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>BIO 227</td>
<td>Human Anatomy &amp; Physiology I</td>
<td>4</td>
</tr>
<tr>
<td>BIO 228</td>
<td>Human Anatomy &amp; Physiology II</td>
<td>4</td>
</tr>
<tr>
<td>PSY 101</td>
<td>Introduction to Psychology</td>
<td>3</td>
</tr>
</tbody>
</table>

Nursing Specialty Requirements

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HAH 100C</td>
<td>Informatics Essentials</td>
<td>1</td>
</tr>
<tr>
<td>HNR 101</td>
<td>Fundamentals of Nursing-Lectur</td>
<td>4</td>
</tr>
<tr>
<td>HNR 102</td>
<td>Fund of Nursing-Clinical</td>
<td>4</td>
</tr>
<tr>
<td>HNR 106</td>
<td>Pharmacology I</td>
<td>1</td>
</tr>
<tr>
<td>HNR 107</td>
<td>Pharmacology II</td>
<td>2</td>
</tr>
<tr>
<td>HNR 125</td>
<td>Lifespan Nursing Lecture</td>
<td>5</td>
</tr>
<tr>
<td>HNR 126</td>
<td>Lifespan Nursing-Clinical</td>
<td>5</td>
</tr>
<tr>
<td>HNR 241</td>
<td>Adv Maternal Child Nursing-Lec</td>
<td>3</td>
</tr>
<tr>
<td>HNR 242</td>
<td>Adv Maternal Child Nursing-Cli</td>
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<tr>
<td>HNR 221</td>
<td>Acute Care Nursing I</td>
<td>1.5</td>
</tr>
<tr>
<td>HNR 222</td>
<td>Acute Care Nursing II</td>
<td>1.5</td>
</tr>
<tr>
<td>HNR 248</td>
<td>Acute Care Nursing - Clinical</td>
<td>4</td>
</tr>
<tr>
<td>HNR 251</td>
<td>Mental Health Nursing - Lec</td>
<td>2</td>
</tr>
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<td>HNR 252</td>
<td>Mental Health Nursing-Clinical</td>
<td>1</td>
</tr>
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<td>HNR 261</td>
<td>Nursing Management</td>
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<td>HNR 262</td>
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<tr>
<td>HPD 110</td>
<td>BLS for Health Care Providers²,³</td>
<td>4 (0.2)</td>
</tr>
</tbody>
</table>

Total Credits 70

¹ Placement into MTH 121 College Algebra or higher, or completion of MTH 111 Intermediate Algebra (if required, completion of MTH 111 Intermediate Algebra will add 4 additional credits/contacts to the program)
² Equivalent classes is AHA Basic Life Support for Health Care Providers
³ These credits do not count toward degree requirements.

Note: A 2.5 grade or higher is required in all Nursing (HNR and HAH) courses. Nursing course completion with a grade less than 2.5 is considered a course failure and requires readmission. Failing more than one HNR or HAH nursing course will result in nursing program dismissal.

Course Sequence Guide

<table>
<thead>
<tr>
<th>Prerequisites</th>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENG 111 English Composition</td>
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<tr>
<td>PSY 101 Introduction to Psychology</td>
<td>3</td>
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<tr>
<td>BIO 227 Human Anatomy &amp; Physiology I</td>
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<tr>
<td>MTH 111 Intermediate Algebra</td>
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Total Credits 15

Model Schedule

<table>
<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
<td>Fall</td>
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<tr>
<td>HAH 100C</td>
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<td>HNR 101</td>
<td>Fundamentals of Nursing-Lectur</td>
<td>4</td>
</tr>
<tr>
<td>HNR 102</td>
<td>Fund of Nursing-Clinical</td>
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</tr>
<tr>
<td>HNR 106</td>
<td>Pharmacology I</td>
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</tbody>
</table>

The following courses will be added to Fall Semester if not taken prior to admission: 4

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>HPD 110</td>
<td>BLS for Health Care Providers (CPR)</td>
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<tr>
<td>BIO 228</td>
<td>Human Anatomy &amp; Physiology II</td>
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Spring

<table>
<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
<td>HNR 125</td>
<td>Lifespan Nursing Lecture</td>
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<td>HNR 126</td>
<td>Lifespan Nursing-Clinical</td>
<td>5</td>
</tr>
<tr>
<td>HNR 107</td>
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Year 2

<table>
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<tr>
<th>Course</th>
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<td>Fall</td>
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<td></td>
</tr>
<tr>
<td>HNR 251</td>
<td>Mental Health Nursing - Lec</td>
<td>2</td>
</tr>
<tr>
<td>HNR 252</td>
<td>Mental Health Nursing-Clinical</td>
<td>1</td>
</tr>
<tr>
<td>HNR 241</td>
<td>Adv Maternal Child Nursing-Lec</td>
<td>3</td>
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<tr>
<td>HNR 242</td>
<td>Adv Maternal Child Nursing-Cli</td>
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<tr>
<td>HNR 221</td>
<td>Acute Care Nursing I</td>
<td>1.5</td>
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<tr>
<td>HNR 222</td>
<td>Acute Care Nursing II</td>
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<tr>
<td>HNR 248</td>
<td>Acute Care Nursing - Clinical</td>
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<tr>
<td>HNR 251</td>
<td>Mental Health Nursing - Lec</td>
<td>2</td>
</tr>
<tr>
<td>HNR 252</td>
<td>Mental Health Nursing-Clinical</td>
<td>1</td>
</tr>
<tr>
<td>HNR 261</td>
<td>Nursing Management</td>
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<tr>
<td>HNR 262</td>
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<tr>
<td>HPD 110</td>
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Total Credits 9.5

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</thead>
<tbody>
<tr>
<td>Spring</td>
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<tr>
<td>HNR 222</td>
<td>Acute Care Nursing II</td>
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</tr>
<tr>
<td>HNR 248</td>
<td>Acute Care Nursing - Clinical</td>
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<tr>
<td>HNR 261</td>
<td>Nursing Management</td>
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</tr>
<tr>
<td>HNR 262</td>
<td>Nursing Management</td>
<td>4</td>
</tr>
</tbody>
</table>

Total Credits 12.5

The following courses may be taken during any semester prior to graduation.
Respiratory Therapy - RT, Associate in Applied Science Degree

Through Muskegon Community College

Northwestern Michigan College is a partner with Muskegon Community College and Munson Medical Center to offer a collaborative program leading to an Associate in Applied Science degree. All liberal arts and science courses can be taken through NMC. All didactic respiratory classes will be offered at Munson Medical Center via live interactive television from Muskegon Community College. Most clinical courses can be completed at Munson Medical Center. This program is fully accredited by the Commission on Accreditation for Respiratory Care (COARC).

The respiratory therapy program begins each fall semester. Enrollment in the program is based on the student meeting the following criteria:

• overall GPA of 2.0 and
• proficiency testing in Beginning Algebra and
• successful completion of ENG 111 English Composition.

Admission Requirements

To earn an AAS - Paramedic students must obtain a Basic EMT license and meet the clinical experience requirement. This can be completed concurrently while taking NMC classes. Students interested in pursuing a degree in Paramedic would follow the guidelines below for application to NMC and registration of classes.

1. Complete an application for admission through NMC at www.nmc.edu/admissions/future-students/ (http://www.nmc.edu/admissions/future-students/)
2. Request to have an official high school transcript sent to the Admissions Office.
3. Schedule an orientation session after an admission letter is obtained.
4. Take the placement test or submit your ACT or SAT scores prior to orientation.
5. Meet with an academic advisor.
6. Bring placement scores to paramedic program contact at Munson Regional EMS.

The following are required for application:

Math competency: placement into MTH 111 Intermediate Algebra or higher with qualifying test scores or completion of MTH 23 Beginning Algebra. (2.0 grade or higher must have been completed within five years or program entry.)
Depending on placement test results and high school and/or college transcript evaluation, some prerequisite classes may be required. Class sizes generally begin with eight students in the Munson interactive classroom.

After completing more than two years of instruction, the student therapist receives the Associate in Applied Science degree (AAS) from Muskegon Community College. The student must pass the advanced practical examination given by the National Board for Respiratory Therapy in order to receive credentials.

Admission Requirements

Enrollment in any Respiratory Therapy (RT) course requires admission to the Respiratory Therapy program. Consideration for admission requires satisfactory completion of program prerequisites and admission to both Muskegon Community College and the Respiratory Therapy program. Students who have completed the entry level requirements and have also completed non-professional courses will be given preference into the program. Space in the Respiratory Therapy program is limited.

Completion of prerequisites does not guarantee admission to the Respiratory Therapy program. Students interested in pursuing a degree in Traverse City for Respiratory Therapy from Muskegon Community College would follow these guidelines for application to and registration in the program.

1. Submit an application to Northwestern Michigan College.
   Applications are available at www.nmc.edu/admissions (http://www.nmc.edu/admissions/) or at the Admissions Office (231) 995-1054.
2. Meet with an NMC advisor or Health Occupations Respiratory Therapy Advisor to complete your educational development plan for completing your degree.
3. Complete the basic criteria for admissions to the Respiratory Therapy program including:
   • overall GPA of 2.0 and
   • proficiency testing in Beginning Algebra and
   • successful completion of ENG 111 English Composition.
4. Apply for Admission to both Muskegon Community College and the Respiratory Therapy program at Muskegon Community College. More information is available by calling (231) 995-1235.

Surgical Technology, Associate in Applied Science Degree

NMC Code 311

Northwestern Michigan College's Surgical Technology program is designed to provide students with the skills and knowledge necessary to become a competent entry level Surgical Technologist. Graduates of the program will be eligible to apply for the Certified Surgical Technologist exam through the National Board of Surgical Technology and Surgical Assisting (NMSTSA). The program includes 36 credit hours of classroom, lab and clinical components over four semesters after prerequisites are met. Cohorts will typically begin in the fall semester and graduate in December (fall, spring, summer, and fall).

Admission Requirements

• Completion of the admission process for the pre-Surgical Technology AGS Degree for NMC.
• Completion of prerequisite requirements.
• Transfer students must submit official transcripts to determine eligibility.

Requirements

Prerequisite Requirements

• College GPA of 2.0 (Overall GPA is defined as a combination of NMC GPA and any transfer courses counted toward the AAS degree.)
• ENG 111 English Composition (2.0 grade or higher)
• HAH 101 Medical Terminology (2.0 grade or higher)
• BIO 227 Human Anatomy & Physiology I/BIO 227L Human Anatomy & Phys I Lab 1 (2.0 grade or higher. Must have been completed within seven years of program entry.)
• Math Competency: Placement into MTH 121 College Algebra or higher with qualifying test scores or completion of MTH 111 Intermediate Algebra with a 2.0 grade or higher.

Recommended Courses to Take Prior to Starting the Surgical Tech Program

• BIO 228 Human Anatomy & Physiology II/BIO 228L Human Anatomy & Phys II Lab 1 (2.0 grade or higher) If not successfully completed prior to beginning the program, must be taken during Semester I.
• HPD 110 BLS for Health Care Providers (grade required: S) or an equivalent course
• American Heart Association: HeartCode® BLS (CPR and AED)
• American Red Cross: Basic Life Support for Health Care Providers
• CPR/AED for Professional Rescuers and Health Care Providers

Transfer students must have completed coursework equivalent to BIO 227 Human Anatomy & Physiology I and BIO 228 Human Anatomy & Physiology II with a 2.0 or better within the last seven years before transfer credit will be considered.

Major Requirements

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>ENG 111</td>
<td>English Composition</td>
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<tr>
<td>BUS 231</td>
<td>Professional Communications 1</td>
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<tr>
<td>BIO 227</td>
<td>Human Anatomy &amp; Physiology I 2</td>
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</tr>
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<td>BIO 228</td>
<td>Human Anatomy &amp; Physiology II 2</td>
<td>4</td>
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<tr>
<td>PSY 101</td>
<td>Introduction to Psychology</td>
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<tr>
<td>or SOC 101</td>
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Occupational Specialty Requirements

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<tr>
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<tr>
<td>HAH 101</td>
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<td>SRG 101</td>
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<td>SRG 102</td>
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<td>SRG 103</td>
<td>Surgical Pharmacology</td>
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<tr>
<td>SRG 121</td>
<td>Surgical Procedures I</td>
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<td>SRG 121L</td>
<td>Surgical Procedures I Lab</td>
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<tr>
<td>SRG 122</td>
<td>The Surgical Patient</td>
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<tr>
<td>SRG 123</td>
<td>Biomed Sciences and MIS</td>
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</tr>
<tr>
<td>SRG 201</td>
<td>Surgical Procedures II</td>
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SRG 202  Surg Procedures II Clinical  5
SRG 204  Professional Career Prep I  0.5
SRG 221  Surgical Procedures III  3
SRG 222  Surg Procedures III Clinical  6
SRG 224  Professional Career Prep II  1
Total Credits  60-61

1  BUS 231 Professional Communications is recommended to meet the communications requirement for the AAS degree; however, students who anticipate transferring credits to another school or who plan to pursue a four-year degree are advised to take ENG 112 English Composition.

2  Transfer students must have completed coursework equivalent to BIO 227 Human Anatomy & Physiology I and BIO 228 Human Anatomy & Physiology II with a 2.0 or better within the last seven years before transfer credit will be considered.

Program Requirements 60

Course Sequence Guide

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>Prequisites for Application</td>
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<tr>
<td>ENG 111</td>
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<td>BIO 227</td>
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<tr>
<td>Recommended Prerequisite</td>
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<tr>
<td>The following course will be added to the First Semester of Year 1 if not taken prior to admission.</td>
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<tr>
<td>BIO 228</td>
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<table>
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| Year 1

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<tbody>
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<tr>
<td>SRG 101</td>
<td>Intro to Surgical Technology</td>
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<td>SRG 103</td>
<td>Surgical Pharmacology</td>
<td>1.5</td>
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<tr>
<td>HPD 110</td>
<td>BLS for Health Care Providers ((CPR) must be completed before third semester begins)</td>
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<td>SRG 121</td>
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<td>SRG 121L</td>
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<tbody>
<tr>
<td>Summer</td>
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<td>SRG 201</td>
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<td>SRG 202</td>
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<tr>
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| Year 2

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The following courses may be taken in any semester prior to graduation:

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<tr>
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</thead>
<tbody>
<tr>
<td>BUS 231</td>
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<td></td>
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<tr>
<td>Any Group 1 Humanities Course</td>
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<tr>
<td>Total Credits</td>
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Total Program Credits 60

Humanities

Programs

- Audio Technology, Associate in Applied Science Degree (p. 111)
- Audio Technology, Certificate of Achievement (Level II) (p. 113)
- Visual Communications - Creative Management in Art Direction, Associate in Applied Science Degree (p. 113)
- Visual Communications, Associate in Applied Science Degree (p. 114)

Courses

Art

ART 100 - Art Appreciation
Credit Hours: 3, Contact Hours: 3
Division: Humanities
Art Appreciation is a course which allows for a great deal of exploration into the world of art as we see it. The course provides an avenue for understanding this world by investigating technique, media, idea, personal expression and meaning. In examining personal expression, surrounding issues and their effect upon society will also be analyzed. Students in this course will develop a foundation for understanding art through analytical observation, examination, interpretation and writing about art. Group 1 course. Critical Thinking - Direct.

ART 111 - History of Western Art I
Credit Hours: 4, Contact Hours: 4
Division: Humanities
The course will introduce major trends of Western Art from Pre-History through Greece, Rome and the Middle Ages. Significant works of painting, sculpture and architecture will be presented within the social, political and cultural context of each period. Group 1 course. Critical Thinking - Direct, Degree Req:Cultural Persp/Div.
Recommended Prerequisites: ENG 111
ART 112 - History of Western Art II
Credit Hours: 4, Contact Hours: 4
Division: Humanities
This course is designed to introduce major trends in Western Art from the Renaissance through Modernism to the present. Significant works of painting, sculpture and architecture will be presented within the social, political and cultural context of each period. Group 1 course. Critical Thinking - Direct, Degree Req: Cultural Persp/Div.
Recommended Prerequisites: ENG 111

ART 121 - Drawing I
Credit Hours: 3, Contact Hours: 4
Division: Humanities
Drawing I introduces the students to basic drawing skills and techniques through the use of line, form, composition, perspective and the use of chiaroscuro. The course emphasis is on using drawing as a vehicle for seeing and communicating. Students will learn to judge proportions, create volume, depict the illusion of space and to analyze their own work as well as others. Black and white dry medium will be used for all assignments. Group 2 course. Critical Thinking - Direct.
Recommended Prerequisites: Students are encouraged to have good reading skills or seek help.

ART 122 - Drawing II
Credit Hours: 3, Contact Hours: 4
Division: Humanities
Course will explore advanced methods in drawing including the effects of lighting, multiple panel design and conceptualizing of compositions with an emphasis on the use of new media and developing a personal style. Advanced use of color media and theory will be explored in this course. Assignments will include still life and object studies designed by both the instructors and students. Group 2 course.
Required Prerequisites: ART 121
Recommended Prerequisites: Students are encouraged to have good reading skills or seek help.

ART 131 - 2-D Design
Credit Hours: 3, Contact Hours: 4
Division: Humanities
A problem-solving course covering the principles of composition and design. Course will study the concepts and theory of two-dimensional design, pattern, and color as they apply to visual perception and communication. Uses predominately abstract shapes and black, white, and achromatic gray ranges. Students will study visual structure, color and their application. Group 2 course.
Recommended Prerequisites: Students are encouraged to have good reading skills or seek help.

ART 132 - 3-D Design
Credit Hours: 3, Contact Hours: 4
Division: Humanities
An introduction to the elements of construction and production of three-dimensional design. Shape, volume, mass, and interaction of forms and colors will be studied within a variety of conceptual modes, e.g. architecture, sculpture, package design, display, etc. Group 2 course.
Recommended Prerequisites: Students are encouraged to have good reading skills or seek help.

ART 151 - Ceramics I
Credit Hours: 3, Contact Hours: 4
Division: Humanities
This course will introduce students to the complexities of working with clay. Students will be introduced to the pottery wheel and will explore the wheel as a tool to make functional and sculptural objects. This class will also explore a variety of hand-building techniques as well as various firing processes. Group 2 course.

ART 152 - Ceramics II
Credit Hours: 3, Contact Hours: 4
Division: Humanities
This course is a continued investigation of the potter’s wheel and hand-building as a tool to create ceramic forms. There will be a greater exploration of surface adornment and processes including basic glaze chemistry and firing operations. Evidence of expanding individuality in the understanding of advanced technique and sensitivity to form will be expected. Group 2 course.
Required Prerequisites: ART 151

ART 161 - Painting I
Credit Hours: 3, Contact Hours: 4
Division: Humanities
This course will introduce concepts of painting as well as principles of design, and the development of painting techniques. Students will be given painting projects/problems throughout the semester ending with a painting that incorporates the combined skills. Oils and/or acrylic paint will be used. Group 2 course. Critical Thinking - Direct.
Recommended Prerequisites: Students are encouraged to have good reading skills or seek help.

ART 162 - Painting II
Credit Hours: 3, Contact Hours: 4
Division: Humanities
This course will continue to investigate the concepts of Painting I as well as elements of design, including the development of a personal style. Students will deal with more complex painting concepts, including a deeper understanding of color challenges. This course is designed to give a more independent/individual approach (than Painting I). Students will work in either oil or acrylic paint. Group 2 course. Critical Thinking - Direct.
Required Prerequisites: ART 161
Recommended Prerequisites: Students are encouraged to have good reading skills or seek help.

ART 165 - Watercolor Painting I
Credit Hours: 3, Contact Hours: 4
Division: Humanities

ART 166 - Watercolor Painting II
Credit Hours: 3, Contact Hours: 4
Division: Humanities
Watercolor II deals with advanced problems in watercolor painting with special emphasis on individual development and creativity particularly in the area of compositional conceptualization. Group 2 course. Critical Thinking - Direct.
Required Prerequisites: ART 165
ART 174 - Digital Photography I  
Credit Hours: 3, Contact Hours: 4  
Division: Humanities  
The student will gain a strong understanding of manual exposure with a digital camera, working in camera raw, digital workflow, and natural light. Students are introduced to the artistic principles of aesthetics, composition, color, and applying those principles to the digital photography medium. Students also work in post processing with lightroom, photoshop, and output to digital prints. Group 2 course. Critical Thinking - Direct.

ART 181 - Printmaking I  
Credit Hours: 3, Contact Hours: 4  
Division: Humanities  
Printmaking I is an introductory survey course that introduces the student to a wide variety of print media: relief, intaglio, embossing and monotype. Students will gain knowledge of the history, conception, production and presentation of achromatic prints. Group 2 course. Critical Thinking - Direct.  
Recommended Prerequisites: Students are encouraged to have good reading skills or seek help.

ART 182 - Printmaking II  
Credit Hours: 3, Contact Hours: 4  
Division: Humanities  
Printmaking II expands on processes and concepts explored in Printmaking I with the emphasis on more complex techniques including lithography, reduction relief prints, and multi-color intaglio prints.
Students will refine their technical skills and concepts begun in Printmaking I. Students will explore contemporary printing techniques and issues. Group 2 course. Critical Thinking - Direct.  
Required Prerequisites: ART 181  
Recommended Prerequisites: Students are encouraged to have good reading skills or seek help.

ART 213 - Modern Art History  
Credit Hours: 3, Contact Hours: 3  
Division: Humanities  
This course examines the history of art from the beginning of the 20th century to present. Emphasis is placed on the continuing connection between modern art movements and the relationship of art to current social and cultural contexts. Group 1 course. Communications - Direct, Critical Thinking - Direct.  
Recommended Prerequisites: ENG 111

ART 221 - Life Drawing I  
Credit Hours: 3, Contact Hours: 4  
Division: Humanities  
Life Drawing I involves comprehensive studies in drawing the human figure with a variety of materials and discusses the solution of the problems of figure drawing used to advance the general qualities of grace, rhythm, and form. Explorations include gesture drawing, contour drawing and drawing the figure in motion. Life Drawing I will work primarily in charcoal and pencil. Group 2 course. Critical Thinking - Direct.  
Required Prerequisites: ART 121  
Recommended Prerequisites: Students are encouraged to have good reading skills or seek help.

ART 222 - Life Drawing II  
Credit Hours: 3, Contact Hours: 4  
Division: Humanities  
Life Drawing II is an advanced study of problems in drawing the human figure in multiple views and in longer studies with an accent on composition and dealing not only with the model but the environment the model is in. Life Drawing II will include the introduction of color and wet media. Group 2 course. Critical Thinking - Direct.  
Required Prerequisites: ART 221  
Recommended Prerequisites: Students are encouraged to have good reading skills or seek help.

ART 274 - Digital Photography II  
Credit Hours: 3, Contact Hours: 4  
Division: Humanities  
Digital Photography II is an intermediate photography course covering advanced techniques in capturing & processing of photographs in the digital form. Specific topics will include image enhancement by use of software programs (Adobe Lightroom & Photoshop), color management, in depth artistic principles and expression for a photographic series, and output to digital prints. Students also work in studio with professional studio lighting to create work in the commercial and portrait genres. Group 2 course.  
Required Prerequisites: ART 174

ART 290A - Academic/Service Internship  
Credit Hours: 1-4, Contact Hours: 1-4  
Division: Humanities

ART 290C - Academic/Service Internship  
Credit Hours: 1-4, Contact Hours: 1-4  
Division: Humanities  
Critical Thinking - Direct.

ART 293 - Art Study Abroad  
Credit Hours: 1, Contact Hours: 1  
Division: Humanities  
In this class, students are provided the opportunity to travel to a specified destination affiliated with the corresponding art non-trip course. This course will serve to integrate the student learning experience and provide a sense of cultural perspective, diversity and regional awareness. The course is an opportunity for students to explore other areas around the world while applying discipline-specific course content. For a more specific course description, please review the course description of the associated non-trip course. Group 2 course.  
Required Prerequisites: ART 100, or ART 111, or ART 112, or ART 121, or ART 131, or ART 132, or ART 161, or ART 162, or ART 165, or ART 166, or ART 174, or ART 213, or ART 221, or ART 222

Audio Technology

AUD 100 - Applied Music - Audio Tech  
Credit Hours: 2, Contact Hours: 2  
Division: Humanities  
This course consists of one-on-one mentoring in audio technology with our NMC Audio Technology staff. It is designed to customize the audio tech training experience for each student, helping to identify interests and aptitude, or to provide tutoring as needed. Group 2 course.
AUD 100B - Applied Music - Audio Tech
Credit Hours: 2, Contact Hours: 2
Division: Humanities
This course consists of one-on-one mentoring in audio technology with our NMC Audio Technology Staff. It is designed to customize the audio tech training experience for each student, helping to identify interests and aptitude, or to provide tutoring as needed. Group 2 course.
Required Prerequisites: AUD 100

AUD 100C - Applied Music - Audio Tech
Credit Hours: 2, Contact Hours: 2
Division: Humanities
The course consists of one-on-one mentoring in audio technology with our NMC Audio Technology Staff. It is designed to customize the audio tech training experience for each student, helping to identify interests and aptitude, or to provide tutoring as needed. Group 2 course.
Required Prerequisites: AUD 100B

AUD 100D - Applied Music - Audio Tech
Credit Hours: 2, Contact Hours: 2
Division: Humanities
This course consists of one-on-one mentoring in audio technology with our NMC Audio Technology Staff. It is designed to customize the audio tech training experience for each student, helping to identify interests and aptitude, or to provide tutoring as needed. Group 2 course.
Required Prerequisites: AUD 100C

AUD 100E - Applied Music - Audio Tech
Credit Hours: 2, Contact Hours: 2
Division: Humanities
This course consists of one-on-one mentoring in audio technology with our NMC Audio Technology Staff. It is designed to customize the audio tech training experience for each student, helping to identify interests and aptitude, or to provide tutoring as needed. Group 2 course.
Required Prerequisites: AUD 100D

AUD 100F - Applied Music - Audio Tech
Credit Hours: 2, Contact Hours: 2
Division: Humanities
This course consists of one-on-one mentoring in audio technology with our NMC Audio Technology Staff. It is designed to customize the audio tech training experience for each student, helping to identify interests and aptitude, or to provide tutoring as needed. Group 2 course.
Required Prerequisites: AUD 100E

AUD 101 - Theory for Studio Engineers
Credit Hours: 2, Contact Hours: 2
Division: Humanities
This course is a study of song forms, notation of rhythms, chord symbols, key and time signatures, and familiarization with lead sheets and scores as commonly used in Pop and Jazz. This course will provide students the knowledge needed to work in a variety of musical genres and mediums. Group 2 course.

AUD 110 - Studio Recording I
Credit Hours: 2, Contact Hours: 2
Division: Humanities
This course is a combination of the study of audio and recording theory with instruction and practice in audio studio recording techniques. There is an emphasis on developing skills in the use of current technology. Group 2 course.

AUD 111 - Studio Recording II
Credit Hours: 2, Contact Hours: 2
Division: Humanities
This course is a study of audio signal processing theory, history, and application using current industry standard technology. There is an emphasis on developing skills in the operation of hardware and software to manipulate digital audio recordings. Group 2 course.
Required Prerequisites: AUD 110 with a grade of 2.0 or higher.

AUD 120 - Digital Audio I
Credit Hours: 2, Contact Hours: 2
Division: Humanities
Digital Audio I is a continuation of AUD 110, Digital Audio I. This course introduces Pro Tools, MIDI recording and editing, delves further into advanced MIDI editing techniques. The use and operation of control surfaces and MIDI session strategies are explored. Group 2 course.
Required Prerequisites: AUD 120 with a grade of 2.0 or higher.

AUD 121 - Digital Audio II
Credit Hours: 2, Contact Hours: 2
Division: Humanities
Digital Audio II is the continuation of AUD 120, Digital Audio I. This course builds on the topics covered in AUD 110 and AUD 111, focusing on the refinement and addition of skills in digital audio recording. Students develop competencies in working with hardware and software in audio project-based settings. Group 2 course.
Required Prerequisites: AUD 121 with a grade of 2.0 or higher.

AUD 130 - Live Sound I
Credit Hours: 2, Contact Hours: 2
Division: Humanities
This course is an introduction to live sound techniques, including basic properties of sound, sound equipment, signal flow, and system engineering. Group 2 course.

AUD 131 - Live Sound II
Credit Hours: 2, Contact Hours: 2
Division: Humanities
This course is a continuation of live sound techniques, including acoustic properties of sound, sound equipment, signal flow, and system engineering. Group 2 course.
Required Prerequisites: AUD 130 with a grade of 2.0 or higher.

AUD 210 - Studio Recording III
Credit Hours: 2, Contact Hours: 2
Division: Humanities
This course builds on the topics covered in AUD 110 and AUD 111, focusing on the refinement and addition of skills in digital audio recording. Students develop competencies in working with hardware and software in audio project-based settings. Group 2 course.
Required Prerequisites: AUD 111 with a grade of 2.0 or higher.

AUD 220 - Digital Audio III
Credit Hours: 2, Contact Hours: 2
Division: Humanities
Digital Audio III is the continuation of AUD 121, Digital Audio II. This course further explores MIDI and audio recording and editing in Logic and Pro Tools, and also delves into an exploration of software sound synthesizers and Sampler instruments found in Digital Audio Workstations. Group 2 course.
Required Prerequisites: AUD 121 with a grade of 2.0 or higher.
AUD 230 - Live Sound III  
Credit Hours: 2, Contact Hours: 2  
Division: Humanities  
This course is an advanced exploration of live sound techniques, including room acoustics, digital sound equipment, software analysis, and system engineering. Group 2 course.  
Required Prerequisites: AUD 131 with a grade of 2.0 or higher.

AUD 250 - Audio Tech Practicum  
Credit Hours: 2, Contact Hours: 2  
Division: Humanities  
This course is designed to give students practical experience in digital audio recording. Students participate in a variety of recording situations using various hardware and software recording techniques. Students apply techniques used in previous recording and digital audio courses. Group 2 course.  
Required Prerequisites: AUD 110, AUD 120, AUD 130 all with a grade of 2.0 or higher.

AUD 260 - Audio Tech Internship  
Credit Hours: 3, Contact Hours: 3  
Division: Humanities  
This course is required for the Associate of Applied Science degree in Audio Technology. The purpose of the internship is to provide on-the-job experience for the student who wishes to pursue a career in audio related fields. The internship will be customized to meet the learning needs of the student and the job requirements of the sponsoring firms. Students must apply one month prior to the semester in which they will complete the internship. Group 2 course.  
Required Prerequisites: AUD 210, AUD 230, AUD 250 all with a grade of 2.0 or higher; or instructor approval.

AUD 270 - Audio Tech Final Project  
Credit Hours: 3, Contact Hours: 3  
Division: Humanities  
This course is required for the Associate of Applied Science degree in Audio Technology. The course is to provide in-depth intensive training experience in an area of specialization in audio technology. The student will be paired with staff in their area of expertise. Examples are Audio for Worship, Mastering, Audio for Film, Scoring, etc. Group 2 course.  
Required Prerequisites: AUD 210, AUD 230, AUD 250 all with a grade of 2.0 or higher.

DNC 120 - Choreography & Performance  
Credit Hours: 2, Contact Hours: 4  
Division: Humanities  
Study choreography by participating in an instructor-led choreographed dance, created through structured improvisation and creative problem-solving techniques. Students will also create and develop their own dances through the exploration of a wide range of approaches to choreography. Performance and its relationship to community and cultural values will also be explored. The culminations of the class work will be a dance performance for the public. Group 2 course.  
Required Prerequisites: DNC 101, DNC 110 or previous experience.

DNC 121 - Swing, Latin & Slow Dancing I  
Credit Hours: 1, Contact Hours: 2  
Division: Humanities  
This course will introduce students to a fun form of exercise and recreation you can do for the rest of your life through swing and social dancing. Many styles of dancing will be covered including swing, jitterbug, tango, cha cha, waltz, slow dancing, two-step, Latin dancing, and many swing moves that can be incorporated into any dance situation. Please wear slippery soled shoes.

DNC 122 - Hip-Hop Dance  
Credit Hours: 1, Contact Hours: 2  
Division: Humanities  
Learn dance combinations used in the Hip-Hop dance style. Develops the strength, flexibility, rhythm, balance, and safe body mechanics to dance confidently in a social atmosphere to popular Hip-Hop music. A great way to exercise and have fun at the same time. Wear clean, dry gym shoes.

DNC 131 - Yoga I  
Credit Hours: 1, Contact Hours: 2  
Division: Humanities  
Yoga is postural work emphasizing precise and careful body alignment and maximum spinal extension. Yoga works through the concreteness of the body to teach balance and integration. It is an effective way to stretch and strengthen the body. Using movement and breath, yoga brings a therapeutic calm to the body and mind, releasing stress and bringing relaxation. Group 2 course.

DNC 132 - Yoga II  
Credit Hours: 1, Contact Hours: 2  
Division: Humanities  
Yoga techniques focus on understanding and controlling the body, the breath, and the mind through exercises (asanas), breathing techniques (pranayamas), and meditation training (quieting the mind and body). Yoga poses are designed to develop strength and give maximum flexibility to the muscular, skeletal, and nervous systems with special emphasis on building a strong, supple spine. Benefits include improved circulation, hormonal balance, poise, and a more stable emotional nature. Learning proper breathing will help you cope with stress and increase your energy level. Wear loose, comfortable, layered clothing and plan to work barefooted. Bring two blankets, a mat, and a bath towel. Group 2 course.  
Prerequisite(s): DNC 131 or instructor permission.  
Required Prerequisites: DNC 131.
DNC 135 - Bikram Yoga I  
Credit Hours: 1, Contact Hours: 2  
Division: Humanities  
This is Original Hot Yoga, 105 degrees, pure, powerful, authentic, unchanged, taught exactly as Hatha Yoga Master Bikram Choudhury intends it to be taught. 26 poses, 2 breathing exercises, 90 minutes, plus heat. Prerequisite: good heart health and not pregnant. Group 2 course.

DNC 136 - Bikram Yoga II  
Credit Hours: 1, Contact Hours: 2  
Division: Humanities  
A continuation of the original Hot Yoga, 105 degrees, pure, powerful, authentic, unchanged, taught exactly as Hatha Yoga Master Bikram Choudhury intends it to be taught. 26 poses, 2 breathing exercises, 90 minutes, plus heat. Prerequisite: good heart health and not pregnant. Group 2 course.

HST 101 - Western Civilization to 1500AD  
Credit Hours: 4, Contact Hours: 4  
Division: Humanities  
This is the first course in a year-long study of western civilizations from the birth of civilization through the First World War. The main instructional goal is to have students demonstrate an understanding of the diverse societies and culture of the western world. It’s important that students recognize that western civilization includes many diverse cultures and has interacted with many other diverse cultures throughout its development. In addition, students will analyze the distinctive characteristics of western civilizations, identify the achievements and limitations of western civilizations, and develop an awareness of how contemporary problems were caused by past forces. As students achieve these goals, they will develop skills in communication and critical thinking. This course covers the period from the birth of civilization through the Renaissance. Group 1 course. Communications - Direct, Critical Thinking - Direct, Degree Req:Cultural Persp/Div, Infused: Writing Intensive. Recommended Prerequisites: Placement into ENG 111

HST 102 - Western Civilization from 1500  
Credit Hours: 4, Contact Hours: 4  
Division: Humanities  
This is the second course in a year-long study of western civilizations from the birth of civilization through the First World War. The main instructional goal is to have students demonstrate an understanding of the diverse societies and culture of the western world. It’s important that students recognize that western civilization includes many diverse cultures and has interacted with many other diverse cultures throughout its development. In addition, students will analyze the distinctive characteristics of western civilizations, identify the achievements and limitations of western civilizations, and develop an awareness of how contemporary problems were caused by past forces. As students achieve these goals, they will develop skills in communication and critical thinking. This course covers the period from the Reformation through the First World War. Group 1 course. Communications - Direct, Critical Thinking - Direct, Degree Req:Cultural Persp/Div, Infused: Writing Intensive. Recommended Prerequisites: Placement into ENG 111

HST 111 - U S History to 1865  
Credit Hours: 4, Contact Hours: 4  
Division: Humanities  
This is the first course in a year-long study of U.S. History from Native American origins to the modern world. A main instructional goal is to have students demonstrate an understanding of how diverse societies and cultures have contributed to the development of the United States. In addition, students will analyze the distinctive characteristics of the development of the United States, identify the achievements and limitations of these developments, and develop an awareness of how contemporary problems were caused by past forces. Students will learn how American society developed from Native American origins through the Civil War, and how society has impacted both individuals and groups in America. As students achieve this goal, they will develop skills in communications and critical thinking. Group 1 course. Communications - Direct, Critical Thinking - Direct, Degree Req:Cultural Persp/Div, Infused: Writing Intensive. Recommended Prerequisites: Placement into ENG 111

HST 112 - U S History Since 1865  
Credit Hours: 4, Contact Hours: 4  
Division: Humanities  
This is the second course in a year-long study of U.S. History from Native American origins to the modern era. A main instructional goal is to have students demonstrate an understanding of how diverse societies and cultures have contributed to the development of the United States. In addition, students will analyze the distinctive characteristics of the development of the US, identify the achievements and limitations of these developments, and develop an awareness of how contemporary problems were caused by past forces. As students achieve these goals, they will develop skills in communication and critical thinking. Students will learn how American society developed from Reconstruction to the modern era, and how society has impacted both individuals and groups in America. Group 1 course. Communications - Direct, Critical Thinking - Direct, Degree Req:Cultural Persp/Div, Infused: Writing Intensive. Recommended Prerequisites: Placement into ENG 111

HST 211 - Native American History  
Credit Hours: 3, Contact Hours: 3  
Division: Humanities  
A history of the Native American experience from the pre-Columbian period to the post World War II era. Major emphasis is placed upon the social, political, and economic role of the Native American community in American society and its unique role as a part of that society. Students will also demonstrate an awareness of how contemporary problems were caused by past forces. Students will develop skills in analysis, critical thinking, historical reasoning and writing. Group 1 course. Communications - Direct, Critical Thinking - Direct, Degree Req:Cultural Persp/Div, Infused: Writing Intensive. Recommended Prerequisites: Placement into ENG 111.
HST 212 - African-American History  
Credit Hours: 3, Contact Hours: 3  
Division: Humanities  
This course is a history of the African-American experience from African origins to the Modern era in America. Major emphasis is placed upon the social, political, and economic role of African American society and its unique role as a part of that society. Students will also demonstrate an awareness of how contemporary problems were caused by past forces. As students achieve this goal, they will develop skills in analysis, critical thinking, historical reasoning, and writing. Group 1 course. Communications - Direct, Critical Thinking - Direct, Degree Req: Cultural Persp/Div, Infused: Writing Intensive.  
Recommended Prerequisites: Placement into ENG 111.

HST 213 - American Women's History  
Credit Hours: 3, Contact Hours: 3  
Division: Humanities  
A history of American women's experience from Native American origins to the Modern Era. Major emphasis is placed upon the social, political, and economic role American women in American society and their unique role as a part of that society. Students will also demonstrate an awareness of how contemporary problems were caused by past forces. As students achieve this goal, they will develop skills in analysis, critical thinking, historical reasoning, and writing. Group 1 course. Communications - Direct, Critical Thinking - Direct, Degree Req: Cultural Persp/Div, Infused: Writing Intensive.  
Recommended Prerequisites: Placement into ENG 111.

HST 214 - American Women's History  
Credit Hours: 2, Contact Hours: 2  
Division: Humanities  
A study of American women's experience from the Colonial period to the Modern Era. Major emphasis is placed upon the social, political, and economic role American women in American society and their unique role as a part of that society. Students will also demonstrate an awareness of how contemporary problems were caused by past forces. As students achieve this goal, they will develop skills in analysis, critical thinking, historical reasoning, and writing. Group 1 course. Communications - Direct, Critical Thinking - Direct, Degree Req: Cultural Persp/Div, Infused: Writing Intensive.  
Recommended Prerequisites: Placement into ENG 111.

HST 225 - American Civil War  
Credit Hours: 3, Contact Hours: 3  
Division: Humanities  
This course is a study of the American Civil War. The instructional goal of this course is to have students demonstrate through discussions and essays the causes of the Civil War in antebellum America, how the war was waged, why the North won and the South lost the war, how the war affected American society, and how the war led to Reconstruction. Students will demonstrate an awareness of how contemporary problems were caused by past forces. As students achieve this goal they will develop skills in communications and critical thinking. Group 1 course. Communications - Direct, Critical Thinking - Direct, Infused: Writing Intensive.  
Recommended Prerequisites: Placement into ENG 111.

HST 228 - The Vietnam War  
Credit Hours: 3, Contact Hours: 3  
Division: Humanities  
This course is a study of the history of the Vietnam War. The instructional goal of this course is to have students demonstrate through discussions and essays how America became involved in Vietnam, how the war was waged, the war's effect on American society, and how the war affected Vietnam. Students will also demonstrate an awareness of how Vietnamese culture affected the war and how Vietnam has affected America's contemporary society. As students achieve this goal, they will develop skills in analysis, critical thinking, historical reasoning, and writing. Group 1 course. Communications - Direct, Critical Thinking - Direct, Infused: Writing Intensive.  
Recommended Prerequisites: Placement into ENG 111.

HST 230 - A History of Michigan  
Credit Hours: 3, Contact Hours: 3  
Division: Humanities  
This course is a history of Michigan from Native American origins to the modern era. The instructional goal of this course is to have students demonstrate through discussion and essays the distinctive characteristics of Michigan history, the common characteristics of Michigan history as compared to other states, the identification of achievements and limitations of Native American societies within Michigan, and an awareness of how contemporary problems were caused by past forces. As students achieve this goal, they will develop skills in analysis, critical thinking, historical reasoning, and writing. Group 1 course. Communications - Direct, Critical Thinking - Direct, Infused: Writing Intensive.  
Recommended Prerequisites: Placement into ENG 111.

HST 235 - 20th Century Europe  
Credit Hours: 3, Contact Hours: 3  
Division: Humanities  
This course is a study of the history of Europe in the 20th Century with emphasis on Germany, England, France, and Russia. The instructional goal of this course is to have students demonstrate through discussions and essays the distinctive characteristics of European civilizations, the common characteristics of European civilizations, and the identification of achievements and limitations of European civilizations. Students will demonstrate an awareness of how contemporary problems were caused by past forces. As students achieve this goal, they will develop skills in analysis, critical thinking, historical reasoning, and writing. Group 1 course. Communications - Direct, Critical Thinking - Direct, Infused: Writing Intensive.  
Recommended Prerequisites: Placement into ENG 111.

HST 290A - Academic Service/Internship  
Credit Hours: 1-4, Contact Hours: 1-4  
Division: Humanities  
HST 290C - Academic Service/Internship  
Credit Hours: 1-4, Contact Hours: 1-4  
Division: Humanities  
HST 290E - Academic Service/Internship  
Credit Hours: 1-4, Contact Hours: 1-4  
Division: Humanities  
HST 293 - History Study Abroad  
Credit Hours: 1, Contact Hours: 1  
Division: Humanities  
In this class, students are provided the opportunity to travel to a specified destination affiliated with the corresponding history non-trip course. This course will serve to integrate the student learning experience and provide a sense of cultural perspective, diversity and regional awareness. The course is an opportunity for students to explore other areas around the world while applying discipline-specific course content. For a more specific course description, please review the course description of the associated non-trip course. Group 2 course.  
Required Prerequisites: HST 101, or HST 102, or HST 112, or HST 235.
Humanities

HUM 101 - Introduction to Humanities
Credit Hours: 3, Contact Hours: 3
Division: Humanities
An interdisciplinary study of Western Culture focusing on the interrelationships of art, literature, and philosophy as they reveal the major ideas and values of Classical Greek, Roman, Medieval, and Renaissance civilizations. Group 1 course. Communications - Direct, Critical Thinking - Direct, Degree Req; Cultural Persp/Div, Infused: Writing Intensive.
Recommended Prerequisites: Placement into ENG 111.

HUM 102 - Introduction to Humanities
Credit Hours: 3, Contact Hours: 3
Division: Humanities
An interdisciplinary study of Western Civilization focusing on the interrelationships of art, literature, and philosophy as they reveal the major ideas and values of the Reformation, Baroque, Neo-Classic, Romantic, 19th Century, and Modern periods. Group 1 course. Communications - Direct, Critical Thinking - Direct, Degree Req; Cultural Persp/Div, Infused: Writing Intensive.
Recommended Prerequisites: Placement into ENG 111.

HUM 116 - World Cultures
Credit Hours: 4, Contact Hours: 4
Division: Humanities
The purpose of this course is to introduce major trends of non-Western culture. HUM 116 explores the culture of Asia, Africa, and the Americas utilizing an interdisciplinary and thematic approach focusing on social/political/historical issues, cultural and religious rituals, painting, sculpture, architecture, film, music, and customs and traditions of each region. Lectures focus on how cultures shape the world today, with appropriate references to historical events and trends. Group 1 course. Communications - Direct, Critical Thinking - Direct, Degree Req; Cultural Persp/Div, Infused: Writing Intensive.
Recommended Prerequisites: Placement into ENG 111.

HUM 293 - Humanities Study Abroad
Credit Hours: 1, Contact Hours: 1
Division: Humanities
In this class, students are provided the opportunity to travel to a specified destination affiliated with the corresponding humanities non-trip course. This course will serve to integrate the student learning experience and provide a sense of cultural perspective, diversity and regional awareness. The course is an opportunity for students to explore other areas around the world while applying discipline-specific course content. For a more specific course description, please review the course description of the associated non-trip course. Group 2 course.
Required Prerequisites: HUM 116.

Music

MUS 90 - Applied Music-Remedial Instruc
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
MUS 90 is remedial instruction for students wanting to take 100 level applied instruction in voice, piano, organ, guitar, or any of the traditional wind, percussion or string instruments, but lack either music reading, technical skills, artistic skills or tone production skills. An audition and interview, or if no music is prepared, only an interview will take place to determine the competency levels of a student. This course does not apply toward graduation. MUS 90 level instruction can be repeated until remediation is complete. Students will meet with an assigned faculty member for weekly instruction at a pre-arranged time and place. Materials specific to the students’ needs will be assigned. The Applied Faculty will recommend to the acting Department Chair when the competencies have been met.
Corequisites: MUS 105A, MUS 106

MUS 100A - Intro to Music Theory I
Credit Hours: 3, Contact Hours: 3
Division: Humanities
Intro to Music Theory I is designed for students who are pursuing music as an academic major or minor, particularly for those who need further work before entering MUS 101. This course focuses on the basic materials of music: the structures of tonality, harmonic progression, and the technique of harmonization. Students are required to complete and analyze music, using practices listed above. Group 2 course.
Recommended Prerequisites: A basic understanding of music theory is recommended.
Corequisites: MUS 105A, MUS 106

MUS 100B - Intro to Music Theory II
Credit Hours: 3, Contact Hours: 3
Division: Humanities
Intro to Music Theory II is designed for students who are pursuing music as an academic major or minor, particularly for those who have completed MUS 100A or its equivalent and are not yet prepared to enter MUS 101. This course builds on the fundamentals of MUS 100A and includes a focus on more complex rhythmic and harmonic structures. Students are required to complete and analyze music, using practices and skills learned in the course. Group 2 course.
Required Prerequisites: MUS 100A
Corequisites: MUS 105B, MUS 107

MUS 101 - Theory of Music
Credit Hours: 3, Contact Hours: 3
Division: Humanities
Theory of Music is a four-semester/two-year sequence of coursework designed for students who are pursuing music as an academic major or minor. The first year includes the basic materials of music: the structures of tonality, harmonic progression, and the technique of harmonization. Students are required to complete and analyze music using practices listed above. Group 2 course.
Recommended Prerequisites: An understanding of music fundamentals.
Corequisites: MUS 103, MUS 106
MUS 102 - Theory of Music
Credit Hours: 3, Contact Hours: 3
Division: Humanities
This course in Theory of Music is the second semester of a four-semester/two-year sequence of coursework designed for students who are pursuing music as an academic major or minor. The first year includes the basic materials of music: the structures of tonality, harmonic progression, and the techniques of harmonization. Students are required to complete and analyze music using practices listed above. Group 2 course.
Required Prerequisites: MUS 101, MUS 103, MUS 106; or equivalent competency
Corequisites: MUS 104, MUS 107

MUS 103 - Sight Singing & Ear Training
Credit Hours: 1, Contact Hours: 2
Division: Humanities
This is the first of a four-semester/two-year sequence of coursework designed for students who are pursuing music as an academic major or minor. The content of this course is the building of skills in reading music, and developing aural competency in interval relationships, scales, and triads, through a variety of musical practices. Group 2 course.
Corequisites: MUS 101, MUS 106

MUS 104 - Sight Singing & Ear Training
Credit Hours: 1, Contact Hours: 2
Division: Humanities
This is the second of a four-semester/two-year sequence of coursework designed for students who are pursuing music as an academic major or minor. The content of this course is a continued building of skills as listed in MUS 103 through a variety of musical practices. Group 2 course.
Required Prerequisites: MUS 101, MUS 103, MUS 106; or equivalent competency
Corequisites: MUS 102, MUS 107

MUS 105 - Introduction to Music
Credit Hours: 2, Contact Hours: 2
Division: Humanities
An introduction to the techniques of reading and writing music, notation, pitch, rhythmic organization, elementary sight singing, dictation, and keyboard familiarity will be covered during the semester. This course is designed for the student who lacks previous or little musical training. Group 2 course. Prerequisite(s): ENG 99 or has qualified for entry to ENG 111.

MUS 105A - Intro to Ear Training I
Credit Hours: 1, Contact Hours: 2
Division: Humanities
This coursework is designed for students who are pursuing music as an academic major or minor, particularly for those who need further work before entering MUS 103. The content of this course is the building of skills in reading music, and developing aural competency in interval relationships, scales, and triads, through a variety of musical practices, principally the voice. Group 2 course.
Recommended Prerequisites: A basic understanding of music theory is recommended.
Corequisites: MUS 100A, MUS 106

MUS 105B - Intro to Ear Training II
Credit Hours: 1, Contact Hours: 2
Division: Humanities
This coursework is designed for students who are pursuing music as an academic major or minor, particularly for those who have completed MUS 105A or its equivalent and are not yet ready for MUS 103. This course will build on the skills learned in MUS 105A and will focus on developing more advanced skills, in reading music, aural competency in interval relationships, scales, and triads, through a variety of musical practices, principally the voice. Group 2 course.
Required Prerequisites: MUS 100A, MUS 105A, MUS 106
Corequisites: MUS 100B, MUS 107

MUS 106 - Class Piano I
Credit Hours: 2, Contact Hours: 2
Division: Humanities
Piano study for the beginning or near-beginning student. Cultivation of technical-musical awareness and keyboard playing ability, individually and in ensemble. Group 2 Course.
Recommended Prerequisites: An understanding of music fundamentals.

MUS 107 - Class Piano II
Credit Hours: 2, Contact Hours: 2
Division: Humanities
This course is the second of a four-semester/two-year sequence of the study of piano. Objectives are the cultivation of technical-musical awareness and keyboard playing ability. Group 2 course.
Required Prerequisites: MUS 106 or equivalent competency

MUS 108 - Class Voice I
Credit Hours: 2, Contact Hours: 2
Division: Humanities
A study of the process of singing. Stresses fundamentals and development of techniques that would produce a vocal tone considered appropriate for the signing of classical/ folk and standard song literature. Designed to benefit the student interested in solo and choral singing.

MUS 109 - Class Voice II
Credit Hours: 2, Contact Hours: 2
Division: Humanities
A continuation of skills begun in MUS 108 with emphasis on advanced vocal exercises, more complex song literature, and additional physiological concepts in their relation to the act of singing.

MUS 110 - Music Appreciation Stand Lit
Credit Hours: 3, Contact Hours: 3
Division: Humanities
This course is a survey of the history of Western Music from medieval Europe to the present. Each music era of Western culture will be examined in regards to significant composers and compositions. This course places a strong emphasis on learning to listen and also provides students the opportunity to become familiar with the basic elements of music. No musical background or training is assumed or required. Group 1 course. Communications - Direct.
MUS 111 - Music Appreciation Jazz
Credit Hours: 3, Contact Hours: 3
Division: Humanities
Jazz Appreciation is a survey of the stylistic and historical elements of jazz from its earliest beginnings and influences through the contemporary jazz scene. Emphasis is placed on listening to the significant jazz artists and styles of each period of jazz. The class will also introduce students to the many musical characteristics, techniques, and terms found in the jazz tradition, as well as their historical significance. No musical background or training is assumed or required. Group 1 course. Communications - Direct.

MUS 112 - Class Guitar I
Credit Hours: 2, Contact Hours: 2
Division: Humanities
This course is designed for the student who wishes to acquire basic knowledge and techniques for guitar playing. The instruction introduces the basic information of music notation, as well as mechanical skills for the development of individual playing ability. The format is a structured approach covering hand position, fundamentals of reading music and chord knowledge. Repertoire will include Folk music, popular music and the Blues, and will utilize both strumming and picking techniques. Group 2 course.

MUS 113 - Class Guitar II
Credit Hours: 2, Contact Hours: 2
Division: Humanities
This course is a continuation of MUS 112. Emphasis is placed on developing music reading skills for the guitar, along with further development of Folk picking techniques and understanding of the Blues. An introduction to Jazz chords along with fundamentals of music theory will also be presented. Group 2 course.
Required Prerequisites: MUS 112 or equivalent competency

MUS 114 - NMC Grand Traverse Chorale
Credit Hours: 1, Contact Hours: 2
Division: Humanities
This large, mixed (SATB) choral ensemble is open to all students with past choral experience. The Grand Traverse Chorale provides its members with an educational experience and personal enrichment made possible through singing of quality choral literature selected from Antiquity through the 21st Century with an emphasis on newer works and works for small choral ensembles. Performance excellence is principal to the purpose of the ensemble. The Grand Traverse Chorale performs throughout the semester and frequently performs with the Traverse Symphony Orchestra. Group 2 course.
Required Prerequisites: MUS 114, choral experience or instructor permission

MUS 115 - NMC Grand Traverse Chorale
Credit Hours: 1, Contact Hours: 2
Division: Humanities
MUS 115 is a continuation of rehearsal and performance as begun in MUS 114. This large, mixed (SATB) choral ensemble is open to all students with past choral experience. The Grand Traverse Chorale provides its members with an educational experience and personal enrichment made possible through singing of quality choral literature selected from Antiquity through the 21st Century with an emphasis on large masterworks. Performance excellence is principal to the purpose of the ensemble. The Grand Traverse Chorale performs throughout the semester and frequently performs with the Traverse Symphony Orchestra. Group 2 course.
Required Prerequisites: MUS 114, choral experience or instructor permission

MUS 116 - NMC Chamber Singers
Credit Hours: 1, Contact Hours: 3
Division: Humanities
This mixed (SATB) choral ensemble is open to all students with past choral experience. The Chamber Singers provides its members with an educational experience and personal enrichment made possible through singing of quality choral literature selected from Antiquity through the 21st Century with an emphasis on newer works and works for small choral ensembles. Performance excellence is principal to the purpose of the ensemble. The Chamber Singers perform throughout the semester and frequently perform with the Traverse Symphony Orchestra. Group 2 course.
Required Prerequisites: Choral experience or instructor permission.

MUS 117 - NMC Chamber Singers
Credit Hours: 1, Contact Hours: 3
Division: Humanities
MUS 117 is a continuation of rehearsal and performance as begun in MUS 116. This mixed (SATB) choral ensemble is open to all students with past choral experience. The Chamber Singers provides its members with an educational experience and personal enrichment made possible through singing of quality choral literature selected from Antiquity through the 21st Century with an emphasis on newer works and works for small choral ensembles. Performance excellence is principal to the purpose of the ensemble. The Chamber Singers perform throughout the semester and frequently perform with the Traverse Symphony Orchestra. Group 2 course.
Required Prerequisites: MUS 116, choral experience or instructor permission.

MUS 118 - NMC Concert Band
Credit Hours: 1, Contact Hours: 2
Division: Humanities
This course will provide a survey of significant concert and symphonic band repertoire. Students will learn performance techniques on their instrument as are relevant to the concert band medium. Students will also learn the role that their instrument plays within the context of a concert band. Generally, two to four concerts will be performed each semester. Students must have a high school level competency on a wind or percussion instrument. An audition or personal interview with the conductor will be required for placement in the ensemble. Group 2 course.
Required Prerequisites: Previous band experience or instructor permission.

MUS 119 - NMC Concert Band
Credit Hours: 1, Contact Hours: 2
Division: Humanities
MUS 119 is a continuation of rehearsal and performance as begun in MUS 118. This course will provide a survey of significant concert and symphonic band repertoire. Students will learn performance techniques on their instrument as are relevant to the concert band medium. Students will also learn the role that their instrument plays within the context of a concert band. Generally, two to four concerts will be performed each semester. Students must have a high school level competency on a wind or percussion instrument. An audition or personal interview with the conductor will be required for placement in the ensemble. Group 2 course.
Required Prerequisites: MUS 118, previous band experience or instructor permission.
MUS 120 - NMC Jazz Band
Credit Hours: 1, Contact Hours: 2
Division: Humanities
A course for the performer with a focus on big band jazz ensemble techniques and styles. A wide range of jazz styles are covered including swing, be-bop, ballads, rock/fusion and Latin. Some improvisation is briefly explored and always encouraged, although it is not the main focus of this course. A minimum of one concert will be performed each semester and all members are required to attend and participate in all scheduled performances. Group 2 course.
Required Prerequisites: Previous band or jazz band experience or instructor permission.

MUS 121 - NMC Jazz Band
Credit Hours: 1, Contact Hours: 2
Division: Humanities
A course for the performer with a focus on big band jazz ensemble techniques and styles. A wide range of jazz styles are covered including swing, be-bop, ballads, rock/fusion and Latin. Some improvisation is briefly explored and always encouraged, although it is not the main focus of this course. A minimum of one concert will be performed each semester and all members are required to attend and participate in all scheduled performances. Group 2 course.
Required Prerequisites: MUS 120, previous band or jazz band experience or instructor permission.

MUS 122 - Ensembles in Applied Music I
Credit Hours: 1, Contact Hours: 1
Division: Humanities
This course prepares students for public performance and develops abilities in ensemble techniques. Students study individually and in small ensembles (duets, trios, quartets, quintets, and octets) under faculty direction. The course is designed for a year's participation and permission of the instructor is required. Group 2 course.
Required Prerequisites: Previous choral experience, or instructor permission.

MUS 123 - Ensembles in Applied Music II
Credit Hours: 1, Contact Hours: 1
Division: Humanities
See MUS 122 for course description.

MUS 124 - NMC Collegiate Singers
Credit Hours: 1, Contact Hours: 1
Division: Humanities
This choral ensemble is open to all students. The Collegiate Singers is designed for beginning and intermediate choral singers with specific instructional emphasis placed on singing and ensemble skills. This course will provide students with a broad base of skills that will be applicable to other choral ensembles in future collegiate years and beyond. The Collegiate Singers perform throughout the semester. Group 2 course.

MUS 125 - NMC Collegiate Singers
Credit Hours: 1, Contact Hours: 1
Division: Humanities
MUS 125 is a continuation of rehearsal and performance as begun in MUS 124. The choral ensemble is open to all students. The Collegiate Singers is designed for beginning and intermediate choral singers with specific instructional emphasis placed on singing and ensemble skills. This course will provide students with a broad base of skills that will be applicable to other choral ensembles in future collegiate years and beyond. The Collegiate Singers perform throughout the semester. Group 2 course.

MUS 128 - History of Rock and Roll
Credit Hours: 3, Contact Hours: 3
Division: Humanities
This course will study the development of rock music styles from its roots to the present. We will watch historical footage and listen to musical examples of each musical period. Students will develop the ability to hear a direct relationship between the historical origins of rock music and the music currently popular. The class will include the analysis of the significant musical qualities and influential musicians of the different periods and styles of rock. The history and development of rock music will also be examined in the context of the political, historical, and social forces at work in the modern and post-modern world. Group 1 course. Communications - Direct.

MUS 131A - Ensembles - Percussion I
Credit Hours: 1, Contact Hours: 1
Division: Humanities
This course prepares students for public performance and develops abilities in ensemble techniques. Students study in small ensembles (duets, trios, quartets, quintets, and octets) under faculty direction. Students are expected to perform, at a minimum, for one Music Convocation each semester. Course number suffix A designates fall semester and suffix B designates spring semester. Permission of instructor is required. Group 2 course.

MUS 131B - Ensembles - Percussion I
Credit Hours: 1, Contact Hours: 1
Division: Humanities
This course prepares students for public performance and develops abilities in ensemble techniques. Students study in small ensembles (duets, trios, quartets, quintets, and octets) under faculty direction. Students are expected to perform, at a minimum, for one Music Convocation each semester. Course number suffix A designates fall semester and suffix B designates spring semester. Permission of instructor is required. Group 2 course.

MUS 132A - Ensembles - Guitar I
Credit Hours: 1, Contact Hours: 1
Division: Humanities
This course prepares students for public performance and develops abilities in ensemble techniques. Students study in small ensembles (duets, trios, quartets, quintets, and octets) under faculty direction. Students are expected to perform, at a minimum, for one Music Convocation each semester. Course number suffix A designates fall semester and suffix B designates spring semester. Permission of instructor is required. Group 2 course.

MUS 132B - Ensembles - Guitar I
Credit Hours: 1, Contact Hours: 1
Division: Humanities
This course prepares students for public performance and develops abilities in ensemble techniques. Students study in small ensembles (duets, trios, quartets, quintets, and octets) under faculty direction. Students are expected to perform, at a minimum, for one Music Convocation each semester. Course number suffix A designates fall semester and suffix B designates spring semester. Permission of instructor is required. Group 2 course.
MUS 133A - Ensembles - Jazz Wind I  
Credit Hours: 1, Contact Hours: 1  
Division: Humanities  
This course prepares students for public performance and develops abilities in ensemble techniques. Students study in small ensembles (duets, trios, quartets, quintets, and octets) under faculty direction. Students are expected to perform, at a minimum, for one Music Convocation each semester. Course number suffix A designates fall semester and suffix B designates spring semester. Permission of instructor is required. Group 2 course.

MUS 133B - Ensembles - Jazz Wind I  
Credit Hours: 1, Contact Hours: 1  
Division: Humanities  
This course prepares students for public performance and develops abilities in ensemble techniques. Students study in small ensembles (duets, trios, quartets, quintets, and octets) under faculty direction. Students are expected to perform, at a minimum, for one Music Convocation each semester. Course number suffix A designates fall semester and suffix B designates spring semester. Permission of instructor is required. Group 2 course.

MUS 134A - Ensembles - Small Jazz I  
Credit Hours: 1, Contact Hours: 1  
Division: Humanities  
This course prepares students for public performance and develops abilities in ensemble techniques. Students study in small ensembles (duets, trios, quartets, quintets, and octets) under faculty direction. Students are expected to perform, at a minimum, for one Music Convocation each semester. Course number suffix A designates fall semester and suffix B designates spring semester. Permission of instructor is required. Group 2 course.

MUS 134B - Ensembles - Small Jazz I  
Credit Hours: 1, Contact Hours: 1  
Division: Humanities  
This course prepares students for public performance and develops abilities in ensemble techniques. Students study in small ensembles (duets, trios, quartets, quintets, and octets) under faculty direction. Students are expected to perform, at a minimum, for one Music Convocation each semester. Course number suffix A designates fall semester and suffix B designates spring semester. Permission of instructor is required. Group 2 course.

MUS 135A - Ensembles - Vocal Opera I  
Credit Hours: 1, Contact Hours: 1  
Division: Humanities  
This course prepares students for public performance and develops abilities in ensemble techniques. Students study in small ensembles (duets, trios, quartets, quintets, and octets) under faculty direction. Students are expected to perform, at a minimum, for one Music Convocation each semester. Course number suffix A designates fall semester and suffix B designates spring semester. Permission of instructor is required. Group 2 course.

MUS 135B - Ensembles - Vocal Opera I  
Credit Hours: 1, Contact Hours: 1  
Division: Humanities  
This course prepares students for public performance and develops abilities in ensemble techniques. Students study in small ensembles (duets, trios, quartets, quintets, and octets) under faculty direction. Students are expected to perform, at a minimum, for one Music Convocation each semester. Course number suffix A designates fall semester and suffix B designates spring semester. Permission of instructor is required. Group 2 course.

MUS 136A - Ensembles - Vocal Jazz I  
Credit Hours: 1, Contact Hours: 1  
Division: Humanities  
A small ensemble of men's and women's voices rehearses and performs vocal jazz works. Develop skills in vocal jazz styles, blending harmonies, microphone technique, and jazz theory. Group 2 course. Required Prerequisites: Previous choral experience or instructor permission.

MUS 136B - Ensembles - Vocal Jazz I  
Credit Hours: 1, Contact Hours: 1  
Division: Humanities  
A small ensemble of men's and women's voices rehearses and performs vocal jazz works. Develop skills in vocal jazz styles, blending harmonies, microphone technique, and jazz theory. Group 2 course. Required Prerequisites: MUS 136A, previous choral experience or instructor permission.

MUS 137A - Ensembles - Strings I  
Credit Hours: 1, Contact Hours: 1  
Division: Humanities  
This course prepares students for public performance and develops abilities in ensemble techniques. Students study in small ensembles (duets, trios, quartets, quintets, and octets) under faculty direction. Students are expected to perform, at a minimum, for one Music Convocation each semester. Course number suffix A designates fall semester and suffix B designates spring semester. Permission of instructor is required. Group 2 course.

MUS 137B - Ensembles - Strings I  
Credit Hours: 1, Contact Hours: 1  
Division: Humanities  
This course prepares students for public performance and develops abilities in ensemble techniques. Students study in small ensembles (duets, trios, quartets, quintets, and octets) under faculty direction. Students are expected to perform, at a minimum, for one Music Convocation each semester. Course number suffix A designates fall semester and suffix B designates spring semester. Permission of instructor is required. Group 2 course.

MUS 138A - Ensembles - Chamber Quintet  
Credit Hours: 1, Contact Hours: 1  
Division: Humanities  
This course prepares students for public performance and develops abilities in ensemble techniques. Students study in small ensembles (duets, trios, quartets, quintets, and octets) under faculty direction. Students are expected to perform, at a minimum, for one Music Convocation each semester. Course number suffix A designates fall semester and suffix B designates spring semester. Permission of instructor is required. Group 2 course.

MUS 138B - Ensembles - Chamber Quintet  
Credit Hours: 1, Contact Hours: 1  
Division: Humanities  
This course prepares students for public performance and develops abilities in ensemble techniques. Students study in small ensembles (duets, trios, quartets, quintets, and octets) under faculty direction. Students are expected to perform, at a minimum, for one Music Convocation each semester. Course number suffix A designates fall semester and suffix B designates spring semester. Permission of instructor is required. Group 2 course.
MUS 139A - Ensembles - Brass
Credit Hours: 1, Contact Hours: 1
Division: Humanities
This course prepares students for public performance and develops abilities in ensemble techniques. Students study in small ensembles (duets, trios, quartets, quintets, and octets) under faculty direction. Students are expected to perform, at a minimum, for one Music Convocation each semester. Course number suffix A designates fall semester and suffix B designates spring semester. Permission of instructor is required. Group 2 course.

MUS 139B - Ensembles - Brass
Credit Hours: 1, Contact Hours: 1
Division: Humanities
This course prepares students for public performance and develops abilities in ensemble techniques. Students study in small ensembles (duets, trios, quartets, quintets, and octets) under faculty direction. Students are expected to perform, at a minimum, for one Music Convocation each semester. Course number suffix A designates fall semester and suffix B designates spring semester. Permission of instructor is required. Group 2 course.

MUS 140 - Applied Music - Violin
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 140B - Applied Music - Violin
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 141 - Applied Music - Viola
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 141B - Applied Music - Viola
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 142 - Applied Music - Cello
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 142B - Applied Music - Cello
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.
MUS 143 - Applied Music - Double Bass
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit for a 30 minute, weekly lesson or for 2.0 credits for a 60 minute, weekly lesson. Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 143B - Applied Music - Double Bass
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit for a 30 minute, weekly lesson or for 2.0 credits for a 60 minute, weekly lesson. Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 144 - Applied Music - Flute
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit for a 30 minute, weekly lesson or for 2.0 credits for a 60 minute, weekly lesson. Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 144B - Applied Music - Flute
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit for a 30 minute, weekly lesson or for 2.0 credits for a 60 minute, weekly lesson. Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 145 - Applied Music - Oboe
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit for a 30 minute, weekly lesson or for 2.0 credits for a 60 minute, weekly lesson. Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 145B - Applied Music - Oboe
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit for a 30 minute, weekly lesson or for 2.0 credits for a 60 minute, weekly lesson. Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 146 - Applied Music - English Horn
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit for a 30 minute, weekly lesson or for 2.0 credits for a 60 minute, weekly lesson. Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 146B - Applied Music - English Horn
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit for a 30 minute, weekly lesson or for 2.0 credits for a 60 minute, weekly lesson. Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.
MUS 147 - Applied Music - Clarinet  
Credit Hours: 1-2, Contact Hours: 1-2  
Division: Humanities  
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit for a 30 minute, weekly lesson or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 147B - Applied Music - Clarinet  
Credit Hours: 1-2, Contact Hours: 1-2  
Division: Humanities  
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit for a 30 minute, weekly lesson or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 148 - Applied Music - Bass Clarinet  
Credit Hours: 1-2, Contact Hours: 1-2  
Division: Humanities  
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit for a 30 minute, weekly lesson or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 148B - Applied Music - Bass Clarinet  
Credit Hours: 1-2, Contact Hours: 1-2  
Division: Humanities  
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit for a 30 minute, weekly lesson or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 149 - Applied Music - Bassoon  
Credit Hours: 1-2, Contact Hours: 1-2  
Division: Humanities  
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit for a 30 minute, weekly lesson or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 149B - Applied Music - Bassoon  
Credit Hours: 1-2, Contact Hours: 1-2  
Division: Humanities  
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit for a 30 minute, weekly lesson or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 150B - Applied Music - Contrabassoon  
Credit Hours: 1-2, Contact Hours: 1-2  
Division: Humanities  
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit for a 30 minute, weekly lesson or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 151 - Applied Music - Saxophone  
Credit Hours: 1-2, Contact Hours: 1-2  
Division: Humanities  
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit for a 30 minute, weekly lesson or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.
MUS 151B - Applied Music - Saxophone
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 152 - Applied Music - Trumpet
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 153 - Applied Music - French Horn
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.
MUS 155 - Applied Music - Bass Trombone  
Credit Hours: 1-2, Contact Hours: 1-2  
Division: Humanities  
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 155B - Applied Music - Bass Trombone  
Credit Hours: 1-2, Contact Hours: 1-2  
Division: Humanities  
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 156 - Applied Music - Baritone  
Credit Hours: 1-2, Contact Hours: 1-2  
Division: Humanities  
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 156B - Applied Music - Baritone  
Credit Hours: 1-2, Contact Hours: 1-2  
Division: Humanities  
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 157 - Applied Music - Tuba  
Credit Hours: 1-2, Contact Hours: 1-2  
Division: Humanities  
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 157B - Applied Music - Tuba  
Credit Hours: 1-2, Contact Hours: 1-2  
Division: Humanities  
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 158 - Applied Music - Percussion  
Credit Hours: 1-2, Contact Hours: 1-2  
Division: Humanities  
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 158B - Applied Music - Percussion  
Credit Hours: 1-2, Contact Hours: 1-2  
Division: Humanities  
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.
MUS 158C - Applied Music - Percussion  
Credit Hours: 1-2, Contact Hours: 1-2  
Division: Humanities  
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 159 - Applied Music - Piano  
Credit Hours: 1-2, Contact Hours: 1-2  
Division: Humanities  
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 159B - Applied Music - Piano  
Credit Hours: 1-2, Contact Hours: 1-2  
Division: Humanities  
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 160 - Applied Music - Voice  
Credit Hours: 1-2, Contact Hours: 1-2  
Division: Humanities  
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 160B - Applied Music - Voice  
Credit Hours: 1-2, Contact Hours: 1-2  
Division: Humanities  
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 160C - Applied Music - Voice  
Credit Hours: 1-2, Contact Hours: 1-2  
Division: Humanities  
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 160D - Applied Music - Voice  
Credit Hours: 1-2, Contact Hours: 1-2  
Division: Humanities  
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 162 - Applied Music - Guitar  
Credit Hours: 1-2, Contact Hours: 1-2  
Division: Humanities  
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 162B - Applied Music - Guitar  
Credit Hours: 1-2, Contact Hours: 1-2  
Division: Humanities  
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.
MUS 162C - Applied Music - Guitar  
Credit Hours: 1-2, Contact Hours: 1-2  
Division: Humanities  
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 163 - Applied Music - Jazz Guitar  
Credit Hours: 1-2, Contact Hours: 1-2  
Division: Humanities  
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 163B - Applied Music - Jazz Guitar  
Credit Hours: 1-2, Contact Hours: 1-2  
Division: Humanities  
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 164B - Applied Music-Classical Guitar  
Credit Hours: 1-2, Contact Hours: 1-2  
Division: Humanities  
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 164C - Applied Music-Classical Guitar  
Credit Hours: 1-2, Contact Hours: 1-2  
Division: Humanities  
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 165 - Applied Music - Electric Bass  
Credit Hours: 1-2, Contact Hours: 1-2  
Division: Humanities  
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 165B - Applied Music - Electric Bass  
Credit Hours: 1-2, Contact Hours: 1-2  
Division: Humanities  
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.
MUS 165C - Applied Music - Electric Bass
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A prearranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 166 - Applied Music - Organ
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A prearranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 166B - Applied Music - Organ
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A prearranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 167 - Applied Music - Harp
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A prearranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 168 - Applied Music - Jazz Improv.
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Students may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music majors should enroll for 2.0 credits. After registering for applied lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu or 995-1338), before or during the first week of classes for placement with an applied music instructor. A prearranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

Required Prerequisites: Students must have a high school level competency on a musical instrument and be able to read music at a high school level.

MUS 170B - Applied Music-Digital Audio
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
A pre-arranged lesson time with the assigned instructor is arranged and studies/projects, as appropriate, are prepared for continuing musical development. A jury examination will be given at the conclusion of each semester of 100-level instruction. Students are to keep 12:30 - 1:30 p.m. on Wednesdays clear to participate as audience and soloists in convocation. Group 2 course.

MUS 170C - Applied Music-Digital Audio
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
A pre-arranged lesson time with the assigned instructor is arranged and studies/projects, as appropriate, are prepared for continuing musical development. A jury examination will be given at the conclusion of each semester of 100-level instruction. Students are to keep 12:30 - 1:30 p.m. on Wednesdays clear to participate as audience and soloists in convocation. Group 2 course.

MUS 201 - Theory of Music
Credit Hours: 3, Contact Hours: 3
Division: Humanities
The third semester of a four-semester/two year sequence of coursework designed for students who are pursuing music as an academic major. Harmonic analysis, traditional and non-traditional compositional techniques and musical form make up the course content. Group 1 course. Communications - Direct.
Required Prerequisites: MUS 102, MUS 104, MUS 107; or equivalent competency
Corequisites: MUS 203, MUS 206

MUS 202 - Theory of Music
Credit Hours: 3, Contact Hours: 3
Division: Humanities
The fourth semester of a four-semester/two year sequence of coursework designed for students who are pursuing music as an academic major. The course content is a continuation of MUS 201 with the addition of the study of 20th Century compositional and beginning counterpoint. Group 1 course.
Required Prerequisites: MUS 201, MUS 203, MUS 206; or equivalent competency
Corequisites: MUS 204, MUS 207
MUS 203 - Sight Singing & Ear Training
Credit Hours: 1, Contact Hours: 2
Division: Humanities
The third semester of a four-semester/two-year sequence of course work designed for students who are pursuing music as an academic major. The content of this course includes the building of skills in reading music, melodic and harmonic dictation and aural competency through a variety of musical practices, principally the voice. Group 2 course.
Required Prerequisites: MUS 102, MUS 104, MUS 107 or the equivalent competency.
Corequisites: MUS 201, MUS 206
MUS 204 - Sight Singing & Ear Training
Credit Hours: 1, Contact Hours: 2
Division: Humanities
The fourth semester of a four-semester/two-year sequence of course work designed for students who are pursuing music as an academic major. A continuation of MUS 203, this course deals with the building of advanced skills in reading music, melodic and harmonic dictation and aural competency through a variety of musical practices, principally the voice. Group 2 course.
Required Prerequisites: MUS 201, MUS 203, MUS 206 or equivalent competency.
Corequisites: MUS 202, MUS 207
MUS 206 - Class Piano III
Credit Hours: 2, Contact Hours: 2
Division: Humanities
This is the third of a four-semester/two-year sequence of the study of piano. Objectives are the cultivation of technical-musical awareness and keyboard playing ability. Group 2 course.
Required Prerequisites: MUS 107, equivalent competency or instructor permission.
Corequisites: MUS 201, MUS 203
MUS 207 - Class Piano IV
Credit Hours: 2, Contact Hours: 2
Division: Humanities
This is the fourth of a four-semester/two-year sequence of the study of piano. Objectives are the cultivation of technical-musical awareness and keyboard playing ability. Group 2 course.
Required Prerequisites: MUS 206, equivalent competency or instructor permission.
Corequisites: MUS 202, MUS 204
MUS 214 - NMC Grand Traverse Chorale
Credit Hours: 1, Contact Hours: 2
Division: Humanities
MUS 214 is a continuation of rehearsal and performance as begun in MUS 213. This large, mixed (SATB) choral ensemble is open to all students with past choral experience. The Grand Traverse Chorale provides its members with an educational experience and personal enrichment made possible through singing of quality choral literature selected from Antiquity through the 21st Century with an emphasis on large masterworks. Performance excellence is principal to the purpose of the ensemble. The Grand Traverse Chorale performs throughout the semester and frequently performs with the Traverse Symphony Orchestra. Group 2 course.
Required Prerequisites: MUS 214, choral experience or instructor permission.
MUS 215 - NMC Grand Traverse Chorale
Credit Hours: 1, Contact Hours: 2
Division: Humanities
MUS 215 is a continuation of rehearsal and performance as begun in MUS 214. This large, mixed (SATB) choral ensemble is open to all students with past choral experience. The Grand Traverse Chorale provides its members with an educational experience and personal enrichment made possible through singing of quality choral literature selected from Antiquity through the 21st Century with an emphasis on large masterworks. Performance excellence is principal to the purpose of the ensemble. The Grand Traverse Chorale performs throughout the semester and frequently performs with the Traverse Symphony Orchestra. Group 2 course.
Required Prerequisites: MUS 214, choral experience or instructor permission.
MUS 216 - NMC Chamber Singers
Credit Hours: 1, Contact Hours: 3
Division: Humanities
MUS 216 is a continuation of rehearsal and performance as begun in MUS 217. This mixed (SATB) choral ensemble is open to all students with past choral experience. The Chamber Singers provides its members with an educational experience and personal enrichment made possible through singing of quality choral literature selected from Antiquity through the 21st Century with an emphasis on newer works and works for small choral ensembles. Performance excellence is principal to the purpose of the ensemble. The Chamber Singers perform throughout the semester and frequently perform with the Traverse Symphony Orchestra. Group 2 course.
Required Prerequisites: MUS 217, choral experience or instructor permission.
MUS 217 - NMC Chamber Singers
Credit Hours: 1, Contact Hours: 3
Division: Humanities
MUS 217 is a continuation of rehearsal and performance as begun in MUS 216. This mixed (SATB) choral ensemble is open to all students with past choral experience. The Chamber Singers provides its members with an educational experience and personal enrichment made possible through singing of quality choral literature selected from Antiquity through the 21st Century with an emphasis on newer works and works for small choral ensembles. Performance excellence is principal to the purpose of the ensemble. The Chamber Singers perform throughout the semester and frequently perform with the Traverse Symphony Orchestra. Group 2 course.
Required Prerequisites: MUS 216, choral experience or instructor permission.
MUS 218 - NMC Concert Band
Credit Hours: 1, Contact Hours: 2
Division: Humanities
MUS 218 is a continuation of rehearsal and performance as begun in MUS 219. This course will provide a survey of significant concert and symphonic band repertoire. Students will learn performance techniques on their instrument as are relevant to the concert band medium. Students will also learn the role that their instrument plays within the context of a concert band. Generally, two to four concerts will be performed each semester. Students must have a high school level competency on a wind or percussion instrument. An audition or personal interview with the conductor will be required for placement in the ensemble. Group 2 course.
Required Prerequisites: MUS 219, previous band experience or instructor permission.
MUS 219 - NMC Concert Band
Credit Hours: 1, Contact Hours: 2
Division: Humanities
MUS 219 is a continuation of rehearsal and performance as begun in MUS 218. This course will provide a survey of significant concert and symphonic band repertoire. Students will learn performance techniques on their instrument as are relevant to the concert band medium. Students will also learn the role that their instrument plays within the context of a concert band. Generally, two to four concerts will be performed each semester. Students must have a high school level competency on a wind or percussion instrument. An audition or personal interview with the conductor will be required for placement in the ensemble. Group 2 course.
Required Prerequisites: MUS 218, previous band experience or instructor permission.

MUS 220 - NMC Jazz Band
Credit Hours: 1, Contact Hours: 2
Division: Humanities
A course for the performer with a focus on big band jazz ensemble techniques and styles. A wide range of jazz styles are covered including swing, be-bop, ballads, rock/fusion and Latin. Some improvisation is briefly explored and always encouraged, although it is not the main focus of this course. A minimum of one concert will be performed each semester and all members are required to attend and participate in all scheduled performances. Group 2 course.
Required Prerequisites: MUS 121, previous band or jazz band experience or instructor permission.

MUS 221 - NMC Jazz Band
Credit Hours: 1, Contact Hours: 2
Division: Humanities
A course for the performer with a focus on big band jazz ensemble techniques and styles. A wide range of jazz styles are covered including swing, be-bop, ballads, rock/fusion and Latin. Some improvisation is briefly explored and always encouraged, although it is not the main focus of this course. A minimum of one concert will be performed each semester and all members are required to attend and participate in all scheduled performances. Group 2 course.
Required Prerequisites: MUS 220, previous band experience or instructor permission.

MUS 222 - Ensembles in Applied Music III
Credit Hours: 1, Contact Hours: 1
Division: Humanities
Open to students who have completed a year of Ensembles in Applied Music. See MUS 122 for course description.

MUS 223 - Ensembles in Applied Music IV
Credit Hours: 1, Contact Hours: 1
Division: Humanities
Open to students who have completed a year of Ensembles in Applied Music. See MUS 122 for course description.

MUS 224 - NMC Collegiate Singers
Credit Hours: 1, Contact Hours: 3
Division: Humanities
Open to students who have completed MUS 125 or a year of a collegiate choral ensemble. The Collegiate Singers is designed for beginning and intermediate choral singers with specific instructional emphasis placed on singing and ensemble skills. This course will provide students with a broad base of skills that will be applicable to other choral ensembles in future collegiate years and beyond. The Collegiate Singers perform throughout the semester. Group 2 course.

MUS 225 - NMC Collegiate Singers
Credit Hours: 1, Contact Hours: 1
Division: Humanities
Open to students who have completed MUS 224 or a year of a collegiate choral ensemble. The Collegiate Singers is designed for beginning and intermediate choral singers with specific instructional emphasis placed on singing and ensemble skills. This course will provide students with a broad base of skills that will be applicable to other choral ensembles in future collegiate years and beyond. The Collegiate Singers perform throughout the semester. Group 2 course.

MUS 226 - Traverse Symphony Orchestra
Credit Hours: 1, Contact Hours: 1
Division: Humanities
Continuation of MUS 226. Group 2 course. Prerequisite(s): MUS 227

MUS 231A - Ensembles - Percussion II
Credit Hours: 1, Contact Hours: 1
Division: Humanities
A continuation of Ensembles, with emphasis on performance and repertoire. This course prepares students for public performance and develops abilities in ensemble techniques. Students study in small ensembles (duets, trios, quartets, quintets, and octets) under faculty direction. Students are expected to perform, at a minimum, for one Music Convocation each semester. Course number suffix A designates fall semester and suffix B designates spring semester. Permission of instructor is required. Group 2 course.

MUS 231B - Ensembles - Percussion II
Credit Hours: 1, Contact Hours: 1
Division: Humanities
A continuation of Ensembles, with emphasis on performance and repertoire. This course prepares students for public performance and develops abilities in ensemble techniques. Students study in small ensembles (duets, trios, quartets, quintets, and octets) under faculty direction. Students are expected to perform, at a minimum, for one Music Convocation each semester. Course number suffix A designates fall semester and suffix B designates spring semester. Permission of instructor is required. Group 2 course.

MUS 232A - Ensembles - Guitar II
Credit Hours: 1, Contact Hours: 1
Division: Humanities
A continuation of Ensembles, with emphasis on performance and repertoire. This course prepares students for public performance and develops abilities in ensemble techniques. Students study in small ensembles (duets, trios, quartets, quintets, and octets) under faculty direction. Students are expected to perform, at a minimum, for one Music Convocation each semester. Course number suffix A designates fall semester and suffix B designates spring semester. Permission of instructor is required. Group 2 course.

MUS 232B - Ensembles - Guitar II
Credit Hours: 1, Contact Hours: 1
Division: Humanities
A continuation of Ensembles, with emphasis on performance and repertoire. This course prepares students for public performance and develops abilities in ensemble techniques. Students study in small ensembles (duets, trios, quartets, quintets, and octets) under faculty direction. Students are expected to perform, at a minimum, for one Music Convocation each semester. Course number suffix A designates fall semester and suffix B designates spring semester. Permission of instructor is required. Group 2 course.
MUS 233A - Ensembles - Jazz Wind II  
**Credit Hours:** 1, **Contact Hours:** 1  
**Division:** Humanities  
A continuation of Ensembles, with emphasis on performance and repertoire. This course prepares students for public performance and develops abilities in ensemble techniques. Students study in small ensembles (duets, trios, quartets, quintets, and octets) under faculty direction. Students are expected to perform, at a minimum, for one Music Convocation each semester. Course number suffix A designates fall semester and suffix B designates spring semester. Permission of instructor is required. Group 2 course.

MUS 233B - Ensembles - Jazz Wind II  
**Credit Hours:** 1, **Contact Hours:** 1  
**Division:** Humanities  
A continuation of Ensembles, with emphasis on performance and repertoire. This course prepares students for public performance and develops abilities in ensemble techniques. Students study in small ensembles (duets, trios, quartets, quintets, and octets) under faculty direction. Students are expected to perform, at a minimum, for one Music Convocation each semester. Course number suffix A designates fall semester and suffix B designates spring semester. Permission of instructor is required. Group 2 course.

MUS 234A - Ensembles - Small Jazz II  
**Credit Hours:** 1, **Contact Hours:** 1  
**Division:** Humanities  
A continuation of Ensembles, with emphasis on performance and repertoire. This course prepares students for public performance and develops abilities in ensemble techniques. Students study in small ensembles (duets, trios, quartets, quintets, and octets) under faculty direction. Students are expected to perform, at a minimum, for one Music Convocation each semester. Course number suffix A designates fall semester and suffix B designates spring semester. Permission of instructor is required. Group 2 course.

MUS 234B - Ensembles - Small Jazz II  
**Credit Hours:** 1, **Contact Hours:** 1  
**Division:** Humanities  
A continuation of Ensembles, with emphasis on performance and repertoire. This course prepares students for public performance and develops abilities in ensemble techniques. Students study in small ensembles (duets, trios, quartets, quintets, and octets) under faculty direction. Students are expected to perform, at a minimum, for one Music Convocation each semester. Course number suffix A designates fall semester and suffix B designates spring semester. Permission of instructor is required. Group 2 course.

MUS 235A - Ensembles - Vocal Opera II  
**Credit Hours:** 1, **Contact Hours:** 1  
**Division:** Humanities  
A continuation of Ensembles, with emphasis on performance and repertoire. This course prepares students for public performance and develops abilities in ensemble techniques. Students study in small ensembles (duets, trios, quartets, quintets, and octets) under faculty direction. Students are expected to perform, at a minimum, for one Music Convocation each semester. Course number suffix A designates fall semester and suffix B designates spring semester. Permission of instructor is required. Group 2 course.

MUS 235B - Ensembles - Vocal Opera II  
**Credit Hours:** 1, **Contact Hours:** 1  
**Division:** Humanities  
A continuation of Ensembles, with emphasis on performance and repertoire. This course prepares students for public performance and develops abilities in ensemble techniques. Students study in small ensembles (duets, trios, quartets, quintets, and octets) under faculty direction. Students are expected to perform, at a minimum, for one Music Convocation each semester. Course number suffix A designates fall semester and suffix B designates spring semester. Permission of instructor is required. Group 2 course.

MUS 236A - Ensembles - Vocal Jazz II  
**Credit Hours:** 1, **Contact Hours:** 1  
**Division:** Humanities  
A small ensemble of men's and women's voices rehearses and performs vocal jazz works. Develop skills in vocal jazz styles, blending harmonies, microphone technique, and jazz theory. Group 2 course.  
Required Prerequisites: MUS 136B, previous choral experience or instructor permission.

MUS 236B - Ensembles - Vocal Jazz II  
**Credit Hours:** 1, **Contact Hours:** 1  
**Division:** Humanities  
A small ensemble of men's and women's voices rehearses and performs vocal jazz works. Develop skills in vocal jazz styles, blending harmonies, microphone technique, and jazz theory. Group 2 course.  
Required Prerequisites: MUS 236A, previous choral experience or instructor permission.

MUS 236C - Ensembles - Vocal Jazz II  
**Credit Hours:** 1, **Contact Hours:** 1  
**Division:** Humanities  
A small ensemble of men's and women's voices rehearses and performs vocal jazz works. Develop skills in vocal jazz styles, blending harmonies, microphone technique, and jazz theory. Group 2 course.  
Required Prerequisites: MUS 236A, previous choral experience or instructor permission.

MUS 237A - Ensembles - Strings II  
**Credit Hours:** 1, **Contact Hours:** 1  
**Division:** Humanities  
A continuation of Ensembles, with emphasis on performance and repertoire. This course prepares students for public performance and develops abilities in ensemble techniques. Students study in small ensembles (duets, trios, quartets, quintets, and octets) under faculty direction. Students are expected to perform, at a minimum, for one Music Convocation each semester. Course number suffix A designates fall semester and suffix B designates spring semester. Permission of instructor is required. Group 2 course.

MUS 237B - Ensembles - Strings II  
**Credit Hours:** 1, **Contact Hours:** 1  
**Division:** Humanities  
A continuation of Ensembles, with emphasis on performance and repertoire. This course prepares students for public performance and develops abilities in ensemble techniques. Students study in small ensembles (duets, trios, quartets, quintets, and octets) under faculty direction. Students are expected to perform, at a minimum, for one Music Convocation each semester. Course number suffix A designates fall semester and suffix B designates spring semester. Permission of instructor is required. Group 2 course.
MUS 239A - Ensembles - Brass
Credit Hours: 1-2, Contact Hours: 1
Division: Humanities
A continuation of Ensembles, with emphasis on performance and repertoire. This course prepares students for public performance and develops abilities in ensemble techniques. Students study in small ensembles (duets, trios, quartets, quintets, and octets) under faculty direction. Students are expected to perform, at a minimum, for one Music Convocation each semester. Course number suffix A designates fall semester and suffix B designates spring semester. Permission of instructor is required. Group 2 course.

MUS 240 - Applied Music - Violin
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 239B - Ensembles - Brass
Credit Hours: 1, Contact Hours: 1
Division: Humanities
A continuation of Ensembles, with emphasis on performance and repertoire. This course prepares students for public performance and develops abilities in ensemble techniques. Students study in small ensembles (duets, trios, quartets, quintets, and octets) under faculty direction. Students are expected to perform, at a minimum, for one Music Convocation each semester. Course number suffix A designates fall semester and suffix B designates spring semester. Permission of instructor is required. Group 2 course.

MUS 241 - Applied Music - Viola
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 242 - Applied Music - Cello
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

Recommended Prerequisites: MUS 140
MUS 242B - Applied Music - Cello  
Credit Hours: 1-2, Contact Hours: 1-2  
Division: Humanities  
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 242C - Applied Music - Cello  
Credit Hours: 1-2, Contact Hours: 1-2  
Division: Humanities  
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 243 - Applied Music - Double Bass  
Credit Hours: 1-2, Contact Hours: 1-2  
Division: Humanities  
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.  
Recommended Prerequisites: MUS 143

MUS 243B - Applied Music - Double Bass  
Credit Hours: 1-2, Contact Hours: 1-2  
Division: Humanities  
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 244 - Applied Music - Flute  
Credit Hours: 1-2, Contact Hours: 1-2  
Division: Humanities  
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 244B - Applied Music - Flute  
Credit Hours: 1-2, Contact Hours: 1-2  
Division: Humanities  
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 244C - Applied Music - Flute  
Credit Hours: 1-2, Contact Hours: 1-2  
Division: Humanities  
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 244D - Applied Music - Flute  
Credit Hours: 1-2, Contact Hours: 1-2  
Division: Humanities  
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.
MUS 244E - Applied Music - Flute
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 245 - Applied Music - Oboe
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course. Recommended Prerequisites: MUS 145

MUS 245B - Applied Music - Oboe
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course. Recommended Prerequisites: MUS 147

MUS 246 - Applied Music - English Horn
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 246B - Applied Music - English Horn
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 247 - Applied Music - Clarinet
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 247B - Applied Music - Clarinet
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 248 - Applied Music - Bass Clarinet
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.
MUS 248B - Applied Music - Bass Clarinet
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 249 - Applied Music - Bassoon
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 249B - Applied Music - Bassoon
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 250B - Applied Music - Contrabassoon
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 251 - Applied Music - Saxophone
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course. Recommended Prerequisites: MUS 151

MUS 251B - Applied Music - Saxophone
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 252 - Applied Music - Trumpet
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course. Recommended Prerequisites: MUS 152
MUS 252B - Applied Music - Trumpet  
Credit Hours: 1-2, Contact Hours: 1-2  
Division: Humanities  
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 253 - Applied Music - French Horn  
Credit Hours: 1-2, Contact Hours: 1-2  
Division: Humanities  
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 253B - Applied Music - French Horn  
Credit Hours: 1-2, Contact Hours: 1-2  
Division: Humanities  
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 254 - Applied Music - Trombone  
Credit Hours: 1-2, Contact Hours: 1-2  
Division: Humanities  
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 254B - Applied Music - Trombone  
Credit Hours: 1-2, Contact Hours: 1-2  
Division: Humanities  
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 255 - Applied Music - Bass Trombone  
Credit Hours: 1-2, Contact Hours: 1-2  
Division: Humanities  
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 255B - Applied Music - Bass Trombone  
Credit Hours: 1-2, Contact Hours: 1-2  
Division: Humanities  
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.
MUS 256 - Applied Music - Baritone  
Credit Hours: 1-2, Contact Hours: 1-2  
Division: Humanities  
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 256B - Applied Music - Baritone  
Credit Hours: 1-2, Contact Hours: 1-2  
Division: Humanities  
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 257 - Applied Music - Tuba  
Credit Hours: 1-2, Contact Hours: 1-2  
Division: Humanities  
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 257B - Applied Music - Tuba  
Credit Hours: 1-2, Contact Hours: 1-2  
Division: Humanities  
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 258 - Applied Music - Percussion  
Credit Hours: 1-2, Contact Hours: 1-2  
Division: Humanities  
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.  
Recommended Prerequisites: MUS 158

MUS 258B - Applied Music - Percussion  
Credit Hours: 1-2, Contact Hours: 1-2  
Division: Humanities  
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.  
Recommended Prerequisites: MUS 159
MUS 259B - Applied Music - Piano
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 260 - Applied Music - Voice
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 260B - Applied Music - Voice
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 260C - Applied Music - Voice
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 260D - Applied Music - Voice
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.
MUS 262 - Applied Music - Guitar
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course. Recommended Prerequisites: MUS 162

MUS 262B - Applied Music - Guitar
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 262C - Applied Music - Guitar
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 263 - Applied Music - Jazz Guitar
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course. Recommended Prerequisites: MUS 163

MUS 263B - Applied Music - Jazz Guitar
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 263C - Applied Music - Jazz Guitar
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 264 - Applied Music-Classical Guitar
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course. Recommended Prerequisites: MUS 164

MUS 264B - Applied Music-Classical Guitar
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.
MUS 265 - Applied Music - Electric Bass
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.
Recommended Prerequisites: MUS 165

MUS 265B - Applied Music - Electric Bass
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.
Recommended Prerequisites: MUS 165

MUS 266 - Applied Music - Organ
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.
Recommended Prerequisites: MUS 166

MUS 266B - Applied Music - Organ
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

Philosophy

PHL 101 - Introduction to Philosophy
Credit Hours: 3, Contact Hours: 3
Division: Humanities
Introduction to Philosophy is an introduction to some of the major areas, ideas, and thinkers of philosophy. Students will read selections from major philosophers in Western Philosophy, as well as texts representing non-traditional or non-Western sources, such as Native American, Asian and Feminist thought. Students will also be introduced to some of the main problems and concepts in areas such as Epistemology, Metaphysics, Ethics, and Aesthetics, as well as investigate other issues of movements, such as Existentialism or Feminism. Group 1 course.
Communications - Direct, Critical Thinking - Direct, Degree Req:Cultural Persp/Div, Infused: Writing Intensive.
Recommended Prerequisites: Completion of ENG 11/111 or placement into ENG 111

PHL 105 - Critical Thinking
Credit Hours: 3, Contact Hours: 3
Division: Humanities
This course is about listening, reading, speaking, and writing more effectively. Students learn ways to assess information and to form sound evaluative judgments about what is seen, read, and heard. Critical questions provide a structure for critical thinking that supports a continuing search for better opinions, decisions, and judgments. Exercises in understanding and composing logically sound arguments are emphasized. Students learn what is fair and reasonable in an argument's structure. Examples are taken from various areas such as law, medicine, and politics, as well as from everyday life. Fallacies in rhetoric, such as name calling and begging the question, are identified and understood. Group 1 course. Communications - Direct, Critical Thinking - Direct, Degree Req:Cultural Persp/Div, Infused: Writing Intensive.
Recommended Prerequisites: Completion of ENG 11/111 or placement into ENG 111

PHL 121 - Western Religions
Credit Hours: 4, Contact Hours: 4
Division: Humanities
Western Religions is a study of the historical development, main religious teachings, leading personalities, ethical values, and worship practices of the major religious traditions of the western world: Judaism, Christianity, and Islam. Group 1 course. Communications - Direct, Critical Thinking - Direct, Degree Req:Cultural Persp/Div, Infused: Writing Intensive.
Recommended Prerequisites: Completion of ENG 11/111 or placement into ENG 111

PHL 122 - Eastern Religions
Credit Hours: 4, Contact Hours: 4
Division: Humanities
Eastern Religions is a study of the historical development, main religious teachings, leading personalities, ethical values, and worship practices of the major religious traditions of India, China, and Japan: Hinduism, Buddhism, Confucianism, and Taoism. Group 1 course. Communications - Direct, Critical Thinking - Direct, Degree Req:Cultural Persp/Div, Infused: Writing Intensive.
Recommended Prerequisites: Completion of ENG 11/111 or placement into ENG 111
PHL 201 - Ethics
Credit Hours: 3, Contact Hours: 3
Division: Humanities
Ethics is a thoughtful analysis of a variety of value systems found in societies today. It explores the nature and meaning of good and evil and how these concepts relate to concepts of right and wrong. Through the use of critical judgment and philosophical thought, the course explores ethical theories from classical to modern times and includes consideration of ethics that are part of Eastern philosophical traditions as well as sources from other non-traditional frameworks and paradigms. Group 1 course. Communications - Direct, Critical Thinking - Direct, Degree Req:Cultural Persp/Div, Infused: Writing Intensive. Recommended Prerequisites: Completion of ENG 11/111 or placement into ENG 111

PHL 202 - Contemporary Ethical Dilemmas
Credit Hours: 3, Contact Hours: 3
Division: Humanities
Contemporary Ethical Dilemmas examines the moral and ethical issues confronting modern societies locally and globally. Possible topics to be examined may include: the natural environment, the ethical treatment of animals, biomedical ethics; abortion and issues of human reproduction such as stem-cell research and cloning; business ethics; criminal justice and capital punishment; racism, sexism, and other forms of discrimination, welfare and economics distribution. This course relies on the discipline of philosophy for its methods of inquiry with critical thinking serving as a guiding concept. Traditional approaches to ethics will be incorporated throughout the course. Eastern/Asian and Native American philosophy may also be considered for contrast with standard western approaches to ethical and social issues. This course considers various topics and specific cases in order to provide an overall view of how ethical reasoning might be applied to current issues. Group 1 course. Communications - Direct, Critical Thinking - Direct, Degree Req:Cultural Persp/Div, Infused: Writing Intensive. Recommended Prerequisites: Completion of ENG 11/111 or placement into ENG 111

PHL 203 - Environmental Ethics
Credit Hours: 3, Contact Hours: 3
Division: Humanities
Environmental Ethics is an introduction to the major approaches to environmental ethics, including anthropocentrism, biocentrism, deep ecology, and ecofeminism, as well as several others based on both Western and non-western philosophical and religious traditions. Since environmental ethics draws on a variety of disciplines, some of the perspectives presented will draw heavily on scientific arguments which emphasize methods based on reason, logic, objectivity, and repeatability. Other perspectives will draw on intuition, emotion, imagination, artistic, historic, and religious views, as well as everyday experience. A variety of perspectives will be examined for the purpose of both forming and informing one's own environmental ethic. Group 1 course. Communications - Direct, Critical Thinking - Direct, Degree Req:Cultural Persp/Div, Infused: Writing Intensive. Recommended Prerequisites: Completion of ENG 11/111 or placement into ENG 111

PHL 293 - Philosophy Study Abroad
Credit Hours: 1, Contact Hours: 1
Division: Humanities
In this class, students are provided the opportunity to travel to a specified destination affiliated with the corresponding philosophy non-trip course. This course will serve to integrate the student learning experience and provide a sense of cultural perspective, diversity and regional awareness. The course is an opportunity for students to explore other areas around the world while applying discipline-specific course content. For a more specific course description, please review the course description of the associated non-trip course. Group 2 course. Required Prerequisites: PHL 121, or PHL 122

Visual Communications

VCA 100 - Materials and Techniques
Credit Hours: 3, Contact Hours: 4
Division: Humanities
This course introduces students to commercial drawing techniques with an emphasis on perspective, pencil, pen & ink, marker, water color and gouache when illustrating a variety of different products and illustration formats. Creative media experimentation is encouraged through the assignments. Group 2 course. Critical Thinking - Direct.

VCA 125 - Typography I
Credit Hours: 3, Contact Hours: 4
Division: Humanities
This course serves as an introduction to typographic history, letterforms, mechanics, terminology and usage. Students will complete projects that lead them to an understanding of the fundamental and technical aspects of this abstract art including font selection and typesetting. As part of this course students will also learn the basics of Adobe InDesign. Desktop publishing software used to create single and multi-page files, format text using style sheets, manage color, import and create graphics and tables and prepare files for print production. The Adobe Certified Associate Exam for InDesign is included in the cost for this course. Group 2 course. Communications - Direct. Required Prerequisites: VCA 150 Recommended Prerequisites: Intermediate keyboarding skills, intermediate to advanced understanding of vector drawing, desktop publishing software and the Macintosh system.

VCA 126 - Typography II
Credit Hours: 3, Contact Hours: 4
Division: Humanities
This class serves as continuation to typography history, trends, display faces, and grids with an emphasis on book typography, binding, and structuring methods. Students will complete projects that lead them to an understanding of intermediate typography, current typographic trends and comparative analysis of typefaces that relate to the field of Visual Communications as well as printed and electronic media. Group 2 course. Communications - Direct. Required Prerequisites: VCA 125 Recommended Prerequisites: Intermediate keyboarding skills, intermediate to advanced understanding of vector drawing, desktop publishing software and the Macintosh system.
VCA 127 - Digital Imaging
Credit Hours: 3, Contact Hours: 4
Division: Humanities
Students will learn Adobe Photoshop, a bitmap manipulation tool used to create images for both print and the web. Students will learn how to incorporate color, use layers, create special effects, use filters, and use a variety of selection techniques for proper image editing. Students will also learn the basics of using a digital camera and scanner as well as color management, how to restore damaged images, automate tasks, and how to prepare files for print. The Adobe Certified Associate Exam for Photoshop is included in the cost for this course. Group 2 course. Critical Thinking - Direct.
Recommended Prerequisites: CIT 100, Basic keyboarding skills highly recommended. Use of the Macintosh or Windows operating system highly recommended.

VCA 146 - Interactive Animation
Credit Hours: 3, Contact Hours: 4
Division: Humanities
This course’s focus will be on creation of animation using both traditional methods and Adobe Animate software. Students will learn the basics of animation and storytelling, file management and organization, as well as interactive navigation. Students will also learn how to incorporate sound and video in projects and learn how to prepare their files for use on the Web. Group 2 course. Communications - Direct, Critical Thinking - Direct.
Required Prerequisites: VCA 127, VCA 150
Recommended Prerequisites: VCA 125

VCA 147 - Web Design I
Credit Hours: 3, Contact Hours: 4
Division: Humanities
This course will focus on creative website design including site planning, interactive navigation, web fonts, information design theory, file management, and user experience (UX). Students will learn industry best practices and develop a basic process by which any web design challenge should be approached. Group 2 course. Communications - Direct, Critical Thinking - Direct.
Required Prerequisites: VCA 127, VCA 150
Recommended Prerequisites: VCA 125

VCA 150 - Digital Graphics Design I
Credit Hours: 3, Contact Hours: 4
Division: Humanities
This course covers the basics of using Adobe Illustrator to create vector objects and layouts for print and interactive environments. Students will learn how to work with spot and process colors, create die lines for packaging and other basic design principles. Students will also learn to prep files for print and choose the correct color space for various applications. The Adobe Certified Associate Exam for Illustrator is included in the cost for this course. Group 2 course. Communications - Direct.
Recommended Prerequisites: CIT 100, Basic keyboarding skills highly recommended. Use of the Macintosh or Windows operating system highly recommended.

VCA 200 - Visual Communications II
Credit Hours: 3, Contact Hours: 4
Division: Humanities
Through this course you will gain insight and an introduction to the theory of graphic design through practice in researching, brainstorming, creative problem solving, comping, design brief writing and production of print and digitally driven graphics projects like: logo marks, identity developments, posters, collateral and greeting cards. Students embrace print and digital pre-production techniques and receiving constructive criticism of work and practice. Group 2 course. Communications - Direct, Critical Thinking - Direct.
Required Prerequisites: VCA 125
Recommended Prerequisites: ENG 112
Corequisites: VCA 220

VCA 220 - Visual Communications III
Credit Hours: 3, Contact Hours: 4
Division: Humanities
Through this course, you will gain insight and introduction to the theory of advertising design and art direction through practice in researching, brainstorming, marketing, creative problem solving, copywriting and editorial planning of print and digital advertising, advertising campaigns, television storyboards and product branding. Traditional and digital best practices will be explored as students work on campaign voice and receiving/giving constructive criticism using industry terminology. Group 2 course. Communications - Direct, Critical Thinking - Direct.
Required Prerequisites: VCA 125
Recommended Prerequisites: ENG 112
Corequisites: VCA 220

VCA 225 - Visual Communications Studio
Credit Hours: 3, Contact Hours: 4
Division: Humanities
By the end of this course, students will have participated in two hands-on 'real world' design projects in which you will act as copywriter, art director, designer, filmmaker, photographer or illustrator. Service learning projects are for various regional not-for-profit clients. You will learn all aspects of pre-press work, digital workflow, production, and printing via field trips to area service providers and professionals while also learning to work with clients and the self-driven responsibilities of teamwork. Group 2 course. Communications - Direct, Critical Thinking - Direct, Degree Req:Cultural Persp/Div.
Required Prerequisites: VCA 200 and VCA 220 or instructor permission.

VCA 230 - Visual Communications V
Credit Hours: 3, Contact Hours: 4
Division: Humanities
In this course you will excel in setting occupational/educational aspirations and offering/receiving constructive criticism of your work. You will design and produce a body of work for your portfolio, tailored to your individual goals, be it in Illustration, Graphic Design, Motion Graphics or Art Direction. Progressive Visual Communications theory and practice will also be studied through projects in packaging design, point-of-purchase displays, info-graphics, mobile app development and more. Group 2 course. Communications - Direct, Critical Thinking - Direct.
Required Prerequisites: VCA 200, VCA 220 or instructor permission.
VCA 235 - Visual Comm Portfolio  
Credit Hours: 3, Contact Hours: 4  
Division: Humanities  
Students explore various methods of preparing professional portfolios, as well as the packaging and marketing of their portfolio works in preparation for further education and/or job interviews related to their career goals in visual communications. Along with the portfolio, each student prepares a resume, digital portfolio, and considers other self-promotional pieces to complete his/her portfolio package. The emphasis of this course is that each student compiles a professional looking and complete portfolio package based on his/her occupational and educational goals. Group 2 course. Communications - Direct, Critical Thinking - Direct.  
Required Prerequisites: VCA 200, VCA 220

VCA 246 - Interactive Animation II  
Credit Hours: 3, Contact Hours: 4  
Division: Humanities  
This course will focus on the advanced exploration of interactive navigation, animation and storytelling that is created for and exists on the web. Advanced Design theory, greater interactivity, file architecture, web loading, hosting and uploading for Animate and more exposure to Motion software will emphasize creative and narrative language. Students should be self-motivated, this advanced section involves independent projects. Group 2 course. Communications - Direct, Critical Thinking - Direct.  
Required Prerequisites: VCA 146  
Recommended Prerequisites: Intermediate to advanced understanding of bitmap or vector drawing, typography and the Macintosh platform.

VCA 247 - Web Design II  
Credit Hours: 3, Contact Hours: 4  
Division: Humanities  
This course will focus on advanced creative website development and design including site planning, interactive navigation, information design theory, file management, and user experience (UX). Students will explore app design and real-world web projects to deepen their understanding of interactive information design. Students should be self-motivated since this advanced course involves independent projects. Group 2 course. Communications - Direct, Degree Req:Cultural Persp/Div.  
Required Prerequisites: VCA 147

VCA 250 - Time Based Media  
Credit Hours: 3, Contact Hours: 4  
Division: Humanities  
A multisensory, theory driven exploration of time-based visual communication environments. The role of typography, image, sound, space, luminosity and narrative are assessed and used to create sequences of film and moving image. Students are exposed to tools, theories, aesthetics and techniques used in film editing with Final Cut Pro X, Motion and Digital HD film cameras like Blackmagic and GoPro. Course includes Apple Certification and the Apple FCPx End User Exam. Group 2 course. Communications - Direct, Critical Thinking - Direct, Degree Req:Cultural Persp/Div.  
Required Prerequisites: VCA 127  
Recommended Prerequisites: VCA 125

VCA 252 - Time Based Media II  
Credit Hours: 3, Contact Hours: 4  
Division: Humanities  
A multisensory, theory driven continuation and exploration of time-based visual communication environments. The role of motion graphics, sound design, promo films and narrative are assessed and used to create more advanced sequences of moving image. Students are exposed to advanced tools, theories, aesthetics and techniques used in film editing medium using Final Cut Pro X 10.1 and Motion. Students should be self-motivated, this advanced section involves independent projects. Group 2 course. Communications - Direct, Critical Thinking - Direct, Degree Req:Cultural Persp/Div.  
Required Prerequisites: VCA 250

VCA 290 - Visual Comm Internship  
Credit Hours: 4, Contact Hours: 4  
Division: Humanities  
This course is the capstone for the AAS degree in Creative Management Art Direction. This internship provides on-the-job experience for the student who wishes to pursue a career in visual communications. Customized to meet the learning needs of the student and the job requirements of the sponsoring firms, students spend 180 hours in paid or non-paid, supervised on-the-job training experiences. In addition students participate in bi-weekly reports and weekly online methodology discussion boards with the instructor/peers. Students must apply one month prior to the semester they wish to complete class. Group 2 course. Communications - Direct, Critical Thinking - Direct, Degree Req:Cultural Persp/Div.  
Required Prerequisites: Students must have completed all VCA courses with a minimum 2.5 GPA and departmental approval.  
Recommended Prerequisites: The student should possess good written, graphic and oral communication skills, and have a portfolio of work/resume to show employers.

VCA 293 - Visual Comm Study Abroad  
Credit Hours: 1, Contact Hours: 1  
Division: Humanities  
In this class, students are provided the opportunity to travel to a specified destination affiliated with the corresponding visual communications non-trip course. This course will serve to integrate the student learning experience and provide a sense of cultural perspective, diversity and regional awareness. The course is an opportunity for students to explore other areas around the world while applying discipline-specific course content. For a more specific course description, please review the course description of the associated non-trip course. Group 2 course.  
Required Prerequisites: VCA 100, or VCA 230

Audio Technology, Associate in Applied Science Degree

NMC Code 451

The NMC Audio Tech program will help prepare students for a career in the audio technology field. Careers in the audio technology field include: Sound Engineer, Recording Engineer, Sound Designer, Live and Theater Sound Engineer, Composer, Mixing Engineer, Mastering Engineer, Archivist, Audio and Visual Equipment Technician, Producer, Broadcast Technician, Pro Tools Operator, Audio Editor, and Audio Post Production.

At NMC, we believe our Audio Tech students will be better prepared for the workforce and the ever-changing music industry by combining aspects of a traditional music education, hands-on training on the newest technology, and opportunities to learn in a variety of environments and

Northwestern Michigan College 111
experiences – the studio, the stage, and the classroom. Students will have the opportunity to learn, and work with, industry-standard hardware and software recording platforms including: Logic Pro and Pro Tools. Students will also have practical real-world experience in studio and live recording, sound design, composing, mixing, and mastering. The NMC Audio Technology Program is designed to be completed in four semesters. While completing coursework in the Audio Technology Program, students will have the opportunity to earn platform-specific certification, professional credentials of value, and an Associate in Applied Science degree.

### Requirements

#### Major Requirements

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1. Placement into MTH 111 Intermediate Algebra or higher, or completion of MTH 23 Beginning Algebra
2. Students will take a Music Theory Placement Test at the start of the semester.

### Course Sequence Guide

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<thead>
<tr>
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<th>Course</th>
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Notes:

- Based on results of the Music Theory Placement Test, students may be placed in MUS 100A Intro to Music Theory I and MUS 105A Intro to Ear Training I instead of MUS 101 Theory of Music and MUS 103 Sight Singing & Ear Training.
- Students may take AUD 100 Applied Music - Audio Tech during any semester, and may take it more than once.
- Students may also enroll in other Applied Lesson and/or Ensembles.
- Students must demonstrate Math Competency – placement into MTH 111 Intermediate Algebra.

Audio Technology, Certificate of Achievement (Level II)

NMC Code 046

The Audio Technology field is a dynamic industry with new technologies being introduced at a rapid pace. To stay abreast of the latest tools and trends, students may enroll in advanced Audio Technology coursework and earn the Audio Technology Level II Certificate of Achievement.

Requirements

Certificate Requirements

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<thead>
<tr>
<th>Course</th>
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Total Credits 32

Course Sequence Guide

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Credits 8

Spring

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Credits 8

Year 2

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Credits 8

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Credits 8

Visual Communications - Creative Management in Art Direction, Associate in Applied Science Degree

NMC Code 251

This Visual Communications program is designed for students who have already earned the VCA Associate in Applied Science degree and are looking to expand their skills for local employment opportunities instead of transferring to a four-year BFA or university program. This degree focuses on a tailored set of courses from other disciplines that will expose students to marketing, copywriting, small business management, digital photography, and other practical skills that will help them enter the work force. A 180-hour summer internship with a local marketing/design/advertising or film firm is a required part of this program.

Requirements

Major Requirements

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<td>Printmaking</td>
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Previous Visual Communications AAS Degree 63-64

Creative Management in Art Direction Requirements

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</table>
Visual Communications, Associate in Applied Science Degree

NMC Code 351

Students in this program explore a full range of skills: drawing, typography, photography, graphic design, illustration technique, animation, film, new media, and social media design. In unique, studio-like classrooms there are plentiful opportunities for hands-on work including customized projects based on portfolio goals and real-world pieces published in the community. Students participate and lead critiques and reviews with peers as well as clients/instructors. Several of the digital courses are led by Apple and Adobe Certified trainers. Apple and Adobe Certification and testing is available and is part of the Time Based Media, Digital Imaging, Digital Graphic Design, and Typography classes.

Requirements

Major Requirements

Course Title Credits

English Composition 4

English Composition 4

Select one of the following: 3-4

History of Western Art I

History of Western Art II (preferred)

Modern Art History

Art Competency 1

Any Group 1 Science lecture course with a lab 4

Any Group 1 Social Science course 3

Occupational Specialty Requirements

Drawing 3

2-D Design 3

Digital Imaging (Adobe Certified Associate) 3

Typography I 3

Typography II 3

Digital Imaging 3

Interactive Animation 3

Digital Photography I 3

Web Design 3

Digital Graphics Design I 3

Visual Communications II 3

Visual Communications Studio 3

Visual Communications V 3

Visual Comm Portfolio 3

Time Based Media 3

Total Credits 63-64

1 Placement into MTH 111 Intermediate Algebra or higher, or completion of MTH 23 Beginning Algebra

Course Sequence Guide

Year 1

Fall

Creative Writing 3

or Technical Writing

Principles of Marketing 3

or Principles of Advertising

Digital Photography I 3

or Interactive Animation

Web Development 3

Credits 12

Spring

Popular Culture 4

or Mass Communication and Culture

Interpersonal Communications 3

or Professional Communications

3-D Design 3

or Printmaking I

Modern Art History 3

Digital Photography II 3

Credits 16

Summer

Visual Comm Internship 4

Credits 4

Total Credits 32

* 32 credits additional after VCA Applied Science Degree (This program is only available to students that have completed the NMC AAS in Visual Communications.)

Students completing the Visual Communications program at NMC earn an Associate of Applied Science degree. After completion of the AAS Degree, students can take this third-year option in Visual Communications and earn an AAS in Creative Management Art Direction that will aid in local employment while exposing the student to marketing and business classes that provide an opportunity to develop their own studio.
### Spring

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>VCA 100</td>
<td>Materials and Techniques</td>
<td>3</td>
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<tr>
<td>ART 174</td>
<td>Digital Photography I or Interactive Animation</td>
<td>3</td>
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<tr>
<td>or VCA 146</td>
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<tr>
<td>VCA 147</td>
<td>Web Design I</td>
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<tr>
<td>VCA 125</td>
<td>Typography I (Adobe Certified Associate)</td>
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<tr>
<td>ART 112</td>
<td>History of Western Art II &lt;sup&gt;1&lt;/sup&gt;</td>
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#### Year 2

#### Fall

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<tr>
<td>VCA 250</td>
<td>Time Based Media (Apple Certified)</td>
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<tr>
<td>VCA 126</td>
<td>Typography II</td>
<td>3</td>
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<tr>
<td>VCA 200</td>
<td>Visual Communications II</td>
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<tr>
<td>VCA 220</td>
<td>Visual Communications III</td>
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<tr>
<td>ENG 112</td>
<td>English Composition</td>
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#### Credits: 16

#### Spring

<table>
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<tr>
<th>Course</th>
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<th>Credits</th>
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<tr>
<td>VCA 225</td>
<td>Visual Communications Studio</td>
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<tr>
<td>VCA 230</td>
<td>Visual Communications V</td>
<td>3</td>
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<tr>
<td>VCA 235</td>
<td>Visual Comm Portfolio</td>
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<tr>
<td>Social Science</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Lab Science</td>
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</table>

#### Total Credits: 16

<sup>1</sup> ART 213 Modern Art History may be taken in place of ART 112 History of Western Art II.

### Program Learning Outcomes

2. Mastery of Visual Language / Composition / Design Thinking. (Problem Solving)
3. Meeting the skill level of an emerging Design Communicator and associated deadlines.
4. Preparing a competitive capstone portfolio that reflects design excellence and strategic thinking.

*MTH 23 Beginning Algebra or Equivalent Math Competency is required.*

### Maritime - Deck

**MDK 100 - Survival at Sea**  
*Credit Hours: 1, Contact Hours: 1*  
*Division: Maritime*  
This course of instruction covers the following: concentrated instruction and training for the U.S. Coast Guard certification as Proficiency in Survival Craft and Rescue boats (PSR); including the fundamentals of seamanship, small boat handling with power and sail; construction, equipment, and marking of the standard lifeboat; construction, equipment, and operation of inflatable life rafts; abandon ship procedures, man overboard procedures, and survival swimming; the launching and retrieval of lifeboats; sailboat nomenclature and operation. STCW.

Required Prerequisites: All prerequisites for all GLMA courses are satisfied by following the approved Course Sequence Guide and any deviation from this guide needs to be approved by the cadet’s adviser.

**MDK 104 - Rigging & Ship Maintenance Lab**  
*Credit Hours: 1, Contact Hours: 1*  
*Division: Maritime*  
The purpose of this course is to provide the cadet an opportunity to acquire practical experience in general seamanship: including marlinespike seamanship, line handling; splicing line, splicing wire rope; rigging, block and tackle nomenclature and use; vessel maintenance, the practical application of the procedures and equipment needed in vessel upkeep. STCW.

Required Prerequisites: All prerequisites for all GLMA courses are satisfied by following the approved Course Sequence Guide and any deviation from this guide needs to be approved by the cadet’s adviser.

**MDK 106 - Watchstanding I**  
*Credit Hours: 1, Contact Hours: 1*  
*Division: Maritime*  
The purpose of this course is to provide an opportunity for the cadet to acquire practical experience in shiphandling with vessels sufficiently large to duplicate shiphandling problems encountered with much larger vessels. Cadets are exercised in line handling, towing, anchoring techniques, landing techniques, and shipboard safety. Cadets will then advance through the use of simulation to shiphandling exercises dealing with the general principles of vessel control and the problems of handling a vessel in narrow channels. STCW.

Required Prerequisites: All prerequisites for all GLMA courses are satisfied by following the approved Course Sequence Guide and any deviation from this guide needs to be approved by the cadet’s adviser.

**MDK 112 - Rules of the Nautical Road**  
*Credit Hours: 2, Contact Hours: 2*  
*Division: Maritime*  
Comprehensive study of the International Rules of the Road (COLREGS) including their origin, purpose, history, technical provisions, and application. Included is a comparative study of both international and inland rules, their interpretation and practical application as well as a study of case histories and legal interpretations resulting from collisions at sea. STCW.

Required Prerequisites: All prerequisites for all GLMA courses are satisfied by following the approved Course Sequence Guide and any deviation from this guide needs to be approved by the cadet’s adviser.

### Maritime

#### Programs

- Maritime - Bachelor of Science Degrees (p. 123)
- Maritime - Deck Officer, Bachelor of Science (p. 124)
- Maritime - Engineering Officer, Bachelor of Science (p. 127)
- Maritime - Power Systems, Bachelor of Science (p. 129)
MDK 121 - Navigation I
Credit Hours: 3, Contact Hours: 3
Division: Maritime
An introduction to the principles of piloting and marine navigation. Includes chart projection, the magnetic compass, chart usage, buoyage systems, aids to navigation, fixes and running fixes, and the use of standard tables. STCW.
Required Prerequisites: All prerequisites for all GLMA courses are satisfied by following the approved Course Sequence Guide and any deviation from this guide needs to be approved by the cadet's adviser.
Corequisites: MDK 122

MDK 122 - Navigation I Lab
Credit Hours: 1, Contact Hours: 1
Division: Maritime
This lab is taken concurrently with MDK 121 and concentrates on applying the principles of piloting to plotting on the chart. Chart projection and use will be introduced. Dead reckoning, terrestrial fixes, set and drift, lines of position, and the use of navigational instruments will be covered. STCW.
Required Prerequisites: All prerequisites for all GLMA courses are satisfied by following the approved Course Sequence Guide and any deviation from this guide needs to be approved by the cadet's adviser.
Corequisites: MDK 121

MDK 149 - Damage Control & Safety
Credit Hours: 2, Contact Hours: 2
Division: Maritime
This course is designed to give the cadet a comprehensive knowledge of shipboard safety with particular emphasis on firefighting and damage control. Subject areas include: personal safety, pollution, U.S. Coast Guard rules and regulations, temporary damage repair, shoring principles and practical shoring problems. STCW.
Required Prerequisites: All prerequisites for all GLMA courses are satisfied by following the approved Course Sequence Guide and any deviation from this guide needs to be approved by the cadet's adviser.

MDK 200 - Ship Business & Labor Relation
Credit Hours: 3, Contact Hours: 3
Division: Maritime
This course provides instruction in the organization, administrative functions, and management of a merchant vessel as well as the systems of operation of ship's business. It includes the study of union contracts, grievance procedures and labor management relations.
Required Prerequisites: All prerequisites for all GLMA courses are satisfied by following the approved Course Sequence Guide and any deviation from this guide needs to be approved by the cadet's adviser.

MDK 206 - Watchstanding II
Credit Hours: 1, Contact Hours: 1
Division: Maritime
The purpose of this course is to begin to develop a cadet's piloting and watch management skills. The use of the Shiphandling Simulator/Academy Vessels will allow the development of the Bridge Team Concept through piloting exercises.
Required Prerequisites: All prerequisites for all GLMA courses are satisfied by following the approved Course Sequence Guide and any deviation from this guide needs to be approved by the cadet's adviser.

MDK 210 - Deck Sea Project I
Credit Hours: 6, Contact Hours: 6
Division: Maritime
During this internship the cadet is aboard TS State of Michigan or a Great Lakes commercial vessel. The cadet follows a prescribed course and studies: vessel operations, safety and navigation equipment and techniques. In addition the cadet spends a minimum of eight hours per day under the supervision of licensed officers gaining experience in various duties and responsibilities. STCW.
Required Prerequisites: Must complete first academic year with a 2.0 or higher in all required courses. All prerequisites for all GLMA courses are satisfied by following the approved Course Sequence Guide and any deviation from this guide needs to be approved by the cadet's adviser.

MDK 211 - Lakes Piloting
Credit Hours: 2, Contact Hours: 2
Division: Maritime
Study of the Great Lakes and principal ports; this includes currents, depths, aids to navigation, prevailing winds and their effects, recommended courses, shoals, reefs, and high traffic areas. Historic analysis will explain current practices.
Required Prerequisites: All prerequisites for all GLMA courses are satisfied by following the approved Course Sequence Guide and any deviation from this guide needs to be approved by the cadet's adviser.

MDK 222 - River Piloting
Credit Hours: 2, Contact Hours: 2
Division: Maritime
An in-depth study of the rivers, channels, and the aids to navigation in these rivers and channels. The focus will be on the rivers that make up the Great Lakes connecting bodies such as the St. Mary's, St. Clair, Detroit Rivers and the Welland Canal.
Required Prerequisites: All prerequisites for all GLMA courses are satisfied by following the approved Course Sequence Guide and any deviation from this guide needs to be approved by the cadet's adviser.

MDK 242 - Ship Stability
Credit Hours: 3, Contact Hours: 3
Division: Maritime
A study of the principles of stability; righting moment and righting arm; calculation of metacentric height; inclining experiment; stability computers and tables; practical stability and trim considerations. STCW.
Required Prerequisites: All prerequisites for all GLMA courses are satisfied by following the approved Course Sequence Guide and any deviation from this guide needs to be approved by the cadet's adviser.

MDK 250 - Stability for the Engineer
Credit Hours: 1, Contact Hours: 1
Division: Maritime
Principles, terms, and procedures used in the determination of transverse, longitudinal, and damage stability of ships. Investigation of the physical laws affecting a floating body. Effects of cargo operation, free surface, fuel consumption, and flooding on vessel stability. Scrutiny of case studies involving both partial or total loss of stability. STCW
Required Prerequisites: All prerequisites for all GLMA courses are satisfied by following the approved Course Sequence Guide and any deviation from this guide needs to be approved by the cadet's adviser.

MDK 290A - Academic Service Internship
Credit Hours: 1-4, Contact Hours: 1-4
Division: Maritime
MDK 311 - Deck Sea Project II
Credit Hours: 6, Contact Hours: 6
Division: Maritime
This internship is a continuation of MDK 210 and is designed to provide the cadet with advanced knowledge and sailing time to meet the licensing requirements prescribed by the U.S. Coast Guard and the criteria established by the Maritime Administration. STCW.
Required Prerequisites: Completion to second academic year with a 2.0 or higher in all required courses. All prerequisites for all GLMA courses are satisfied by following the approved Course Sequence Guide and any deviation from this guide needs to be approved by the cadet's adviser.

MDK 312 - Deck Sea Project III
Credit Hours: 6, Contact Hours: 6
Division: Maritime
This internship is a continuation of MDK 311 and is designed to provide the cadet with advanced knowledge and sailing time to meet the licensing requirements prescribed by the US Coast Guard and the criteria established by the Maritime Administration. STCW.
Required Prerequisites: All prerequisites for all GLMA courses are satisfied by following the approved curriculum guide and any deviation from the curriculum guide needs to be approved by the department head.

MDK 324 - Navigation III
Credit Hours: 3, Contact Hours: 3
Division: Maritime
An introduction into nautical astronomy concerning: the practical application of celestial navigation, the solving of the spherical triangle, star identification, measurement of time and the use of the instruments. This course will cover plane, mid-latitude and mercator sailings and how to apply them to navigational problems through the various time zones. Sunrise, sunset, twilight, moonrise and moon-set calculations for a moving vessel will be covered. STCW
Required Prerequisites: All prerequisites for all GLMA courses are satisfied by following the approved Course Sequence Guide and any deviation from this guide needs to be approved by the cadet's adviser. Recommended Prerequisites: ENG 111 and MTH 111

MDK 330 - Medical First Aid Provider
Credit Hours: 2, Contact Hours: 2
Division: Maritime
This course meets the mandatory minimum requirements specified under STCW as related to proficiency in medical first aid for all merchant mariners. This course is part of the STCW certification process. Cadets will learn to take immediate action upon encountering an accident or other medical emergency. STCW
Required Prerequisites: All prerequisites for all GLMA courses are satisfied by following the approved Course Sequence Guide and any deviation from this guide needs to be approved by the cadet's adviser.

MDK 331 - Electronic Navigation
Credit Hours: 3, Contact Hours: 3
Division: Maritime
An in depth study of the various electronic navigation systems with emphasis on RADAR. Covers the theory, operation, use, advantages, disadvantages and general maintenance of: RADAR, gyrocompass, GPS, speed logs, fathometers, and electronic chart systems. REQUIRED COURSE that must be completed successfully before the student may receive an original "Radar Observer Certificate". STCW
Required Prerequisites: All prerequisites for all GLMA courses are satisfied by following the approved Course Sequence Guide and any deviation from this guide needs to be approved by the cadet's adviser. Recommended Prerequisites: ENG 111 and MTH 111 Corequisites: MDK 332

MDK 332 - Electronic Navigation Lab
Credit Hours: 1, Contact Hours: 1
Division: Maritime
A practical course to understand the use and operation of a marine radar; including: how to avoid collision situations using Rapid Radar Plotting. This required course must be successfully completed before the student may receive an original “Radar Observer Certificate”. STCW
Required Prerequisites: All prerequisites for all GLMA courses are satisfied by following the approved Course Sequence Guide and any deviation from this guide needs to be approved by the cadet's adviser. Recommended Prerequisites: ENG 111 and MTH 111 Corequisites: MDK 331

MDK 333 - Automatic Radar Plotting Aids
Credit Hours: 1, Contact Hours: 1
Division: Maritime
This course presents the principals and operation of automatic radar plotting aids. It includes the legal aspects of ARPA including IMO and USCG standards, the theory in input and processing characteristic of ARPA, the theory of operation, control functions and adjustments, the acquisition and tracking of contacts, the limitations and potential errors of ARPA and special ARPA related features. STCW
Required Prerequisites: All prerequisites for all GLMA courses are satisfied by following the approved Course Sequence Guide and any deviation from this guide needs to be approved by the cadet's adviser. Recommended Prerequisites: ENG 111 and MTH 111 Corequisites: MDK 331

MDK 341 - Ship Construction
Credit Hours: 2, Contact Hours: 2
Division: Maritime
A study of hull construction as applied to all types of vessels. Includes construction nomenclature, criteria of design, methods of construction, materials used in construction and stress calculations. STCW
Required Prerequisites: All prerequisites for all GLMA courses are satisfied by following the approved Course Sequence Guide and any deviation from this guide needs to be approved by the cadet's adviser. Recommended Prerequisites: ENG 111 and MTH 111

MDK 345 - Dry Cargo Stowage
Credit Hours: 3, Contact Hours: 3
Division: Maritime
Principles and problems of the stowage and carriage of cargoes. Bulk cargo, container cargo, refrigerated cargo, grain cargoes and dangerous cargoes. Cargo handling operations both loading and offloading equipment. Cargoes stowage plans will be developed and reviewed. Students will critique loads they were involved with during their time aboard ship. STCW
Required Prerequisites: All prerequisites for all GLMA courses are satisfied by following the approved Course Sequence Guide and any deviation from this guide needs to be approved by the cadet's adviser. Recommended Prerequisites: ENG 111 and MTH 111

MDK 404 - Marine Supervisory Lab
Credit Hours: 1, Contact Hours: 1
Division: Maritime
This course will provide senior cadets with the experience of supervising subordinate cadets. This experience will include job planning, sequencing of tasks, tools and equipment needed, and personnel required to complete the job. The student will experience what it will be like to be responsible for the crew both in terms of safety and output. STCW
Required Prerequisites: All prerequisites for all GLMA courses are satisfied by following the approved Course Sequence Guide and any deviation from this guide needs to be approved by the cadet's adviser.
**MDK 411 - Marine Communications**  
**Credit Hours:** 2, **Contact Hours:** 2  
**Division:** Maritime  
This course is designed to acquaint the student with communication systems commonly found in the Marine Industry. It includes the basic layout of the Global Maritime Distress and Safety System (GMDSS), communication equipment requirements, licensing requirements, principles and procedures for marine communications, the characteristics of radio wave propagation, frequencies, and modulation. Included also is the Morse Code Flashing Light, and general Distress Signals. STCW.  
Required Prerequisites: All prerequisites for all GLMA courses are satisfied by following the approved Course Sequence Guide and any deviation from this guide needs to be approved by the cadet’s adviser.  
Recommended Prerequisites: ENG 111 and MTH 122

**MDK 431 - ECDIS**  
**Credit Hours:** 3, **Contact Hours:** 3  
**Division:** Maritime  
The purpose of this course is to meet the training requirements in STCW, as amended, for the operational use of Electronic Chart Display and Information Systems (ECDIS). This course provides the knowledge, skill and understanding of ECDIS emphasizing both the application and learning of ECDIS in a variety of underway contexts. This is achieved through use of a sophisticated navigation simulation integrated with a type-approved ECDIS. STCW  
Required Prerequisites: All prerequisites for all GLMA courses are satisfied by following the approved Course Sequence Guide and any deviation from this guide needs to be approved by the cadet’s adviser.  
Recommended Prerequisites: ENG 111; MTH 111 or higher

**MDK 444 - Cargo Systems**  
**Credit Hours:** 2, **Contact Hours:** 2  
**Division:** Maritime  
An in-depth study of the Great Lakes self-unloading vessel, container vessels, tankers, passenger vessels, regulations concerning hazardous materials, government regulations and the relationship between vessel and shoreside operations.  
Required Prerequisites: All prerequisites for all GLMA courses are satisfied by following the approved Course Sequence Guide and any deviation from this guide needs to be approved by the cadet's adviser.  
Recommended Prerequisites: ENG 111 and MTH 111

**MDK 445 - Liquid Cargo Stowage**  
**Credit Hours:** 2, **Contact Hours:** 2  
**Division:** Maritime  
A study of the tanker industry and the operational aspects of the tank vessel, pollution, prevention, precautions and procedures; layouts of different types of tankers; operations sequence and oil tanker construction and terminology. USCG and OPA '90 regulations will be covered. STCW  
Required Prerequisites: All prerequisites for all GLMA courses are satisfied by following the approved Course Sequence Guide and any deviation from this guide needs to be approved by the cadet’s adviser.  
Recommended Prerequisites: ENG 111 and MTH 111

**MDK 446 - Bridge Resource Management**  
**Credit Hours:** 3, **Contact Hours:** 3  
**Division:** Maritime  
Bridge resource management will be taught using small group discussions, case studies and simulation exercises. Areas that will be addressed will be route planning, watch management, pilotage of specific routes and ship handling from a 3rd mates perspective. The three hour class will start with a 30 minute group discussion of the class objective, then exercises followed by a critique of the exercises. STCW.  
Required Prerequisites: All prerequisites for all GLMA courses are satisfied by following the approved Course Sequence Guide and any deviation from this guide needs to be approved by the cadet’s adviser.  
Recommended Prerequisites: ENG 111 and MTH 111

**MDK 448 - Pilot/Mate License Prep**  
**Credit Hours:** 4, **Contact Hours:** 4  
**Division:** Maritime  
A complete review of all professional subjects studied in the Maritime program pragmatically developed to reflect the essentials of the U.S. Coast Guard examinations. Cadets must complete all MDK courses with a 2.0 or better and receive a satisfactory grade in this course prior to being granted permission to sit for USCG license exams.  
Required Prerequisites: All prerequisites for all GLMA courses are satisfied by following the approved Course Sequence Guide and any deviation from this guide needs to be approved by the cadet’s adviser.  
Recommended Prerequisites: ENG 111 and MTH 111

**MDK 450 - Vessel & Port Security Officer**  
**Credit Hours:** 2, **Contact Hours:** 2  
**Division:** Maritime  
This course will provide required knowledge and skills for individuals designated to perform the duties and responsibilities of a Vessel Security Officer as defined in the Standards for Training, Certification, and Watchkeeping for Seafarers (STCW). Additionally, this course will provide required knowledge and skills for individuals designated to perform the duties and responsibilities of a Port Facility Security Officer as required in the Maritime Transportation Security Act (MTSA) and The International Ship and Port Facility Security Code (ISPS). Group 2 course.  
Required Prerequisites: All prerequisites for all GLMA courses are satisfied by following the approved Course Sequence Guide and any deviation from this guide needs to be approved by the cadet’s adviser.  
Recommended Prerequisites: ENG 111 and MTH 111

**MDK 454 - GMDSS**  
**Credit Hours:** 3, **Contact Hours:** 3  
**Division:** Maritime  
The purpose of this course is to meet the training requirements in STCW code, as amended, for the General Operator’s Certificate for the Global Maritime Distress and Safety System (GMDSS). A student successfully completing this course and passing the prescribed examination will be licensed and enabled to efficiently operate a ship station's GMDSS equipment, and to have primary responsibility for radio communications during Distress incidents. STCW  
Required Prerequisites: All prerequisites for all GLMA courses are satisfied by following the approved Course Sequence Guide and any deviation from this guide needs to be approved by the cadet’s adviser.  
Recommended Prerequisites: ENG 111 and MTH 111; elementary computer skills.
Maritime - Engine

MNG 100 - Intro to Vessel Operations
Credit Hours: 1, Contact Hours: 1
Division: Maritime
This course is a general introduction to the shipboard Engine Room. The duties and responsibilities of the engine room personnel will be covered. The course will introduce the engine room propulsion systems (Diesel and Steam), and an overview of safety and pollution practices and regulations, and an introduction to the domestic and international bodies that govern our industry. This course provides a foundation for the deck and engineering cadet to build upon in his/her GLMA program of study. STCW
Required Prerequisites: All prerequisites for all GLMA courses are satisfied by following the approved Course Sequence Guide and any deviation from this guide needs to be approved by the cadet's adviser.

MNG 104 - Engine Systems Graphics
Credit Hours: 3, Contact Hours: 3
Division: Maritime
The course will acquaint the student to the proper use of measuring systems and drafting equipment. The course will introduce the techniques used in the production of multi-view projection, orthographic representation, auxiliary views, section views, and dimensioning. The student will be familiar with the correct (ANSI) symbols used in piping, electrical, and fluid power schematics. The student will be exposed in the use of CAD to produce the listed topics. STCW.
Required Prerequisites: All prerequisites for all GLMA courses are satisfied by following the approved Course Sequence Guide and any deviation from this guide needs to be approved by the cadet's adviser.
Corequisites: MNG 110

MNG 105 - Shipboard Information Systems
Credit Hours: 3, Contact Hours: 3
Division: Maritime
This course will introduce the student to the PC and its use as typically found aboard a Merchant Vessel. Basic computer setup, maintenance, and system troubleshooting are covered. Operating systems, communications programs, databases, word processors, spreadsheets, internet research, and CBT programs are discussed and demonstrated. The future of computers in the marine industry is explored. Special emphasis is given to group communications, group dynamics and problem solving and recognition, by developing process.
Required Prerequisites: All prerequisites for all GLMA courses are satisfied by following the approved Course Sequence Guide and any deviation from this guide needs to be approved by the cadet's adviser.

MNG 110 - Engineering Mechanics
Credit Hours: 3, Contact Hours: 3
Division: Maritime
Survey of the construction, operation, and maintenance of shipboard systems. The major emphasis will be on piping, valves, control valves, and pumps. Practical application of the above items will be supported in the lab portion of this course with computer simulation exercises. STCW.
Required Prerequisites: All prerequisites for all GLMA courses are satisfied by following the approved Course Sequence Guide and any deviation from this guide needs to be approved by the cadet's adviser.
Corequisites: MNG 104

MNG 234 - Electronic Fundamentals
Credit Hours: 4, Contact Hours: 4
Division: Maritime
This course bridges the gap between theoretical physics and practical hands on technology. Industrial electrical safety, shock hazards and emergency procedures are stressed. The cadet receives practical hands on experience with both analog and digital meters and oscilloscopes. Digital and analog circuits are created both in the lab and as computer simulations. Practical considerations of circuit construction in the field are discussed in terms of ABS, USCG, and IEEE regulations and requirements.
Required Prerequisites: All prerequisites for all GLMA courses are satisfied by following the approved Course Sequence Guide and any deviation from this guide needs to be approved by the cadet's adviser.

MNG 250 - Fluid Systems
Credit Hours: 3, Contact Hours: 3
Division: Maritime
This course will introduce the cadet to the shipboard hydraulic and pneumatic systems. The cadet will be introduced to the principles of fluid power: theory, components construction, operation, installation and maintenance, with an overview of these systems on a ship. STCW.
Required Prerequisites: All prerequisites for all GLMA courses are satisfied by following the approved Course Sequence Guide and any deviation from this guide needs to be approved by the cadet's adviser.

MNG 260 - Maritime Machining
Credit Hours: 2, Contact Hours: 2
Division: Maritime
This is a basic course that when completed a student will know the fundamentals and be able to operate common machine tool equipment like an engine lathe, band saw and vertical milling machine. Also covered will be measuring and inspection tools, drill press and surface plate. Quantitative Reasoning.
Required Prerequisites: Completion of first academic year. All prerequisites for all GLMA courses are satisfied by following the approved Course Sequence Guide and any deviation from this guide needs to be approved by the cadet's adviser.

MNG 270 - Issues in Power Production
Credit Hours: 3, Contact Hours: 3
Division: Maritime
This course will delve into current issues in the field of power production, including such areas as local, state, and federal requirements and interfaces. Renewable energy such as solar, wind, and biomass will be covered in detail. The future of energy and how it affects society will be explored. The student will develop an understanding of issues currently facing the power production issue.
Required Prerequisites: All prerequisites for all GLMA courses are satisfied by following the approved Course Sequence Guide and any deviation from this guide needs to be approved by the cadet's adviser.
MNG 271 - Maritime Welding  
Credit Hours: 2, Contact Hours: 2  
Division: Maritime  
A welding theory and practice course. Manipulative skills are emphasized for the Gas Metal Arc and Shielded Metal Arc Welding processes. Plasma Arc and Oxy-Fuel Cutting are also introduced. Appropriate reading assignments are included. Critical Thinking - Direct.  
Required Prerequisites: Completion of first academic year. All prerequisites for all GLMA courses are satisfied by following the approved Course Sequence Guide and any deviation from this guide needs to be approved by the cadet’s adviser.  
Recommended Prerequisites: ENG 111 and MTH 111  
Corequisites: MNG 271L  

MNG 271L - Maritime Welding Lab  
Credit Hours: 0, Contact Hours: 0  
Division: Maritime  
See MNG 271 for course description. Critical Thinking - Direct.  
Required Prerequisites: All prerequisites for all GLMA courses are satisfied by following the approved Course Sequence Guide and any deviation from this guide needs to be approved by the cadet's adviser.  
Recommended Prerequisites: ENG 111 and MTH 111  
Corequisites: MNG 271  

MNG 275 - Refrigeration  
Credit Hours: 3, Contact Hours: 3  
Division: Maritime  
This course provides instruction in the operation and maintenance of refrigeration and air conditioning equipment used on merchant vessels. It covers the theory of refrigeration and the practical operation of refrigeration plants. The student is introduced to the Environmental Protection Agency (EPA) rules governing halogenated refrigerant gases (CFCs). A discussion of the proper procedures to recover, recycle, and reclaim (CFCs) is also discussed. Lecture is reinforced with the use of hands on labs. STCW.  
Required Prerequisites: All prerequisites for all GLMA courses are satisfied by following the approved Course Sequence Guide and any deviation from this guide needs to be approved by the cadet’s adviser.  

MNG 290 - Power Systems Internship  
Credit Hours: 5-6, Contact Hours: 5-6  
Division: Maritime  
During this course, the student will be working in a commercial power facility following a prescribed course in the study of plant operations with particular emphasis on the machinery room and auxiliary equipment, including safety requirements. In addition, the student spends a minimum of eight hours a day under the supervision of a licensed operator gaining experience in the various engineering duties and responsibilities.  
Required Prerequisites: All prerequisites for all GLMA courses are satisfied by following the approved Course Sequence Guide and any deviation from this guide needs to be approved by the cadet’s adviser.  

MNG 314 - Diesel Engineering  
Credit Hours: 7, Contact Hours: 10  
Division: Maritime  
A comprehensive course dealing with the development of the diesel engine as it applies to marine propulsion. This course is designed to cover the construction, operation, and maintenance of the marine diesel engine and its support systems. Lecture is reinforced with extensive use of hands-on labs and computerized simulations. STCW.  
Required Prerequisites: All prerequisites for all GLMA courses are satisfied by following the approved Course Sequence Guide and any deviation from this guide needs to be approved by the cadet’s adviser.  

MNG 317 - Engineering Sea Project I  
Credit Hours: 3, Contact Hours: 3  
Division: Maritime  
During this course the cadet is on board the TS State of Michigan. The cadet follows a prescribed course of study in vessel operations with particular emphasis on engine room and auxiliary equipment, including safety requirements. In addition, the cadet spends eight hours a day under the supervision of a licensed officer gaining experience in various engineering duties and responsibilities. STCW. Critical Thinking - Direct.  
Required Prerequisites: All prerequisites for all GLMA courses are satisfied by following the approved Course Sequence Guide and any deviation from this guide needs to be approved by the cadet’s adviser.  

MNG 318 - Engineering Sea Project II  
Credit Hours: 6, Contact Hours: 6  
Division: Maritime  
This course is a continuation of MNG 317 and is designed to provide the cadet with advanced knowledge and sailing time to meet the licensing requirements of the U.S. Coast Guard, STCW and the criteria established by the Maritime Administration. STCW. Critical Thinking - Direct.  
Required Prerequisites: All prerequisites for all GLMA courses are satisfied by following the approved Course Sequence Guide and any deviation from this guide needs to be approved by the cadet’s adviser.  

MNG 319 - Engineering Sea Project III  
Credit Hours: 6, Contact Hours: 6  
Division: Maritime  
This course is a continuation of MNG 318 and is designed to further enhance the cadet’s professional knowledge and sailing time to meet the licensing requirements of the U.S. Coast Guard, STCW and the criteria established by the Maritime Administration. STCW. Critical Thinking - Direct.  
Required Prerequisites: All prerequisites for all GLMA courses are satisfied by following the approved Course Sequence Guide and any deviation from this guide needs to be approved by the cadet’s adviser.  

MNG 321 - Marine Boilers  
Credit Hours: 3.5, Contact Hours: 3.5  
Division: Maritime  
This course is an intensive study of Marine Boilers and covers all types of Water Tube boilers. Emphasis is placed on construction, operation and maintenance of equipment. Sub systems such as fuel handling and combustion chemistry, air handling; water preparation and chemistry, automated combustion systems and water regulation systems are covered in detail. Special emphasis is placed on USCG regulations and STCW competencies. STCW.  
Required Prerequisites: All prerequisites for all GLMA courses are satisfied by following the approved Course Sequence Guide and any deviation from this guide needs to be approved by the cadet’s adviser.  

MNG 322 - Marine Turbines  
Credit Hours: 2.5, Contact Hours: 2.5  
Division: Maritime  
This course is an in-depth study of marine turbine propulsion plants. It covers theory, construction, operation, maintenance and inspection procedures typically associated with marine use. Associated systems such as lubrication, exhaust and condensate systems are also covered. Drive trains, reduction gear, stern tubes shafting and propellers are also discussed. STCW.  
Required Prerequisites: All prerequisites for all GLMA courses are satisfied by following the approved Course Sequence Guide and any deviation from this guide needs to be approved by the cadet’s adviser.
MNG 323 - Marine Steam Lab
Credit Hours: 1, Contact Hours: 1
Division: Maritime
This is a hands-on course intended to reinforce MNG 321 and MNG 322. Students will disassemble, inspect, and reassemble machinery typical of what is found aboard ship. Machinery condition will be noted and recommendations made. Machinery records will be updated. STCW.
Required Prerequisites: All prerequisites for all GLMA courses are satisfied by following the approved Course Sequence Guide and any deviation from this guide needs to be approved by the cadet's adviser.

MNG 335 - Electric Machines and Controls
Credit Hours: 4, Contact Hours: 4
Division: Maritime
This course covers the theory, application, operation, and maintenance of rotating machines as typically found aboard U.S. Merchant Ships and related industrial applications. Generators (DC and AC), motors (DC, multiple and single phase AC), transformers, and related equipment are covered. Special attention is given to magnetic relay and electronic logic control circuits. Regulations specific to CFR title 46 and IEEE are reviewed. STCW.
Required Prerequisites: All prerequisites for all GLMA courses are satisfied by following the approved Course Sequence Guide and any deviation from this guide needs to be approved by the cadet's adviser.
Corequisites: MNG 336

MNG 336 - Electric Mach. & Controls Lab
Credit Hours: 2, Contact Hours: 2
Division: Maritime
This course is a companion class to MNG 335. Course material is reinforced with practical hands-on experience with universal electrical lab machinery. The operating characteristics of typical rotating machines are studied. Special attention is given to problems associated with multiple generator AC distribution. Safe and effective troubleshooting techniques are practiced on live 110/208 volt electrical control systems. STCW.
Required Prerequisites: All prerequisites for all GLMA courses are satisfied by following the approved Course Sequence Guide and any deviation from this guide needs to be approved by the cadet's adviser.
Corequisites: MNG 335

MNG 455 - Engine Room Resource Mgmt.
Credit Hours: 2, Contact Hours: 2
Division: Maritime
This course uses the Engineering Simulators to strengthen the watch standing skills of the engineering cadet. The cadet will be required to operate shipboard systems, manage engine room personnel, and become familiar with preparing reports required in the operation of a modern engine room.
Required Prerequisites: All prerequisites for all GLMA courses are satisfied by following the approved Course Sequence Guide and any deviation from this guide needs to be approved by the cadet's adviser.
Corequisites: MNG 466, MNG 496

MNG 466 - Engine Room Business
Credit Hours: 2, Contact Hours: 2
Division: Maritime
This course is intended to acquaint the Cadet to the every day management and administrative activities confronting the Marine Engineer. The Cadet will be introduced to management and personnel skills necessary to deal with people problems peculiar to the marine environment. General issues of alcohol, drug abuse, and sexual harassment in the marine environment will be discussed, and placed in perspective with USCG and STCW protocols.
Required Prerequisites: All prerequisites for all GLMA courses are satisfied by following the approved Course Sequence Guide and any deviation from this guide needs to be approved by the cadet's adviser.
Corequisites: MNG 455, MNG 496

MNG 496 - License Preparation - Engine
Credit Hours: 2, Contact Hours: 2
Division: Maritime
A complete review of all professional subjects studied in the Maritime Engineering program. This course is designed to cover the essentials of the Third Assistant Engineer's examination administered by the U.S. Coast Guard. The final grade for this course is dependent on taking the U.S. Coast Guard license exam.
Required Prerequisites: All prerequisites for all GLMA courses are satisfied by following the approved Course Sequence Guide and any deviation from this guide needs to be approved by the cadet's adviser.
Corequisites: MNG 455, MNG 496

Naval Science

MNS 100 - Naval Science
Credit Hours: 2, Contact Hours: 2
Division: Maritime
This course is required of all Maritime Academy cadets and is an introduction to Naval Science specifically oriented toward Merchant Marine officers. It is intended to familiarize students with the role of the Merchant Marine in national defense and policy and with the various concepts of cooperation between the Navy and the Merchant Marine Industry. Group 2 course.

MNS 200 - Naval Science II
Credit Hours: 2, Contact Hours: 2
Division: Maritime
This course is required of all Maritime Academy cadets who are Midshipmen in the Merchant Marine Reserve/U.S. Naval Reserve program. It familiarizes the student with naval missions and heritage as well as to assist the Merchant Marine officer make the transition from civilian to sailor. Group 2 course.
Required Prerequisites: MNS 100

MNS 250 - Leadership and Ethics
Credit Hours: 2, Contact Hours: 2
Division: Maritime
This course is required of all Maritime Academy cadets who are midshipmen in the Merchant Marine Reserve/U.S. Navy Reserve program. It introduces students to western moral traditions and ethical philosophy with a variety of topics, such as military leadership, core values, and professional ethics that will prepare them for their role and responsibilities as a leader in the U.S. Navy of the 21st century. Group 2 course.
Required Prerequisites: MNS 200 or instructor permission.
Water Studies Institute

WSI 105 - Intro to Freshwater Studies
Credit Hours: 3, Contact Hours: 3
This course is designed to provide an exploration to the field of water studies, with specific focus on freshwater. Students will discuss the impact of water related challenges and opportunities in the context of the great lakes of the world. Focus will be given to the new and emerging career and educational pathways associated with water resources and their management. In addition to regular class lectures, invited experts from business, education and community organizations will introduce relevant topics of local and global significance including policy, law, sustainable development, history, engineering, health, and commerce. Group 2 course Communications - Direct, Degree Req:Cultural Persp/Div, Infused: Writing Intensive. Recommended Prerequisites: MTH 23, ENG 111 - may be taken concurrently.

WSI 200 - GL Research Technologies
Credit Hours: 3, Contact Hours: 4
Advancements in Great Lakes research and monitoring technologies allow for an increased ability to access and assess remote locations through the use of enabling technologies and platforms including: Research Vessels, Remotely Operated Vehicles (ROV), SONAR systems (single beam, multibeam, scanning) and oceanographic buoy systems. Focus will be directed at understanding the basics of how each component is used and gain firsthand experience operating systems and collecting information. Field activities will take place in local water bodies, Grand Traverse Bay and onboard the R/V Northwestern. Group 2 course. Recommended Prerequisites: Recommended competencies: Ability to work/learn aboard R/V Northwestern and in the field. Completion of MTH 111 and ENG 111 or appropriate placement scores.

WSI 210 - Underwater Acoustics and Sonar
Credit Hours: 3, Contact Hours: 4
This course provides a foundation for the use of acoustics in the marine environment while focusing on best practices for underwater search, survey and visualization programs. Multiple sonar systems are presented and are representative of current industry equipment, operations and practices. Emphasis is placed on understanding field applications where sonar platform, water depth and temperature, target range and size, acoustic frequency and object reflectivity/absorption have an effect on target detection, resolution and data accuracy. Group 2 course. Required Prerequisites: MTH 111 or higher Recommended Prerequisites: PHY 105, Placement into ENG 111

WSI 211 - Sonar for Search & Recovery
Credit Hours: 1.5, Contact Hours: 2
This course provides training in the best use practices of multiple acoustic platforms for use in search and recovery operations typical to law enforcement, homeland security and first responders from multiple agencies. Group 2 course. Quantitative Reasoning. Recommended Prerequisites: Prior use of sonar equipment in search and recovery applications.

WSI 212 - Sonar for Marine Engineering
Credit Hours: 2, Contact Hours: 3
This course provides both classroom theory and hands-on practicum/field operations performed individually and in groups. Emphasis areas include demonstrating techniques of sonar operations critical to sonar performance, sonar data collection and data interpretation for use in marine engineering, survey and underwater construction activities. Group 2 course. Quantitative Reasoning. Recommended Prerequisites: Prior use of sonar equipment in marine engineering applications.

WSI 215 - Marine GIS & Data Processing
Credit Hours: 3, Contact Hours: 4
This course builds upon the basics of GIS taught in GEO 115 - Introduction to GIS, with a focus on basic spatial analysis techniques using standard and maritime/marine datasets. More advanced cartographic methods and spatial data management techniques are introduced using ArcGIS Desktop, Hypack, and other computer tools. Group 2 course. Critical Thinking - Direct. Required Prerequisites: ENV 115 or GEO 115 with a 2.0 or higher Recommended Prerequisites: Students must have intermediate computer and internet skills, typically acquired in ENV115 or GEO115 or similar.

WSI 230 - Water Policy & Sustainability
Credit Hours: 3, Contact Hours: 3
This course is designed to provide a basic understanding of the fundamental principles of water law and policy and human relationships, use, threats, and conflicts over water and aquatic resources. The course emphasizes a new integrative approach to water issues based on the nexus of the water commons to health, food, quality of life, energy, climate change, ecosystem, and economy. Group 2 course. Communications - Direct, Critical Thinking - Direct, Degree Req:Cultural Persp/Div, Infused: Writing Intensive. Required Prerequisites: ENG 111 and MTH 23 or higher, both may be taken concurrently Recommended Prerequisites: PLS 101, WSI 105

WSI 240 - ROV Systems and Operations
Credit Hours: 3, Contact Hours: 4
This course introduces the technology of remotely operated vehicles (ROV) as a system used for subsea activities including scientific study and research, subsea exploration and industrial applications. International Marine Contractors Association (IMCA) and Association for Diving Contractors International (ADCI) guidelines will be used for training. Students will gain firsthand experience operating the ROV for the purpose of collecting information from docks, piers, and research vessels. Group 2 course. Communications - Direct. Required Prerequisites: EET 103 and MTH 111 or higher. Recommended Prerequisites: ENG 111; Recommended competencies: Students should have basic computer skills and be comfortable working around water from either a boat or dock/pier.

WSI 290 - Freshwater Studies Internship
Credit Hours: 1-3, Contact Hours: 1-3
The internship in Freshwater Studies is a field experience for students interested in developing competencies to address significant water-related issues impacting our region and the world. Students engage in research activities with local and global community partners to collaborate in the implementation of best water management practices. The program is customized according to students' background and specific career goals. Activities can include activities involving the monitoring of: water quality, invasive species, water distribution systems, and ecosystems. Group 2 course. Communications - Direct.
WSI 300 - Remote Sensing and Sensors
Credit Hours: 3, Contact Hours: 4
This course provides a foundation in the use of electronic sensors for remote observations. The focus will be on applications for marine and near-shore environments, though any sensor system/platform may be discussed. Basic sensor science will be applied to the study of remote sensing instruments, including marine acoustics, terrestrial acoustics, visible, laser/LIDAR, multispectral, and hyperspectral. Sensor development and evolution will be studied, as well as related current events including instruments used in deep-sea, commercial, military, and space science industries. Group 2 course.
Recommended Prerequisites: WSI 200, WSI 210

WSI 310 - Sonar Systems and Operations
Credit Hours: 4, Contact Hours: 6
This course provides advanced training for the use of sonar systems in the subsea environment. Students will utilize multiple sonar systems for the purpose of profiling and imaging nearshore infrastructure; positioning and navigation of subsurface equipment; and interpreting collected sonar data for use in marine subsurface applications. Specific sonar systems utilized will include multibeam sonar, side scan sonar, scanning sonar and USBL systems. Group 2 course.
Required Prerequisites: WSI 200, WSI 210

WSI 315 - Advanced Marine Survey & Data Collection
Credit Hours: 3, Contact Hours: 4
This course provides a foundation in the coordination of maritime surveys from a pre-deployment standpoint. Students will be expected to have a strong understanding of the remote sensing science including capabilities and limitations of the sensor systems to be used. A major focus of the course will be to develop student skillsets for processing and merging marine and terrestrial datasets from a wide range of sources and systems. Significant time will be devoted to proper manipulation of data using commercial and freely-available tools. Group 2 course.
Required Prerequisites: WSI 215
Recommended Prerequisites: WSI 300

WSI 390 - Marine Tech Internship
Credit Hours: 2-4, Contact Hours: 2-4
The purpose of the internship is to provide on-the-job training for the student who wishes to pursue a career in a technical field of study. The internship will be customized to meet the learning needs of the student and the job requirements of the sponsoring firm. Students spend 10-15 hours per week in this paid, supervised on-the-job training experience. In addition to the required 50 hours per credit in a work site, students participate in semi-monthly seminars. Students must apply one month prior to the semester in which they will complete the internship. Group 2 course. Communications - Direct.
Recommended Prerequisites: WSI 300, WSI 405, WSI 433, WSI 440

WSI 400 - Marine Technology Capstone
Credit Hours: 4, Contact Hours: 4
This course requires the synthesis and integration of knowledge and skills acquired across the Marine Technology curriculum for completion of a team oriented project and will require significant written, oral and visual deliverables including a final presentation. These field based projects will demonstrate a comprehensive approach to mission planning, technical equipment competency, budgeting, data collection/processing and dissemination to an audience. Group 2 course. Communications - Direct, Critical Thinking - Direct.
Required Prerequisites: WSI 390, WSI 405, WSI 433, WSI 440 can be taken concurrently.

WSI 405 - Marine Industry
Credit Hours: 3, Contact Hours: 3
This course focuses on contemporary issues and current events in the marine industry. It is intended to explore the global marine technology market while providing industry perspective from the marine sector including consequences of pollution, safety regulations, policy development, technology advances, and economics. Students will evaluate trends and conditions expected to influence the industry over the next five years. Group 2 course. Critical Thinking - Direct.
Required Prerequisites: Completion of 60 credit hours within major, Must include WSI 200, WSI 210, WSI 240

WSI 433 - Marine Project Management
Credit Hours: 3, Contact Hours: 3
This class covers the practice of project management, specific to underwater marine environment (ROV/AUV/Sonar Technologies). The course will emphasize the core principles of project management, including scope development, schedules, resource planning, budgets, risk management strategies and communication methods. The curriculum aligns with the Project Management Institute “Body of Knowledge” and meets the instructional criteria required to become a Certified Associate in Project Management (CAPM). Group 2 course. Communications - Direct, Critical Thinking - Direct.
Required Prerequisites: WSI 300, WSI 310, WSI 440
Recommended Prerequisites: WSI 315, WSI 440

WSI 440 - Advanced Marine Platforms
Credit Hours: 3, Contact Hours: 4
This course focuses on the use of complex marine platforms in multiple marine environments including multiple sonar systems, unmanned underwater vehicles and remotely operated vehicles. Students will learn mission planning, platform mobilization, launch and recovery techniques, remote guidance, and advanced troubleshooting of autonomous and remote systems. Subsea applications will include scientific study and research, subsea exploration and industrial applications. Group 2 course. Quantitative Reasoning.
Required Prerequisites: WSI 200, WSI 210, WSI 215, WSI 240 and instructor permission.

Maritime - Bachelor of Science Degrees

NMC Codes 850 / 851 / 860

The Great Lakes Maritime Academy is more than just a college experience. As Michigan’s State Maritime Academy, our college educates and trains the finest Deck and Engineering Officers available to the commercial shipping industry.

As you learn more about us, you will discover a professional environment based on pride and tradition. The Academy prepares future merchant marine officers/business professionals for the challenge of operating ships of unlimited tonnage. Our training ship, State of Michigan, is utilized daily as a floating classroom and hands-on learning environment. We set sail with our ship at various times throughout the academic year to reinforce the skills taught shoreside. As cadets progress through the Academy, they learn our industry first-hand by completing essential sea time aboard the training ship and commercial vessels of the Great Lakes and oceans.

Cadets earn their maritime credentials and a bachelor’s degree. A condensed maritime curriculum for students who enter with a bachelor’s degree is available. Additionally, applicants for the engineering officer
program who have completed course work equivalent to Northwestern Michigan College’s Associate in Science and Arts Degree may apply for admission to the condensed program. Cadets are prepared to write the U.S. Coast Guard examination for licensing as Third Mate Great Lakes and Oceans Unlimited Tonnage and First Class Great Lakes Pilot (Deck Officer), or Third Assistant Engineer, Steam and Motor Vessels of any Horsepower (Engineering Officer). Graduates are fully compliant with Standards of Training, Certification and Watchkeeping (STCW).

Great Lakes Maritime Academy is proud of the quality education and training we have provided since 1969. Curricula range from seamanship, navigation and piloting, to steam and diesel engineering together with up to 300 days of sea time. Our alumni sail with the fleets of the Great Lakes and oceans with many having reached the pinnacle of their professions as a Captain or Chief Engineer. With exceptional employment and salaries upon graduation, the time is now to consider a career as a professional mariner. The Admissions Office is open weekdays from 8:00 am to 5:00 pm. Please visit www.nmc.edu/maritime (http://www.nmc.edu/maritime/) for additional information.

This program is approved by the U.S. Maritime Administration, the U.S. Coast Guard, and the Michigan Department of Education. A new class begins each year in mid-August (pre-fall semester).

In addition to the above, the Maritime Academy offers a Bachelor of Science in Maritime Technology - Power Systems program.

Admission Requirements
Admission to the Great Lakes Maritime Academy requires candidates meet the following:

1. Minimum age 17, with high school diploma or GED.
2. United States Citizen.
3. Academic placement at freshman English and Intermediate Algebra level determined by minimum composite ACT score of 20, SAT score of 1440, transferable college credits or placement testing.
4. No misdemeanors, felonies or legal expungements.

Acceptance to the Great Lakes Maritime Academy is competitive, with the incoming class of 60 cadets beginning in the fall of each year. Admissions decisions are made without regard to age, sex, marital status, national origin, or ethical/racial background. Applicants may apply at www.nmc.edu/maritime (http://www.nmc.edu/maritime/) to submit an online application. An application checklist is provided. If you have questions, please call the Maritime Admissions Office at (231) 995-1213 or (231) 995-1209.

General Program Requirements
In addition to NMC rules and regulations, Maritime cadets must comply with the rules and regulations specified under the “Maritime Cadet Rules and Regulations.”

Department of Naval Science
The Department of Naval Science is staffed by an active duty Naval Officer. The Department offers training designed to acquaint the cadet with the mutual dependence of the Navy and the Merchant Marine in accomplishing their common objectives through the MNS 100 Naval Science course. Additionally, Strategic Sealift Officer Program (SSOP) Midshipmen will receive Navy professional development training through the MNS 200 Naval Science II and MNS 250 Leadership and Ethics courses. Upon completion of the SSOP, graduates will be commissioned as an Ensign in the United States Navy Reserve.

Graduation Requirements
In addition to NMC graduation requirements, Maritime Academy cadets must:

1. Successfully complete all components of the program.
2. Pass the U.S. Coast Guard license exam (not applicable to Power Systems Program).
3. Achieve a 2.0 (76%) grade or higher in all courses.
4. Deck cadets must complete Great Lakes pilotage exams as per the Academy’s Rules and Regulations.

Curriculum
NMC’s Great Lakes Maritime Academy offers three bachelor degree programs of study:

- Bachelor of Science - Maritime Technology: Deck Officer
- Bachelor of Science - Maritime Technology: Engineering Officer
- Bachelor of Science - Maritime Technology: Power Systems

Each program provides the cadet with coursework in math, physical science, humanities, and social studies in addition to the maritime curriculum.

Federal regulations require that each cadet obtain up to 300 sailing days of practical training as a cadet observer aboard ship. Sea time is arranged by the Academy and scheduled throughout the program. In addition to shipboard duties, the cadets are required to complete written assignments and sea projects for evaluation and grading. Great Lakes Maritime reserves the right to revise the program in accordance with industry needs and government agency requirements (not applicable to Power Systems program).

A condensed maritime curriculum for students with a bachelor’s degree is available.

Maritime - Deck Officer, Bachelor of Science

Great Lakes Maritime Academy
NMC Code 850

The Great Lakes Maritime Academy prepares students for the challenge of operating commercial ships of unlimited tonnage on the Great Lakes and oceans as merchant marine officers and business professionals. Deck officers train to become pilots and mates, navigating ships through open waters and narrow harbors — ships which may stretch to one thousand feet in length. Deck Officers manage the deck department and oversee loading and discharging of cargo, and are responsible for the ship’s business.

All qualified deck cadets write the U.S. Coast Guard examination for licensing as a Third Mate Great Lakes and any Oceans Unlimited Tonnage and First Class Great Lakes Pilot. Graduates are fully compliant with STCW International Quality Standards. The four-year curriculum awards a Bachelor of Science Degree in Maritime Technology. For those entering with a bachelor’s degree, an accelerated three-year program also awards the bachelor’s degree.
## Requirements

### Major Requirements

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<tr>
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<td>English Composition</td>
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<td>ENG 112</td>
<td>English Composition</td>
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<td>PHL 202</td>
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<td>PHY 105</td>
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<td>ECO 201</td>
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<td>ECO 202</td>
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<td>MDK 106</td>
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<td>MDK 446</td>
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<td>MGT 241</td>
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</table>

Total Credits: **120**

¹ Placement into MTH 141 Calculus I or higher, or completion of MTH 121 College Algebra and MTH 122 Trigonometry

### Course Sequence Guide

#### 3 Year Deck Officer

*For those entering with a bachelor's degree*

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<th>Title</th>
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<td><strong>Pre-Fall</strong></td>
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### Requirements/Certifications

- First Aid/CPR/AED
- MARAD Firefighting
- Alcohol & Substance Abuse Seminar
- Avoiding & Dealing w/ Sexual Harassment
- Supervisory Alcohol & Substance Abuse
- Completed Sea Days (300 required)
- In Port Sea Days (24 required)
- MDK 100 Survival at Sea completion date

### 4 Year Deck Officer

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Credits: 12

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Credits: 12

Total Credits: 120

1 General education classes
2 Sailing projects on training of commercial ships

NMC Degree requires 120 credit hours. Classes indicated as tested out (TO) or waived (W) must be replaced with classes approved by department head.

Cadets must earn a minimum of 2.0 grade in all Maritime, NMC and transfer classes.

Total Credits: 120

REQUIREMENTS/CERTIFICATIONS

- First Aid/CPR/AED
- MARAD Firefighting
- Alcohol & Substance Abuse Seminar
- Avoiding & Dealing w/ Sexual Harassment
- Supervisory Alcohol & Substance Abuse
- Completed Sea Days (300 required)
- In Port Sea Days (24 required)
- MDK 100 Survival at Sea completion date

Maritime - Engineering Officer, Bachelor of Science

Great Lakes Maritime Academy

NMC Code 851

The Great Lakes Maritime Academy prepares students for the challenge of operating commercial ships of unlimited tonnage on the Great Lakes and oceans as merchant marine officers. Engineering officers are responsible for the efficient operation and maintenance of engines and support machinery aboard ship. The vessel may be diesel powered with multiple engines or turbine powered operating on high pressure steam, capable of generating thousands of horsepower. The Marine Engineer must understand these systems and keep them operating 24/7. Engineering Officers are also responsible for the ship’s business as associated with all onboard equipment and mechanical aspects of the vessel.

All qualified engineering cadets write the U.S. Coast Guard examination for licensing as a Third Assistant Engineer, Steam and Motor Vessels of any Horsepower. Graduates are fully compliant with STCW International Quality Standards. The curriculum awards a Bachelor of Science degree in Maritime Technology. For those entering with transferable college credits, an accelerated program is available. Engineering Officer cadets may complete their program in as little as three years.

Requirements

Major Requirements

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Occupational Specialty Requirements

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### Course Sequence Guide

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### Additional Requirements/Certifications

- **General education classes**
- **Sailing projects/internships**

Cadets must earn a minimum of 2.0 grade in all Maritime, NMC and transfer classes (BSMT is 120 credit hours).

### GLMA Program Electives

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1. General education classes
2. Sailing projects/internships
Approved Program Electives
(NMC course transfer or equivalent)
21 credit hours required

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1 Prerequisite required: EET 221 Industrial Controls, EET 232 Programmable Logic Controllers, and EET 234 PLC Applications II are met by MNG 234 Electronic Fundamentals and may require an instructor signature
2 All other courses with a required prerequisite must be met by the course(s) required in the catalog
3 Prerequisite required: MFG 114 Machining II and MFG 217 CNC Operations - Lathe are met by MNG 260 Maritime Machining and may require an instructor signature

Maritime - Power Systems, Bachelor of Science

Great Lakes Maritime Academy

The Power Systems Program is designed to prepare individuals for employment in power production industries such as power plants, hospitals, industrial plants, and manufacturing plants. Operators in such industries read, interpret and adjust meters and gauges to make sure plant equipment and processes are working properly. Some operate chemical-feeding devices, take samples of the water or liquid waste, perform chemical and biological laboratory analysis and adjust the amount of chemicals such as chlorine in the water. Some use a variety of instruments to sample and measure water quality and common hand and power tools to make repairs. Operators also make repairs to valves, pumps and other equipment. As facilities become more sophisticated and industry demands more from those individuals who maintain and operate these physical plants, there is a need for intense technical training for these positions. Students at the Great Lakes Maritime Academy obtain these goals through classes in mathematics, science and occupational courses. Cadets also have hands-on experience through labs and internships for practical training.

Requirements

Major Requirements

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Occupational Specialty Requirements
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Total Credits: 120

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### Course Sequence Guide

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<td>MNG 250</td>
<td>Fluid Systems</td>
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<td>MNG 260</td>
<td>Maritime Machining</td>
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<tr>
<td>MNG 335</td>
<td>Electric Machines and Controls</td>
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<td>MNG 336</td>
<td>Electric Mach. &amp; Controls Lab</td>
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<td>CHM 101</td>
<td>Introductory Chemistry</td>
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<tr>
<td>MNG 105</td>
<td>Shipboard Information Systems</td>
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<td>EET 221</td>
<td>Industrial Controls</td>
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<td>MNG 271</td>
<td>Maritime Welding</td>
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<td>MNG 321</td>
<td>Marine Boilers</td>
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<td>MNG 322</td>
<td>Marine Turbines</td>
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<td>MNG 323</td>
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<td>Summer</td>
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<tr>
<td>MNG 319</td>
<td>Engineering Sea Project III (Internship)</td>
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#### Year 3

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<td>MNG 319</td>
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<tr>
<td>MNG 275</td>
<td>Refrigiration</td>
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<td>MNG 270</td>
<td>Issues in Power Production</td>
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<td>EET 232</td>
<td>Programmable Logic Controllers</td>
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<td>DD 110</td>
<td>Basic Metallurgy</td>
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<td>MDK 330</td>
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<td>MNG 317</td>
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#### Year 4

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<td>NMC Social Science Elec (GRP 1)</td>
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<td>Principles of Management</td>
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<td>MNG 318</td>
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Total Credits: 122
Mandatory orientation also done at this time

ENG 112 English Composition may be substituted for ENG 220 Technical Writing.

**Additional Requirements/Certifications**
- First Aid/CPR/AED
- Alcohol & Substance Abuse Seminar
- Avoiding-Dealing with Sexual Harassment
- Supervisory Alcohol/Substance Abuse
- MDK 100 Survival at Sea completion date
- Orientation Completion Date

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<th>Course</th>
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<tr>
<td>MNG/MDK and Internship</td>
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<td>NMC Credit Hours</td>
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<td>Total Credits</td>
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BSMT requires 120 credit hours. Classes indicated as 'TO' (tested out of) or 'W' (waived) must be replaced with classes approved by the department head. A 'T' indicates a class that has transferred.

**Science & Math**

**Programs**
- Plant Science - Fruit and Vegetable Crop Management, Associate in Applied Science Degree (p. 140)
- Plant Science - Landscape Management, Associate in Applied Science Degree (p. 141)
- Plant Science - Viticulture, Associate in Applied Science Degree (p. 141)

**Courses**

**Astronomy**

AST 109 - Planetary Astronomy
Credit Hours: 4, Contact Hours: 5
Division: Science Math
Characteristics and properties of the solar system and its components are presented to students in the context of the history of discovery. This information is integrated with student observational data to develop a mathematical model in the laboratory. The model is developed by incorporating equations used to compute characteristics and properties of solar system components. The model is utilized by students to encourage understanding of why the solar system has evolved to its current state by evaluating the effects of changes in values of fundamental measured properties and characteristics. Group 1 lab course. Critical Thinking - Direct.
Required Prerequisites: MTH 111; ENG 11/111 or ENG 111 may be taken concurrently
Corequisites: AST 109L

AST 109L - Planetary Astronomy Lab
Credit Hours: 0, Contact Hours: 0
Division: Science Math
See AST 109 for course description.
Corequisites: AST 109

AST 119 - Astronomy
Credit Hours: 4, Contact Hours: 5
Division: Science Math
History of discovery of the nature of the cosmos and its contents is the format utilized to develop understanding of the nature of stars and the universe, and the physical principles determining this nature. These principles underlie our proficiency for prediction of the nature of the universe and our ability to make observations of our universe. The principles are analyzed by means of a student developed mathematical model incorporating the quantitative relationships derived by physicists and astronomers. Observations provide students with the sky knowledge and data necessary for prediction of stellar characteristics. Group 1 lab course. Critical Thinking - Direct.
Required Prerequisites: MTH 111; ENG 11/111 or ENG 111 may be taken concurrently
Corequisites: AST 119L

AST 119L - Astronomy Lab
Credit Hours: 0, Contact Hours: 0
Division: Science Math
See AST 119 for course description.
Corequisites: AST 119

**Biology**

How to select a first course in Biology: If you are in a transfer program requiring a full year of introductory biology such as pre-med, pre-dental, pre-vet, agriculture, wildlife and fisheries, or environmental programs, you should choose:
- BIO 115 Cell, Plant & Ecosystem Biology
- BIO 116 Genetic, Evolution, Animal Bio

If you need a one semester laboratory science course to fulfill a basic education requirement, you should choose:
- BIO 110 Essential Biology

All of the above include a common core that is basic to the understanding of any branch of biology. The core topics include cell structure and function, genetics, the chemical and physical principles governing life...
processes, and evolution. Any 100-level Biology course may serve as a prerequisite for 200-level Biology courses.

It has been the experience of the Biology Department that students with placement scores below MTH 23 Beginning Algebra and ENG 111 English Composition levels have difficulty successfully completing introductory-level biology courses. If your placement scores are below these levels, the Biology Department recommends that you complete ENG 99 Intro to College Writing, ENG 108 Critical Reading Strategies or ENG 11 English/ Writing Methods/ENG 111 English Composition and MTH 08 Pre-Algebra before enrolling in any biology course. If your placement scores are below these levels and you decide to enroll in a Biology course, allow yourself additional time for study and preparation. If you are unsure of your ability, consult your advisor, or a biology instructor.

**BIO 106 - Human Biology**  
**Credit Hours:** 4, **Contact Hours:** 5  
**Division:** Science Math  
A survey of human anatomy and physiology with a primary focus on health and disease. Topics to be discussed will include the cell structure, simple chemistry of biology, homeostasis, the organ systems, genetics, evolution, nutrition, exercise physiology, cancer, heart disease, immunology, AIDS, and other topics of current interest. This course does not meet the requirements for the Nursing program. Consult an advisor before enrolling. Group 1 lab course. Critical Thinking - Direct.  
Recommended Prerequisites: ENG 111, MTH 23  
Corequisites: BIO 106L

**BIO 106L - Human Biology Lab**  
**Credit Hours:** 0, **Contact Hours:** 0  
**Division:** Science Math  
See BIO 106 for course description.  
Corequisites: BIO 106

**BIO 108 - Plant Biology**  
**Credit Hours:** 4, **Contact Hours:** 5  
**Division:** Science Math  
In this class, we will examine some of the major ideas biologists use to study the living world. These will include the scientific method, biology of cells, and genetics. The emphasis in this course will be on: plant anatomy, the life cycle of plants, growth and its regulation, metabolism, and reproduction. Field and laboratory exercises, as well as experiments in the greenhouse, will allow the student to observe these principles, and practice the skills required to cultivate and propagate plants. Group 1 lab course. Quantitative Reasoning.  
Recommended Prerequisites: ENG 111, MTH 23  
Corequisites: BIO 108L

**BIO 108L - Plant Biology Lab**  
**Credit Hours:** 0, **Contact Hours:** 0  
**Division:** Science Math  
See BIO 108 for course description.  
Corequisites: BIO 108

**BIO 110 - Essential Biology**  
**Credit Hours:** 4, **Contact Hours:** 5  
**Division:** Science Math  
Essential Biology is geared toward the non-major. The course will cover broad areas of biology, engage the student in how biology relates to their own life, and how science and society interact. Core concepts covered include: Evolution, Structure and Function, Information Flow, Exchange and Storage, Pathways and Transformations of Energy and Matter, and Living Systems. Group 1 lab course. Critical Thinking - Direct.  
Recommended Prerequisites: ENG 111, MTH 23  
Corequisites: BIO 110L

**BIO 110L - Essential Biology Lab**  
**Credit Hours:** 0, **Contact Hours:** 0  
**Division:** Science Math  
See BIO 110 for course description.  
Corequisites: BIO 110

**BIO 115 - Cell, Plant, Ecosystem Biology**  
**Credit Hours:** 4, **Contact Hours:** 6  
**Division:** Science Math  
An introduction to the fundamental concepts of biology, including an investigation of the major kingdoms of life, classification, ecology, botany, cellular anatomy and biochemistry, DNA structure and function, genetic engineering, cloning and stem cell technologies. Laboratory includes field work and investigative exercises which illustrate lecture topics. Group 1 lab course. Critical Thinking - Direct.  
Recommended Prerequisites: ENG 111, MTH 111  
Corequisites: BIO 115L

**BIO 115L - Cell, Plant, Ecosystem Bio Lab**  
**Credit Hours:** 0, **Contact Hours:** 0  
**Division:** Science Math  
See BIO 115 for course description.  
Corequisites: BIO 115

**BIO 116 - Genetic, Evolution, Animal Bio**  
**Credit Hours:** 4, **Contact Hours:** 6  
**Division:** Science Math  
The lecture and laboratory portions of this course focus on cell division, classical genetics, evolution and phylogeny as well as the classification and Phyla-level natural history of invertebrate and vertebrate animals. Also, the course covers the anatomy and physiology of organisms found in the Animal Kingdom. The treatment of the topics in this course necessarily assumes a degree of familiarity with the basic biological concepts covered in BIO 115. Students who have not completed BIO 115 should expect to spend extra time reviewing these concepts throughout the course. Group 1 lab course. Critical Thinking - Direct.  
Recommended Prerequisites: BIO 115, ENG 111, MTH 111  
Corequisites: BIO 116L

**BIO 116L - Genetic, Evolu, Animal Bio Lab**  
**Credit Hours:** 0, **Contact Hours:** 0  
**Division:** Science Math  
See BIO 116 for course description.  
Corequisites: BIO 116
**BIO 120 - The Science of Stress**  
*Credit Hours: 3, Contact Hours: 3*  
*Division: Science Math*  
Students will explore current research on stress and its impacts on body systems. Discussion of scientific research and application of coping strategies will provide an experiential understanding of stress, learning, anxiety and depression as well as tools for resilience. This class meets in the anatomy and physiology lab to directly understand regions of the brain and body that are affected by stress. We will also meet on occasion in the SIM lab in order to measure biological parameters of stress as the class progresses. Critical Thinking - Direct.

**BIO 208 - Microbiology**  
*Credit Hours: 4, Contact Hours: 6*  
*Division: Science Math*  
This course reviews the two types of cells (prokaryotic and eukaryotic). Microbiological anatomy, physiology, and diversity are introduced. Microbiological disease pathology and the role of microbes in food production are also discussed. This class includes an oral presentation on a disease caused by microbes. Laboratory work culminates with the identification of an unknown bacterial solution. Group 1 lab course. Quantitative Reasoning.  
Required Prerequisites: Completion of any 100-level BIO course  
Recommended Prerequisites: ENG 111, MTH 111  
Corequisites: BIO 208L

**BIO 208L - Microbiology Lab**  
*Credit Hours: 0, Contact Hours: 0*  
*Division: Science Math*  
See BIO 208 for course description.  
Corequisites: BIO 208

**BIO 215 - Genetics**  
*Credit Hours: 3, Contact Hours: 3*  
*Division: Science Math*  
A comprehensive treatment of classical genetics will be covered in addition to an in-depth study of molecular genetics, research techniques and applications of recombinant DNA technology. A major emphasis will be on the current results of genetic research as it applies to the molecular mechanisms of inheritance, and other topics such as gene therapy, cloning stem cell research and genetically modified organisms. Population genetics will also be covered. Group 1 course. Quantitative Reasoning.  
Required Prerequisites: Completion of any 100-level BIO course.  
Recommended Prerequisites: ENG 111, MTH 111

**BIO 220 - Nutrition in Human Health**  
*Credit Hours: 3, Contact Hours: 3*  
*Division: Science Math*  
This course is an exploration of the fundamentals of nutrition: energy nutrients, vitamins and minerals. Function and sources of each is presented, as well as the role each plays in maintaining health. Students complete their own Food Intake Record and use this information throughout the semester so as to better understand human nutrition. In addition, study is made of the role nutrition along with other lifestyles plays in the prevention and protection from disease. Discussion also includes the relationship between nutrition and fitness. Group 2 course. Critical Thinking - Direct.  
Recommended Prerequisites: ENG 111, MTH 111, and completion of any 100-level BIO course.

**BIO 227 - Human Anatomy & Physiology I**  
*Credit Hours: 4, Contact Hours: 6*  
*Division: Science Math*  
This course will include an introduction to cells, histology, biochemistry, and homeostasis. In addition, the following systems will be discussed: integumentary, skeletal, muscle, nervous, and special senses. Lecture will be accompanied by lab work and applications, which will stress the anatomy, histology and function of these organ systems. Group 1 lab course. Quantitative Reasoning.  
Required Prerequisites: MTH 111 and ENG 11/111 or ENG 111 both may be taken concurrently  
Recommended Prerequisites: CHM 101, HAH 101, and completion of any 100-level Biology course. It is highly recommended that students have college level reading skills. Students enrolling in BIO 227 who have not completed these requirements should plan on additional study time.  
Corequisites: BIO 227L

**BIO 227L - Human Anatomy & Phys I Lab**  
*Credit Hours: 0, Contact Hours: 0*  
*Division: Science Math*  
See BIO 227 for course description.  
Corequisites: BIO 227

**BIO 228 - Human Anatomy & Physiology II**  
*Credit Hours: 4, Contact Hours: 6*  
*Division: Science Math*  
This is the second part of a two-semester course. The second semester will continue major systems in the body including: the endocrine system, cardiovascular system, lymphatic system, respiratory system, digestive system, metabolism, urinary system, fluid balance, reproduction and inheritance. Lecture will be accompanied by lab work, which will stress the anatomy and histology of these organ systems. Group 1 lab course. Quantitative Reasoning.  
Required Prerequisites: BIO 227, BIO 227L, MTH 111; ENG 11/111 or ENG 111  
Corequisites: BIO 228L

**BIO 228L - Human Anatomy & Phys II Lab**  
*Credit Hours: 0, Contact Hours: 0*  
*Division: Science Math*  
See BIO 228 course description.  
Corequisites: BIO 228

**BIO 240 - Normal and Clinical Nutrition**  
*Credit Hours: 3, Contact Hours: 3*  
*Division: Science Math*  
Nutrition is considered from a strong biological point of view. Discussions will include a brief overview of principles of normal nutrition and then will proceed to how these principles apply to cause and treatment of specific disease states and the nutrition care process required. Group 2 course. Critical Thinking - Direct.  
Required Prerequisites: MTH 23  
Recommended Prerequisites: BIO 227, ENG 111, MTH 111

**BIO 255 - Pathophysiology**  
*Credit Hours: 4, Contact Hours: 4*  
*Division: Science Math*  
This course covers the etiology, progression, and treatment of disease in the human body. Cellular and tissue structure and function are addressed along with the role of the immune system in body defenses. Disorders and diseases for each body system are covered, including investigation of clinical case studies of pathophysiology. Group 1 course. Quantitative Reasoning.  
Required Prerequisites: BIO 228, BIO 228L with grade of 2.0 or better.  
Recommended Prerequisites: BIO 208, ENG 111, HNR 107
BIO 268 - Biochemistry  
Credit Hours: 3, Contact Hours: 3  
Division: Science Math  
This course is a study of the basic fundamentals of the chemical composition of living matter with application of concepts to normal and abnormal human function. Structure and function of proteins, lipids, carbohydrates and nucleic acids will be covered as well as their metabolic interrelationships. The course also covers the most current biochemical techniques, and an investigation of molecular genetics and published findings in the field of biochemistry. Group 1 course. Critical Thinking - Direct.  
Required Prerequisites: CHM 101, CHM 101L  
Recommended Prerequisites: BIO 227, BIO 227L, ENG 111, MTH 23  

BIO 293 - Biology Study Abroad  
Credit Hours: 1, Contact Hours: 1  
Division: Science Math  
In this class, students are provided the opportunity to travel to a specified destination affiliated with the corresponding biology non-trip course. This course will serve to integrate the student learning experience and provide a sense of cultural perspective, diversity and regional awareness. The course is an opportunity for students to explore other areas around the world while applying discipline-specific course content. For a more specific course description, please review the course description of the associated non-trip course. Group 2 course.  
Required Prerequisites: BIO 110 and BIO 110L or BIO 115 and BIO 115L, or BIO 116 and BIO 116L  

Chemistry  

CHM 101 - Introductory Chemistry  
Credit Hours: 4, Contact Hours: 5  
Division: Science Math  
A one-semester chemistry course for the non-science major exploring the language, concepts and methods of chemistry. Topics include atomic theory, chemical periodicity, chemical bonding, stoichiometry, gases, nuclear energy, equilibrium, and acid/base chemistry. The laboratory will include descriptive and analytical experiments, focusing on measurement, physical and chemical properties of materials, acids and bases, laboratory procedures and calculations. Science, engineering, and premedical students must select CHM 150 and 151 to meet chemistry requirements. Consult with an advisor before enrolling. Group 1 lab course. Quantitative Reasoning.  
Required Prerequisites: MTH 111 with a grade of 2.0 or better.  
Recommended Prerequisites: ENG 111; the ability to work algebraic problems involving unknown variables, fractions, percents and proportions. Students enrolling in CHM 101 who have not completed these requirements should plan on additional study time.  
Corequisites: CHM 101L  

CHM 101L - Introductory Chemistry Lab  
Credit Hours: 0, Contact Hours: 0  
Division: Science Math  
See CHM 101 for course description.  
Corequisites: CHM 101  

CHM 150 - General Chemistry I  
Credit Hours: 4, Contact Hours: 5  
Division: Science Math  
First semester of a two-semester course covering matter and chemical measurement, basic laws, chemical symbols and formulas, stoichiometry and chemical calculations, gases and the gas laws, thermochemistry, atomic structure, electron configurations and the periodic table, elements, chemical bonding and molecular structure, intermolecular forces, liquids and solids. The laboratory includes descriptive and quantitative experiments illustrating the above topics. The recitation includes problem solving, quizzes, and laboratory preparation to accompany lectures. Group 1 lab course. Quantitative Reasoning.  
Required Prerequisites: MTH 111 with a grade of 2.0 or better.  
Recommended Prerequisites: MTH 121; ENG 111 with a grade of 2.0 or better  
Corequisites: CHM 150L, CHM 150R  

CHM 150L - General Chemistry I Lab  
Credit Hours: 0, Contact Hours: 0  
Division: Science Math  
See CHM 150 for course description.  
Corequisites: CHM 150, CHM 150R  

CHM 150R - General Chemistry I, Recitation  
Credit Hours: 1, Contact Hours: 2  
Division: Science Math  
Problem solving quizzes and laboratory preparation to accompany lectures. Group 1 course.  
Required Prerequisites: MTH 111 with a grade of 2.0 or better.  
Recommended Prerequisites: ENG 111 with a grade of 2.0 or better; MTH 121  
Corequisites: CHM 150, CHM 150L  

CHM 151 - General Chemistry II  
Credit Hours: 4, Contact Hours: 5  
Division: Science Math  
A second semester course covering chemical reactions in aqueous solution including acid-base and oxidation and reduction reactions, properties of solutions, chemical kinetics, gaseous equilibria, acids and bases, acid-base equilibria, pH, common ion effect, buffer systems, solubility product constant, thermodynamics, enthalpy, entropy, and free energy, electrochemistry, and nuclear chemistry. The laboratory will cover the above topics using quantitative and qualitative procedures. The recitation involves problem solving, quizzes and laboratory preparation to accompany lectures. Group 1 lab course. Quantitative Reasoning.  
Required Prerequisites: CHM 150, CHM 150L, CHM 150R; MTH 111, all with a grade of 2.0 or better.  
Recommended Prerequisites: ENG 111 with a grade of 2.0 or better  
Corequisites: CHM 151L, CHM 151R  

CHM 151L - General Chemistry II Lab  
Credit Hours: 0, Contact Hours: 0  
Division: Science Math  
See CHM 151 for course description.  
Corequisites: CHM 151, CHM 151R  

CHM 151R - General Chemistry II Recitation  
Credit Hours: 1, Contact Hours: 2  
Division: Science Math  
Problem solving, quizzes and laboratory preparation to accompany lectures. Group 1 course.  
Required Prerequisites: CHM 150, CHM 150L, CHM 150R; MTH 111, all with a grade of 2.0 or better.  
Recommended Prerequisites: ENG 111 with a grade of 2.0 or better  
Corequisites: CHM 151, CHM 151L
CHM 201 - Intro to Organic Chemistry
Credit Hours: 4, Contact Hours: 5
Division: Science Math
An introduction to organic chemistry. Topics include the classes of organic compounds, reactions, synthesis, and mechanisms. Includes laboratory. NOTE: This course is a one semester course and is not appropriate for all majors. Please check with an advisor prior to registration. Group 1 lab course. Quantitative Reasoning.
Required Prerequisites: CHM 101 or CHM 150 and MTH 111, all with a grade of 2.0 or better.
Recommended Prerequisites: ENG 111
Corequisites: CHM 201L

CHM 201L - Intro to Organic Chemistry Lab
Credit Hours: 0, Contact Hours: 0
Division: Science Math
See CHM 201 for course description. Quantitative Reasoning.
Corequisites: CHM 201

CHM 250 - Organic Chemistry I
Credit Hours: 5, Contact Hours: 9
Division: Science Math
The first semester of a two-semester course covering the chemistry of carbon compounds. Designed to meet the requirements for majors in chemistry, chemical engineering, biological science, pre-medicine, etc. Topics include nomenclature, structure, aliphatic compounds, free-radical, nucleophilic substitution and elimination reactions, electrophilic addition reaction and mechanisms, alkyl halides, alkenes, alkynes and alcohols. The laboratory portion will cover fundamental organic laboratory techniques of synthesis, separation and analysis. Group 1 lab course. Quantitative Reasoning.
Required Prerequisites: CHM 151, CHM 151L, CHM 151R, MTH 111, all with a grade of 2.0 or better.
Recommended Prerequisites: ENG 111 with a grade of 2.0 or better.
Corequisites: CHM 250L

CHM 250L - Organic Chemistry I Lab
Credit Hours: 0, Contact Hours: 0
Division: Science Math
See CHM 250 for course description.
Corequisites: CHM 250

CHM 251 - Organic Chemistry II
Credit Hours: 5, Contact Hours: 9
Division: Science Math
A follow-up to CHM 250. Topics include alcohols, aromatics, ethers and epoxides, arenes, carbonyls, carboxylic and sulfonic acids and their derivatives, amines, phenols, aryl halides, carbohydrates, amino acids, biochemical processes, and others together with appropriate mechanistic theories and structural concepts. Instrumental techniques discussed include infrared spectroscopy (IR), nuclear magnetic resonance (NMR), mass spectrometry (MS), and ultraviolet (UV) spectroscopy. The lab exercises will continue the development of organic chemistry laboratory technique on both semi-microscale and microscale. In addition, analytical techniques using infrared spectroscopy and gas chromatography will be developed. Group 1 lab course. Quantitative Reasoning.
Required Prerequisites: CHM 250, CHM 250L, MTH 111, all with a grade of 2.0 or better.
Recommended Prerequisites: ENG 111 with a grade of 2.0 or better.
Corequisites: CHM 251L

CHM 251L - Organic Chemistry II Lab
Credit Hours: 0, Contact Hours: 0
Division: Science Math
See CHM 251 for course description.
Corequisites: CHM 251

Engineering

EGR 101 - Introduction To Engineering
Credit Hours: 1, Contact Hours: 1
Division: Science Math
This course is a general overview of the field of engineering. Emphasis is on curricula, categories of engineering and the role of the engineer. Required for all first-year students in the engineering program. Group 2 course. Critical Thinking - Direct.
Recommended Prerequisites: ENG 111

EGR 113 - Engineering Graphics I
Credit Hours: 3, Contact Hours: 4
Division: Science Math
This course introduces traditional and contemporary methods of graphical communication in the context of engineering design, including sketching, orthographic projection, dimensioning, and tolerancing. Students also utilize modern parametric design software to generate 3-D models and 2-D drawings to benchmark and refine designs, including the use of finite element analysis and 3-D printing. Group 2 course. Critical Thinking - Direct.
Recommended Prerequisites: ENG 111, MTH 122

EGR 131 - Elementary Surveying
Credit Hours: 5, Contact Hours: 5
Division: Science Math
This course is designed to satisfy the elementary surveying requirement for a student entering engineering. In this course students will learn the theory involved in plane and geometric surveying including both linear and angular measurement, differential leveling, trigonometric leveling, traverse computations, electronic distant measurements, GPS mapping, topographical mapping and the design of horizontal and vertical curves as related to construction surveys. Students are expected to perform lab experiments in which they demonstrate their knowledge of the concepts learned in lecture, incorporating the basic skill learned in lecture to field settings. Care, adjustment, and use of basic surveying instruments: leveling, taping, horizontal angle measurements, traverse surveys, use of EDM’s, GPS usage, topographic mapping, and layout of horizontal curves. Computer software will be used throughout the semester. Group 2 course. Critical Thinking - Direct.

EGR 131L - Elementary Surveying Lab
Credit Hours: 0, Contact Hours: 0
Division: Science Math
See EGR 131 for course description.
Corequisites: EGR 131
EGR 201 - Statics
Credit Hours: 3, Contact Hours: 3
Division: Science Math
This course addresses force systems in two and three dimensions and includes composition and resolution of forces and force systems, principles of equilibrium applied to various bodies, simple structures, friction, centroids, and moments of inertia. Vector algebra and first semester calculus is used throughout the course. Group 2 course. Critical Thinking - Direct.
Required Prerequisites: MTH 141
Recommended Prerequisites: ENG 111, MTH 142

EGR 202 - Mechanics of Materials
Credit Hours: 3, Contact Hours: 3
Division: Science Math
This course introduces the engineering behavior of real materials, including stress/strain at a point, principle stresses and strains, stress-strain relationships, determination of stresses and deformations in situations involving axial loading, torsional loading of circular cross sections, and flexural loading of straight members. Also covers stresses due to combined loading and buckling of columns. Vector algebra and differential calculus are used throughout this course. Group 2 course. Critical Thinking - Direct.
Required Prerequisites: EGR 201
Recommended Prerequisites: ENG 111, MTH 241

EGR 203 - Dynamics
Credit Hours: 4, Contact Hours: 4
Division: Science Math
This course introduces the principles of engineering dynamics, including kinematics and kinetics of particles, rigid bodies in translation, rotation, and plane motion. Principles of work and energy, impulse and momentum, and introductory vibrations will be covered. Group 2 course. Critical Thinking - Direct.
Required Prerequisites: EGR 201
Recommended Prerequisites: ENG 111, MTH 241

EGR 211 - Electrical Circuits I
Credit Hours: 3, Contact Hours: 3
Division: Science Math
This course will cover basic electrical concepts, resistive circuits, nodal and loop analysis techniques, superposition, Thévenin and Norton equivalents, maximum power transfer, capacitance and inductance, AC steady-state analysis, steady-state power analysis. Group 2 course. Critical Thinking - Direct.
Required Prerequisites: MTH 142, may be taken concurrently.
Recommended Prerequisites: ENG 111

EGR 220 - Engineering Practice I
Credit Hours: 2, Contact Hours: 4
Division: Science Math
Students develop the laboratory and computer skills necessary for success in engineering. Topics include benchmarking, prototyping, data acquisition devices and methods, data post processing and interpretation using engineering software, and use of finite element analysis methods. Group 2 course. Critical Thinking - Direct.
Required Prerequisites: EGR 101, EGR 113, EGR 201, ENG 111

EGR 221 - Material Science
Credit Hours: 3, Contact Hours: 3
Division: Science Math
Introduction to the structure, processing, properties, and performance of engineering materials, including metals, polymers, glasses, ceramics, and composites. Presents case studies covering selection of materials, component design, and analysis of component failures. Group 2 course. Critical Thinking - Direct.
Required Prerequisites: MTH 141, ENG 111; CHM 150 may be taken concurrently.

EGR 232 - Introductory Thermodynamics
Credit Hours: 3, Contact Hours: 3
Division: Science Math
This course introduces concepts of energy, energy conversion, and mechanisms of heat and work transfer in processes and in cycles. It also covers the first and the second laws of thermodynamics. Group 2 course.
Required Prerequisites: MTH 141, PHY 221, PHY 221L, PHY 221R

Environmental Sciences

ENV 103 - Earth Science
Credit Hours: 4, Contact Hours: 5
Division: Science Math
Designed for the student who does not intend to major in a physical science. Subject matter deals with features of the planet Earth, astronomy, and weather. The laboratory portion includes a practical study of rocks and minerals as well as a study of topographic, geologic and weather maps. Field trips investigate landforms in the Grand Traverse area. Group 1 lab course. Quantitative Reasoning.
Required Prerequisites: MTH 08 or equivalent
Recommended Prerequisites: ENG 111
Corequisites: ENV 103L

ENV 103L - Earth Science Lab
Credit Hours: 0, Contact Hours: 0
Division: Science Math
See ENV 103 for course description.
Corequisites: ENV 103

ENV 104 - Life of the Past
Credit Hours: 4, Contact Hours: 5
Division: Science Math
This course introduces students to the record of life on Earth. The roles of global change, origins, evolution, and extinction in life history are examined. Great Lakes and North American fossil records with Pre paleozoic microorganisms and Paleozoic invertebrates and vertebrates are highlighted. Appearance, evolution, and disappearance of dinosaurs during the Mesozoic Era, human evolution, and the recent demise of the giant Ice Age mammals are analyzed in depth. Laboratory and class activities are included. Group 1 lab course. Quantitative Reasoning.
Required Prerequisites: MTH 08 or equivalent
Recommended Prerequisites: ENG 111
Corequisites: ENV 104L

ENV 104L - Life of the Past Lab
Credit Hours: 0, Contact Hours: 0
Division: Science Math
See ENV 104 for course description.
Corequisites: ENV 104
ENV 111 - Physical Geology  
Credit Hours: 4, Contact Hours: 5  
Division: Science Math  
This course explores processes which transform planet Earth. Landforms, minerals, rocks, and geologic structures are examined in classroom, laboratory, and field studies, which focus on these geologic processes, and on the techniques of geology. Lab studies apply the methodology and techniques of geology by introduction of map reading, field and map study, study of surficial processes, and study of minerals and rocks. Group 1 lab course. Quantitative Reasoning.  
Required Prerequisites: MTH 23  
Recommended Prerequisites: ENG 111  
Corequisites: ENV 111L

ENV 11L - Physical Geology Lab  
Credit Hours: 0, Contact Hours: 0  
Division: Science Math  
See ENV 111 for course description.  
Corequisites: ENV 111

ENV 112 - Historical Geology  
Credit Hours: 4, Contact Hours: 5  
Division: Science Math  
Rocks and fossils of North America, the Great Lakes and the Grand Traverse region which reveal the physical, chemical, and biological evolution of the planet Earth are explored in classroom, laboratory, and field studies (including a required 4-day field excursion to Elliot Lake, Ontario). Group 1 lab course. Quantitative Reasoning.  
Recommended Prerequisites: ENV 103 or ENV 111 or GEO 105; ENG 111, MTH 111  
Corequisites: ENV 112L

ENV 112L - Historical Geology Lab  
Credit Hours: 0, Contact Hours: 0  
Division: Science Math  
See ENV 112 for course description.  
Corequisites: ENV 112

ENV 117 - Meteorology & Climatology  
Credit Hours: 4, Contact Hours: 5  
Division: Science Math  
Designed to acquaint the student with the science and art of weather analysis, this course includes studies of the basic properties of gases, organization and composition of the atmosphere, basic energy flow, and general weather phenomena that result. Global climates are also investigated. The laboratory portion presents the function and effect of selected physical processes, and includes the use of weather instruments and weather maps. Group 1 lab course. Quantitative Reasoning.  
Required Prerequisites: MTH 23  
Recommended Prerequisites: ENG 111  
Corequisites: ENV 117L

ENV 117L - Meteorology & Climatology Lab  
Credit Hours: 0, Contact Hours: 0  
Division: Science Math  
See ENV 117 for course description.  
Corequisites: ENV 117

ENV 131 - Oceanography  
Credit Hours: 4, Contact Hours: 5  
Division: Science Math  
This course explores the origins, structure, and evolution of ocean basins and their role in global climate dynamics. It shall include an investigation of the physical properties that govern waves, currents, tides, air-sea interactions as well as the physical and chemical properties of seawater. It also explores plant and animal life within the oceans including impacts of human activities on the marine environment. Group 1 lab course. Quantitative Reasoning.  
Required Prerequisites: MTH 23  
Recommended Prerequisites: ENG 111  
Corequisites: ENV 131L

ENV 131L - Oceanography Lab  
Credit Hours: 0, Contact Hours: 0  
Division: Science Math  
See ENV 131 for course description.  
Corequisites: ENV 131

ENV 140 - Watershed Science  
Credit Hours: 4, Contact Hours: 5  
Division: Science Math  
This course is designed for the learner who wishes to gain an in-depth understanding of watersheds. It will focus on the physical and biological systems that are responsible for the quality and characteristics of a watershed. Human interactions, stewardship, management and impacts on our local water resources will also be explored. The laboratory portion of the course will place emphasis on field investigations and the analysis of data and water samples collected. Basic scientific principles will be incorporated throughout the course. Group 1 lab course. Quantitative Reasoning.  
Recommended Prerequisites: ENG 111, MTH 111  
Corequisites: ENV 140L

ENV 140L - Watershed Science Lab  
Credit Hours: 0, Contact Hours: 0  
Division: Science Math  
See ENV 140 for course description.  
Corequisites: ENV 140

ENV 270A - Michigan Basin Geology  
Credit Hours: 2, Contact Hours: 3  
Division: Science Math  
This course is a six-day field study of the Michigan Basin. The class focuses on the Paleozoic geologic history, fossil record, and economic geology of the lower Peninsula and eastern Upper Peninsula. The relationships of bedrock layers to recent surficial geologic processes and their associated landforms will be explored. Group 1 course.  
Communications - Direct.  
Required Prerequisites: Completion of any science course with laboratory and instructor permission.  
Recommended Prerequisites: ENG 111, MTH 23

ENV 270B - Field Mapping Techniques  
Credit Hours: 2, Contact Hours: 3  
Division: Science Math  
This course is a one-week field course. It will focus on the fundamentals of map interpretation and generation. Students will gain a basic understanding of the principles of cartography and field mapping techniques employed by various disciplines in the acquisition of spatial data. Group 1 course. Quantitative Reasoning.  
Required Prerequisites: MTH 23, instructor permission required  
Recommended Prerequisites: ENG 111, completion of any Science course with laboratory
ENV 270C - Precambrian Geology of MI
Credit Hours: 2, Contact Hours: 3
Division: Science Math
This course is a six-day field study of the Precambrian geology of the western Upper Peninsula of Michigan. The class will focus on rock and mineral identification, economic geology, and the geologic history of Michigan's Upper Peninsula. The relationships of ancient bedrock layers to recent surficial geologic processes and their associated landforms will also be explored. Group 1 course. Communications - Direct.
Required Prerequisites: Completion of any science course with laboratory and instructor permission.
Recommended Prerequisites: ENG 111, MTH 23

Mathematics

Students are REQUIRED to have and learn to use a TI-84 graphing calculator for ALL math classes.

MTH 08 - Pre-Algebra
Credit Hours: 4, Contact Hours: 4
Division: Science Math
This course provides a review of basic arithmetic skills. It begins by reviewing traditional by-hand calculations, including multiplication and long division. Integers are introduced (signed numbers) and then all operations are combined, including exponents and grouping symbols, using the correct order of operations. The concepts of prime factorization, LCM and GCD are introduced to lead in to fraction arithmetic. Fraction arithmetic includes addition, subtraction, multiplication, and division of fractions and mixed numbers as well as combined operations using the order of operations. Basic proportions and unit prices are used to solve problems. Decimals, and their relation to fractions, with both negative and positive signs are studied. All basic operations are applied to decimals. Then percentages and ratios and proportions are studied. We finish the course by learning about measurement systems and unit analysis, along with basic geometry including the Pythagorean Theorem. Every unit of study features applications as well as pure theory. By-hand calculations are taught and used at all levels.
Required Prerequisites: Placement into MTH 08
Recommended Prerequisites: Basic arithmetic skills

MTH 23 - Beginning Algebra
Credit Hours: 4, Contact Hours: 4
Division: Science Math
This is a basic course in algebra covering the following topics: operations on integers, rational numbers, numbers in scientific notation, and polynomials; exponent rules; dimensional analysis; solving linear equations; applications of linear equations in geometry, mixture, percents, and motion; graphing and analysis of graphs, particularly lines, in the coordinate plane; factoring; solving quadratic equations by factoring, applications of quadratic equations in geometry, mixture, percents and motion. The course concludes with an introduction to simplifying multiplying and dividing rational expressions and solving proportions. Good math writing form is stressed.
Required Prerequisites: A grade of 2.0 or better in MTH 08 or appropriate placement.

MTH 111 - Intermediate Algebra
Credit Hours: 4, Contact Hours: 4
Division: Science Math
Intermediate Algebra covers elementary set notation, a description of the Real number system, its major subsets, and an introduction to the Complex number system. Simplifying exponents, and algebraic expressions. Solving linear, quadratic, rational, and radical equations. Linear inequalities and systems of equations are also solved. The function concept is referenced throughout including the graphical, symbolic and numerical representations. Group 2 course.
Required Prerequisites: A grade of 2.0 or better in MTH 23 or appropriate placement.
Recommended Prerequisites: Placement into MTH 23

MTH 120 - Mathematical Explorations
Credit Hours: 3, Contact Hours: 3
Division: Science Math
This course is designed to meet the MTA graduation requirements in math for students whose programs of study have no further math requirements. This course is designed to develop quantitative reasoning skills as applied to personal and social issues. Topics will convey to the student the beauty and utility of mathematics, and its applications to modern society. Core topics include logic, models of growth (linear & exponential), personal finance, basic statistics and probability. Group 1 course. Quantitative Reasoning.
Required Prerequisites: A grade of 2.0 or better in MTH 23 or appropriate placement.
Recommended Prerequisites: High school algebra and geometry; Placement into ENG 111

MTH 121 - College Algebra
Credit Hours: 4, Contact Hours: 4
Division: Science Math
This course covers algebra topics including functions, mathematical models, solving equations algebraically and graphically, polynomial functions, logarithmic functions, exponential functions, inverse functions, and linear and non-linear systems of equations. Applications are integrated throughout. Group 1 course. Quantitative Reasoning.
Required Prerequisites: A grade of 2.0 or better in MTH 111 or higher (excluding MTH 120 and MTH 131) or appropriate placement.
Recommended Prerequisites: Placement into ENG 111

MTH 122 - Trigonometry
Credit Hours: 3, Contact Hours: 3
Division: Science Math
This course covers the definitions and graphic representations of the trigonometric functions. Triangles, angle measure, equations, identities, and inverse functions are discussed in detail. Law of Sines, Law of Cosines, and equations of the conic sections will also be covered. Group 1 course. Quantitative Reasoning.
Required Prerequisites: A grade of 2.0 or better in MTH 121 or higher (excluding MTH 131) or appropriate placement.
Recommended Prerequisites: Placement into ENG 111
MTH 131 - Intro to Prob & Stats  
Credit Hours: 3, Contact Hours: 3  
Division: Science Math  
Descriptive statistics, experimental design, an introduction to probability concepts and inferential statistics are included in the course. Descriptive statistics includes graphs of both numerical and categorical data, measures of central tendency, and measures of variation. The normal density function, linear regression, and the binomial model are included. One and two sample problems involving confidence intervals and significance tests are studied for the sample mean and the sample proportion. Group 1 course. Quantitative Reasoning.  
Required Prerequisites: A grade of 2.0 or better in MTH 111 or MTH 120 or higher or appropriate placement.  
Recommended Prerequisites: Placement into ENG 111

MTH 141 - Calculus I  
Credit Hours: 5, Contact Hours: 5  
Division: Science Math  
This is the first course in a traditional calculus sequence, emphasizing the development of the mathematical thought process. The topics covered include limits (definitions and limit proofs), continuity, derivatives of algebraic and trigonometric functions, applications of the derivative, the indefinite and definite integral, the fundamental theorem of calculus, and applications of integration. Group 1 course. Quantitative Reasoning.  
Required Prerequisites: A grade of 2.0 or better in MTH 122 or higher (excluding MTH 131) or appropriate placement.  
Recommended Prerequisites: Placement into ENG 111

MTH 142 - Calculus II  
Credit Hours: 5, Contact Hours: 5  
Division: Science Math  
This course is a continuation of Calculus I. The topics include differentiation and integration involving exponential, logarithmic, and inverse trigonometric functions. There is an introduction of various integration methods. L'Hospital's Rule, improper integrals, parametric equations, polar coordinates, and infinite sequences and series are also investigated. Group 1 course. Quantitative Reasoning.  
Required Prerequisites: A grade of 2.0 or better in MTH 141 or equivalent  
Recommended Prerequisites: Placement into ENG 111

MTH 241 - Calculus III  
Credit Hours: 5, Contact Hours: 5  
Division: Science Math  
The course covers multivariable calculus including three-dimensional analytical geometry, vector valued functions, partial differentiation, and multiple integration (with applications of each), and vector calculus. Group 1 course. Quantitative Reasoning.  
Required Prerequisites: A grade of 2.0 or better in MTH 142 or equivalent  
Recommended Prerequisites: Placement into ENG 111

MTH 251 - Differential Equations  
Credit Hours: 4, Contact Hours: 4  
Division: Science Math  
This course introduces the concepts of differential equations. Topics include: solving first and second order differential equations, and systems of linear differential equations. Solutions are found using analytical, numerical, or graphical techniques relating to quantitative modeling. Laplace transforms and solving non-linear differential equations are introduced. Complex numbers and their usefulness in solving differential equations is identified. Linear algebra is introduced including the topics of; vector spaces, subspaces, spanning sets, linear dependence and independence, basis and dimensions, eigenvalues, eigenvectors, and linear transformations. Group 1 course. Quantitative Reasoning.  
Required Prerequisites: A grade of 2.0 or better in MTH 142 or equivalent  
Recommended Prerequisites: Placement into ENG 111

Physics  
PHY 105 - Physics of the World Around Us  
Credit Hours: 4, Contact Hours: 5  
Division: Science Math  
This course is an introduction to the fundamental principles developed to describe the physical universe. In particular, the subjects of mechanics, heat, electricity and magnetism, waves, and light are surveyed. The development of conceptual understanding and critical-thinking skills is emphasized. Group 1 lab course. Quantitative Reasoning.  
Required Prerequisites: MTH 23  
Recommended Prerequisites: ENG 111  
Corequisites: PHY 105L

PHY 105L - Physics/World Around Us Lab  
Credit Hours: 0, Contact Hours: 0  
Division: Science Math  
See PHY 105 for course description.  
Corequisites: PHY 105

PHY 121 - General Physics I  
Credit Hours: 4, Contact Hours: 6  
Division: Science Math  
This is the first course in a two semester sequence in General Physics. Topics include kinematics, Newton's Laws, conservation of momentum, conservation of energy, rotational motion, oscillations, and fluids. The laboratory covers the preceding topics in parallel with the lecture whenever possible. The development of conceptual understanding and problem solving skills is emphasized. Group 1 lab course. Quantitative Reasoning.  
Required Prerequisites: MTH 122  
Recommended Prerequisites: ENG 111  
Corequisites: PHY 121L

PHY 121L - General Physics I Lab  
Credit Hours: 0, Contact Hours: 0  
Division: Science Math  
See PHY 121 for course description.  
Corequisites: PHY 121
PHY 122 - General Physics II
Credit Hours: 4, Contact Hours: 6
Division: Science Math
This course is a continuation of PHY 121. Topics include thermodynamics, waves, electricity, electric circuits, magnetism, and optics. The laboratory covers the preceding topics in parallel with the lecture whenever possible. The development of conceptual understanding and problem solving skills is emphasized. Group 1 lab course. Quantitative Reasoning.
Required Prerequisites: PHY 121, PHY 121L, MTH 122
Recommended Prerequisites: ENG 111
Corequisites: PHY 122L

PHY 122L - General Physics II Lab
Credit Hours: 0, Contact Hours: 0
Division: Science Math
See PHY 122 for course description.
Corequisites: PHY 122

PHY 221 - Problems & Princ.of Physics I
Credit Hours: 4, Contact Hours: 5
Division: Science Math
This course is the first semester of a two-semester course sequence primarily intended for those students preparing for engineering, science, or math careers. Topics include kinematics, Newton's Laws, conservation of momentum, conservation of energy, rotational motion, oscillations, and fluids. The development of conceptual understanding and problem-solving skills are emphasized. Computers are used for data acquisition and analysis. The laboratory covers the preceding topics in parallel with the lecture whenever possible. Group 1 lab course. Quantitative Reasoning.
Required Prerequisites: MTH 141, may be taken concurrently
Recommended Prerequisites: ENG 111
Corequisites: PHY 221, PHY 221R

PHY 221L - Prob./Prin. of Physics I Lab
Credit Hours: 0, Contact Hours: 0
Division: Science Math
See PHY 221 for course description.
Corequisites: PHY 221, PHY 221R

PHY 221R - Prob. & Princ. of Physics I Rec
Credit Hours: 1, Contact Hours: 2
Division: Science Math
This course is a recitation class to accompany PHY 221. Group 1 course.
Corequisites: PHY 221, PHY 221L

PHY 222 - Prob. & Princ. of Physics II
Credit Hours: 4, Contact Hours: 5
Division: Science Math
This course is a continuation of PHY 221. Topics include thermodynamics, waves, electricity, electric circuits, magnetism and optics. The laboratory covers the preceding topics in parallel with the lecture whenever possible. The development of conceptual understanding and problem solving skills is emphasized. Group 1 lab course. Quantitative Reasoning.
Required Prerequisites: PHY 221, PHY 221L, PHY 221R, MTH 141
Recommended Prerequisites: ENG 111
Corequisites: PHY 222L, PHY 222R

PHY 222L - Prob./Prin. of Physics II Lab
Credit Hours: 0, Contact Hours: 0
Division: Science Math
See PHY 221/222 for course description.
Corequisites: PHY 222, PHY 222R

PHY 222R - Prob. & Princ. of Physics II R
Credit Hours: 1, Contact Hours: 2
Division: Science Math
This course is a recitation class to accompany PHY 222. Group 1 course.
Corequisites: PHY 222, PHY 222L

Plant Science - Fruit and Vegetable Crop Management, Associate in Applied Science Degree

NMC Code 581
NMC and MSU offer a joint program where students dual enroll at NMC and MSU. Students earn an Applied Science degree in the areas of Fruit and Vegetable Crop Management, Landscape Management or Viticulture through NMC, and a certificate in Agricultural Technology from Michigan State University. Note: Application and admission to BOTH NMC and MSU IAT are required for the program. All courses are taught in Traverse City. Upon meeting the program requirements for the AAS, students may transfer to the MSU East Lansing Campus as a junior to complete a Bachelor of Science degree. See your MSU advisor prior to enrolling each semester.

MSU Institute of Agricultural Technology
1701 E Front Street
Office: LB 33J
Traverse City, MI 49686
Phone: (231) 995-1719
Email: elshoff@msu.edu

Requirements
Major Requirements

<table>
<thead>
<tr>
<th>Course</th>
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<td>Math Competency 1</td>
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<td>BIO 108</td>
<td>Plant Biology</td>
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<td>ECO 201</td>
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<td>or ECO 202</td>
<td>Principles of Microeconomics</td>
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<td>NMC Occupational Specialty Requirements</td>
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<tr>
<td>CIT 100</td>
<td>Computers in Business-An Intro (or equivalent)</td>
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<td>NMC directed electives 2</td>
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<td>MSU Fruit and Vegetable Crop Management Requirements</td>
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<td>ABM 130</td>
<td>Farm Management</td>
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<td>AT 202</td>
<td>Agricultural Regulation, Compliance &amp; Safety</td>
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<tr>
<td>AT 293</td>
<td>Professional Internship in Agricultural Technology</td>
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</table>
CSS 126  Introduction to Weed Management  2
CSS 143  Introduction to Soil Science  2
ENT 110  Applied Entomology of Economic Plants  3
HRT 206  Training and Pruning Plants  1
HRT 207  Horticulture Career Development  1
HRT 218  Irrigation Systems for Horticulture  2
PLP 105  Fundamentals of Applied Plant Pathology  2
Additional IAT approved MSU CANR credits  3

Total Credits  60-62

1 Placement into MTH 111 Intermediate Algebra or higher, or completion of MTH 23 Beginning Algebra
2 See program coordinator for appropriate selection. Depending on general education course selections, only eight NMC directed electives may be necessary.
3 MSU CANR (College of Agriculture and Natural Resources) - credits must be completed with approval from the program coordinator

Program Requirements 60

MSU Transfer Students: Students wishing to transfer to MSU as juniors must meet with the program coordinator during their first semester to alter general education courses to meet MSU transfer requirements.

Plant Science - Landscape Management, Associate in Applied Science Degree

NMC Code 582

NMC and MSU offer a joint program where students dual enroll at NMC and MSU. Students earn an Applied Science degree in the areas of Fruit and Vegetable Crop Management, Landscape Management or Viticulture through NMC, and a certificate in Agricultural Technology from Michigan State University. Note: Application and admission to BOTH NMC and MSU IAT are required for the program. All courses are taught in Traverse City. Upon meeting the program requirements for the AAS, students may transfer to the MSU East Lansing Campus as a junior to complete a Bachelor of Science degree. See your MSU advisor prior to enrolling each semester.

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Math Competency  1
BIO 108  Plant Biology  4
ECO 201  Principles of Macroeconomics  3
or ECO 202  Principles of Microeconomics

NMC Occupational Specialty Requirements
CIT 100  Computers in Business-An Intro (or equivalent)  3
NMC directed electives  2

Total Credits  60-62

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2 See program coordinator for appropriate selection. Depending on general education course selections, only eight NMC directed electives may be necessary.
3 MSU CANR (College of Agriculture and Natural Resources) - credits must be completed with approval from the program coordinator

Program Requirements 60

MSU Transfer Students: Students wishing to transfer to MSU as juniors must meet with the program coordinator during their first semester to alter general education courses to meet MSU transfer requirements.

Plant Science - Viticulture, Associate in Applied Science Degree

NMC Code 580

NMC and MSU offer a joint program where students dual enroll at NMC and MSU. Students earn an Applied Science degree in the areas of Fruit and Vegetable Crop Management, Landscape Management or Viticulture through NMC, and a certificate in Agricultural Technology from Michigan State University. Note: Application and admission to BOTH NMC and MSU IAT are required for the program. All courses are taught in Traverse City. Upon meeting the program requirements for the AAS, students may transfer to the MSU East Lansing Campus as a junior to complete a Bachelor of Science degree. See your MSU advisor prior to enrolling each semester.

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<tr>
<td>BIO 108</td>
<td>Plant Biology</td>
<td>4</td>
</tr>
<tr>
<td>ECO 201</td>
<td>Principles of Macroeconomics</td>
<td>3</td>
</tr>
<tr>
<td>or ECO 202</td>
<td>Principles of Microeconomics</td>
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</tr>
</tbody>
</table>

**NMC Occupational Specialty Requirements**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIT 100</td>
<td>Computers in Business-An Intro (or equivalent)</td>
</tr>
<tr>
<td>NMC directed electives</td>
<td>2</td>
</tr>
<tr>
<td><strong>Total Credits</strong></td>
<td>60-62</td>
</tr>
</tbody>
</table>

**MSU Viticulture Requirements**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AT 202</td>
<td>Agricultural Regulation, Compliance &amp; Safety</td>
<td>3</td>
</tr>
<tr>
<td>AT 293</td>
<td>Professional Internship in Agricultural Technology</td>
<td>3</td>
</tr>
<tr>
<td>CSS 126</td>
<td>Introduction to Weed Management</td>
<td>2</td>
</tr>
<tr>
<td>CSS 143</td>
<td>Introduction to Soil Science</td>
<td>2</td>
</tr>
<tr>
<td>ENT 110</td>
<td>Applied Entomology of Economic Plants</td>
<td>3</td>
</tr>
<tr>
<td>HRT 231</td>
<td>Clerkship in Grape Harvesting and Processing</td>
<td>1</td>
</tr>
<tr>
<td>HRT 232</td>
<td>Principles of Viticulture</td>
<td>3</td>
</tr>
<tr>
<td>HRT 233</td>
<td>Field Practices of Viticulture</td>
<td>3</td>
</tr>
<tr>
<td>HRT 234</td>
<td>Current Issues in Viticulture and Enology</td>
<td>1</td>
</tr>
<tr>
<td>PLP 105</td>
<td>Fundamentals of Applied Plant Pathology</td>
<td>2</td>
</tr>
<tr>
<td>Additional IAT approved MSU CANR credits</td>
<td>7</td>
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</tr>
</tbody>
</table>

**Program Requirements 60**

**MSU Transfer Students:** Students wishing to transfer to MSU as juniors must meet with the program coordinator during their first semester to alter general education courses to meet MSU transfer requirements.

### Social Science

**Programs**

- Early Childhood Education and Care, Certificate of Achievement (Level II) and CDA Cohort (p. 150)
- Early Childhood Education, Associate in Applied Science Degree (p. 152)
- Law Enforcement, Associate in Applied Science Degree (p. 152)
- Law Enforcement, Certificate of Achievement (Level II) (p. 153)

### Courses

**Anthropology**

**ANT 102 - Underwater Archaeology**

**Credit Hours:** 3, **Contact Hours:** 3  
**Division:** Social Science  
This course will provide students with an introduction to theory, method, technologies, and practice in underwater archaeology, with case studies of prehistoric and historical sites worldwide, including the Michigan Great Lakes. This is a lecture-based course that provides a specialization in anthropology and the applied social sciences. This course also qualifies for NAS Part 3 credits. No diving is required. Group 2 course.  
Communications - Direct, Critical Thinking - Direct.  
Required Prerequisites: ENG 99 or placement into ENG 11/111

**ANT 113 - Intro to Cultural Anthropology**

**Credit Hours:** 3, **Contact Hours:** 3  
**Division:** Social Science  
The study of the role of society and culture in humankind’s adaptation to a variety of environments is the focus of this course. A variety of cultures are studied, utilizing cross-cultural comparisons. This is an introductory course which provides a broad overview of the four fields of anthropology with some concentration on archaeology. Among topics considered are field methods, theories of cultural evolution, the family, kinship, economics, religion, political organization and language. Group 1 course.  
Communications - Direct, Critical Thinking - Direct, Degree Req:Cultural Persp/Div.  
Required Prerequisites: ENG 99 or placement into ENG 11/111

**ANT 201 - Nautical Archaeology I**

**Credit Hours:** 3, **Contact Hours:** 3  
**Division:** Social Science  
This is an entry level course to the Nautical Archaeology Society Training Program and is aimed at introducing nautical archaeology to divers and non-divers, and promoting their interest in the subject. It provides the basic training in archaeological survey and project management with the aim of teaching students how to design, plan and run their own field work projects. The curriculum will be presented in the classroom and in an open water setting (or foreshore site for non-divers) in the field. Group 2 course.  
Communications - Direct, Critical Thinking - Direct, Quantitative Reasoning, Degree Req:Cultural Persp/Div.  
Required Prerequisites: ENG 99/108 or placement into ENG 11/111  
Recommended Prerequisites: ANT 102. The minimum diving qualification level for those taking part in the pool exercises is CMAS 1-Star or equivalent, e.g., BSAC Ocean Diver, SAA Open Water Diver, or PADI Open Water.
ANT 202 - Nautical Archaeology II  
Credit Hours: 3, Contact Hours: 3  
Division: Social Science  
This is a field archaeology course that allows students the opportunity to practice skills they learned in ANT 201. Students will design and execute a maritime archaeology project in the Grand Traverse region or other maritime landscape. Students may also participate in larger projects during special summer field schools hosted at NMC and abroad. Beach projects will be developed for non divers. The course will be offered throughout the summer semester on a flexible time schedule and is based on individual availability and weather conditions. Group 2 course. Communications - Direct, Critical Thinking - Direct, Quantitative Reasoning, Degree Req: Cultural Persp/Div, Infused: Writing Intensive. Recommended Prerequisites: ANT 201, ENG 99/108 or placement into ENG 11/111.

Criminal Justice

CJ 101 - Intro to Criminal Justice  
Credit Hours: 4, Contact Hours: 4  
Division: Social Science  
The student is introduced to the criminal justice system and the criminal justice process. Includes the history, present structure, current functions and contemporary problems of the police, the prosecution, the courts, corrections, and security agencies. Group 2 course. Communications - Direct, Critical Thinking - Direct.

CJ 202 - Police Administration  
Credit Hours: 3, Contact Hours: 3  
Division: Social Science  
This course will present an overview of public administration with the emphasis on the vitality and capacity for pragmatic change within our American police system. This understanding will be brought about by the comprehensive and analytical study of the structures, processes, and behavior of the typical police infrastructure in the United States. Group 2 course. Communications - Direct, Critical Thinking - Direct.

CJ 211 - Criminal Law  
Credit Hours: 3, Contact Hours: 3  
Division: Social Science  
This course will study the history and nature of criminal law, defenses to criminal conduct, and substantive criminal offenses. Group 2 course. Critical Thinking - Direct.

CJ 221 - Juvenile Delinquency  
Credit Hours: 3, Contact Hours: 3  
Division: Social Science  
This course is a study of juvenile delinquency theories of causation and current preventive programs. It will explore the nature and extent of delinquency and examine suspected causes of delinquent behavior. It will also cover critical issues in juvenile delinquency and examine crucial policies and programs in the Criminal Justice system that addresses juvenile delinquency. It will also include issues facing juvenile probation officers and it will look at the role of police agencies and their relationship to juvenile courts. Group 2 course. Communications - Direct.

CJ 231 - Survey of Corrections  
Credit Hours: 3, Contact Hours: 3  
Division: Social Science  
This course will examine the historical and philosophical development of corrections in the United States. Special consideration is given to the theoretical approaches to changing and controlling criminal behavior. Practical limitations and justification to probation, parole, and the operational functions of institutional supervision are also studied. Group 2 course. Communications - Direct.  
Recommended Prerequisites: Placement into ENG 111.

CJ 242 - Evidence & Criminal Procedures  
Credit Hours: 3, Contact Hours: 3  
Division: Social Science  
An overview of the criminal court system and the process of a criminal proceeding from incident to disposition and appeal, including the rules of evidence affecting the trial of a criminal case. It also includes an overview of the criminal procedure rules concerning arrest, search and seizure, and interrogation and confession, which regulate law enforcement and protect citizens' rights of privacy and presumed innocence. The course includes pertinent Supreme Court decisions. Group 2 course. Critical Thinking - Direct.  
Recommended Prerequisites: Placement into ENG 111.

CJ 290A - Academic Service/Internship  
Credit Hours: 1-4, Contact Hours: 1-4  
Division: Social Science

Early Childhood Education

ECE 101 - Early Childhood Education  
Credit Hours: 3, Contact Hours: 3  
Division: Social Science  
This course familiarizes students with the history and present state of early childhood education, from birth to 10 years of age. Each age group (infant/toddler, preschooler and school-age) receives a minimum of 10 classroom hours of focused study related to the course content. An overview of child development theories is presented in the context of the role of the educator/caregiver. Resources and careers, and contemporary issues such as school readiness and exploration of various education philosophies are also included. Early Education environment observations and a personal philosophy of education project are required. The observations are set by students to meet their schedules. Group 2 course.

ECE 202 - Human Development and Learning  
Credit Hours: 5, Contact Hours: 5  
Division: Social Science  
This course focuses on the issues related to child development and learning. It examines the reasons for child study and its influence on families and education. The interactions between education/learning and all the developmental domains will be studied from conception up to adolescence. Each age group (infant/toddler, preschooler and school-age) receives a minimum of 20 classroom hours of focused study related to the course content. Students will become familiar with the most recent research, and design their own field observation and projects that support and test current theories of development. In addition, students will explore how professional work with children is changing and how they can become advocates for the well-being of children and families in their community, nation and the world. Group 2 course. Critical Thinking - Direct.  
Recommended Prerequisites: ECE 101 or PSY 101; placement into ENG 11/111.
### ECE 203 - Curriculum for Child Guidance
**Credit Hours:** 4, **Contact Hours:** 4  
**Division:** Social Science
This course examines the preparation of a positive learning environment. The development and use of positive guidance strategies with children birth through 10 years of age is explored. There is a special emphasis on the development of techniques in personal interactions with children. Current concepts and approaches that directly relate to the mental health of the child and his/her family are explored. Anger management and conflict resolution skills are especially emphasized through the building of positive environments. This course includes 32 practicum hours of experiential learning in an early care and education setting for preschoolers. Group 2 course.  
**Recommended Prerequisites:** ECE 101

### ECE 204 - Early Childhood Curriculum
**Credit Hours:** 4, **Contact Hours:** 4  
**Division:** Social Science
An active learning approach is used to develop student's skills in planning, implementing and evaluating developmentally appropriate learning experiences for children ages 1 year to 10 years. Various curriculum areas are covered: science, pre-math, math, drama and music, creative art, sensory, gross and fine motor, social studies and language arts. Basic skills and concepts, resource materials and teaching methods (developmental) are explored for each curriculum area. There is a strong emphasis on individualizing curriculum using the child's interests, modality of learning and intelligence theories. This course includes 32 practicum hours of experiential learning in an early care and education setting for preschoolers. Group 2 course.  
**Recommended Prerequisites:** ECE 101

### ECE 206 - Infant Toddler Care Curriculum
**Credit Hours:** 4, **Contact Hours:** 4  
**Division:** Social Science
This course provides an in-depth study of the physical, cognitive, social and emotional development and learning of the infant and toddler. There will be a focus on attachment and bonding and how that relates to brain development and later social and academic development. Students will develop skills to build a respectful and responsive curriculum and learning environment. They will learn how to use best practice methods with infants and toddlers and their families. This course includes 32 practicum hours of experiential learning in an early care and education setting for infants or toddlers. Group 2 course.  
**Recommended Prerequisites:** ECE 101

### ECE 220 - Early Education Administration
**Credit Hours:** 3, **Contact Hours:** 3  
**Division:** Social Science
This course provides information and experiences to gain knowledge in program administration for establishing policies, implementing and evaluating programs, assessing, recording and reporting children's progress, scheduling activities, promoting good support systems between home and school. In addition, focus will be aimed at understanding administrative organization, leading and managing personnel, financing and budgeting and contributing to the profession. Course instruction is based on the quality principles/standards required by Child Development Associate Credential and the National Association of the Education of the Young Child (NAEYC). Group 2 course.  
**Recommended Prerequisites:** ECE 101, placement into ENG 11/111

### ECE 230 - Early Literacy and Learning
**Credit Hours:** 3, **Contact Hours:** 3  
**Division:** Social Science
This course is designed to teach students how to recognize and implement appropriate environmental strategies that support early literacy development and appropriate early experiences with books and writing for infants, toddlers and preschoolers. Each age group receives a minimum of 15 classroom hours of focused study related to the course content. Emphasis is placed on speaking and listening, as well as reading and writing readiness. This group of skills includes expressive and receptive language, concepts of print and appreciation of literature, emergent writing, letter knowledge, and phonological awareness. Upon completion of the course, students will be able to select, plan, implement, and evaluate appropriate early literacy experiences. Group 2 course.  
**Critical Thinking - Direct.**  
**Recommended Prerequisites:** ECE 101, placement into ENG 11/111

### ECE 240 - Integrated Arts in Curriculum
**Credit Hours:** 3, **Contact Hours:** 3  
**Division:** Social Science
The integration of the arts in early education will be explored and implemented for children birth to 10 years of age. Each age group (infant/toddler, preschooler, and school-age) receives a minimum of 10 classroom hours of focused study related to the course content. There will be a focus on the integration of studio art, music, dance and drama in early childhood curriculum planning, practice and implementation. Observation and practicum hours in an early care setting will be required. Group 2 course.  
**Critical Thinking - Direct.**  
**Recommended Prerequisites:** ECE 101, ECE 204, and placement into ENG 11/111

### ECE 290A - Early Education Internship
**Credit Hours:** 1, **Contact Hours:** 1  
**Division:** Social Science
Internship placement in a daycare, nursery school, early elementary grades in grade school or other agencies that deal with students, children and/or families. The student will have the opportunity to interact with individuals and assist with planning for curriculum or program activities under direct supervision. Each credit hour is equivalent to 32 internship hours and can be divided over more than one semester. At least 1 credit hour (32 internship hours) must be spent in an infant/toddler learning environment. Group 2 course.  
**Recommended Prerequisites:** ECE 101

### ECE 290B - Early Education Internship
**Credit Hours:** 2, **Contact Hours:** 2  
**Division:** Social Science
Internship placement in a daycare, nursery school, early elementary grades in grade school or other agencies that deal with students, children and/or families. The student will have the opportunity to interact with individuals and assist with planning for curriculum or program activities under direct supervision. Each credit hour is equivalent to 32 internship hours and can be divided over more than one semester. At least 1 credit hour (32 internship hours) must be spent in an infant/toddler learning environment. Group 2 course.  
**Recommended Prerequisites:** ECE 101
ECE 290C - Early Education Internship
Credit Hours: 3, Contact Hours: 3
Division: Social Science
Internship placement in a daycare, nursery school, early elementary grades in grade school or other agencies that deal with students, children and/or families. The student will have the opportunity to interact with individuals and assist with planning for curriculum or program activities under direct supervision. Each credit hour is equivalent to 32 internship hours and can be divided over more than one semester. At least 1 credit hour (32 internship hours) must be spent in an infant/toddler learning environment. Group 2 course.
Required Prerequisites: ECE 101

Economics

ECO 201 - Principles of Macroeconomics
Credit Hours: 3, Contact Hours: 3
Division: Social Science
This principles level course provides an in-depth overview and analysis of macroeconomic theory and concepts; and applies them to the contemporary economic issues, problems, and policies in the United States and other economies. Topics include the nature and scope of economics; national income accounting; government revenues, expenditures, and national debt; unemployment, inflation, and interest rates; economic growth; and monetary, fiscal and international trade policies. Group 1 course. Critical Thinking - Direct.
Recommended Prerequisites: MTH 23, placement into ENG 111. It is recommended that students take ECO 201 before ECO 202.

ECO 202 - Principles of Microeconomics
Credit Hours: 3, Contact Hours: 3
Division: Social Science
This principles level course analyzes microeconomic theory and concepts; and applies them to contemporary economic issues, problems, and policies. Topics include supply and demand analysis, productivity and the firm’s costs of production, price and output determination under various market structures, government interventions in markets, factor allocation and pricing, and international trade. Group 1 course. Critical Thinking - Direct.
Recommended Prerequisites: MTH 23, placement into ENG 111. It is recommended that students take ECO 201 before ECO 202.

Education

EDU 100 - College Success
Credit Hours: 2, Contact Hours: 2
Division: Social Science
This course is designed to provide students with the strategies necessary to succeed in college. Participants will examine the characteristics of successful students as well as learn strategies for taking greater responsibility for their own learning. Additionally, the course will provide ways of developing greater intrinsic motivation, increased perseverance, and more effective time management skills, as well as help them discover and revise limiting beliefs and self-defeating behaviors. Practical skills will include a variety of note taking and study strategies as well as confident and effective test preparation. Group 2 course. Critical Thinking - Direct.

EDU 101 - Introduction to Teaching
Credit Hours: 3, Contact Hours: 3
Division: Social Science
This course will serve as an introduction to teaching as a career. It will provide an overview of students’ behaviors and effective teachers’ responsibilities in preparation for further study in the field of education. This course includes 30 hours of classroom observation in a K-12 classroom. Instructor permission is needed for non-high school graduates. Group 2 course. Communications · Direct, Critical Thinking · Direct.
Recommended Prerequisites: Placement into ENG 111

EDU 212 - Educating Exceptional Children
Credit Hours: 3, Contact Hours: 3
Division: Social Science
This course addresses the complexity of understanding and educating the exceptional child (one with special needs, disabilities and differing abilities including gifted and talented). Areas covered will include exceptional child development, family development and dynamics, identification processes, methods for contributing to the child’s healthy development and educational needs, community resources and referral procedures. This course will address the unique challenges related to creating developmentally appropriate accommodations and inclusion practices in the educational and early care setting. Group 2 course. Critical Thinking · Direct.
Required Prerequisites: ECE 202 or PSY 101
Recommended Prerequisites: Placement into ENG 11/111

EDU 290A - Academic Service/Internship
Credit Hours: 1-4, Contact Hours: 1-4
Division: Social Science

Geography

GEO 101 - Introduction to Geography
Credit Hours: 3, Contact Hours: 3
Division: Social Science
This course emphasizes both the physical and the cultural aspects of geography. Physical factors such as weather and climate, soil, vegetation and landforms are considered as they determine the natural resources of a region. Various aspects of human culture such as religion, language and economic systems are studied to gain an understanding of the ways in which people have used and misused their resources. Group 1 course. Communications · Direct, Degree Req, Cultural Persp/Div.
Recommended Prerequisites: MTH 08, students scoring below ENG 111 on the placement test should plan on additional study time.

GEO 105 - Physical Geography
Credit Hours: 3, Contact Hours: 3
Division: Social Science
Physical geography studies selected elements of the physical environment: weather and climate, landforms, soil and vegetation. Particular emphasis is placed upon the nature and distribution of physical features throughout Michigan with respect to humankind. The lab includes field trips and emphasizes the application of physical principles through hands-on study of minerals, rocks, and soils; in conjunction with map and aerial photo interpretation. Group 1 course. Quantitative Reasoning.
Recommended Prerequisites: MTH 23, students scoring below ENG 111 on the placement test should plan on additional study time.
Corequisites: GEO 105L
LWE 102 - Police Operations  
**Credit Hours:** 4, **Contact Hours:** 4  
**Division:** Social Science  
The student is introduced to educational and training requirements for employment in law enforcement, police community relations, the functions and objectives of a police department and the police response and responsibilities to the community. Student must be registered with LWE coordinator prior to class enrollment. Group 2 course. Communications - Direct.  
**Required Prerequisites:** Must be approved by MCOLES and registered with the Director of the Police Academy prior to enrollment.

LWE 105L - Physical Geography Lab  
**Credit Hours:** 1, **Contact Hours:** 2  
**Division:** Social Science  
The lab emphasizes the application of selected physical elements through means of field work, map and aerial photo interpretation. Group 1 lab course.  
**Corequisites:** GEO 105

GEO 108 - Geography of U S & Canada  
**Credit Hours:** 3, **Contact Hours:** 3  
**Division:** Social Science  
The diverse regions of Anglo-America will be investigated in this course. We will consider the relationship between the natural environment, the cultural background, economic conditions, and local problems of the U.S. and Canada. Group 1 course. Communications - Direct.  
**Recommended Prerequisites:** Students scoring below ENG 111 on the placement test should plan on additional study time.

GEO 109 - World Regional Geography  
**Credit Hours:** 3, **Contact Hours:** 3  
**Division:** Social Science  
This course is a study of world regions. For each region we will consider the relationship between the natural environment, cultural background, economic conditions, and local problems that relate to world issues. Group 1 course. Communications - Direct, Degree Req:Cultural Persp/Div.

GEO 115 - Introduction to GIS  
**Credit Hours:** 3, **Contact Hours:** 4  
**Division:** Social Science  
This course explores the fundamentals of Geographic Information Systems (GIS) for map reading, interpretation and analysis, in conjunction with the principles of cartography. Computer and Internet technologies are utilized for the generation, manipulation, storage and retrieval of maps and associated geographic attributes. Topics covered include: basic GIS concepts, display of data and attributes, queries, metadata, tabular relationships, data editing, projections and datums, and basic cartography. Group 1 course. Communications - Direct.  
**Required Prerequisites:** MTH 23  
**Recommended Prerequisites:** Intermediate computer skills (Windows) and Internet experience required.

LWE 195 - Police Practicum  
**Credit Hours:** 4, **Contact Hours:** 4  
**Division:** Social Science  
The course will provide Law Enforcement students with the practical experience of observing five various shifts with officers. This should insure that candidates will understand what law enforcement officers actually do. Recording the experiences will also assist the student in report writing. Group 2 course. Communications - Direct.

GEO 105 - World Regional Geography  
**Credit Hours:** 3, **Contact Hours:** 3  
**Division:** Social Science  
We will consider the relationship between the natural environment, the cultural background, economic conditions, and local problems that relate to world issues. Group 1 course. Communications - Direct, Degree Req:Cultural Persp/Div.

GEO 108 - Geography of U S & Canada  
**Credit Hours:** 3, **Contact Hours:** 3  
**Division:** Social Science  
The diverse regions of Anglo-America will be investigated in this course. We will consider the relationship between the natural environment, the cultural background, economic conditions, and local problems of the U.S. and Canada. Group 1 course. Communications - Direct.  
**Recommended Prerequisites:** Students scoring below ENG 111 on the placement test should plan on additional study time.

GEO 109 - World Regional Geography  
**Credit Hours:** 3, **Contact Hours:** 3  
**Division:** Social Science  
This course is a study of world regions. For each region we will consider the relationship between the natural environment, cultural background, economic conditions, and local problems that relate to world issues. Group 1 course. Communications - Direct, Degree Req:Cultural Persp/Div.

GEO 115 - Introduction to GIS  
**Credit Hours:** 3, **Contact Hours:** 4  
**Division:** Social Science  
This course explores the fundamentals of Geographic Information Systems (GIS) for map reading, interpretation and analysis, in conjunction with the principles of cartography. Computer and Internet technologies are utilized for the generation, manipulation, storage and retrieval of maps and associated geographic attributes. Topics covered include: basic GIS concepts, display of data and attributes, queries, metadata, tabular relationships, data editing, projections and datums, and basic cartography. Group 1 course. Communications - Direct.  
**Required Prerequisites:** MTH 23  
**Recommended Prerequisites:** Intermediate computer skills (Windows) and Internet experience required.

Law Enforcement  
Students must meet with Police Academy Director prior to enrolling in all LWE courses.

LWE 102 - Police Operations  
**Credit Hours:** 4, **Contact Hours:** 4  
**Division:** Social Science  
The student is introduced to educational and training requirements for employment in law enforcement, police community relations, the functions and objectives of a police department and the police response and responsibilities to the community. Student must be registered with LWE coordinator prior to class enrollment. Group 2 course. Communications - Direct.  
**Required Prerequisites:** Must be approved by MCOLES and registered with the Director of the Police Academy prior to enrollment.
LWE 216 - Traffic Enforcement & Invest
Credit Hours: 3, Contact Hours: 3
Division: Social Science
Traffic Enforcement and Investigation will include traffic control enforcement, the law and prosecution of operating under the influence of alcohol. Student must be registered with LWE coordinator prior to class enrollment. Group 2 course. Critical Thinking - Direct.
Required Prerequisites: Must be approved by MCOLES and registered with the Director of the Police Academy prior to enrollment.

LWE 218 - Physical Training/Wellness
Credit Hours: 4, Contact Hours: 5
Division: Social Science
This course is designed to give the students a complete understanding of wellness/physical fitness. The goal of the class is to develop a mentality that fitness is long term. Includes course lectures on the following topics: Fitness and wellness, benefits and guidelines for exercise, coronary risk factors, stress management, nutrition, weight control, low back care, motivation and behavior change, and various ways to perform fitness tasks. This class also includes workouts, and testing students against Cooper Standards. Student must be registered with LWE coordinator prior to class enrollment. Group 2 course. Communications - Direct.
Required Prerequisites: Must be approved by MCOLES and registered with the Director of the Police Academy prior to enrollment.

LWE 225 - Defensive Tactics
Credit Hours: 4, Contact Hours: 5
Division: Social Science
Students learn subject control with new mandatory guidelines from MCOLES (Michigan Commission on Law Enforcement Standards). Students will understand survival mindset, tactical communication, fear/anger management, and post force incident responsibilities. Student will demonstrate proficiencies in 14 defensive tactics outcomes specific to the career of Law Enforcement and will be assessed through written, Practical and Scenario based testing. Student must be registered with LWE coordinator prior to class enrollment and be in excellent physical condition. Group 2 course. Communications - Direct.
Required Prerequisites: Must be approved by MCOLES and registered with the Director of the Police Academy prior to enrollment.

LWE 226 - Michigan Criminal Law
Credit Hours: 3, Contact Hours: 3
Division: Social Science
The study of substantive criminal law as a means of defining and preserving social order. Sources of criminal law; classification of crimes against persons, property and public welfare; principles of criminal liability; elements necessary to establish crime and criminal intent; specific crimes and defenses; and constitutional limitations are examined. Students must be registered with LWE coordinator prior to class enrollment. Group 2 course. Critical Thinking - Direct.
Required Prerequisites: Must be approved by MCOLES and registered with the Director of the Police Academy prior to enrollment.

LWE 227 - Criminal Procedures
Credit Hours: 3, Contact Hours: 3
Division: Social Science
Criminal Procedures will study the administration of criminal justice, the nature and scope of police power, the concept of exclusion, laws of arrest, search and seizure and interrogation, the acquisition of evidence, and judicial protection of the accused. Must be registered with LWE coordinator prior to class enrollment. Group 2 course. Critical Thinking - Direct.
Required Prerequisites: Must be approved by MCOLES and registered with the Director of the Police Academy prior to enrollment.

Recommended Prerequisites: LWE 226

LWE 228 - Speed Measurement/PBT
Credit Hours: 3, Contact Hours: 3
Division: Social Science
This course will teach the legal and practical aspects of radar and PBT (preliminary breath tester) operations. Class discussions will primarily be based on relationship between excessive speed, drinking and highway crashes. The course will also explore departmental policies and procedures concerning radar and PBT use. Students will understand and demonstrate basic accident investigation and related accident evidence collection. Must register with the LWE coordinator prior to course enrollment. Group 2 course. Critical Thinking - Direct.
Required Prerequisites: Must be approved by MCOLES and registered with the Director of the Police Academy prior to enrollment.

Political Science

PLS 101 - Intro to American Politics
Credit Hours: 3, Contact Hours: 3
Division: Social Science
This course is an introduction to the study of politics and political institutions in America. Emphasis is given to the constitutional framework, federalism, political participation, the role of the media in the political process, the electoral system, American political parties, the presidency, Congress, the Supreme Court, and the bureaucracy. Civil rights and civil liberties are a theme throughout. This course includes an examination of the politics of race, ethnicity, and cultural diversity in America. Group 1 course. Communications - Direct, Critical Thinking - Direct, Degree Req:Cultural Persp/Div, Infused: Writing Intensive.
Recommended Prerequisites: Placement into ENG 111/11

PLS 132 - Comparative Politics
Credit Hours: 3, Contact Hours: 3
Division: Social Science
This course provides a comparative analysis of political systems in developed and developing countries. Students learn about different forms of political organization as instituted and practiced in various countries. Students examine different methods of comparing political systems and learn to apply these methods in causal theories of political change. This course combines a focus on the basic structures of political systems with a thought-provoking analyses of the causal factors that influence the development of those systems and the impact these systems have on the people that live within them. Issues related to democracy, civil liberties, political rights, human rights, and economic development are analyzed throughout the course. Group 1 course. Communications - Direct, Critical Thinking - Direct, Degree Req:Cultural Persp/Div, Infused: Writing Intensive.
Recommended Prerequisites: Placement into ENG 111/11
PLS 211 - International Relations  
Credit Hours: 3, Contact Hours: 3  
Division: Social Science

Students analyze the nature of international relations and global politics today. This course offers a broad overview of political and economic issues in the international arena. Students assess the dynamics of conflict and cooperation through various case studies and analyses. Topics include such things as conflict in the Middle East, ethnic conflict and nationalism the world over, the threat of global terrorism in the 21st century, the rise of China as an assertive world power, the increasing importance of organizations such as the United Nations and the World Trade Organization, cultural and economic globalization, and global ecological issues. Course includes an examination of the basic analytical approaches to the study of international relations. Group 1 course. 
Communications - Direct, Critical Thinking - Direct, Degree Req:Cultural Persp/Div, Infused: Writing Intensive.  
Recommended Prerequisites: Placement into ENG 111

PLS 222 - Intro to Political Theory  
Credit Hours: 3, Contact Hours: 3  
Division: Social Science

Introduction to Political Theory examines the foundational questions of normative political theory as developed by political philosophers of the ancient through contemporary periods. The course focuses on a wide array of political and ethical issues. Topics of consideration include: the rights of the individual v. the rights of the community; the nature of human equality and the reality of human inequalities; conceptions of justice put forth by various philosophers; and questions of what it means to achieve freedom in one's social and political life. Students can expect to read almost exclusively from primary sources. Examples of thinkers studied in this course include Plato, Aristotle, Machiavelli, Hobbes, Locke, Rousseau, Kant, Marx, Mill, Nietzsche, Arendt, and Rawls. Group 1 course.  
Communications - Direct, Critical Thinking - Direct, Infused: Writing Intensive.  
Recommended Prerequisites: Placement into ENG 111

PLS 233 - U.S. Foreign Policy  
Credit Hours: 3, Contact Hours: 3  
Division: Social Science

This course examines U.S. foreign policy, with a focus on the challenges the United States has faced since WWII. Students analyze the goals of policy-makers and the obstacles encountered as they attempt to achieve those goals. Issues for in-depth analysis include: cold war foreign policy; terrorism and fundamentalism; foreign policy responses to recent trends of economic globalization; WMD, arms control and non-proliferation issues; the U.S. invasions and occupations of Afghanistan and Iraq; a rising China and the challenges this presents to U.S. hegemony; and many others. This course uses political science models to analyze real world events in U.S. foreign policy. Group 1 course. Communications - Direct, Critical Thinking - Direct, 
Recommended Prerequisites: PLS 101 or PLS 211. Recommended competencies: Placement into MTH 23 and ENG 11/111.

PLS 290A - Academic Service/Internship  
Credit Hours: 1-4, Contact Hours: 1-4  
Division: Social Science

PLS 290A

Psychology

PSY 100 - Career Exploration & Planning  
Credit Hours: 1, Contact Hours: 1  
Division: Social Science

Planning a career can be challenging because of the unknown. This course is designed to introduce the student to career and life planning theories and concepts and assist in applying these principles to their own lives. A variety of techniques will be used to accomplish this including self-assessment of skills, values, interests, personality type, and strengths. Development of goal setting and decision making skills will be included to assist students in taking charge of their career direction. 
Group 2 course. Communications - Direct, Critical Thinking - Direct.

PSY 101 - Introduction to Psychology  
Credit Hours: 3, Contact Hours: 3  
Division: Social Science

This course provides a broad, general introduction to psychology, its basic subject matter, and its approaches to gathering and evaluating evidence about the causes and correlates of behavior. It includes: a) awareness of major psychological approaches to the study of the behavior of organisms; b) knowledge of its important contributors; c) knowledge of research findings, and concepts; d) understanding of its methodology and limitations. Group 1 course. Critical Thinking - Direct.  
Recommended Prerequisites: Placement into ENG 111/11

PSY 211 - Developmental Psychology  
Credit Hours: 3, Contact Hours: 3  
Division: Social Science

This course presents human development from conception to death including the historical and anthropological basis for studying development. The course includes hereditary factors as well as physical, social, linguistic, intellectual, and personality development. Group 1 course. Critical Thinking - Direct.  
Required Prerequisites: PSY 101  
Recommended Prerequisites: Placement into ENG 111/11

PSY 221 - Psychology of Personality  
Credit Hours: 3, Contact Hours: 3  
Division: Social Science

This course provides a presentation of the concepts, perspectives and terminology of major theorists in the field of personality psychology, as students explore the many psychological, physiological, social and cultural factors that affect personality development. Students are encouraged to evaluate personality theories in relation to current research and application. Group 1 course. Critical Thinking - Direct.  
Required Prerequisites: PSY 101  
Recommended Prerequisites: Placement into ENG 111/11

PSY 223 - Intro to Social Psychology  
Credit Hours: 3, Contact Hours: 3  
Division: Social Science

This course is an introduction to social psychology theory and research, covering the interactions of individuals and the relationships of individuals to groups. This course includes such topics as social influence, attitudes, socialization, aggression, prejudice, attraction, obedience, conformity, altruism, person perception, and personality. Group 1 course. Critical Thinking - Direct.  
Required Prerequisites: PSY 101 or SOC 101  
Recommended Prerequisites: Placement into ENG 111
PSY 225 - Human Sexuality  
**Credit Hours:** 3, **Contact Hours:** 3  
Division: Social Science  
Human Sexuality offers an introduction to all facets of the field, and involves discussions of theory, research, and practical information. The purpose of the course will be to develop a critical awareness of the dominant issues in the field and to refine the student’s sense of sexual responsibility and integrity. This will be accomplished by exploring the biological, social, cultural, psychological, and personal elements of sexuality. Group 1 course. Critical Thinking - Direct, Infused: Writing Intensive.  
Recommended Prerequisites: PSY 101, placement into ENG 111.

PSY 231 - Psychology of Adjustment  
**Credit Hours:** 3, **Contact Hours:** 3  
Division: Social Science  
First, this course will provide the student with a broad introduction to the psychology of adjustment that investigates the processes involved in the dynamic interactions of the individual with his or her environment. Second, this course is designed to present procedures by which the student can harness the principles of learning and rational self-counseling in order to achieve personal goals. Group 1 course. Critical Thinking - Direct.  
Required Prerequisites: PSY 101  
Recommended Prerequisites: Placement into ENG 111

PSY 250 - Abnormal Psychology  
**Credit Hours:** 3, **Contact Hours:** 3  
Division: Social Science  
In this course students will create a working vocabulary of the basic concepts of psychopathology, critically analyze theories and therapies, develop empathy toward the mentally ill and their families, and uncover strategies for living emotionally healthy lives. They will communicate their understanding in a variety of ways and develop strategies for self-assessment of progress toward course outcomes. Group 1 course. Communications - Direct, Critical Thinking - Direct, Infused: Writing Intensive.  
Required Prerequisites: PSY 101  
Recommended Prerequisites: Placement into ENG 111

PSY 290A - Academic Service/Internship  
**Credit Hours:** 1-4, **Contact Hours:** 1-4  
Division: Social Science  
Communications - Direct.

Sociology

SOC 101 - Introduction to Sociology  
**Credit Hours:** 3, **Contact Hours:** 3  
Division: Social Science  
This course is an introduction to the study of human group behavior through social interaction with special emphasis on culture, the socialization process, social stratification, collective behavior, social institutions, and social change. Group 1 course. Communications - Direct, Critical Thinking - Direct, Degree Req:Cultural Persp/Div, Infused: Writing Intensive.  
Recommended Prerequisites: Placement into ENG 111/11

SOC 201 - Modern Social Problems  
**Credit Hours:** 3, **Contact Hours:** 3  
Division: Social Science  
This course presents an introductory sociological analysis of causes, changes in, and attempts to effectively treat some of the major problems in contemporary American society. These include: hunger, environmental problems, poverty, crime and delinquency, family problems, and homelessness. Service Learning projects are encouraged. Group 1 course. Communications - Direct, Critical Thinking - Direct, Degree Req:Cultural Persp/Div, Infused: Writing Intensive.  
Recommended Prerequisites: Placement into ENG 111/11

SOC 211 - Marriage and the Family  
**Credit Hours:** 3, **Contact Hours:** 3  
Division: Social Science  
This course covers topics such as diverse forms of families, ethnic diversity in family patterns, and contemporary issues families face. It includes attraction and partner selection, love, intimacy and sexuality, marriage, parenting and family problems. At the macro level, it emphasizes the structure of family as a social institution and its connections with other institutions in society including government and the economy. Issues of gender and inequality within families are also covered. Group 1 course. Communications - Direct, Critical Thinking - Direct, Infused: Writing Intensive.  
Recommended Prerequisites: SOC 101 strongly recommended. Students need college-ready study, reading and writing skills for this course. Students will analyze evidence and data sources, read and interpret charts and graphs and write extensively on these. Placement in MTH 23 and ENG 111. Honors projects are also available.

SOC 220 - Gender and Society  
**Credit Hours:** 3, **Contact Hours:** 3  
Division: Social Science  
This course examines gender as a system of stratification. It approaches issues of gender in society from both a social, structural, and a social psychological perspective. Issues related to gender inequality in selected institutions such as economy, family, media, education, and politics are studied. Group 1 course. Communications - Direct, Critical Thinking - Direct, Infused: Writing Intensive.  
Recommended Prerequisites: PSY 101 or SOC 101, and placement into ENG 111/11.

SOC 231 - Deviance and Criminal Behavior  
**Credit Hours:** 3, **Contact Hours:** 3  
Division: Social Science  
This course is an introduction to the study of deviance and deviant behavior. The sociological study of deviance refers to the analysis of any behavior that violates social norms. This course will examine and analyze instances of non-criminal and criminal deviance and social responses to deviant behavior. Theoretical approaches that seek to explain social deviance are also discussed and evaluated. Group 1 course. Communications - Direct, Critical Thinking - Direct, Degree Req:Cultural Persp/Div, Infused: Writing Intensive.  
Recommended Prerequisites: SOC 101, placement into ENG 111/11

SOC 290A - Academic Service/Internship  
**Credit Hours:** 1-4, **Contact Hours:** 1-4  
Division: Social Science
Social Work

SWK 121 - Introduction to Social Work
Credit Hours: 2, Contact Hours: 2
Division: Social Science
In this class we will gain basic knowledge about the varying and diverse areas of social work including the health care systems, rural and urban settings, criminal justice systems, systems that work with the elderly, various private and public agencies and schools. We will explore and build an understanding of client populations who may be in need of social work services. In addition, we will assess our own experiences, interests and knowledge that may guide us in the field of social work. Group 2 course. Communications - Direct, Critical Thinking - Direct, Infused: Writing Intensive.
Corequisites: SWK 170

SWK 211 - Social Interviewing Skills
Credit Hours: 3, Contact Hours: 3
Division: Social Science
Introduction to types, purposes and stages of interviewing. Basis empathy skill development will be for observation, listening, non-verbal communications, rapport building, information giving and information gathering. Beginning training in recording and documentation. Emphasis will be on self-monitoring and working with culturally diverse, oppressed or psychologically maladaptive clients. In addition, we will explore building relationships with clients that is focused on the strengths of the client. Group 2 course. Communications - Direct, Critical Thinking - Direct, Infused: Writing Intensive.
Recommended Prerequisites: SWK 121

SWK 221 - Introduction to Social Welfare
Credit Hours: 3, Contact Hours: 3
Division: Social Science
This course explores the historical development of social welfare in the United States, how it has defined social services and implications of they have had on society today. It also reviews modern social welfare systems and the existing attitudes, philosophies and the implications of economic, political and cultural conditions. Varying major theories of behavior are also explored as they relate to social work and the clients in need of services. The course also explores the importance of social workers in social action through understanding the different political perspectives influencing the formation of welfare policy. Group 2 course. Communications - Direct, Critical Thinking - Direct, Infused: Writing Intensive.
Required Prerequisites: SWK 121, SWK 170
Recommended Prerequisites: PLS 101, ENG 11/111 or higher

SWK 290 - Social Work Internship
Credit Hours: 3, Contact Hours: 3
Division: Social Science
This course helps to prepare students for the generalist practice in the field of social work. This is a field instruction course that students will engage in direct practice of social work education. Students will complete 120 hours in a human service agency. This placement will provide an opportunity to observe social workers while they work, as well as assisting in general service delivery under close supervision. Students must complete the 120 hours in one semester. Group 2 course. Critical Thinking - Direct.
Required Prerequisites: SWK 121, SWK 170
Recommended Prerequisites: SWK 211

SWK 290A - Academic Service/Internship
Credit Hours: 1-4, Contact Hours: 1-4
Division: Social Science
Recommended Prerequisites: SWK 121, SWK 170

Early Childhood Education and Care, Certificate of Achievement (Level II) and CDA Cohort

NMC offers two pathways to reaching foundation level certification or credentials related to early care and education. These programs of study are CDA/NMC Cohort and Early Childhood Certificate of Achievement. Completing one or both programs provides preparation for careers for many levels of teaching and caring for children in preschools, child daycare and before and after school programs.

For some individuals, those currently working in the field of early education, the CDA Cohort pathway provides the training hours and support needed for students to complete the National CDA (Child Development Associate) credentialing process as they earn college credit. NMC in partnership with the Great Start Network and T.E.A.C.H. of Michigan provide training and financial support for eligible students. Students in this program will complete their CDA training and credentialing requirements along with earning nine early childhood college credits. These early education credits can be used for pursuing a Certificate of Achievement or Associate of Applied Science degree in Early Childhood Education. Students interested in this pathway will need to contact the Early Childhood program coordinator for special instructions.

NMC/T.E.A.C.H. Early Childhood® Michigan Scholarship CDA Cohort Program

NMC in partnership with T.E.A.C.H. Early Childhood® of Michigan offers this CDA COHORT academic plan. This schedule is designed to meet the National CDA credential requirements for students currently working with young children. These classes offer the completion of CDA training hours, experience hours and all CDA competency requirements for the National Child Development Associate credentialing process along with earning nine (9) early childhood college credits.

This course work provides what students need to meet competency standards only. Completion of the entire CDA credentialing process is separate from course completion and is the responsibility of each individual student. T.E.A.C.H. Early Childhood® of Michigan provides
scholarship support for students eligible for this education plan. This schedule is completed in two sequential semesters.

Certificate of Achievement (Level II)

_NMC Code 002_

This certificate program is designed to meet the qualifications for center directors and lead teachers required by Michigan’s Licensing Rules for Child Care Centers. Students completing the Early Childhood Education and Care Certificate will reliably demonstrate the working knowledge of child development from conception to age 10 and possess the skills necessary for teaching and administering early care and education programs. This is a building block program that provides more than half of the 60 credits required for an Associate of Applied Science Degree in Early Childhood Education. Students interested in the certificate program are encouraged to work closely with the Early Childhood Education Program coordinator. A 2.0 GPA must be maintained to receive the certificate.

Requirements

Cohort requirements

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECE 101</td>
<td>Early Childhood Education</td>
<td>3</td>
</tr>
<tr>
<td>ECE 204</td>
<td>Early Childhood Curriculum</td>
<td>4</td>
</tr>
<tr>
<td>ECE 290B</td>
<td>Early Education Internship</td>
<td>2</td>
</tr>
</tbody>
</table>

120 training hours and CDA competency requirements fulfilled in 2 semesters.

Total Credits 9

Certificate Requirements

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECE 101</td>
<td>Early Childhood Education</td>
<td>3</td>
</tr>
<tr>
<td>ECE 202</td>
<td>Human Development and Learning</td>
<td>5</td>
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<tr>
<td>ECE 203</td>
<td>Curriculum for Child Guidance</td>
<td>4</td>
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<td>ECE 204</td>
<td>Early Childhood Curriculum</td>
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</tr>
<tr>
<td>ECE 206</td>
<td>Infant Toddler Care Curriculum</td>
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</tr>
<tr>
<td>ECE 220</td>
<td>Early Education Administration</td>
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<td>ECE 230</td>
<td>Early Literacy and Learning</td>
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<td>ECE 240</td>
<td>Integrated Arts in Curriculum</td>
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<tr>
<td>EDU 212</td>
<td>Educating Exceptional Children</td>
<td>3</td>
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<tr>
<td>ENG 111</td>
<td>English Composition</td>
<td>4</td>
</tr>
<tr>
<td>PSY 101</td>
<td>Introduction to Psychology</td>
<td>3</td>
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</tbody>
</table>

Math competency 2

Total Credits 39

1 Includes practicum hours with early childhood lab experience (required by most schools that have an early childhood program). Students can complete hours at their place of employment if it meets the placement requirements.

2 Placement into MTH 111 Intermediate Algebra or higher, or completion of MTH 23 Beginning Algebra.

Course Sequence Guide

_CDA Cohort_

<table>
<thead>
<tr>
<th>Year 1</th>
<th>Title</th>
<th>Credits</th>
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</thead>
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<td>Fall</td>
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<td>ECE 101</td>
<td>Early Childhood Education</td>
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<td>Spring</td>
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<td>ECE 204</td>
<td>Early Childhood Curriculum</td>
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<tr>
<td>ECE 290B</td>
<td>Early Education Internship</td>
<td>2</td>
</tr>
</tbody>
</table>

Total Credits 9

1 The CDA Cohort is offered in a summer/fall sequence: ECE 101 and 204 are offered in the summer, and ECE 290B is offered in the fall. This is an intensive program designed for students who are in need of CDA training hours on a faster track.

2 Internship hours are completed at place of employment.

NMC Certificate Program

<table>
<thead>
<tr>
<th>Year 1</th>
<th>Title</th>
<th>Credits</th>
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<tr>
<td>Fall</td>
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<tr>
<td>ECE 101</td>
<td>Early Childhood Education</td>
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<td>ECE 202</td>
<td>Human Development and Learning</td>
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<td>ECE 204</td>
<td>Early Childhood Curriculum</td>
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<td>ECE 220</td>
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<td>EDU 212</td>
<td>Educating Exceptional Children</td>
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<td>ECE 203</td>
<td>Curriculum for Child Guidance</td>
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<td>ECE 206</td>
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<td>ECE 230</td>
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<td>ECE 240</td>
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<td>Summer</td>
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<tr>
<td>PSY 101</td>
<td>Introduction to Psychology</td>
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<tr>
<td>ENG 111</td>
<td>English Composition</td>
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<tr>
<td>MTH 23</td>
<td>Beginning Algebra (or placement into MTH 111)</td>
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</table>

Total Credits 39

1 Includes practicum hours with early childhood lab experience (required by most schools that have an early childhood program). Students can complete hours at their place of employment if it meets the placement requirements. Placements are arranged through the Early Childhood Coordinator, Cheryl Bloomquist (231)995-1293.
Early Childhood Education, Associate in Applied Science Degree

NMC Code 321

This program prepares students for the challenges of the ever-changing world of early care and education. Specialized courses and liberal arts studies provide students with a foundation needed to pursue careers in early childhood education, childcare, and preschool education. The order in which courses are taken is not critical except where prerequisites are involved. Course substitutions may be made only with the approval of the program coordinator or the academic area chair.

Students planning to pursue a four-year degree in Child Development or Early Childhood Education should familiarize themselves with the requirements of the school of choice for their bachelor’s degree.

Requirements

Major Requirements

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>ENG 111</td>
<td>English Composition</td>
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<tr>
<td>ENG 112</td>
<td>English Composition</td>
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<tr>
<td>ENG 210</td>
<td>Children’s Literature</td>
<td>3</td>
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<td>Math Competency</td>
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<td>Any Group 1 Science course with a lab</td>
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</tr>
<tr>
<td>PSY 101</td>
<td>Introduction to Psychology</td>
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Occupational Specialty Requirements

<table>
<thead>
<tr>
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<tbody>
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<td>EDU 212</td>
<td>Educating Exceptional Children</td>
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<tr>
<td>SOC 101</td>
<td>Introduction to Sociology</td>
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<tr>
<td>SOC 211</td>
<td>Marriage and the Family</td>
<td>3</td>
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</tbody>
</table>

Total Credits | 60 |

MTH 23 or placement in MTH 111 or higher

Total Credits | 60 |

1 Includes practicum hours with early childhood lab experience (required by most schools that have an early childhood program). Students can complete hours at their place of employment if it meets the placement requirements. Placements are arranged through the Early Childhood Education Coordinator.

2 Meets Cultural Diversity requirement.

3 COM 111 Public Speaking is suggested course for transfer to Ferris BS ECE.

Law Enforcement, Associate in Applied Science Degree

NMC Code 352

Graduates of this program are eligible to take the state law enforcement officer examination. Students who anticipate transferring to a four-year college or university need to see an NMC advisor during their first semester, as some courses may be acceptable for transfer credit. Students may enroll in the Law Enforcement Preservice Police Academy upon completing first year requirements or with a college degree. Completion of the Police Academy (LWE courses) must occur within two semesters, beginning fall semester and completed the following spring semester. A minimum grade of 2.0 must be achieved in each LWE course, satisfying prerequisites for licensing and qualifying the student to take the state examination to be hired by a law enforcement agency, which activates the license. The Police Academy is approved and regulated by the Michigan Commission on Law Enforcement Standards (MCOLES).

It is mandatory that students meet with the Law Enforcement Coordinator prior to beginning LWE courses to register with MCOLES. Students must pass MCOLES reading/writing and physical agility tests prior to starting the LWE courses. Visit www.michigan.gov/mcoles (http://www.michigan.gov/mcoles).
www.michigan.gov/mcoles/) for online registration or call (231) 995-1283 with questions.

Requirements

Major Requirements

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>ENG 111 English Composition</td>
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<tr>
<td>ENG 112 English Composition</td>
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<tr>
<td>PHL 201 Ethics</td>
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<td>or PHL 202 Contemporary Ethical Dilemmas</td>
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<tr>
<td>PLS 101 Intro to American Politics</td>
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<td>or PLS 132 Comparative Politics</td>
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<td>CJ 101 Intro to Criminal Justice</td>
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<td>PSY 101 Introduction to Psychology</td>
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<td>PSY 250 Abnormal Psychology</td>
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<td>or SOC 231 Deviance and Criminal Behavior</td>
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<td>SOC 101 Introduction to Sociology</td>
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<td>Occupational Specialty Requirements</td>
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<td>HAH 200 Emergency Assess.&amp; Interventio</td>
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<td>LWE 102 Police Operations</td>
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<td>LWE 210 Cultural Awareness/Diversity</td>
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<td>LWE 212 Criminal Investigation</td>
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<td>LWE 214 Firearms</td>
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<td>LWE 215 Defensive Driving</td>
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<td>LWE 216 Traffic Enforcement &amp; Invest</td>
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<td>LWE 218 Physical Training/Wellness</td>
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<td>LWE 225 Defensive Tactics</td>
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<td>LWE 226 Michigan Criminal Law</td>
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<tr>
<td>LWE 227 Criminal Procedures</td>
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<tr>
<td>LWE 228 Speed Measurement/PBT</td>
<td>3</td>
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</table>

Recommended Course

LWE 195 Police Practicum 2

Total Credits 70

1 Placement into MTH 111 Intermediate Algebra or higher, or completion of MTH 23 Beginning Algebra
2 Recommended for students with no police field experience.

Course Sequence Guide

Year 1

Fall

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MTH 23 Beginning Algebra 1</td>
<td>(4)</td>
</tr>
<tr>
<td>ENG 111 English Composition</td>
<td>4</td>
</tr>
<tr>
<td>PLS 101 Intro to American Politics</td>
<td>3</td>
</tr>
<tr>
<td>or PLS 132 Comparative Politics</td>
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<tr>
<td>CJ 101 Intro to Criminal Justice</td>
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Spring

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>ENG 112 English Composition</td>
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</tr>
<tr>
<td>PHL 201 Ethics</td>
<td>3</td>
</tr>
<tr>
<td>or PHL 202 Contemporary Ethical Dilemmas</td>
<td></td>
</tr>
<tr>
<td>SOC 101 Introduction to Sociology</td>
<td>3</td>
</tr>
<tr>
<td>PSY 250 Abnormal Psychology</td>
<td>3</td>
</tr>
<tr>
<td>or SOC 231 Deviance and Criminal Behavior</td>
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</tr>
</tbody>
</table>

With Lab

| Credits | 17 |

Year 2

Fall

Students must take MCOLES Physical Fitness and Reading/Writing tests before 2nd year classes.

<table>
<thead>
<tr>
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<tr>
<td>LWE 102 Police Operations</td>
<td>4</td>
</tr>
<tr>
<td>LWE 210 Cultural Awareness/Diversity</td>
<td>2</td>
</tr>
<tr>
<td>LWE 214 Firearms</td>
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</tr>
<tr>
<td>LWE 218 Physical Training/Wellness</td>
<td>4</td>
</tr>
<tr>
<td>LWE 226 Michigan Criminal Law</td>
<td>3</td>
</tr>
<tr>
<td>HAH 200 Emergency Assess.&amp; Interventio</td>
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Total Credits 20

Spring

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<tr>
<td>LWE 212 Criminal Investigation</td>
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</tr>
<tr>
<td>LWE 215 Defensive Driving</td>
<td>3</td>
</tr>
<tr>
<td>LWE 216 Traffic Enforcement &amp; Invest</td>
<td>3</td>
</tr>
<tr>
<td>LWE 225 Defensive Tactics</td>
<td>4</td>
</tr>
<tr>
<td>LWE 227 Criminal Procedures</td>
<td>3</td>
</tr>
<tr>
<td>LWE 228 Speed Measurement/PBT</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 19

Total Credits 70

1 Or MTH 111-11, or placement into MTH 111 Intermediate Algebra

Program Notes

LWE 195 Police Practicum 4 credits/contacts, is optional but recommended for police field experience, and may be taken Fall, Spring, or Summer. Students must meet with Gail Kurowski, Academy Director, before beginning the Police Academy Program. 231.995.1283 or gkurowski@nmc.edu.

Law Enforcement, Certificate of Achievement (Level II)

NMC Code 049

The following coursework may be taken in order to qualify for the Certificate of Achievement in Law Enforcement. Completion of the program qualifies students for the Michigan Commission on Law Enforcement Standards (MCOLES), State of Michigan Post-Test Exam and after passing the exam students are certifiable to work as Police Officers throughout the State of Michigan as well as other states in the United States with reciprocity agreements. An associate degree is required to qualify to take the MCOLES licensing exam.
Admission Requirements

Enrollment in the Law Enforcement Certificate program requires approval of the NMC Law Enforcement Director and MCOLES.

The following are required for admission:

- A minimum of an associate degree from an accredited college or completion of an associate degree at the completion of the required courses or successful completion of the basic military police training academy with one year of active service (see Rule 313 below)
- Must be a U.S. Citizen
- Must be at least 18 years of age
- Have never been convicted of a Felony (including expunged records)
- Vision must be correctable to 20/20 in both eyes
- Must have normal color vision
- Must have a valid driver’s license
- Must pass a preservice physical fitness test
- Must pass a reading/writing exam
- Must pass a physical exam
- Must pass a psychological exam

Michigan Commission on Law Enforcement Standards (MCOLES) Rule 313:

1. A prospective recruit seeking enrollment in a basic training academy who has prior military law enforcement experience may request a waiver of the requirements in R 28.14315(1)(b) to enroll in a commission approved regional or pre-service college basic law enforcement training academy, if all of the following requirements are met:
   a. Have successfully completed a mandatory basic military police training academy.
   b. Have served competently as a military police officer, with full powers of arrest, the authority to carry firearms in the performance of his or her duties, while holding the specialty rank or assignment of a military police officer, or its equivalent, in 1 of the 5 branches of the United States armed services, the national guard, or the reserves. The applicant shall have acted in the unrestricted full capacity of a military police officer for a minimum of 2,080 hours following training.
   c. Have been honorably discharged from active duty.
2. Each requirement listed above shall be verified through a commission review of a properly executed DD-214 and the applicant’s military service record.

Technical Programs

- Automotive - Automotive Service Technology, Associate in Applied Science Degree (p. 163)
- Automotive - Electrical & Drivability Specialist, Certificate of Achievement (Level II) (p. 164)
- Automotive - Hybrid Technology Specialist, Certificate of Achievement (Level II) (p. 165)
- Automotive - Master Automotive Technician, Certificate of Achievement (Level III) (p. 165)
- Automotive - Under Car Specialist, Certificate of Achievement (Level II) (p. 166)
- Construction Technology - Carpentry Technology, Certificate of Achievement (Level I) (p. 167)
- Construction Technology - Carpentry Technology, Certificate of Achievement (Level II) (p. 167)
- Construction Technology - Construction Management, Associate in Applied Science Degree (p. 168)
- Construction Technology - Electrical Technology, Certificate of Achievement (Level II) (p. 169)
- Construction Technology - Electrical, Associate in Applied Science Degree (p. 169)
- Construction Technology - Facilities Maintenance, Certificate of Achievement (Level II) (p. 171)
- Construction Technology - HVAC/R Technology, Certificate of Achievement (Level I) (p. 172)

Requirements Certificate of Achievement

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Total Credits: 39

Note: A 2.0 grade or higher is required in LWE Courses.
Courses

Automotive Technology

AT 100 - Automotive Service Basics
Credit Hours: 2, Contact Hours: 2
Division: Technical
This is the first course in the Automotive Service Program. Engine theory, cooling systems, and lube requirements will be covered. Bolts, micrometers and basic specialty tools are integrated into the class. Training in the use of acetylene torch equipment will be taught along with its use in the automotive field. Group 2 course. Recommended Prerequisites: ENG 99/108

AT 110 - Automotive Brake Systems
Credit Hours: 5, Contact Hours: 7
Division: Technical
This course covers theory, components, nomenclature, and service of automotive brake systems. Students will use standard skills to diagnose hydraulic systems, drum and disc brakes, power assist units and systems. The study and repair of modern ABS systems along with the replacement of associated parts such as wheel bearings will also be covered. Group 2 course. Critical Thinking - Direct.
Required Prerequisites: AT 100-may be taken concurrently

AT 120 - Automotive Electrical I
Credit Hours: 5, Contact Hours: 8
Division: Technical
This course covers basic electricity, circuits, testing equipment, and solid state electronics. Group 2 course. Critical Thinking - Direct.
Required Prerequisites: AT 100-may be taken concurrently

AT 130 - Engine Performance I
Credit Hours: 5, Contact Hours: 8
Division: Technical
This course is designed to familiarize the student with the theory and operation of the automotive ignition system and fuel system. Group 2 course. Critical Thinking - Direct.
Required Prerequisites: AT 100-may be taken concurrently

AT 140 - Suspension and Steering
Credit Hours: 4, Contact Hours: 6
Division: Technical
This course is designed to familiarize the student with the nomenclature, theory, and service techniques for the modern steering and suspension system. Group 2 course. Critical Thinking - Direct.
Required Prerequisites: AT 100-may be taken concurrently

AT 150 - Automatic Transmissions
Credit Hours: 6, Contact Hours: 9
Division: Technical
This course is designed to familiarize the student with the theory and internal transmission powerflow, electronic control and torque converter operation. All aspects of transmission operation will be covered as well as removal, overhaul, and installation procedures. Students will remove, dyno-test, and install actual failed units in the lab. Group 2 course. Critical Thinking - Direct.
Required Prerequisites: Instructor signature required

AT 160 - Engine Repair
Credit Hours: 6, Contact Hours: 8
Division: Technical
This course covers the theory, construction, and repair of the four stroke automotive engine. This will include the proper use of compression leakage and test equipment, precision measuring tools, special engine tools and valve grinding equipment. Group 2 course. Critical Thinking - Direct.
Required Prerequisites: AT 100-may be taken concurrently

AT 170 - Heating and Air Conditioning
Credit Hours: 4, Contact Hours: 6
Division: Technical
This course covers the principles of refrigeration with emphasis on the particular problems of application to automotive air conditioning. The course also covers automotive heating systems which include heater cores, blower motors, vent systems and the electronic controls for them. The student will learn how to use refrigerant recovery and charging equipment and will have hands-on experience in the lab with that equipment. Group 2 course. Critical Thinking - Direct.
Required Prerequisites: AT 120

AT 180 - Manual Drivetrain and Axles
Credit Hours: 6, Contact Hours: 9
Division: Technical
This course covers the basic operating principles, construction, power flow and repair of clutches, manual transaxles, and drive shafts. Differential theory and overhaul will be covered including ring and pinion replacement and set up. Group 2 course. Critical Thinking - Direct.
Required Prerequisites: AT 100-may be taken concurrently
AT 200 - Service Department Management  
**Credit Hours:** 2, **Contact Hours:** 2  
**Division:** Technical  
This course is designed to acquaint the student who plans a career in the automotive service industry with the duties, responsibilities, qualifications, and problems of service department manager. The student will learn general shop organization, types of service, and cost and returns by department. Time will be devoted to employer-employee and customer relations, and instruction in the use of the service manual. Group 2 course.

AT 210 - Hybrid Technology  
**Credit Hours:** 5, **Contact Hours:** 8  
**Division:** Technical  
This course provides a comprehensive systems overview of the operating principles, maintenance, and service of hybrid electric vehicles. Group 2 course. Critical Thinking - Direct. Required Prerequisites: AT 130 or Certification in Electrical and Engine Tune Up.

AT 220 - Automotive Electrical II  
**Credit Hours:** 5, **Contact Hours:** 8  
**Division:** Technical  
This course covers advanced automotive electronics with the emphasis placed on operation, troubleshooting, and repair of lighting, gauges, accessories, and power option circuits. Body hardware is covered including diagnostics of modern systems with body control modules. Group 2 course. Critical Thinking - Direct. Required Prerequisites: AT 120

AT 230 - Engine Performance II  
**Credit Hours:** 4, **Contact Hours:** 6  
**Division:** Technical  
This course covers computerized engine controls including the latest emission control systems. The student will become proficient with the use of scanners, scopes, and the latest engine analyzers. The art of diagnostics and troubleshooting will be stressed. The student will have hands-on experience in this area including practice using the computer as a source of information. Group 2 course. Critical Thinking - Direct. Required Prerequisites: AT 130

AT 290 - Automotive Internship  
**Credit Hours:** 3, **Contact Hours:** 3  
**Division:** Technical  
The purpose of the internship is to provide on-the-job training for the student who wishes to pursue a career in a technical field of study. The internship will be customized to meet the learning needs of the student and the job requirements of the sponsoring firm. Students spend 10-15 hours per week in this paid, supervised on-the-job training experience. In addition to the required 50 hours at a work site, students participate in semi-monthly seminars. Students must apply one month prior to the semester in which they will complete the internship. Group 2 course. Communications - Direct. Required Prerequisites: 30 credits of program specific courses with a GPA of 2.0 or higher.

Carpentry Technology

CAR 100 - Introductory Craft Skills  
**Credit Hours:** 2, **Contact Hours:** 3  
This course provides an introduction to essential construction skills. Through structured classroom and hands-on skill building, the student will learn about the construction industry, building materials, fasteners and adhesives, hand and power tools, introduction to print reading, and floor systems. Group 2 course. Recommended Prerequisites: Placement into MTH 23 or higher, or co-enrollment in the recommended developmental math course. Placement into ENG 11/111 or higher, or co-enrollment in the recommended English course.

CAR 101 - Introduction to Carpentry  
**Credit Hours:** 3, **Contact Hours:** 4  
This course provides an introduction to residential carpentry. Through structured classroom and hands-on skill building, the student will learn about the construction industry, building materials, fasteners and adhesives, hand and power tools, introduction to print reading, and floor systems. Group 2 course. Recommended Prerequisites: Placement into MTH 23 or higher, or co-enrollment in the recommended developmental math course. Placement into ENG 11/111 or higher, or co-enrollment in the recommended English course.

CAR 102 - Intro to Woodworking  
**Credit Hours:** 3, **Contact Hours:** 4  
This course is for the student that has a desire to experience woodworking in the area of basic cabinet and furniture. Techniques in the usage and maintaining of basic hand and power tools, understanding of how wood movement will affect design of an assembly, application of basic joinery, adhesives, and fasteners in the woodworking completion of this class establishes a foundation in which the student can build simple furniture and cabinets. Group 2 course. Recommended Prerequisites: Students will greatly benefit from having competency up to MTH111.

CAR 103 - Construction Blueprint Reading  
**Credit Hours:** 3, **Contact Hours:** 3  
Students will learn the skills needed to read and understand construction drawings, as well as an understanding of manufacturers’ literature of component parts used in buildings. Both commercial and residential construction materials and drawings are studied. Problems encountered in design development such as site limitations, zoning restrictions, utility availability, coordination of product specifications, adherence to building codes and life safety are explored. Group 2 course. Recommended Prerequisites: Placement into MTH 111 or co-enrollment in MTH 08 or 23, placement into ENG 111 or co-enrollment in ENG 99/108.

CAR 104 - Woodworking Applications I  
**Credit Hours:** 3, **Contact Hours:** 4  
This course is for the student with a strong understanding of hand and power tools used in the craft of woodworking. A desire to expand their knowledge in the aspects involved with basic furniture and cabinet building is a must. Students will be constructing projects that, by design, will challenge those of the advanced beginner and intermediate skill abilities. Students will plan and implement the necessary steps to address the projects’ hardware and joinery requirements. Group 2 course. Required Prerequisites: CAR 102. Recommended Prerequisites: MTH 23
CAR 105 - Foundations and Framing  
Credit Hours: 3, Contact Hours: 4  
Through structured classroom and hands-on skill building, the student will learn foundation design, layout, concrete material forms, and applications. Floor, wall, ceiling and roof framing will be covered, as well as basic stair layout and construction. Group 2 course.  
Recommended Prerequisites: Placement in MTH 23 or co-enrollment in the recommended developmental Math course, placement into ENG 11/111 or co-enrollment in the recommended English course.

CAR 121 - Exterior Construction  
Credit Hours: 3, Contact Hours: 4  
Through structured classroom and hands-on skill building, the student will learn about various roofing materials and applications, window and door installation, siding, cornice design and installation, gutters, downspouts, decks and fences. Group 2 course.  
Recommended Prerequisites: Placement into MTH 23 or higher, or co-enrollment in the recommended developmental math course. Placement into ENG 11/111 or higher, or co-enrollment in the recommended English course.

CAR 125 - Interior Construction  
Credit Hours: 3, Contact Hours: 4  
Through structured classroom and hands-on skill building, the student will learn about drywall products, installation, and finishing, wall panels, tile, suspended ceilings, finish trim, flooring, and cabinet and countertop installation. Group 2 course.  
Recommended Prerequisites: Placement in MTH 23 or co-enrollment in the recommended developmental Math course. Placement into ENG 11/111 or Co-enrollment in the recommended English Course.

CAR 135 - Site Layout and Formwork  
Credit Hours: 3, Contact Hours: 4  
Through structured classroom and hands-on skill building, the student will learn about trenching and excavation, foundations and slab-on-grade, vertical formwork, horizontal formwork and tilt-up wall panels. Group 2 course.

Drafting and Design

DD 101 - Print Reading and Sketching  
Credit Hours: 3, Contact Hours: 4  
Division: Technical  
Students will learn to read engineering drawings of products and tooling used in today’s manufacturing. Basic drawing format and layout are presented using product, tooling assembly, and tooling detail drawings. Students learn methods of three dimensional shape description, dimensioning and tolerancing. Types of fasteners along with related terminology and manufacturing processes, material specifications, and welding symbols are presented. Students learn the presentation skills of orthographic projection, isometric and oblique pictorial drawings using straight line and free hand sketches. Group 2 course. Critical Thinking - Direct.

DD 110 - Basic Metallurgy  
Credit Hours: 3, Contact Hours: 3  
Division: Technical  
This course presents the making and forming of steel and the classification of steel and cast iron. Mechanical and physical properties are presented along with hardness and tensile testing labs. Principles of alloying, crystal structure, and the iron-carbon diagram help students understand how annealing, hardening, and tempering processes alter the mechanical properties of steel. Non-ferrous metallurgy is presented with an emphasis on aluminum. Group 2 course.  
Recommended Prerequisites: Placement into MTH 23 and ENG 99/108 recommended for entry.

DD 160 - Tolerancing and GD&T  
Credit Hours: 3, Contact Hours: 3  
Division: Technical  
This course first presents conventional tolerancing terminology, expressions, and accumulations in both inch and metric formats. Next, Geometric Dimensioning and Tolerancing (GD&T) presents an international system of symbols used to dimension products or tooling components. The course is based on the current ASME Y14.5M2009 Dimensioning and Tolerancing standard. Engineers, designers, drafters, cost estimators, machinists, and inspectors must understand this system. Students study actual product drawings and make design sketches of workholding and inspection devices. Group 2 course. Critical Thinking - Direct.  
Required Prerequisites: DD 101

DD 170 - CADD/Computer Modeling  
Credit Hours: 4, Contact Hours: 5  
Division: Technical  
Graphic communication course using 3D parametric modeling techniques. Topics include 3D modeling using SolidWorks software in an engineering design environment. Students will also develop 2D drafting skills including proper organization and layout of component drawing views, dimensioning and tolerancing, sectioning and detailing, detail descriptive geometry and rapid prototyping. Group 2 course. Critical Thinking - Direct.  
Recommended Prerequisites: Placement into MTH 23 and ENG 99/108 recommended for entry.

DD 290 - Drafting Internship  
Credit Hours: 3, Contact Hours: 3  
Division: Technical  
The purpose of the internship is to provide on-the-job training for the student who wishes to pursue a career in a technical field of study. The internship will be customized to meet the learning needs of the student and the job requirements of the sponsoring firm. Students spend 10-15 hours per week in this paid, supervised on-the-job training experience. In addition to the required 50 hours per credit in a work site, students participate in semi-monthly seminars. Students must apply one month prior to the semester in which they will complete the internship. Group 2 course. Communications - Direct.  
Required Prerequisites: 30 credits of program specific courses with a GPA of 2.0 or higher.
Construction Management

CMT 107 - Construction Supervision
Credit Hours: 4, Contact Hours: 4
Students will learn the skills needed for construction management including: business management, estimating and job costing, design and building science, contracts, liability and risk management, marketing and sales, project management and scheduling, the Michigan Residential Code, MIOSHA construction safety standards, and effective communication for construction project management. Group 2 course. Critical Thinking - Direct.
Recommended Prerequisites: It is recommended that students have taken or are co-enrolled in MTH 08 or 23 and ENG 99/108.

CMT 207 - Construction Cost Estimating
Credit Hours: 3, Contact Hours: 3
In this course students will explore topics pertaining to the processes of construction estimating and bidding techniques. Those topics will include, but are not limited to, the discussion and exploration of the identification and quantification of construction materials, labor, and equipment for the construction bidding process. Some computer estimation programs and/or cost data publications will be used to develop estimates. Group 2 course. Quantitative Reasoning.
Required Prerequisites: CAR 103. CMT 107, MTH 111 or higher, CIT 100
Recommended Prerequisites: ENG 111 may be taken concurrently, math and reading skills are necessary for success in this course.

Electrical Technology

EET 102 - Intro to Engineering Tech
Credit Hours: 2, Contact Hours: 2
Division: Technical
This course is designed to give students an overview of Engineering Technology and the career options this profession provides. This course highlights the technical specializations within the Engineering Technology degree at NMC. Course topics also include engineering design methods, project management principles and practices, team work skills, engineering ethics, and the role of engineering in global and environmental issues. Group 2 course. Communications - Direct.
Recommended Prerequisites: Placement into MTH 23 and ENG 99/108 or higher.

EET 103 - Electrical Studies I
Credit Hours: 3, Contact Hours: 4
Division: Technical
Explore the fundamentals of electricity and electronics by developing introductory analysis, construction and troubleshooting techniques for DC and AC circuits. Safe electrical practices will be emphasized throughout the course as the student constructs circuits from schematics and diagrams using proper wiring and soldering techniques. Electrical measurements will be performed using multimeters and oscilloscopes. Group 2 course. Quantitative Reasoning.

EET 161 - Fundamentals of Light & Lasers
Credit Hours: 4, Contact Hours: 6
Division: Technical
This course introduces the elements of a laser, operation of a helium-neon gas laser, laser physics, optical-cavities, properties of laser light and a survey of laser systems. Safety procedures concerning lasers and related equipment are presented in this course. Group 2 course. Quantitative Reasoning.
Required Prerequisites: MTH 23 or higher

EET 180 - Biomedical Equipment I
Credit Hours: 3, Contact Hours: 4
Division: Technical
This course introduces the learner to the field of the biomedical equipment technology and the role of the technician. Safety, patient care, ethics, regulatory requirements, healthcare equipment technology and function will be emphasized. Proper procedures and protocols for the calibration, test and troubleshooting of medical equipment will be developed. Common diagnostic equipment will be used for signal analysis. The course will begin the preparation for the CBET certification exam. Group 2 course.
Required Prerequisites: BIO 106, EET 204, HAH 101

EET 190 - Biomedical Internship
Credit Hours: 1, Contact Hours: 1
Division: Technical
The purpose of the internship is to provide on-the-job training for the student who wishes to pursue a career in Biomedical Equipment. The internship will be customized to meet the learning needs of the student and the job requirements of the sponsoring firm. Students spend 5-10 hours per week in this, supervised on-the-job training experience. In addition to the required 50 hours per credit in a work site, students participate in three seminars. Students must apply one month prior to the semester in which they will complete the internship. Group 2 course.
Required Prerequisites: EET 180

EET 204 - Electrical Studies II
Credit Hours: 3, Contact Hours: 4
Division: Technical
A systems level approach to electronics and electrical devices will be used to analyze semiconductor applications including integrated circuits, power supplies, transistors, amplifiers, and digital logic families. Circuits will be bench tested, and integrated with others to meet system requirements. Design modifications, circuit improvements, component protection and application to other areas of engineering technology will be emphasized as designs are developed into working prototypes. Group 2 course. Quantitative Reasoning.
Required Prerequisites: EET 103

EET 212 - Elements of Photonics
Credit Hours: 4, Contact Hours: 5
Division: Technical
Elements of Photonics builds upon and applies principles presented in Fundamentals of Light and Lasers. The course includes modules on operational characteristics of lasers, specific laser types, optical detectors and human vision, principles of optical fiber communications, photonics devices for imaging, storage and display, and laser welding and surface treatment. Group 2 course. Quantitative Reasoning.
Required Prerequisites: EET 161

EET 221 - Industrial Controls
Credit Hours: 3, Contact Hours: 4
Division: Technical
This course studies control circuits, electrical schematics and line diagrams. Motor circuits utilizing motor starters, contactors, timers and counters are used to demonstrate control circuitry. Industrial control devices are examined, including solid-state control devices, electro-mechanical relays, proximity sensors, photoelectric sensing devices and programmable logic controllers. Group 2 course.
Required Prerequisites: EET 103 or ELE 105 or MNG 234
EET 232 - Programmable Logic Controllers  
**Credit Hours:** 3, **Contact Hours:** 4  
**Division:** Technical  
This course studies programmable logic controllers (PLCs). Basic models and complete applications are applied to control inputs and outputs of PLCs. Ladder logic and device wiring techniques are studied, along with advanced program instructions such as counters, timers, sequencers and integer moves. Input/output devices are used to examine PLC program logic during the control process. Group 2 course.  
Required Prerequisites: EET 221

EET 233 - PLC Applications I  
**Credit Hours:** 3, **Contact Hours:** 4  
**Division:** Technical  
This course is a study of the integration of program styles and components used in industry. Program structures and instructions will be used in lab projects to simulate how PLCs can be used to create a variety of useful functions. A mixture of textbook and component manuals will be used to learn the necessary information to complete these functions. Group 2 course.  
Required Prerequisites: EET 232, ELE 142

EET 234 - PLC Applications II  
**Credit Hours:** 3, **Contact Hours:** 4  
**Division:** Technical  
This course is a continuation of the study of the integration of program styles and components used in industry. Program structure and project development will be studied. Installation of different types of components integrated with PLCs will also be studied. Group 2 course.  
Required Prerequisites: EET 233, ELE 146

EET 260 - System Engineering in Practice  
**Credit Hours:** 3, **Contact Hours:** 4  
**Division:** Technical  
This class introduces students to the practice of system design and development. Students apply specific methodologies for problem-based learning and project management. Technical content from prior courses is applied to address challenges and create solutions. Student teams create prototypes and communicate results with classroom activities supporting teamwork, project planning, requirements analysis, design, development, testing, demonstration, and reporting. Group 2 course.  
Required Prerequisites: EET 102, EET 103, RAM 155  
Recommended Prerequisites: AVF 141, RAM 205 or WSI 200

EET 281 - Biomedical Equipment II  
**Credit Hours:** 3, **Contact Hours:** 4  
**Division:** Technical  
This course continues the study of biomedical equipment technology and the role of the technician. Healthcare problem solving techniques will be developed through the analysis, testing and troubleshooting of medical equipment. Information technology needs and requirements will be reviewed as they pertain to the healthcare environment as well as anatomy and physiology specific to the field. Students will continue preparing for the CBET certification exam. Group 2 course. Critical Thinking - Direct.  
Required Prerequisites: EET 180

EET 290 - Engineering Tech Internship  
**Credit Hours:** 3, **Contact Hours:** 3  
**Division:** Technical  
The purpose of the internship is to provide on-the-job training for the student who wishes to pursue a career in a technical field of study. The internship will be customized to meet the learning needs of the student and the job requirements of the sponsoring firm. Students spend 10-15 hours per week in this paid, supervised on-the-job training experience. In addition to the required 50 hours per credit in a work site, students participate in semi-monthly seminars. Students must apply one month prior to the semester in which they will complete the internship. Group 2 course. Communications - Direct.  
Required Prerequisites: 30 credits of program specific courses with a GPA of 2.0 or higher

EET 292 - Technical Career Development  
**Credit Hours:** 1, **Contact Hours:** 1  
**Division:** Technical  
This course provides the career tools necessary for the student to reach their full professional potential. The student will develop essential career success skills through class activities and direct practice in the technical community. Hands-on assignments in each session will allow the student to research employers; learn about application requirements, practice meeting professionals in their field, and practice successful interviewing techniques. Group 2 course.  
Required Prerequisites: 30 Technical division program credits

EET 304 - Marine Electronics  
**Credit Hours:** 3, **Contact Hours:** 4  
**Division:** Technical  
Marine Electronics focuses on the systems, applications, electronics, and safety requirements specific to the marine and ROV environments. The design, repair and integration of cabling, tether, communication devices, sensors, and components into electrical systems will be emphasized. Students will use test equipment and protocols to develop troubleshooting methods to analyze and integrate this technology. Group 2 course. Critical Thinking - Direct.  
Required Prerequisites: EET 104 or EET 204

HVAC/R

HVA 101 - Introduction to HVAC/R  
**Credit Hours:** 3, **Contact Hours:** 4  
This course covers safety concerns associated with the HVAC field, identification and use of trade tools and basic blueprint reading. Students are introduced to different types of pipe and tubing used for equipment and will learn threading and soldering techniques. A strong emphasis is placed on electrical theory and application as well as learning how to read electrical diagrams. Group 2 course.  
Recommended Prerequisites: Placement into ENG 111 and MTH 111, both may be taken concurrently.

HVA 106 - Fundamentals of Heating  
**Credit Hours:** 3, **Contact Hours:** 4  
This course focuses on the variety of heating systems in the HVAC career field. Students are introduced to the principles of combustion and the importance of combustion analysis. Gas furnaces, heating controls, oil fired equipment, humidification and electric heating systems are also explored. Group 2 course.  
Required Prerequisites: HVA 101  
Recommended Prerequisites: Placement in ENG 111 and MTH 111.
HVA 122 - Refrigeration Fundamentals  
Credit Hours: 3, Contact Hours: 4  
This course introduces students to the relationship between matter and energy as it relates to refrigeration process and discusses the Laws of Thermodynamics and effects of pressures and vacuums on a system. A thorough coverage of the basic refrigeration cycle is discussed along with types of refrigerants and system components they will encounter. Students will also learn basic servicing and testing techniques on refrigeration systems. Group 2 course.  
Required Prerequisites: HVA 101  
Recommended Prerequisites: Placement in ENG 111 and MTH 111.

HVA 126 - Residential and Commercial A/C  
Credit Hours: 3, Contact Hours: 4  
This course focuses on different types of air conditioning systems, ventilation and de-humidification equipment used in residential and light commercial applications. Students will learn about air source and geothermal heat pumps, mechanical and electrical troubleshooting techniques for air conditioning systems and explore indoor air quality and planned maintenance issues for all types of equipment. Group 2 course.  
Required Prerequisites: HVA 122 with a grade of 2.5 or higher  
Recommended Prerequisites: Placement in ENG 111 and MTH 111.

HVA 132 - Commercial A/C & Refrigeration  
Credit Hours: 3, Contact Hours: 4  
This course focuses on larger commercial systems encountered in the HVAC field for air conditioning and refrigeration applications. Emphasis is placed on chilled water and hydronic heating systems, boilers, air handling equipment and cooling towers. Students will also learn about larger scale refrigeration systems used in supermarket and cold storage applications, ice machine operation and discussion of control systems used throughout the field. Group 2 course.  
Required Prerequisites: HVA 126 with a grade of 2.5 or higher  
Recommended Prerequisites: Placement into MTH 111 and ENG 111.

HVA 136 - EPA Certification  
Credit Hours: 3, Contact Hours: 3  
This course examines the impact of refrigerants on the environment and focuses on federal regulations regarding the use, recovery and disposal methods. Students are given the opportunity to earn their Type I, Type II or Universal Certification through this course. Upon successful completion of each test, the student will earn levels of certification recognized by the HVAC/R industry nationwide. Group 2 course.  
Quantitative Reasoning.  
Required Prerequisites: HVA 126  
Recommended Prerequisites: Placement into MTH 111 and ENG 111.

Manufacturing Technology  
MFG 104 - Fluid Power  
Credit Hours: 3, Contact Hours: 4  
Division: Technical  
The Fluid Power course is designed to provide students with a basic understanding of the concepts and applications of fluid power technology and the necessary skills for further study in the field. The course is an overview of fluid power technology applications; the general concept of fluid power systems; an introduction to energy input, energy output, energy control, and systems auxiliary components; as well as the design and function of components. Group 2 course.  
Critical Thinking - Direct, Quantitative Reasoning.  
Recommended Prerequisites: Placement into MTH 111 and ENG 99/108.

MFG 111 - Math for Manufacturing  
Credit Hours: 3, Contact Hours: 3  
Division: Technical  
This course will apply principles of mathematics, geometry, and basic trigonometry to applications in manufacturing. Topics will include proportions, calculation of machine speed and feed and geometric relationships of triangles and circles. Problem solving will require the use of the Pythagorean Theorem and the sine, cosine, and tangent functions to solve right triangles. The Law of Sines and Law of Cosines will be used to solve oblique triangle applications. Group 2 course.  
Quantitative Reasoning.

MFG 113 - Machining I  
Credit Hours: 3, Contact Hours: 5  
Division: Technical  
The student will be introduced to measurement and the safe use of layout and bench tools, drill press operations, and basic lathe facing and turning operations. Basic vertical milling operations will also be included. Group 2 course.  
Critical Thinking - Direct  
Recommended Prerequisites: Print reading, precision measurement, basic machining knowledge and skills, competencies in Communications equal to ENG99 and math equal to MTH23. Students will greatly benefit from having competency up to MTH 111.

MFG 114 - Machining II  
Credit Hours: 3, Contact Hours: 5  
Division: Technical  
This course will introduce students to machining procedures beyond the basic operations. The student should have previously acquired basic machining knowledge and skills. Lathe procedures will include threading and cutting tapers. Milling operations will include the offset boring head, and broaching. Precision grinding of parallel and angular surfaces using gauge blocks and a sine bar will be introduced. Students will study the process and perform hands on operations. Group 2 course.  
Critical Thinking - Direct.  
Required Prerequisites: MFG 113 or MNG 260  
Recommended Prerequisites: Print reading, precision measurement, basic machining knowledge and skills, competencies in Communications equal to ENG 99/108 and Math equal to MTH 23. Students will greatly benefit from having competency up to MTH 111.

MFG 203 - Manuf/Engineering Processes  
Credit Hours: 3, Contact Hours: 4  
Division: Technical  
The Manufacturing and Engineering Processes course will provide students with an overview of various processes used in the design and development of new products. Students will be introduced to the engineering steps and processes required to take a product from concept through production. This is a project-based class in which students will design and fabricate a component aligned with their area of interest. Group 2 course.  
Critical Thinking - Direct.  
Required Prerequisites: DD 170, ENG 99/108, MTH 23.
MFG 217 - CNC Operations - Lathe
Credit Hours: 4, Contact Hours: 6
Division: Technical
This course will introduce students to CNC (Computer Numerical Control) turning machines or CNC lathes. CNC lathe procedures will include set up from a list of guidelines to properly and safely make a part to blueprint specifications. Students will spend lab time going over machine demonstrations with individual practice and support, supplemented with classroom and online learning going over safety procedures and machine set up operations. Group 2 course. Quantitative Reasoning.
Required Prerequisites: MFG 104, MTH 111 or higher, PHY 121
Recommended Prerequisites: MTH 23 or higher

MFG 219 - CNC Mill Operations
Credit Hours: 4, Contact Hours: 6
Division: Technical
This course includes the operation of CNC (Computer Numerical Control) mills including calling up programs, loading and unloading parts, part inspection, and monitoring tool wear. This course will provide an introduction to planning and writing programs for CNC mills and using standard G and M codes. Learners will set up work pieces in machines, enter programs, set tool offsets, enter work offsets, and complete part projects. Group 2 course. Quantitative Reasoning.
Recommended Prerequisites: MFG 113 or MNG 260

MFG 290 - Manufacturing Tech Internship
Credit Hours: 2-4, Contact Hours: 2-4
Division: Technical
The purpose of the internship is to provide on-the-job training for the student who wishes to pursue a career in a technical field of study. The internship will be customized to meet the learning needs of the student and the job requirements of the sponsoring firm. Students spend 10-15 hours per week in this paid, supervised on-the-job training experience. In addition to the required 50 hours per credit in a work site, students participate in semi-monthly seminars. Students must apply one month prior to the semester in which they will complete the internship. Group 2 course. Communications - Direct.
Required Prerequisites: 30 credits of program specific courses with a GPA of 2.0 or higher.

MFG 304 - Marine Hydraulics
Credit Hours: 3, Contact Hours: 4
Division: Technical
Marine Hydraulics focuses on the systems, applications, hydraulics, and safety requirements specific to the marine and offshore Remote Operated Vehicle (ROV) environments. The design, repair and maintenance of launch and recovery equipment, hoses, sensors and components associated with ROV hydraulics systems will be emphasized. Students will use test equipment and protocols to develop trouble shooting methods to analyze and integrate this technology. Group 2 course. Critical Thinking - Direct.
Required Prerequisites: MFG 104, MTH 111 or higher, PHY 121

PLU 105 - Plumbing Components
Credit Hours: 3, Contact Hours: 4
Through structured classroom and hands-on skill building, the student will learn to work with copper pipe and fittings, cast-iron pipe and fittings, carbon steel pipe and fittings, corrugated stainless steel tubing, fixtures and faucets, drain waste and vent systems and water distribution systems. Group 2 course.
Required Prerequisites: PLU 101

PLU 121 - Commercial Plumbing
Credit Hours: 3, Contact Hours: 4
Through structured classroom and hands-on skill building, the student will learn to read commercial drawings, install hangers, supports, structural penetrations, and fire stopping, installation and testing DWV piping. Group 2 course.
Required Prerequisites: PLU 105

PLU 125 - Plumbing Installation
Credit Hours: 3, Contact Hours: 4
Through structured classroom and hands-on skill building, the student will learn installation of roof, floor, and drain areas, types of valves, installing and testing water supply piping, installing fixtures, valves, and faucets, basic electricity, installing water heaters, fuel gas systems and servicing plumbing fixtures. Group 2 course.
Required Prerequisites: PLU 121

Renewable Energy
EGY 101 - Principles of Renewable Energy
Credit Hours: 3, Contact Hours: 3
This course covers the basic principles and history of renewable energy sources. Industry and governmental perspectives on geothermal, wind, solar, biomass, fuel cells, and other energy sources are highlighted. This course is required to achieve a Level II Certificate in Renewable Energy Technology. Group 2 course.
Required Prerequisites: EGY 115, may be taken concurrently
Recommended Prerequisites: Placement in MTH 23 or co-enrollment in the recommended developmental Math course, placement into ENG 11/111 or co-enrollment in the recommended English course.

EGY 105 - Sustainable Building Design
Credit Hours: 3, Contact Hours: 3
This course provides a great introduction to sustainable building practices. Through structured classroom activities, the student will learn about the structure of matter and the material world, whole system thinking, site and natural energy mapping, water resources, building orientation, materials and resources, indoor air quality, innovation and design. This course is required to achieve a Level II Certificate in Renewable Energy Technology. Group 2 course.
Recommended Prerequisites: Placement in MTH 23 or co-enrollment in the recommended developmental Math course, placement into ENG 11/111 or co-enrollment in the recommended English course.

EGY 115 - Residential Energy Efficiency
Credit Hours: 3, Contact Hours: 3
This course provides a broad spectrum of information regarding basic residential energy conservation. Through structured classroom and hands-on skill building, the student will learn about the principles of energy, building shell construction, air leakage, insulation, windows and doors, heating, lighting, cooling, water heating, health, and safety. This course, or its equivalency, is a required class for the Renewable Energy Certificate Program. Group 2 course.
EGY 141 - Solar Photovoltaic Tech I  
Credit Hours: 3, Contact Hours: 3  
This course provides an introduction to solar photovoltaic systems. Through structured lecture and practical skill building, students will become familiar with photovoltaic applications, solar radiation, fundamentals of a site survey, system components, system sizing, and preparation of a solar installation. Group 2 course.  
Required Prerequisites: ELE 105  
Recommended Prerequisites: MTH 23 or placement into MTH 111, ENG 111

EGY 143 - Solar Thermal Technology I  
Credit Hours: 3, Contact Hours: 4  
This course provides an introduction to solar hot water heating systems. Through structured classroom and hands-on skill building, the student will learn the history of solar thermal heating systems, components, drainback systems, glycol systems, start up and maintenance procedures, savings and performance estimates, system control, monitoring and testing and solar space heating design. Group 2 course.  
Required Prerequisites: PLU 101  
Recommended Prerequisites: MTH 23 or placement into MTH 111, ENG 111

EGY 145 - Geothermal Technology  
Credit Hours: 3, Contact Hours: 4  
This course introduces the basic principles of geothermal energy production and technology. Essentials on how to utilize geothermal technology as an energy source will be analyzed and demonstrated. Examples of residential and commercial applications will be shown and reviewed. Group 2 course.  
Required Prerequisites: HVA 105  
Recommended Prerequisites: MTH 23 or placement into MTH 111, ENG 111

Robotics and Automation  
RAM 155 - Microcontroller Programming  
Credit Hours: 3, Contact Hours: 4  
Division: Technical  
This course introduces students to microcontroller systems and programming using Python language. Students construct a wheeled robot and learn to program the device. Standard coding structures including statements, loops, and functions are used to control the unit. Debugging and troubleshooting skills are developed as robot capabilities are implemented. The robot is used in subsequent Engineering Technology courses. Group 2 course. Critical Thinking - Direct.  
Required Prerequisites: MTH 111 may be taken concurrently  
Recommended Prerequisites: Basic keyboarding and computer skills.

RAM 205 - Microcontroller Systems  
Credit Hours: 3, Contact Hours: 4  
Division: Technical  
This course is a continuation of RAM 155 - Microcontroller Programming. Students implement additional abilities for their robot created during RAM 155, utilizing custom sensors, actuators, and interfaces. Activities require the application and extension of both hardware and software skills developed in prerequisite Engineering Technology courses.  
Students determine requirements, build hardware, code software, troubleshoot, evaluate, and iterate as they create solutions. Group 2 course. Critical Thinking - Direct.  
Required Prerequisites: EET 103, RAM 155

RAM 255 - Microcontroller Automation  
Credit Hours: 3, Contact Hours: 4  
Division: Technical  
This course is an introduction to the Internet of Things (IoT). Students will prototype sensors, actuators, and interfaces to create automated solutions that communicate via the Internet. Students will capture data, apply analytics, and present business value. Group 2 course. Critical Thinking - Direct, Quantitative Reasoning.  
Required Prerequisites: RAM 155

Welding  
WPT 111 - Welding Theory I  
Credit Hours: 3, Contact Hours: 3  
Division: Technical  
First level lecture for all students enrolled in a Welding Technology Degree or Certificate Program. Course will cover theory and technique for Shielded Metal Arc Welding, Gas Metal Arc Welding, and Oxy Fuel Processes for welding, brazing, and cutting. Group 2 course. Critical Thinking - Direct.  
Corequisites: WPT 112

WPT 112 - Welding Lab I  
Credit Hours: 4, Contact Hours: 8  
Division: Technical  
First level lab for all students enrolled in a Welding Technology Degree or Certificate Program. Practical application of Shielded Metal Arc Welding, Gas Metal Arc Welding, and Oxy Fuel Processes for welding, brazing, and cutting. Welds will be performed in all positions and subjected to destructive quality testing. Group 2 course. Quantitative Reasoning.  
Corequisites: WPT 111

WPT 113 - Welding Theory II  
Credit Hours: 3, Contact Hours: 3  
Division: Technical  
Second level lecture for all students enrolled in a Welding Technology Degree or Certificate Program. Course will cover theory and technique for Pulsed Gas Metal Arc Welding, Flux Cored Arc Welding, Gas Tungsten Arc Welding, and Arc Cutting Processes. Group 2 course. Quantitative Reasoning.  
Required Prerequisites: WPT 111  
Corequisites: WPT 114

WPT 114 - Welding Lab II  
Credit Hours: 4, Contact Hours: 8  
Division: Technical  
Second level lab for all students enrolled in a Welding Technology Degree or Certificate Program. Practical application of Shielded Metal Arc Welding, Pulsed Gas Metal Arc Welding, Gas Tungsten Arc Welding, and Plasma Arc Cutting. Welds will be performed in all positions and subjected to destructive quality testing. Group 2 course.  
Required Prerequisites: WPT 111 and WPT 112  
Corequisites: WPT 113

WPT 160D - Weld. Qualification Prep-Other  
Credit Hours: 2, Contact Hours: 3  
Division: Technical  
This course provides experienced welders/students the opportunity to take the AWS welder qualification tests (other than GTAW, GMAW, SMAW, or FCAW) in specified processes on specified materials in specified positions. Group 2 course. Communications - Direct.
WPT 161 - Welding Qualification Prep  
Credit Hours: 3, Contact Hours: 4  
Division: Technical  
Students will learn performance qualification according to American Welding Society standards and have the opportunity to take AWS welder qualification tests in the process or processes of their choice. Group 2 course. Critical Thinking - Direct.

WPT 210 - Welding Fabrication and Repair  
Credit Hours: 3, Contact Hours: 5  
Division: Technical  
This course provides students an opportunity to apply the process specific welding skills that they have previously mastered to complete fabrication and repairs projects. In addition to welding, students will learn shop metal identification, how to setup and operate shop metal prep and fabricating equipment as well as plan, sketch, order and prepare for a variety of projects. Group 2 course. Critical Thinking - Direct.  
Required Prerequisites: WPT 121 or WPT 131 or WPT 141 or WPT 142 with a 2.0 or higher or extensive welding experience, verified by welding skill demonstration test.

WPT 211 - Welding Fabrication I  
Credit Hours: 3, Contact Hours: 5  
Division: Technical  
First level fabrication class for all students enrolled in the Welding Technology A.A.S. program. Students will learn to apply manufacturing principles and techniques in order to complete assemblies to print specifications. Proper use of common industrial tools and machinery, including CNC cutting table, will be stressed. Group 2 course. Critical Thinking - Direct.  
Required Prerequisites: WPT 113, WPT 114

WPT 212 - Welding Fabrication II  
Credit Hours: 3, Contact Hours: 5  
Division: Technical  
Second level fabrication class for all students enrolled in the Welding Technology A.A.S. program. Students will take control of a fabrication project from the planning to finishing stages. Emphasis on design, project planning, and efficient execution. Group 2 course. Critical Thinking - Direct.  
Required Prerequisites: WPT 211 and WPT 260

WPT 213 - Weld Quality Testing  
Credit Hours: 3, Contact Hours: 5  
Division: Technical  
Class to cover theory and practical use of common methods of non-destructive examination. Processes include dye penetrant, ultrasonic, magnetic particle, and radiographic testing. Familiarity with prevalent codes and standards will be emphasized. Group 2 course. Critical Thinking - Direct.  
Required Prerequisites: WPT 211  
Recommended Prerequisites: DD 101, DD 110

WPT 290 - Welding Internship  
Credit Hours: 2-4, Contact Hours: 2-4  
Division: Technical  
The purpose of the internship is to provide on-the-job training for the student who wishes to pursue a career in a technical field of study. The internship will be customized to meet the learning needs of the student and the job requirements of the sponsoring firm. Students spend 10-15 hours per week in this paid, supervised on-the-job training experience. In addition to the required 50 hours per credit at a work site, students participate in semi-monthly seminars. Students must apply one month prior to the semester in which they will complete the internship. Group 2 course. Communications - Direct.  
Required Prerequisites: 30 credits of program specific courses with a GPA of 3.0 or higher.

Automotive - Automotive Service Technology, Associate in Applied Science Degree  

This program is designed for either the person with little or no prior experience or the skilled technician who needs to keep pace with current technology. Students may take the classes they need to update skills, pursue an Associate in Applied Science degree, which combines automotive technician classes with courses in the liberal arts and sciences, or work toward a Master Technician Certificate, which qualifies graduates to enter the workplace as entry-level state-certified technicians. Students may also choose from three specialized certicates: Hybrid Technology, Under Car Specialist or Electrical and Drivability Specialist. All eight state or ASE certifications must be passed to be awarded the AAS degree or Master Technician Certificate.

Day and evening classes allow technicians at every level to develop new skills at convenient times. The program is a series of modules, each designed to teach an individual system. This flexibility allows the more experienced technician to learn a specific system while the beginning technician can combine the modules for a complete course in automotive technology.

Requirements  
Major Requirements  

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<td>ENG 112</td>
<td>English Composition</td>
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<tr>
<td>ENG 220</td>
<td>Technical Writing</td>
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<td>Any Group 1 Humanities course</td>
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<tr>
<td>Math Competency</td>
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<tr>
<td>Any Group 1 Social Science course</td>
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Occupational Specialty Requirements  

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<tr>
<td>AT 110</td>
<td>Automotive Brake Systems</td>
<td>5</td>
</tr>
<tr>
<td>AT 120</td>
<td>Automotive Electrical I</td>
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</table>
Course Sequence Guide

<table>
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<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<td>Year 1</td>
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<tr>
<td>Fall</td>
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<tr>
<td>ENG 111</td>
<td>English Composition</td>
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<tr>
<td>AT 100</td>
<td>Automotive Service Basics</td>
<td>2</td>
</tr>
<tr>
<td>AT 120</td>
<td>Automotive Electrical I (Fall only)</td>
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<tr>
<td>AT 180</td>
<td>Manual Drivetrain and Axles (Fall only)</td>
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<td>ENG 220</td>
<td>Technical Writing</td>
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<td>BUS 231</td>
<td>Professional Communications</td>
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<td>AT 110</td>
<td>Automotive Brake Systems (Spring only)</td>
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<tr>
<td>AT 170</td>
<td>Heating and Air Conditioning (Spring only)</td>
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<td>AT 220</td>
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<td>Any Group 1 Social Sciences course</td>
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<td>AT 130</td>
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<td>AT 140</td>
<td>Suspension and Steering (Fall only)</td>
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<td>AT 150</td>
<td>Automatic Transmissions (Spring only)</td>
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<td>AT 200</td>
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<td>Total Credits</td>
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</tbody>
</table>

1 May be waived with appropriate work experience or education.

Program Notes

- Mathematics: Placement in MTH 111 Intermediate Algebra or higher, or completion of MTH 23 Beginning Algebra.
- Must pass the related State or ASE certification tests for all of the required automotive courses.
- The responsibility for determining the transferability of this degree and courses to another institution is the sole responsibility of the student.

Automotive - Electrical & Drivability Specialist, Certificate of Achievement (Level II)

This certificate is designed to train students in the automotive systems related to the operation of the engine and its control systems. Emphasis is placed on the automotive electrical and electronic control systems. For students to be awarded this Electrical and Drivability Specialist certificate, they must pass the related State of Michigan exams or ASE test for all five of the required automotive courses.

Requirements

Certificate Requirements

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AT 100</td>
<td>Automotive Service Basics</td>
<td>2</td>
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<tr>
<td>AT 120</td>
<td>Automotive Electrical I</td>
<td>5</td>
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<td>AT 130</td>
<td>Engine Performance I</td>
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<td>AT 160</td>
<td>Engine Repair</td>
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<tr>
<td>AT 220</td>
<td>Automotive Electrical II</td>
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<td>AT 230</td>
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<td>Elective course(s)</td>
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</table>

1 May be waived with appropriate work experience or education.

Program Completion Requirements

A minimum of 32 AT credit hours are required to receive this certificate. Students must choose elective courses from the Automotive Program course list to reach the required credit level.

Must pass the related State of Michigan or ASE test for all of the required automotive courses.
## Course Sequence Guide

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Year 1</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Fall</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AT 100</td>
<td>Automotive Service Basics $^1$</td>
<td>2</td>
</tr>
<tr>
<td>AT 120</td>
<td>Automotive Electrical I (Fall only)</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Credits</td>
<td>7</td>
</tr>
<tr>
<td><strong>Spring</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AT 220</td>
<td>Automotive Electrical II (Spring only)</td>
<td>5</td>
</tr>
<tr>
<td>Approved Automotive Elective</td>
<td></td>
<td>3</td>
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<td></td>
<td>Credits</td>
<td>8</td>
</tr>
<tr>
<td><strong>Year 2</strong></td>
<td></td>
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</tr>
<tr>
<td><strong>Fall</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AT 130</td>
<td>Engine Performance I (Fall only)</td>
<td>5</td>
</tr>
<tr>
<td>AT 160</td>
<td>Engine Repair (Fall only)</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Credits</td>
<td>11</td>
</tr>
<tr>
<td><strong>Spring</strong></td>
<td></td>
<td></td>
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<tr>
<td>AT 230</td>
<td>Engine Performance II (Spring only)</td>
<td>4</td>
</tr>
<tr>
<td>Approved Automotive Elective</td>
<td></td>
<td>2</td>
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<tr>
<td></td>
<td>Credits</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td><strong>Total Credits</strong></td>
<td>32</td>
</tr>
</tbody>
</table>

$^1$ May be waived with proof of appropriate work experience or education.

## Program Completion Requirements

A minimum of 32 AT credit hours are required to receive this certificate. Students must choose elective courses from the Automotive Program course list to reach the required credit level.

Must pass the related State of Michigan or ASE test for all of the required automotive courses.

## Course Sequence Guide

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Year 1</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Fall</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AT 100</td>
<td>Automotive Service Basics $^1$</td>
<td>2</td>
</tr>
<tr>
<td>AT 120</td>
<td>Automotive Electrical I (Fall only)</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Credits</td>
<td>7</td>
</tr>
<tr>
<td><strong>Spring</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AT 220</td>
<td>Automotive Electrical II (Spring only)</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td><strong>Total Credits</strong></td>
<td>32</td>
</tr>
</tbody>
</table>

$^1$ May be waived with proof of appropriate work experience or education.

## Program Notes

- Must pass the related State or ASE certification tests for all of the required automotive courses.
- The responsibility for determining the transferability of this degree and courses to another institution is the sole responsibility of the student.

## Automotive - Hybrid Technology Specialist, Certificate of Achievement (Level II)

*NMC Code 034*

Hybrid electric vehicles are a fast-growing section of the market. This certificate is the direct result of local automotive repair companies requesting NMC provide hybrid technician training. For current students, the certificate is an additional credential opportunity that will expand employment options.

## Requirements

### Certificate Requirements

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AT 100</td>
<td>Automotive Service Basics $^1$</td>
<td>2</td>
</tr>
<tr>
<td>AT 120</td>
<td>Automotive Electrical I</td>
<td>5</td>
</tr>
<tr>
<td>AT 130</td>
<td>Engine Performance I</td>
<td>5</td>
</tr>
<tr>
<td>AT 150</td>
<td>Automatic Transmissions $^1$ or AT 230</td>
<td>4-6</td>
</tr>
<tr>
<td>AT 210</td>
<td>Hybrid Technology (Spring only)</td>
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<td></td>
<td><strong>Total Credits</strong></td>
<td>32-34</td>
</tr>
</tbody>
</table>

$^1$ May be waived with proof of appropriate work experience or education.

## Program Notes

- Must pass the related State or ASE certification tests for all of the required automotive courses.
- The responsibility for determining the transferability of this degree and courses to another institution is the sole responsibility of the student.

## Automotive - Master Automotive Technician, Certificate of Achievement (Level III)

*NMC Code 001*

From bumper to bumper, under the hood to under the hoist, you’ll get your hands on every part of a car in NMC’s Automotive – Master Automotive Technician program. This comprehensive certificate includes classes...
in brakes, electrical, engine performance and repair, suspension and steering, automatic transmissions, heating and air conditioning, manual drivetrain and axles. Classes are offered both days and evenings to fit your schedule. You’ll use the latest technology and diagnostic equipment to work on real cars for real customers in NMC’s 13 bay auto shop. In-house testing for state certification completes the program.

State and federal levels of certification are offered.

Requirements
Certificate Requirements

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AT 100</td>
<td>Automotive Service Basics</td>
<td>2</td>
</tr>
<tr>
<td>AT 110</td>
<td>Automotive Brake Systems</td>
<td>5</td>
</tr>
<tr>
<td>AT 120</td>
<td>Automotive Electrical I</td>
<td>5</td>
</tr>
<tr>
<td>AT 130</td>
<td>Engine Performance I</td>
<td>5</td>
</tr>
<tr>
<td>AT 140</td>
<td>Suspension and Steering</td>
<td>4</td>
</tr>
<tr>
<td>AT 150</td>
<td>Automatic Transmissions</td>
<td>6</td>
</tr>
<tr>
<td>AT 160</td>
<td>Engine Repair</td>
<td>5</td>
</tr>
<tr>
<td>AT 170</td>
<td>Heating and Air Conditioning</td>
<td>4</td>
</tr>
<tr>
<td>AT 180</td>
<td>Manual Drivetrain and Axles</td>
<td>6</td>
</tr>
<tr>
<td>AT 200</td>
<td>Service Department Management</td>
<td>2</td>
</tr>
<tr>
<td>AT 210</td>
<td>Hybrid Technology</td>
<td>5</td>
</tr>
<tr>
<td>AT 220</td>
<td>Automotive Electrical II</td>
<td>5</td>
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<tr>
<td>AT 230</td>
<td>Engine Performance II</td>
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<tr>
<td>Total Credits</td>
<td></td>
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</tr>
</tbody>
</table>

1 May be waived with appropriate work experience or education.

Program Notes
- Must pass the related State or ASE certification tests for all of the required automotive courses.
- The responsibility for determining the transferability of this degree and courses to another institution is the sole responsibility of the student.

Automotive - Under Car Specialist, Certificate of Achievement (Level II)

This certificate is designed to train students in the systems underneath the automobile, including brakes, suspension, and drivetrain. For students to be awarded this Under Car Specialist certificate, they must pass the related State of Michigan or ASE test for all five of the required automotive courses.

Requirements
Certificate Requirements

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AT 100</td>
<td>Automotive Service Basics</td>
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<td>Automotive Brake Systems</td>
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<tr>
<td>AT 140</td>
<td>Suspension and Steering</td>
<td>4</td>
</tr>
<tr>
<td>AT 150</td>
<td>Automatic Transmissions</td>
<td>6</td>
</tr>
<tr>
<td>AT 160</td>
<td>Engine Repair</td>
<td>5</td>
</tr>
<tr>
<td>AT 170</td>
<td>Heating and Air Conditioning</td>
<td>4</td>
</tr>
<tr>
<td>AT 180</td>
<td>Manual Drivetrain and Axles</td>
<td>6</td>
</tr>
<tr>
<td>AT 200</td>
<td>Service Department Management</td>
<td>2</td>
</tr>
<tr>
<td>AT 210</td>
<td>Hybrid Technology</td>
<td>5</td>
</tr>
<tr>
<td>AT 220</td>
<td>Automotive Electrical II</td>
<td>5</td>
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<tr>
<td>AT 230</td>
<td>Engine Performance II</td>
<td>4</td>
</tr>
<tr>
<td>Elective course</td>
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<td>4</td>
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<tr>
<td>Total Credits</td>
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<td>32</td>
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</tbody>
</table>

1 May be waived with appropriate work experience or education.

Program Completion Requirements
A minimum of 32 AT credit hours are required to receive this certificate. Students must choose elective courses from the Automotive Program course list to reach the required credit level.

Students must pass the related State of Michigan or ASE test for all of the required automotive courses.

Course Sequence Guide

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
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</thead>
<tbody>
<tr>
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</tr>
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<td>Suspension and Steering</td>
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<td>AT 150</td>
<td>Automatic Transmissions</td>
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<td>AT 160</td>
<td>Engine Repair</td>
<td>5</td>
</tr>
<tr>
<td>AT 170</td>
<td>Heating and Air Conditioning</td>
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</tr>
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<td>AT 180</td>
<td>Manual Drivetrain and Axles</td>
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<td>AT 200</td>
<td>Service Department Management</td>
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</tr>
<tr>
<td>AT 210</td>
<td>Hybrid Technology</td>
<td>5</td>
</tr>
<tr>
<td>AT 220</td>
<td>Automotive Electrical II</td>
<td>5</td>
</tr>
<tr>
<td>AT 230</td>
<td>Engine Performance II</td>
<td>4</td>
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<tr>
<td>Elective course</td>
<td></td>
<td>4</td>
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<tr>
<td>Total Credits</td>
<td></td>
<td>32</td>
</tr>
</tbody>
</table>

1 May be waived with appropriate work experience or education.
### Course Sequence Guide

#### Year 1

**Fall**
- **AT 180**  Manual Drivetrain and Axles (Fall only)  
  Credits: 6
- **AT 110**  Automotive Brake Systems (Spring only)  
  Credits: 5
- **AT 150**  Automatic Transmissions (Spring only)  
  Credits: 6

**Year 2**

**Fall**
- **AT 140**  Suspension and Steering (Fall only)  
  Credits: 4
- Approved Automotive Elective  
  Credits: 4

**Credits**: 13

### Program Notes

- Must pass the related State or ASE certification tests for all of the required automotive courses.
- The responsibility for determining the transferability of this degree and courses to another institution is the sole responsibility of the student.

### Construction Technology - Carpentry Technology, Certificate of Achievement (Level I)

**NMC Code 061**

Skilled carpenters must knowledgeably use specialized tools, read blueprints, frame structures, install doors, windows, cabinets, insulation, finish trim; and construct roofs, decks, and stairways. Being versatile opens a wide range of employment opportunities. The curriculum is designed by the industry and aligned with national competency standards. Students receive hands-on training in our state-of-the-art facilities. Information: (231) 995-2777.

### Requirements

#### Certificate Requirements

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAR 101</td>
<td>Introduction to Carpentry</td>
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</tr>
<tr>
<td>CAR 103</td>
<td>Construction Blueprint Reading</td>
<td>3</td>
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<tr>
<td>CAR 105</td>
<td>Foundations and Framing</td>
<td>3</td>
</tr>
<tr>
<td>CAR 121</td>
<td>Exterior Construction</td>
<td>3</td>
</tr>
<tr>
<td>CAR 125</td>
<td>Interior Construction</td>
<td>3</td>
</tr>
<tr>
<td>CMT 107</td>
<td>Construction Supervision</td>
<td>4</td>
</tr>
<tr>
<td>MTH 111</td>
<td>Intermediate Algebra</td>
<td>3-4</td>
</tr>
<tr>
<td>or MTH 120</td>
<td>Mathematical Explorations</td>
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</tr>
</tbody>
</table>

**Total Credits**: 22-23

1. May be waived with proof of appropriate work experience or education.

### Construction Technology - Carpentry Technology, Certificate of Achievement (Level II)

**NMC Code 068**

After completing the Carpentry Technology Level I Certificate students may elect to obtain a level II certificate. Skilled carpenters must knowledgeably use specialized tools, read blueprints, frame structures, install doors, windows, cabinets, insulation, finish trim and construct roofs, decks, and stairways. Being versatile opens a wide range of employment opportunities. The curriculum is designed by the industry and aligned with national competency standards. Students receive hands-on training in our state-of-the-art facilities. Information: (231) 995-2777.

### Requirements

#### Certificate Requirements

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>CAR 102</td>
<td>Intro to Woodworking</td>
<td>3</td>
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<tr>
<td>CAR 104</td>
<td>Woodworking Applications I</td>
<td>3</td>
</tr>
<tr>
<td>CIT 100</td>
<td>Computers in Business-An Intro</td>
<td>3</td>
</tr>
<tr>
<td>CMT 207</td>
<td>Construction Cost Estimating</td>
<td>3</td>
</tr>
<tr>
<td>EGY 105</td>
<td>Sustainable Building Design</td>
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</tr>
<tr>
<td>EGY 115</td>
<td>Residential Energy Efficiency</td>
<td>3</td>
</tr>
</tbody>
</table>

**Total Credits**: 40-41

Note: Completion of CMT 107 Construction Supervision provides students the 60 hours required for Builders License testing.

The responsibility for determining the transferability of this degree and courses to another institution is the sole responsibility of the student.
Course Sequence Guide

Course Title Credits
Year 1
Fall
MTH 111 Intermediate Algebra 3-4
or MTH 120 Mathematical Explorations
CAR 101 Introduction to Carpentry (Fall only) 3
CAR 102 Intro to Woodworking 3
CAR 103 Construction Blueprint Reading (Fall only) 3
CAR 105 Foundations and Framing (Fall only) 3
Credits 15-16
Spring
CAR 104 Woodworking Applications I 3
CAR 121 Exterior Construction (Spring only) 3
CAR 125 Interior Construction (Spring only) 3
CMT 107 Construction Supervision (Spring only) 4
Credits 13
Year 2
Fall
CIT 100 Computers in Business-An Intro 3
CMT 207 Construction Cost Estimating (Fall only) 3
EGY 105 Sustainable Building Design (Fall only) 3
EGY 115 Residential Energy Efficiency (Fall only) 3
Credits 12
Total Credits 40-41

Construction Technology - Construction Management, Associate in Applied Science Degree

NMC Code 368

The Construction Management program provides graduates with the technical and managerial skills needed in today's commercial and residential construction industry, from the planning stage with architects and engineers, to the budgeting stage with cost estimators, to the production stage with laborers. Construction managers also obtain work permits, hire contractors, troubleshoot emergencies, schedule walkthroughs and keep clients informed on work timetables and progress.

Students are prepared for the management responsibilities they will face on the job, creating an opportunity to move into supervision and construction management. Information: (231) 995-2777.

Requirements

Major Requirements

Course Title Credits
General Education Requirements
ENG 111 English Composition 4
BUS 231 Professional Communications 3
Any Group 1 Humanities course 3
Math Competency 1

Business Management Requirements

Course Title Credits
CIT 100 Computers in Business-An Intro 3
CMT 107 Construction Supervision 4
CMT 207 Construction Cost Estimating 3
COM 111 Public Speaking 4
MGT 241 Principles of Management 3
MKT 201 Principles of Marketing 3

Construction Technology Certificate

Completion of any Construction Technology Certificate 2 18-24
Total Credits 55-61

Notes:

1 Placement into MTH 122 Trigonometry or higher, or completion of MTH 121 College Algebra
2 Completion of any construction technology certificate in carpentry, electrical, facilities maintenance, HVAC/R or PLC. The HVAC/R and PLC certificates will require one additional construction technology elective.
• Completion of any Construction Technology Certificate in carpentry, electrical, facilities maintenance, HVAC/R or PLC 18-24 credits.
• The HVAC/R and PLC certificates will require one additional construction technology elective.
• Completion of CMT 107 Construction Supervision provides students the 60 hours required for Builders License testing.
• The responsibility for determining the transferability of this degree and courses to another institution is the sole responsibility of the student.

Construction Technology - Electrical Technology, Certificate of Achievement (Level II)

NMC Code 069

Qualified electricians install, troubleshoot, and repair electrical systems in residential and commercial settings. There is high demand for well-trained electricians nationwide. The curriculum is designed by the industry and aligned with national competency standards. Students receive hands-on training in our state-of-the-art facilities. This certificate program is approved by the State of Michigan to meet the electrical apprenticeship requirements. Information: (231) 995-2777.

Requirements
Certificate Requirements

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MTH 111</td>
<td>Intermediate Algebra</td>
<td>3-4</td>
</tr>
<tr>
<td>or MTH 120</td>
<td>Mathematical Explorations</td>
<td></td>
</tr>
<tr>
<td>ELE 101</td>
<td>Introduction to Electrical</td>
<td>3</td>
</tr>
<tr>
<td>ELE 105</td>
<td>Beg Residential Electrical</td>
<td>3</td>
</tr>
<tr>
<td>ELE 110</td>
<td>Electrical Code Studies I</td>
<td>3</td>
</tr>
<tr>
<td>ELE 111</td>
<td>Electrical Code Studies II</td>
<td>3</td>
</tr>
<tr>
<td>ELE 121</td>
<td>Adv Residential Electrical</td>
<td>3</td>
</tr>
<tr>
<td>ELE 125</td>
<td>Pre-Commercial Electrical</td>
<td>3</td>
</tr>
<tr>
<td>ELE 131</td>
<td>Commercial Electrical</td>
<td>3</td>
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<tr>
<td>ELE 135</td>
<td>Adv Commercial Electrical</td>
<td>3</td>
</tr>
<tr>
<td>ELE 142</td>
<td>Industrial Electrical</td>
<td>3</td>
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<tr>
<td>ELE 146</td>
<td>Adv. Industrial Electrical</td>
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<td>Total Credits</td>
<td>33-34</td>
</tr>
</tbody>
</table>

The responsibility for determining the transferability of this degree and courses to another institution is the sole responsibility of the student.

Construction Technology - Electrical, Associate in Applied Science Degree

NMC Code 653

The AAS in Electrical provides in-depth training and knowledge to those students who seek to have a well-balanced foundation of not only technical skills, but soft skills as well. Students completing this degree will find a wide range and availability of job opportunities. Electrical technicians have been in demand for installations, maintenance, repair, and support for industries ranging from private home owners to hospitals, manufacturers, and breweries. Technical training includes electrical theory, National Electrical Code, motors, generators, lighting, and control systems for residential through commercial/industrial applications. The curriculum is designed by the industry and aligned with State of Michigan electrical apprenticeship requirements. Information: (231) 995-2777.

Requirements
Major Requirements

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>General Education Requirements</td>
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<td>ENG 111</td>
<td>English Composition</td>
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<tr>
<td>BUS 231</td>
<td>Professional Communications</td>
<td>3-4</td>
</tr>
<tr>
<td>ENG 112</td>
<td>English Composition</td>
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<tr>
<td>ENG 220</td>
<td>Technical Writing</td>
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<td>Any Group 1 Humanities course</td>
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</tr>
<tr>
<td>Math Competency</td>
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<td>Select one of the following:</td>
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<tr>
<td>ENV 103</td>
<td>Earth Science</td>
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<tr>
<td>ENV 117</td>
<td>Meteorology &amp; Climatology</td>
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<tr>
<td>PHY 121</td>
<td>General Physics I</td>
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<tr>
<td>Any Group 1 Social Sciences course</td>
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<td>Occupational Specialty Requirements</td>
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<td>EGY 141</td>
<td>Solar Photovoltaic Tech I</td>
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<td>ELE 101</td>
<td>Introduction to Electrical</td>
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<td>ELE 105</td>
<td>Beg Residential Electrical</td>
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### Construction Technology - Electrical, Associate in Applied Science Degree

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<td>ELE 110</td>
<td>Electrical Code Studies I</td>
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<td>ELE 111</td>
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<td>ELE 131</td>
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1 Placement into MTH 122 Trigonometry or higher, or completion of MTH 121 College Algebra

### Approved Electives

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1 Denotes courses with required prerequisites.

### Course Sequence Guide

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15-16

#### Year 2

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60-61

The responsibility for determining the transferability of this degree and courses to another institution is the sole responsibility of the student.
Performing facilities maintenance requires knowledge in several areas. This level II certificate covers reading blueprints, general carpentry, tools of the trade, electrical wiring and schematics, and thermodynamics of refrigeration. Also required will be 14 technical elective credits that can range from drafting to alternative energy integration into a facility. The curriculum is designed by the industry and aligned with national competency standards. Students receive hands-on training in our state-of-the-art facilities. Information: (231) 995-2777.

**Requirements**

**Certificate Requirements**

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<tr>
<th>Course</th>
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**Construction Technology Electives (see list)** 6

Total Credits 33-34

**Approved Electives**

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Denotes courses with required prerequisites.

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Credits 12

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Credits 12-13

**Year 2**

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**Approved Electives** 6

Credits 9

Total Credits 33-34

The responsibility for determining the transferability of this degree and courses to another institution is the sole responsibility of the student.
Construction Technology - HVAC/R Technology, Certificate of Achievement (Level I)

NMC Code 064

There is a high demand for qualified technicians in the heating and cooling industry. HVAC/R technicians install, maintain, and repair heating, ventilating, air-conditioning, and refrigeration systems. Because of continuing demand, HVAC/R technicians can usually find employment with good beginning salaries. The curriculum is designed by the industry and aligned with national competency standards. Students receive hands-on training in our state-of-the-art facilities. Information: (231) 995-2777.

Requirements

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Course Sequence Guide

Year 1

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Year 2

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Spring

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<th>Credits</th>
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<tr>
<td>HVA 132</td>
<td>Commercial A/C &amp; Refrigeration</td>
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<tr>
<td>HVA 136</td>
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</table>

The responsibility for determining the transferability of this degree and courses to another institution is the sole responsibility of the student.

Construction Technology - HVAC/R, Associate in Applied Science Degree

NMC Code 654

The AAS in HVAC/R provides in-depth training and knowledge to those students who seek to have a well-balanced foundation of not only technical skills, but soft skills as well. Students completing this degree will find a wide range and availability of job opportunities. HVAC/R technicians have been in demand for installations, maintenance, repair, and support for industries ranging from private home owners to hospitals, manufacturers, and breweries. Technical training includes heating, ventilating, air-conditioning, and refrigeration systems for residential through commercial/industrial applications. The curriculum is designed by the industry and aligned with national competency standards (EPA certification). Focus is on hands-on training in our state-of-the-art facility. Information: (231) 995-2777.

Requirements

Major Requirements

<table>
<thead>
<tr>
<th>Course</th>
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<th>Credits</th>
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<tbody>
<tr>
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<tr>
<td>BUS 231</td>
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<tr>
<td>ENG 112</td>
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<tr>
<td>ENG 220</td>
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<td>Any Group 1 Humanities course</td>
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<tr>
<td>PHY 121</td>
<td>General Physics I</td>
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<tr>
<td>ENV 103</td>
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<tr>
<td>Any Group 1 Social Sciences course</td>
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Occupational Specialty Requirements

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<tr>
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<td>ELE 105</td>
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<td>ELE 142</td>
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<td>ELE 146</td>
<td>Adv. Industrial Electrical</td>
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<tr>
<td>HVA 101</td>
<td>Introduction to HVAC/R</td>
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</tr>
<tr>
<td>HVA 106</td>
<td>Fundamentals of Heating</td>
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<td>Refrigeration Fundamentals</td>
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</tr>
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<td>HVA 126</td>
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<td>HVA 132</td>
<td>Commercial A/C &amp; Refrigeration</td>
<td>3</td>
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<tr>
<td>HVA 136</td>
<td>EPA Certification</td>
<td>3</td>
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<td>PLU 101</td>
<td>Introduction to Plumbing</td>
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1 Placement into MTH 122 Trigonometry or higher, or completion of MTH 121 College Algebra
Note: This program requires a minimum of 60 credits. Courses tested out or waived must be replaced with approved program electives.

Course Sequence Guide

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tr>
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<td>Social Sciences: Any Group 1 course</td>
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<td>ENG 220</td>
<td>Technical Writing</td>
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<td>BUS 231</td>
<td>Professional Communications</td>
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<td>Beg Residential Electrical</td>
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<td>PLU 105</td>
<td>Plumbing Components (Spring only)</td>
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<td>Fundamentals of Heating</td>
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<tr>
<td>PLU 121</td>
<td>Commercial Plumbing</td>
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<tr>
<td>ELE 142</td>
<td>Industrial Electrical</td>
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<td>HVA 126</td>
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</table>

Note: ELE 110 Electrical Code Studies I and ELE 111 Electrical Code Studies II are additional courses offered for those seeking National Electrical Code references to daily work or those who would like structured study preparation for the Journeymen or Master Electrician License Exam.

Requirements

Certificate Requirements

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>EGY 101</td>
<td>Principles of Renewable Energy</td>
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<td>EGY 105</td>
<td>Sustainable Building Design</td>
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<td>EGY 115</td>
<td>Residential Energy Efficiency</td>
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<td>EGY 141</td>
<td>Solar Photovoltaic Tech I</td>
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<td>ELE 101</td>
<td>Introduction to Electrical</td>
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<td>ELE 105</td>
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<td>Adv Residential Electrical</td>
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<td>ELE 131</td>
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Approved Electives

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<td>AVF 141</td>
<td>Remote Pilot Flight</td>
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<td>Commercial Drone Operations</td>
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<td>AVF 241</td>
<td>Advanced Drone Operations</td>
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<tr>
<td>CAR 101</td>
<td>Introduction to Carpentry</td>
<td>3</td>
</tr>
<tr>
<td>CAR 102</td>
<td>Intro to Woodworking</td>
<td>3</td>
</tr>
<tr>
<td>CAR 103</td>
<td>Construction Blueprint Reading</td>
<td>3</td>
</tr>
<tr>
<td>CAR 105</td>
<td>Foundations and Framing</td>
<td>3</td>
</tr>
<tr>
<td>CAR 121</td>
<td>Exterior Construction</td>
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<td>CAR 125</td>
<td>Interior Construction</td>
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</tr>
<tr>
<td>CMT 107</td>
<td>Construction Supervision</td>
<td>4</td>
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<td>CMT 207</td>
<td>Construction Cost Estimating</td>
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<td>EET 103</td>
<td>Electrical Studies I</td>
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<td>EET 204</td>
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<td>EET 221</td>
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<td>EET 232</td>
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<td>EET 233</td>
<td>PLC Applications I</td>
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<td>ELE 101</td>
<td>Introduction to Electrical</td>
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The responsibility for determining the transferability of this degree and courses to another institution is the sole responsibility of the student.

Construction Technology - Renewable Energy Technology - Electrical, Certificate of Achievement (Level II)

NMC Code 065
Construction Technology - Renewable Energy Technology - HVAC/R, Certificate of Achievement (Level II)

This certificate is designed for someone with introductory interest or for someone who is currently working in the HVAC/R career field and wants to enhance their job prospects. With a very narrow focus on the fundamentals of renewable energy, the specific applications as related to HVAC/R, and a few HVAC/R courses, the individual who completes this certificate will greatly enhance their job market skills. Information: (231) 995-2777.

Requirements
Certificate Requirements

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>EGY 101</td>
<td>Principles of Renewable Energy</td>
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<td>EGY 105</td>
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<td>HVA 106</td>
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<td>HVA 122</td>
<td>Refrigeration Fundamentals</td>
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<td>HVA 126</td>
<td>Residential and Commercial A/C</td>
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<td>HVA 136</td>
<td>EPA Certification</td>
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<td>PLU 101</td>
<td>Introduction to Plumbing</td>
<td>3</td>
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<tr>
<td>PLU 105</td>
<td>Plumbing Components</td>
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<td>PLU 121</td>
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<td>PLU 125</td>
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<td>MTH 111</td>
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<tr>
<td>EGY 115</td>
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Total Credits: 30

Approved Electives

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<th>Course</th>
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The responsibility for determining the transferability of this degree and courses to another institution is the sole responsibility of the student.
Course Sequence Guide

Course | Title | Credits
--- | --- | ---
Year 1 |  |  
Fall | MTH 111 | Intermediate Algebra | 4  
HVA 101 | Introduction to HVAC/R | 3  
EGY 115 | Residential Energy Efficiency (Fall only) | 3  
Credits | 10  
Spring |  |  
HVA 106 | Fundamentals of Heating | 3  
HVA 122 | Refrigeration Fundamentals | 3  
Construction Technology Electives | 3  
Credits | 9  
Year 2 |  |  
Fall | HVA 126 | Residential and Commercial A/C | 3  
EGY 101 | Principles of Renewable Energy (Fall only) | 3  
EGY 105 | Sustainable Building Design (Fall only) | 3  
EGY 145 | Geothermal Technology | 3  
Credits | 12  
Total Credits | 31  

1 Denotes courses with required prerequisites.

Engineering Technology - Biomedical Technician, Associate of Applied Science

**NMC Code 546**

Engineering technology education focuses primarily on the applied aspects of science and engineering aimed at preparing graduates for practice in that portion of the technological spectrum closest to product improvement, manufacturing, construction, and engineering operational functions.

The NMC Engineering Technology degree offers students a broad-based curriculum across all areas of technical education, preparing the graduates for emerging job markets and highly technical fields. The program is designed to allow students to choose courses of interest or specialize in one of the following specialty areas:

- Biomedical Technician,
- Computer Technology,
- Electronics Technology,
- Robotics & Automation Technology,
- Unmanned Aerial Systems (UAS) Technology,
- Marine (ROV) Technology.

### Requirements

#### Major Requirements

<table>
<thead>
<tr>
<th>Course</th>
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| ENG 111 | English Composition | 4  
Select one of the following: | 3-4  
| ENG 112 | English Composition |  
| ENG 220 | Technical Writing |  
| BUS 231 | Professional Communications |  
| PHL 105 | Critical Thinking | 3  
|  | Math Competency | 1  
| BIO 106 | Human Biology | 4  
| GEO 115 | Introduction to GIS | 3  
|  | Technical Specialty Requirements |  
| DD 170 | CADD/Computer Modeling | 4  
| EET 102 | Intro to Engineering Tech | 2  
| EET 103 | Electrical Studies I | 3  
| EET 260 | System Engineering in Practice | 3  
| MFG 104 | Fluid Power | 3  
| RAM 155 | Microcontroller Programming | 3  
| RAM 205 | Microcontroller Systems | 3  
|  | Biomedical Technician |  
| CIT 213 | Networking Technologies | 4  
| EET 180 | Biomedical Equipment I | 3  
| EET 190 | Biomedical Internship | 1  
| EET 204 | Electrical Studies II | 3  
| EET 281 | Biomedical Equipment II | 3  
| EET 290 | Engineering Tech Internship | 3  

The responsibility for determining the transferability of this degree and courses to another institution is the sole responsibility of the student.
HAH 101 Medical Terminology 3

Total Credits 62-63

1 Placement into MTH 122 Trigonometry or higher, or completion of MTH 121 College Algebra

Minimum Program Requirements 60

Note: Internship opportunities are available for additional credits.

Course Sequence Guide

Course Title Credits

Year 1

Fall
ENG 111 English Composition 4
EET 102 Intro to Engineering Tech 2
EET 103 Electrical Studies I 3
RAM 155 Microcontroller Programming 3
HAH 101 Medical Terminology 3

Credits 15

Spring
Select one of the following: 3-4
ENG 112 English Composition
ENG 220 Technical Writing
BUS 231 Professional Communications
RAM 205 Microcontroller Systems 3
EET 204 Electrical Studies II 3
BIO 106 Human Biology 4

Credits 13-14

Year 2

Fall
DD 170 CADD/Computer Modeling 4
EET 180 Biomedical Equipment I (Fall only) 3
GEO 115 Introduction to GIS 3
MFG 104 Fluid Power 3
MTH 121 College Algebra 4

Credits 17

Spring
PHL 105 Critical Thinking 3
EET 260 System Engineering in Practice 3
EET 190 Biomedical Internship 1
EET 281 Biomedical Equipment II (Spring only) 3
CIT 213 Networking Technologies 4

Credits 14

Summer
EET 290 Engineering Tech Internship 3

Credits 3

Total Credits 62-63

The responsibility for determining the transferability of this degree and courses to another institution is the sole responsibility of the student.

Engineering Technology - Computer Technology, Associate of Applied Science

NMC Code 545

Engineering technology education focuses primarily on the applied aspects of science and engineering aimed at preparing graduates for practice in that portion of the technological spectrum closest to product improvement, manufacturing, construction, and engineering operational functions.

The NMC Engineering Technology degree offers students a broad-based curriculum across all areas of technical education, preparing the graduates for emerging job markets and highly technical fields. The program is designed to allow students to choose courses of interest or specialize in one of the following specialty areas:

- Biomedical Technician,
- Computer Technology,
- Electronics Technology,
- Robotics & Automation Technology,
- Unmanned Aerial Systems (UAS) Technology,
- Marine (ROV) Technology.

Requirements

Major Requirements

Course Title Credits

General Education Requirements
ENG 111 English Composition 4
Select one of the following: 3-4
ENG 112 English Composition
ENG 220 Technical Writing
BUS 231 Professional Communications
PHL 105 Critical Thinking 3
Math Competency 1 4
Select one of the following: 4
BIO 106 Human Biology
ENV 117 Meteorology & Climatology
PHY 105 Physics of the World Around Us
PHY 121 General Physics I
GEO 115 Introduction to GIS 3

Technical Specialty Requirements
DD 170 CADD/Computer Modeling 4
EET 102 Intro to Engineering Tech 2
EET 103 Electrical Studies I 3
EET 260 System Engineering in Practice 3
MFG 104 Fluid Power 3
RAM 155 Microcontroller Programming 3
RAM 205 Microcontroller Systems 3

Computer Technology
CIT 110 Programming Logic and Design 3
CIT 178 Relational Databases 3
CIT 180 Web Development 3
### Course Sequence Guide

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The responsibility for determining the transferability of this degree and courses to another institution is the sole responsibility of the student.

### Engineering Technology - Electronics Technology, Associate of Applied Science

**NMC Code 557**

Engineering technology education focuses primarily on the applied aspects of science and engineering aimed at preparing graduates for practice in that portion of the technological spectrum closest to product improvement, manufacturing, construction, and engineering operational functions.

The NMC Engineering Technology degree offers students a broad-based curriculum across all areas of technical education, preparing the graduates for emerging job markets and highly technical fields. The program is designed to allow students to choose courses of interest or specialize in one of the following specialty areas:

- Biomedical Technician,
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### Requirements

#### Major Requirements

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### Electronics Technology
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1 Placement into MTH 122 Trigonometry or higher, or completion of MTH 121 College Algebra

### Requirements

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### General Technology

The responsibility for determining the transferability of this degree and courses to another institution is the sole responsibility of the student.
Select at least 18 credits from any of the specializations listed 18

Total Credits 60-61

1 Placement into MTH 122 Trigonometry or higher, or completion of MTH 121 College Algebra

Minimum Program Requirements 60

Note: Internship opportunities are available for additional credits.

Approved Electives

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<td>AVF 241</td>
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Credits 15

Spring

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Total Credits 60-61

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Engineering Technology - Marine Technology, Associate of Applied Science

NMC Code 541

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<th>Credits</th>
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<tr>
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<td>ENG 120</td>
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Math Competency 1

Select one of the following:

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<td>Introduction to GIS</td>
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Technical Specialty Requirements

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<td>System Engineering in Practice</td>
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<tr>
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Marine Technology

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<td>WSI 240</td>
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Total Credits 61-62

1 Placement into MTH 122 Trigonometry or higher, or completion of MTH 121 College Algebra

Minimum Program Requirements 60

Note: Internship opportunities are available for additional credits.

Course Sequence Guide

Year 1

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Total Credits 15

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Total Credits 13

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Total Credits 17

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Total Credits 13

1 If you are considering enrolling in the Bachelor’s program you should consider taking ENV 117 Meteorology & Climatology or PHY 121 General Physics I instead of PHY 105 Physics of the World Around Us.

The responsibility for determining the transferability of this degree and courses to another institution is the sole responsibility of the student.

Engineering Technology - Programmable Logic Controllers (PLC), Certificate of Achievement (Level I)

Trained personnel who design, program, operate, service, and maintain these devices are performing duties that fit the job description of a programmable logic controller technician. They have the technical knowledge to set up electronic control systems for mechanical equipment, including integrating electrical wiring requirements to pneumatic and hydraulic systems. They also will learn system monitoring, debugging and troubleshooting operational problems, making repairs and performing preventive maintenance activities. There is a very high demand for trained individuals in this field as many industries have automated processes in which equipment and machines are computer-controlled. The curriculum is designed by industry experts to meet...
employer demands. Students receive hands-on training in our state-of-the-art lab.

### Requirements

#### Certificate Requirements

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The responsibility for determining the transferability of this degree and courses to another institution is the sole responsibility of the student.

### Engineering Technology - Robotics & Automation Technology, Associate of Applied Science

**NMC Code 544**

Engineering technology education focuses primarily on the applied aspects of science and engineering aimed at preparing graduates for practice in that portion of the technological spectrum closest to product improvement, manufacturing, construction, and engineering operational functions.

The NMC Engineering Technology degree offers students a broad-based curriculum across all areas of technical education, preparing the graduates for emerging job markets and highly technical fields. The program is designed to allow students to choose courses of interest or specialize in one of the following specialty areas:

- Biomedical Technician,
- Computer Technology,
- Electronics Technology,
- Robotics & Automation Technology,
- Unmanned Aerial Systems (UAS) Technology,
- Marine (ROV) Technology.

### Requirements

#### Major Requirements

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1. Placement into MTH 122 Trigonometry or higher, or completion of MTH 121 College Algebra

#### Minimum Program Requirements 60

**Note:** Internship opportunities are available for additional credits.

### Course Sequence Guide

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GEO 115 Introduction to GIS  3
EET 102 Intro to Engineering Tech  2
EET 103 Electrical Studies I  3
RAM 155 Microcontroller Programming  3

Credits  15

Spring
Select one of the following:  3-4
ENG 112 English Composition
ENG 220 Technical Writing
BUS 231 Professional Communications
RAM 205 Microcontroller Systems  3
DD 170 CADD/Computer Modeling  4
EET 204 Electrical Studies II  3

Credits  13-14

Year 2
Fall
MTH 121 College Algebra  4
Select one of the following:  4
BIO 106 Human Biology
ENV 117 Meteorology & Climatology
PHY 105 Physics of the World Around Us
PHY 121 General Physics I
MFG 104 Fluid Power  3
EET 221 Industrial Controls (Fall only)  3
EET 232 Programmable Logic Controllers (Fall only)  3

Credits  17

Spring
PHL 105 Critical Thinking  3
EET 260 System Engineering in Practice  3
EET 233 PLC Applications I (Spring only)  3
EET 234 PLC Applications II (Spring only)  3
MFG 203 Manuf/Engineering Processes  3

Credits  15

Total Credits  60-61

The responsibility for determining the transferability of this degree and courses to another institution is the sole responsibility of the student.

**Engineering Technology - Unmanned Aerial Systems Technology, Associate of Applied Science**

*NMC Code 542*

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#### Technical Specialty Requirements

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<td>AVG 142</td>
<td>Remote Pilot Ground</td>
<td>3</td>
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<td><strong>Summer</strong></td>
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<tr>
<td>AVF 211</td>
<td>Commercial Drone Operations</td>
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<td><strong>Credits</strong></td>
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<td>MTH 121</td>
<td>College Algebra</td>
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<td>MFG 104</td>
<td>Fluid Power</td>
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<tr>
<td>EET 204</td>
<td>Electrical Studies II</td>
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<td>AVF 241</td>
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<td><strong>Spring</strong></td>
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<tr>
<td>PHL 105</td>
<td>Critical Thinking</td>
<td>3</td>
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<tr>
<td>EET 260</td>
<td>System Engineering in Practice</td>
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<td>BIO 106</td>
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<tr>
<td>ENV 117</td>
<td>Meteorology &amp; Climatology</td>
<td></td>
</tr>
<tr>
<td>PHY 105</td>
<td>Physics of the World Around Us</td>
<td></td>
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<tr>
<td>PHY 121</td>
<td>General Physics I</td>
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<td>Approved Technical Elective</td>
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<tr>
<td></td>
<td><strong>Credits</strong></td>
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<td><strong>Total Credits</strong></td>
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</table>

The responsibility for determining the transferability of this degree and courses to another institution is the sole responsibility of the student.

### Requirements

#### Major Requirements

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<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>General Education Requirements</td>
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</tr>
<tr>
<td>ENG 111</td>
<td>English Composition</td>
<td><strong>4</strong></td>
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<tr>
<td>Select one of the following:</td>
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<tr>
<td>BUS 231</td>
<td>Professional Communications</td>
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<td>ENG 112</td>
<td>English Composition</td>
<td></td>
</tr>
<tr>
<td><strong>Spring</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHL 105</td>
<td>Critical Thinking</td>
<td><strong>3</strong></td>
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<tr>
<td>PHL 202</td>
<td>Contemporary Ethical Dilemmas</td>
<td></td>
</tr>
<tr>
<td>PHL 203</td>
<td>Environmental Ethics</td>
<td></td>
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<tr>
<td>Math Competency</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ENV 131</td>
<td>Oceanography</td>
<td><strong>4</strong></td>
</tr>
<tr>
<td>GEO 115</td>
<td>Introduction to GIS</td>
<td><strong>3</strong></td>
</tr>
<tr>
<td>Core Requirements</td>
<td></td>
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<tr>
<td>ENV 117</td>
<td>Meteorology &amp; Climatology</td>
<td><strong>4</strong></td>
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<td>ENV 140</td>
<td>Watershed Science</td>
<td><strong>4</strong></td>
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<tr>
<td>WSI 105</td>
<td>Intro to Freshwater Studies</td>
<td><strong>3</strong></td>
</tr>
<tr>
<td>WSI 230</td>
<td>Water Policy &amp; Sustainability</td>
<td><strong>3</strong></td>
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<tr>
<td>WSI 290</td>
<td>Freshwater Studies Internship</td>
<td><strong>1-3</strong></td>
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<tr>
<td>Approved Elective Courses by Concentrations</td>
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</tr>
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<td>Total Credits</td>
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</table>

1. Placement into MTH 111 Intermediate Algebra or higher, or completion of MTH 23 Beginning Algebra

#### Approved Elective Courses by Concentrations

You must take 28 credits of approved electives below. You can choose a specified concentration or any combination of 28 credits below.

### Economy and Society - NMC Code 492

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIO 110</td>
<td>Essential Biology</td>
<td><strong>4</strong></td>
</tr>
<tr>
<td>BUS 101</td>
<td>Introduction to Business</td>
<td><strong>3</strong></td>
</tr>
<tr>
<td>BUS 261</td>
<td>Business Law I</td>
<td><strong>3</strong></td>
</tr>
<tr>
<td>or MGT 241</td>
<td>Principles of Management</td>
<td></td>
</tr>
</tbody>
</table>

---

### Freshwater Studies, Associate in Applied Science Degree

**NMC Code 490**

The Freshwater Studies program is offered by NMC’s Great Lakes Water Studies Institute. The program is designed to prepare students for both current and emerging career pathways in water related fields.

The Freshwater Studies degree program combines unique courses and opportunities for field experiences available through Northwestern Michigan College and our University partners. In addition to the partners in the Great Lakes region, our program has collaborators in selected sites overseas. This freshwater focused program has an interdisciplinary approach designed to offer students the ability to gain unique competencies and credentials of value. The core program of study includes Introduction to Freshwater Studies, Watershed Science, Geographic Information Systems (GIS), Oceanography, Meteorology and Climatology, Water Policy and Sustainability, and an Internship experience either locally or overseas. The degree is intended both for students who plan to enter professional fields as well as those who wish to further their studies and complete a bachelor’s degree with university partners located in Traverse City and offsite.
Global Freshwater Policy and Sustainability - NMC Code 491

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIO 110</td>
<td>Essential Biology</td>
<td>4</td>
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<tr>
<td>GEO 109</td>
<td>World Regional Geography</td>
<td>3</td>
</tr>
<tr>
<td>MTH 131</td>
<td>Intro to Prob &amp; Stats</td>
<td>3</td>
</tr>
<tr>
<td>SPN 202</td>
<td>Intermediate Spanish II</td>
<td>4</td>
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<tr>
<td>or SPN 227A</td>
<td>Spanish for Environmental Mgmt</td>
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</table>

Total Credits 14

Science and Technology - NMC Code 493

<table>
<thead>
<tr>
<th>Course</th>
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<tr>
<td>MTH 141</td>
<td>Calculus I</td>
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<tr>
<td>BIO 115</td>
<td>Cell, Plant &amp; Ecosystem Biology</td>
<td>4</td>
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<tr>
<td>CHM 150</td>
<td>General Chemistry I</td>
<td>4</td>
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<tr>
<td>PHY 121</td>
<td>General Physics I</td>
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</table>

Total Credits 17

General - NMC Code 490

<table>
<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
<td>ANT 113</td>
<td>Intro to Cultural Anthropology</td>
<td>3</td>
</tr>
<tr>
<td>BIO 115</td>
<td>Cell, Plant &amp; Ecosystem Biology</td>
<td>4</td>
</tr>
<tr>
<td>BIO 116</td>
<td>Genetic, Evolution, Animal Bio</td>
<td>4</td>
</tr>
<tr>
<td>CHM 150</td>
<td>General Chemistry I</td>
<td>4</td>
</tr>
<tr>
<td>ECO 202</td>
<td>Principles of Microeconomics</td>
<td>3</td>
</tr>
<tr>
<td>MTH 121</td>
<td>College Algebra</td>
<td>4</td>
</tr>
<tr>
<td>MTH 131</td>
<td>Intro to Prob &amp; Stats</td>
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Total Credits 25

Additional Elective Options

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<th>Course</th>
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<tr>
<td>ASL 101</td>
<td>American Sign Language I</td>
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<td>ASL 102</td>
<td>American Sign Language II</td>
<td>4</td>
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<td>ASL 103</td>
<td>American Sign Language III</td>
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<tr>
<td>FRN 101</td>
<td>Elementary French I</td>
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<td>FRN 102</td>
<td>Elementary French II</td>
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<td>FRN 201</td>
<td>Intermediate French I</td>
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<tr>
<td>HUM 116</td>
<td>World Cultures</td>
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<tr>
<td>MTH 122</td>
<td>Trigonometry</td>
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<tr>
<td>PLS 211</td>
<td>International Relations</td>
<td>3</td>
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<tr>
<td>SPN 101</td>
<td>Elementary Spanish I</td>
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<td>SPN 102</td>
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<td>SPN 201</td>
<td>Intermediate Spanish I</td>
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<tr>
<td>WSI 200</td>
<td>GL Research Technologies</td>
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<tr>
<td>WSI 210</td>
<td>Underwater Acoustics and Sonar</td>
<td>3</td>
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| WSI 215 | Marine GIS & Data Processing              | 3       |
| WSI 240 | ROV Systems and Operations                | 3       |

Please consult an NMC Freshwater Studies program advisor for scheduling guidelines.

Minimum Program Requirements 60

Course Sequence Guide

<table>
<thead>
<tr>
<th>Year 1</th>
<th>Fall</th>
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<td></td>
<td></td>
<td>English Composition</td>
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<tr>
<td></td>
<td></td>
<td>Intro to Freshwater Studies</td>
<td>3</td>
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<tr>
<td></td>
<td></td>
<td>Watershed Science</td>
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<thead>
<tr>
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<tr>
<td>Math Competency 1</td>
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<table>
<thead>
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<th>Credits</th>
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Select one of the following: 3-4

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<thead>
<tr>
<th>Course</th>
<th>Title</th>
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<tbody>
<tr>
<td>BUS 231</td>
<td>Professional Communications</td>
<td></td>
</tr>
<tr>
<td>ENG 112</td>
<td>English Composition</td>
<td></td>
</tr>
<tr>
<td>ENG 220</td>
<td>Technical Writing</td>
<td></td>
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<tr>
<td>ENV 131</td>
<td>Oceanography</td>
<td></td>
</tr>
<tr>
<td>GEO 115</td>
<td>Introduction to GIS</td>
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Select one of the following: 3

<table>
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<tr>
<th>Course</th>
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<tr>
<td>PHL 105</td>
<td>Critical Thinking</td>
<td></td>
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<tr>
<td>PHL 202</td>
<td>Contemporary Ethical Dilemmas</td>
<td></td>
</tr>
<tr>
<td>PHL 203</td>
<td>Environmental Ethics (Fall only)</td>
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<table>
<thead>
<tr>
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<th>Credits</th>
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</table>

| Summer | WSI 290 | Freshwater Studies Internship             | 1-3     |

| Total Credits | 60-63   |

1 Placement into MTH 111 Intermediate Algebra or higher, or completion of MTH 23 Beginning Algebra
The Manufacturing Technology program is designed to provide a multi-disciplined technical background in fields for which NMC does not offer a specific program. For instance, students interested in pursuing careers in advanced manufacturing or welding may enroll in the Manufacturing Technology program and design a model schedule that emphasizes their major area of interest. This program has the flexibility to match the student’s interest with the skills necessary for job entry.

Students, with assistance from an advisor, will select a major area of technical emphasis. These technical courses plus supporting courses from other disciplines comprise the Manufacturing Technology program requirements.

Each student’s proposed Manufacturing Technology program must be approved by a committee consisting of the appropriate department head, the academic chair, and the registrar.

### Requirements

#### Major Requirements

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tr>
<td>ENG 111</td>
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<tr>
<td>BUS 231</td>
<td>Professional Communications</td>
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</tr>
<tr>
<td>ENG 112</td>
<td>English Composition</td>
<td></td>
</tr>
<tr>
<td>ENG 220</td>
<td>Technical Writing</td>
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<tr>
<td>Any Group 1 Humanities course</td>
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<tr>
<td>Math Competency</td>
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<td></td>
</tr>
<tr>
<td>Any Group 1 Science lecture/lab course</td>
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<tr>
<td>Any Group 1 Social Science course</td>
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</tbody>
</table>

**Occupational Specialty Requirements**

Complete the Occupational Specialty Requirements | 39 credits

**Electives**

Select any courses from Group 1 and/or Group 2 | 4-9 credits

Total Credits | 60-66

---

1 Students intending to transfer to another college or university should take ENG 112 English Composition.

2 Placement into MTH 111 Intermediate Algebra or higher, or completion of MTH 23 Beginning Algebra

#### Occupational Specialty Requirements

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
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<tbody>
<tr>
<td>DD 101</td>
<td>Print Reading and Sketching</td>
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<tr>
<td>DD 110</td>
<td>Basic Metallurgy</td>
<td>3</td>
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<tr>
<td>DD 160</td>
<td>Tolerancing and GD&amp;T</td>
<td>3</td>
</tr>
<tr>
<td>DD 170</td>
<td>CADD/Computer Modeling</td>
<td>4</td>
</tr>
<tr>
<td>MFG 203</td>
<td>Manuf/Engineering Processes</td>
<td>3</td>
</tr>
<tr>
<td>MFG 104</td>
<td>Fluid Power</td>
<td>3</td>
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<td>MFG 111</td>
<td>Math for Manufacturing</td>
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<td>MFG 113</td>
<td>Machining I</td>
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</tr>
<tr>
<td>MFG 114</td>
<td>Machining II</td>
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<tr>
<td>MFG 217</td>
<td>CNC Operations - Lathe</td>
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<tr>
<td>MFG 219</td>
<td>CNC Mill Operations</td>
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**Course Sequence Guide**

<table>
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<th>Year 1</th>
<th>Course</th>
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<tbody>
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<td>Occupational Specialty Requirements</td>
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<table>
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<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>Fall</td>
<td>ENG 111</td>
<td>English Composition</td>
<td>4</td>
</tr>
<tr>
<td>MTH 23</td>
<td>Beginning Algebra</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Humanities: Any Group 1 course</td>
<td></td>
<td>3</td>
<td></td>
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<tr>
<td>Social Sciences: Any Group 1 course</td>
<td></td>
<td>3</td>
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</table>

**Note:** Occupational Specialty Requirements are listed below. However, other Technical elective courses may be substituted by an academic advisor to fulfill the Occupational Specialty requirements.

The responsibility for determining the transferability of this degree and courses to another institution is the sole responsibility of the student.

#### Occupational Specialty Requirements

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>DD 101</td>
<td>Print Reading and Sketching</td>
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<tr>
<td>DD 110</td>
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<td>DD 160</td>
<td>Tolerancing and GD&amp;T</td>
<td>3</td>
</tr>
<tr>
<td>DD 170</td>
<td>CADD/Computer Modeling</td>
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</tr>
<tr>
<td>MFG 203</td>
<td>Manuf/Engineering Processes</td>
<td>3</td>
</tr>
<tr>
<td>MFG 104</td>
<td>Fluid Power</td>
<td>3</td>
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<tr>
<td>MFG 111</td>
<td>Math for Manufacturing</td>
<td>3</td>
</tr>
<tr>
<td>MFG 113</td>
<td>Machining I</td>
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<td>MFG 114</td>
<td>Machining II</td>
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<tr>
<td>MFG 217</td>
<td>CNC Operations - Lathe</td>
<td>4</td>
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<tr>
<td>MFG 219</td>
<td>CNC Mill Operations</td>
<td>4</td>
</tr>
<tr>
<td>MFG 290</td>
<td>Manufacturing Tech Internship</td>
<td>3</td>
</tr>
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</table>

Total Credits | 39 credits
Surveying, Associate in Applied Science Degree

NMC Code 577

The Surveying program focuses on the technical aspects of surveying, ensuring students in the program are trained to meet varying roles surveyors play in the workforce. In today’s ever changing world of technology, autonomous vehicles, construction and development there has never been more demand for surveyors. All boundaries defining ownership, road construction, housing, schools, and commercial structures, cell phone towers, fiber optic line, gas pipe line, solar panel farms, oil – gas exploration, dams, rails, bridges, mining requires the assistance of a properly trained land surveyor.

The tools that a modern-day surveyor use are technically very advanced and vary depending on the accuracy and precision required for a specific task. Leica Geosystems has partnered with NMC to provide a comprehensive set of equipment, ensuring every student in the program has ready access to the most recent tools and technology.

Requirements

**Major Requirements**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENG 111</td>
<td>English Composition</td>
<td>4</td>
</tr>
<tr>
<td>ENG 220</td>
<td>Technical Writing</td>
<td>3</td>
</tr>
<tr>
<td>PHL 105</td>
<td>Critical Thinking</td>
<td>3</td>
</tr>
<tr>
<td>or PHL 203</td>
<td>Environmental Ethics</td>
<td></td>
</tr>
<tr>
<td>Math Competency</td>
<td>3</td>
<td></td>
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<tr>
<td>PHY 105</td>
<td>Physics of the World Around Us</td>
<td>4</td>
</tr>
<tr>
<td>GEO 115</td>
<td>Introduction to GIS</td>
<td>3</td>
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</table>

**Occupational Specialty Requirements**

<table>
<thead>
<tr>
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<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>AVF 211</td>
<td>Commercial Drone Operations</td>
<td>4</td>
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<tr>
<td>MTH 131</td>
<td>Intro to Prob &amp; Stats</td>
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<tr>
<td>SVR 110</td>
<td>Fundamentals of Surveying</td>
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<td>SVR 120</td>
<td>CAD for Surveying</td>
<td>4</td>
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<tr>
<td>SVR 150</td>
<td>Construction Survey App</td>
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<tr>
<td>SVR 160</td>
<td>Surveying Calculations</td>
<td>3</td>
</tr>
<tr>
<td>SVR 210</td>
<td>Surveying Positioning</td>
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**Course Sequence Guide**

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<thead>
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<th>Year 1</th>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tr>
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<td>ENG 111</td>
<td>English Composition</td>
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<td>Fall</td>
<td>SVR 110</td>
<td>Fundamentals of Surveying (Fall only)</td>
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<tr>
<td>Fall</td>
<td>SVR 120</td>
<td>CAD for Surveying</td>
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<tr>
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<td>ENG 220</td>
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<td>Spring</td>
<td>MTH 122</td>
<td>Trigonometry</td>
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<tr>
<td>Spring</td>
<td>SVR 150</td>
<td>Construction Survey App (Spring only)</td>
<td>5</td>
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<tr>
<td>Spring</td>
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<tr>
<td>Summer</td>
<td>WSI 300</td>
<td>Remote Sensing and Sensors</td>
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<td>Commercial Drone Operations</td>
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<td>Intro to Prob &amp; Stats</td>
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<td>Fall</td>
<td>GEO 115</td>
<td>Introduction to GIS</td>
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<td>Fall</td>
<td>SVR 220</td>
<td>Boundary Surveying (Fall only)</td>
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<td>Credits</td>
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<td>PHL 105</td>
<td>Critical Thinking</td>
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<td>Spring</td>
<td>or PHL 203</td>
<td>Environmental Ethics</td>
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<tr>
<td>Spring</td>
<td>PHY 105</td>
<td>Physics of the World Around Us</td>
<td>4</td>
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<tr>
<td>Spring</td>
<td>SVR 210</td>
<td>Surveying Positioning (Spring only)</td>
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The responsibility for determining the transferability of this degree and courses to another institution is the sole responsibility of the student.
Welding Technology, Associate in Applied Science Degree

NMC Code 386

Welding is one of the foundations upon which our industrial world is built. The ability to form and join metals has been a critical need in our society for thousands of years and, with the rapid pace of technological advancement, is as in demand now as it ever was. Northwestern Michigan College is proud to offer three paths by which students will gain the competence and skill necessary to embark on a rewarding career in the welding world. Students will develop their skills through lecture and laboratory experiences in Gas Metal Arc Welding, Shielded Metal Arc Welding, Gas Tungsten Arc Welding, Flux Cored Arc Welding, Oxy-Fuel Processes, and Plasma Arc Cutting as well as additional skills that are in high demand for welding professionals. All programs incorporate industry recognized AWS Qualification testing. No prior experience needed.

Requirements

Major Requirements

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<thead>
<tr>
<th>Course</th>
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<td>English Composition</td>
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<tr>
<td>ENG 112 or ENG 220</td>
<td>English Composition or Technical Writing</td>
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<tr>
<td>Any Group 1 Humanities course</td>
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<tr>
<td>Math Competency 1</td>
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<td>PHY 105</td>
<td>Physics of the World Around Us</td>
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<tr>
<td>Any Group 1 Social Sciences course</td>
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Occupational Specialty Requirements

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<tr>
<td>EET 103</td>
<td>Electrical Studies I</td>
<td>3</td>
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<tr>
<td>MFG 113</td>
<td>Machining I</td>
<td>3</td>
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<tr>
<td>WPT 111</td>
<td>Welding Theory I</td>
<td>3</td>
</tr>
<tr>
<td>WPT 112</td>
<td>Welding Lab I</td>
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<td>WPT 113</td>
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<td>WPT 114</td>
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<td>WPT 211</td>
<td>Welding Fabrication I</td>
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</tr>
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<td>WPT 212</td>
<td>Welding Fabrication II</td>
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</tr>
<tr>
<td>WPT 213</td>
<td>Weld Quality Testing</td>
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<tr>
<td>WPT 260</td>
<td>Intro to Welding Automation</td>
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Total Credits: 61-62

Course Sequence Guide

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<tr>
<th>Course</th>
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<td>Year 1</td>
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<tr>
<td>Fall</td>
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<tr>
<td>ENG 111</td>
<td>English Composition</td>
<td>4</td>
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<tr>
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<td>Welding Theory I (Fall only)</td>
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Spring

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<td>English Composition or Technical Writing</td>
<td>3-4</td>
</tr>
<tr>
<td>MTH 122</td>
<td>Trigonometry</td>
<td>3</td>
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<tr>
<td>WPT 113</td>
<td>Welding Theory II (Spring only)</td>
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<tr>
<td>WPT 114</td>
<td>Welding Lab II (Spring only)</td>
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<td>DD 101</td>
<td>Print Reading and Sketching</td>
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Credits: 17

Summer

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Credits: 3

Year 2

Fall

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<tr>
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<tbody>
<tr>
<td>Social Sciences: Any Group 1 course</td>
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<tr>
<td>PHY 105</td>
<td>Physics of the World Around Us</td>
<td>4</td>
</tr>
<tr>
<td>WPT 211</td>
<td>Welding Fabrication I (Fall only)</td>
<td>3</td>
</tr>
<tr>
<td>WPT 260</td>
<td>Intro to Welding Automation (Fall only)</td>
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Credits: 13

Spring

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<tr>
<td>Humanities: Any Group 1 course</td>
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<tr>
<td>DD 110</td>
<td>Basic Metallurgy (Spring only)</td>
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<td>WPT 212</td>
<td>Welding Fabrication II (Spring only)</td>
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Credits: 12

Total Credits: 61-62

The responsibility for determining the transferability of this degree and courses to another institution is the sole responsibility of the student.

Welding Technology, Certificate of Achievement (Level I)

NMC Code 036

The Welding Technology courses are designed to meet the needs of beginning welding students as well as the needs of people who are upgrading their welding skills. Students will develop their skills in this area through laboratory experience using equipment representative of the welding industry. Welding classes can prepare students to be a certified welder or provide either a certificate or an Associate in Applied Science degree. The welding curriculum includes Oxyacetylene, Shielded Metal Arc Welding (SMAW), Gas Metal Arc Welding (GMAW), and Gas Tungsten Arc Welding (GTAW), on both ferrous and nonferrous materials.

Requirements

Certificate Requirements

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<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>WPT 111</td>
<td>Welding Theory I</td>
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<tr>
<td>WPT 112</td>
<td>Welding Lab I</td>
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</tr>
<tr>
<td>WPT 113</td>
<td>Welding Theory II</td>
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</tbody>
</table>

The responsibility for determining the transferability of this degree and courses to another institution is the sole responsibility of the student.
Welding Technology, Certificate of Achievement (Level II)

NMC Code 038

After completing the Welding Certificate Level I students may elect to obtain a Welding Certificate Level II. Students will advance their skills in this area through more laboratory experience using equipment representative of the welding industry. Welding classes can prepare students to be a certified welder or provide either a certificate or an Associate in Applied Science degree. The welding curriculum includes Oxyacetylene, Shielded Metal Arc Welding (SMAW), Gas Metal Arc Welding (GMAW), and Gas Tungsten Arc Welding (GTAW), on both ferrous and nonferrous materials.

Requirements

Certificate Requirements

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>WPT 114</td>
<td>Welding Lab II</td>
<td>4</td>
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<td>WPT 161</td>
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Course Sequence Guide

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<th>Title</th>
<th>Credits</th>
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<tr>
<td><strong>Year 1</strong></td>
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<tr>
<td><strong>Fall</strong></td>
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<tr>
<td>WPT 111</td>
<td>Welding Theory I (Fall only)</td>
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<td>WPT 112</td>
<td>Welding Lab I (Fall only)</td>
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<td>WPT 113</td>
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<td>WPT 114</td>
<td>Welding Lab II (Spring only)</td>
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<td>WPT 161</td>
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Marine Technology, Bachelor of Science

NMC Code 870

The Marine Technology major at NMC prepares students to meet the needs of the global marine industry. Graduates will be in high demand for global employment opportunities in extremely diverse and fast-growing industries. This four-year bachelor’s program builds on NMC’s Marine Technology concentration of the Engineering Technology program. Technical training will occur at numerous campus labs, NMC’s Great Lakes campus harbor and aboard research vessels operating throughout the Great Lakes. Program emphasis is focused on project management, technical competencies and hands-on learning with students having direct access to remotely operated vehicles, multiple SONAR platforms, marine instrumentation and marine data processing software. Instruction will be provided by highly trained instructors with experience in the industry.

Requirements

Major Requirements

<table>
<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
<td>ENG 111</td>
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<td>ENG 220</td>
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<td>PHL 105</td>
<td>Critical Thinking</td>
<td>3</td>
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<td>or PHL 203</td>
<td>Environmental Ethics</td>
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<tr>
<td>PHL 202</td>
<td>Contemporary Ethical Dilemmas</td>
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<tr>
<td>MTH 121</td>
<td>College Algebra</td>
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<td>MTH 122</td>
<td>Trigonometry</td>
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Course Sequence Guide

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<td>Calculus I</td>
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<td>General Physics I</td>
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<td>PHY 122</td>
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<td>ECO 202</td>
<td>Principles of Microeconomics</td>
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<td>GEO 115</td>
<td>Introduction to GIS</td>
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<td>EET 260</td>
<td>System Engineering in Practice</td>
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<td>EET 304</td>
<td>Marine Electronics</td>
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<tr>
<td>ENV 117</td>
<td>Meteorology &amp; Climatology</td>
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<tr>
<td>ENV 131</td>
<td>Oceanography</td>
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<td>MFG 104</td>
<td>Fluid Power</td>
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<tr>
<td>MFG 304</td>
<td>Marine Hydraulics</td>
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<td>RAM 155</td>
<td>Microcontroller Programming</td>
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<td>RAM 205</td>
<td>Microcontroller Systems</td>
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<td>WSI 200</td>
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<td>WSI 210</td>
<td>Underwater Acoustics and Sonar</td>
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<td>WSI 215</td>
<td>Marine GIS &amp; Data Processing</td>
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<td>WSI 240</td>
<td>ROV Systems and Operations</td>
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<tr>
<td>WSI 310</td>
<td>Sonar Systems and Operations</td>
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<td>WSI 440</td>
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**Year 2**

**Fall**

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<tr>
<td>MTH 122</td>
<td>Trigonometry</td>
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<td>ECO 202</td>
<td>Principles of Microeconomics</td>
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<td>MFG 104</td>
<td>Fluid Power</td>
<td>3</td>
</tr>
<tr>
<td>WSI 210</td>
<td>Underwater Acoustics and Sonar (Fall only)</td>
<td>3</td>
</tr>
<tr>
<td>WSI 240</td>
<td>ROV Systems and Operations (Fall only)</td>
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**Spring**

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<tbody>
<tr>
<td>MTH 141</td>
<td>Calculus I</td>
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<tr>
<td>EET 260</td>
<td>System Engineering in Practice</td>
<td>3</td>
</tr>
<tr>
<td>ENV 131</td>
<td>Oceanography (w/ Lab)</td>
<td>4</td>
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<tr>
<td>WSI 215</td>
<td>Marine GIS &amp; Data Processing (Spring only)</td>
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**Summer**

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<td>Marine Tech Internship (Fall only)</td>
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<td>Or WSI 297A Independent Study - Water Studies</td>
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**Year 3**

**Fall**

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<tbody>
<tr>
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<td>General Physics I (Fall only)</td>
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<td>Intro to Prob &amp; Stats</td>
<td>3</td>
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<td>PHL 202</td>
<td>Contemporary Ethical Dilemmas</td>
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<tr>
<td>EET 304</td>
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**Spring**

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<tr>
<td>PHY 122</td>
<td>General Physics II (Spring only)</td>
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<tr>
<td>ENV 117</td>
<td>Meteorology &amp; Climatology</td>
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<tr>
<td>MFG 304</td>
<td>Marine Hydraulics (Spring only)</td>
<td>3</td>
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<tr>
<td>WSI 315</td>
<td>Advanced Marine Survey &amp; Data (Spring only)</td>
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**Summer**

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<tr>
<td>WSI 390</td>
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<tr>
<td>Or WSI 297A Independent Study - Water Studies</td>
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**Year 4**

**Fall**

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<tr>
<td>WSI 300</td>
<td>Remote Sensing and Sensors (Fall only)</td>
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<td>WSI 405</td>
<td>Marine Industry (Fall only)</td>
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<tr>
<td>PHL 105</td>
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<td>or PHL 203</td>
<td>or Environmental Ethics</td>
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<tr>
<td>WSI 433</td>
<td>Marine Project Management (Spring only)</td>
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<td><strong>Optional:</strong> Internship or Independent Study</td>
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### Summer

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### Total Credits

| Total Credits | 120 |

1 WSI 390 Marine Tech Internship or WSI 297A Independent Study - Water Studies option to take Summer year 3 OR Spring year 4

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## Course Descriptions

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- Anishinaabemowin (ANI) (p. 194)
- Anthropology (ANT) (p. 194)
- Art (ART) (p. 195)
- Astronomy (AST) (p. 197)
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Courses A-Z

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#### Course Prefixes by Academic Area

#### Aviation

<table>
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<td>AVF</td>
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#### Business

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<td>BUS</td>
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<td>Culinary Arts</td>
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<td>MGT</td>
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<td>MKT</td>
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#### Communications

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<td>ASL</td>
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<tr>
<td>COM</td>
<td>Communications</td>
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<td>ENG</td>
<td>English</td>
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<tr>
<td>FRN</td>
<td>World Language - French</td>
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<tr>
<td>GRM</td>
<td>World Language - German</td>
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<tr>
<td>SPN</td>
<td>World Language - Spanish</td>
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#### Construction Technology

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<td>CAR</td>
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<td>CMT</td>
<td>Construction Management</td>
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<td>EGY</td>
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<td>ELE</td>
<td>Electrical Technology</td>
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<td>HVA</td>
<td>HVAC/R Technology</td>
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<td>PLU</td>
<td>Plumbing Technology</td>
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#### Health Occupations

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<tr>
<td>HAH</td>
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<td>HDA</td>
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<td>HNR</td>
<td>Nursing</td>
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<td>HPD</td>
<td>Health Professional Development</td>
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<td>SRG</td>
<td>Surgical Technology</td>
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#### Humanities

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<td>ART</td>
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#### Science and Mathematics

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<td>BIO</td>
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<td>PHY</td>
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#### Social Sciences

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<tr>
<td>ANT</td>
<td>Anthropology</td>
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<td>CJ</td>
<td>Criminal Justice</td>
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<tr>
<td>ECE</td>
<td>Early Childhood Education</td>
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<td>ECO</td>
<td>Economics</td>
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#### Technical

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<td>DD</td>
<td>Drafting and Design</td>
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<tr>
<td>EET</td>
<td>Electronic/Electronics Technology</td>
</tr>
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<td>MFG</td>
<td>Manufacturing Technology</td>
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<td>Robotics and Automation</td>
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<td>SVR</td>
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<td>WPT</td>
<td>Welding Process Technology</td>
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#### Water Studies

<table>
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</tr>
</thead>
<tbody>
<tr>
<td>WSI</td>
<td>Water Studies</td>
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Reading a Course Description

The semester credit hours followed by (contact hours) are listed below the title of the course description. Student tuition, in most cases, is based on the course contact hour. Exceptions are MDK, MNG, MNS, Applied Music, Ensembles and private lessons. At the end of the description the course is identified by group number.

In addition to the courses listed in this section, each instructional area within Northwestern Michigan College may offer the following courses:

291 Special Topics

Seminars, lectures, etc. on a selected topic within a field are sometimes offered as special courses. Students may enroll in more than one Special Topics offering but not all four-year schools accept special topics credits. Group 2 course.

293 Study Abroad

Study Abroad courses provide students with the opportunity to travel to a specified destination affiliated with a corresponding course. This course will serve to integrate the student learning experience and provide a sense of cultural perspective, diversity and regional awareness. Students will explore unique areas around the world while applying discipline-specific course content. Along with course registration, an additional application process and GPA requirements are mandatory before final travel approval will be given. Group 2 course.

297 Independent Study

Independent Study provides students the opportunity to explore a topic of study in greater breadth and depth than would be possible in an established College course. Students must seek faculty approval and complete a formal contract that stipulates the student learning outcomes, the activities that will help the student meet these outcomes, and the methods and measures to be employed to assess the student’s performance. The Independent Study will appear on the student’s transcript under the appropriate disciplinary prefix followed by 297. Group 2 course.

Accounting (ACC)

ACC 121 - Accounting Principles I
Credit Hours: 4, Contact Hours: 4
Division: Business
Introduction to financial accounting covering the accounting cycle, preparation of financial statements, and accounting for merchandising operations. It includes accounting for cash, receivables, inventory, property plant and equipment, current liabilities, payroll, long-term liabilities and corporations. Group 2 course. Quantitative Reasoning.
Required Prerequisites: Placement into MTH 23 or completion of MTH 08 with a 2.0 or higher.
Recommended Prerequisites: BUS 105

ACC 123 - Accounting Principles II
Credit Hours: 4, Contact Hours: 4
Division: Business
Required Prerequisites: ACC 121
Recommended Prerequisites: MTH 111

ACC 199 - Accounting Practicum
Credit Hours: 3, Contact Hours: 3
Division: Business
This course expands upon previously learned computerized general ledger accounting. Focuses on developing skills for application through the continued use of accounting software; including chart of accounts, journal entries, sales/receivables, expenses/accounts payable, payroll, and automated general ledger. Various projects are used and integrated to guide students through the accounting cycle including financial statements and a variety of special reports. Special emphasis is placed upon the preparation, interpretation, evaluation, and forecasting of financial information. This course requires students to have an electronic device capable of processing QuickBooks as well as spreadsheet software. Students are required to bring their own device to class. Group 2 course. Quantitative Reasoning.
Required Prerequisites: ACC 123, CIT 210, CIT 216

ACC 221 - Intermediate Accounting I
Credit Hours: 4, Contact Hours: 4
Division: Business
A detailed analysis of the content of financial statements covering problems related to revenue recognition, time value of money, cash, receivables, and inventories including calculation and analysis of financial ratios. US and international reporting standards are compared. The course begins with a brief review of the fundamental accounting process. Group 2 course. Quantitative Reasoning.
Required Prerequisites: ACC 123
Recommended Prerequisites: Students should possess the ability to write business communications, such as research memos and reports to management. Students should also have competency in algebra at the intermediate level.

ACC 222 - Intermediate Accounting II
Credit Hours: 4, Contact Hours: 4
Division: Business
A detailed analysis of the content of financial statements covering problems related to property, plant and equipment, investments, current liabilities and contingencies, bonds and long-term notes, leases, income taxes, and shareholders’ equity. US and international reporting standards are compared. Group 2 course. Quantitative Reasoning.
Required Prerequisites: ACC 221
Recommended Prerequisites: Students should possess the ability to write business communications, such as research memos and reports to management. Students should also have competency in algebra at the intermediate level.
ACC 223 - Cost Accounting  
Credit Hours: 4, Contact Hours: 4  
Division: Business  
This course explores cost accounting from a managerial perspective. Job costing, activity-based costing, and process costing are analyzed. Budgeting and variance analysis for management control are examined. Cost volume-profit analysis, inventory costing and capacity, and inventory management techniques are investigated. Group 2 course. Quantitative Reasoning.  
Required Prerequisites: ACC 221 or ACC 223  
Recommended Prerequisites: MTH 111

ACC 231 - Federal Income Tax Problems  
Credit Hours: 3, Contact Hours: 3  
Division: Business  
In this course, the student will learn income tax practices and procedures necessary to prepare an accurate individual income tax return. Basic tax research and planning will be incorporated. Payroll tax laws and procedures will be examined including computing wages and withholdings, computing unemployment taxes and analyzing and journalizing payroll transactions. The course includes preparation of individual and payroll tax returns. Group 2 course. Quantitative Reasoning.  
Required Prerequisites: ACC 223 with a 2.0 or higher  
Recommended Prerequisites: ACC 221, ACC 222, ENG 112, critical reading ability is beneficial.

ACC 241 - Principles Fraud Examination  
Credit Hours: 3, Contact Hours: 3  
Division: Business  
This course is an introduction to the field of forensic accounting. Topics include the history of forensic accounting, the fraud triangle theory, financial statement misrepresentation, and fraud examination techniques, including fraud prevention and control. Students will be exposed to real-world cases in the area of forensic accounting. Group 2 course. Critical Thinking - Direct.  
Required Prerequisites: ACC 223 with a 2.0 or higher  
Recommended Prerequisites: ACC 221, ACC 222, ENG 112, critical reading ability is beneficial.

ACC 290 - Accounting Internship  
Credit Hours: 3, Contact Hours: 3  
Division: Business  
The purpose of the internship is to provide on-the-job training for the student who wishes to pursue a career in Accounting. The internship will be customized to meet the learning needs of the student and the job requirements of the sponsoring firm. Students spend 10-15 hours per week in this paid or unpaid, supervised on-the-job training experience. In addition to the required 50 hours per credit in a work site, students will meet with the Experiential Coordinator as needed throughout the semester for internship support and feedback, review of professional employment documents and an internship exit interview. Students must apply one month prior to the semester in which they will complete the internship. Group 2 course. Communications - Direct.  
Required Prerequisites: 12 semester credits in accounting in addition to a spreadsheet course. This internship requires the approval of the accounting instructor, a GPA of 3.0 in accounting and a minimum of eight hours per week spent on-site.  
Recommended Prerequisites: ACC 221, ACC 222, MTH 111

Allied Health (HAH)

HAH 100C - Informatics Essentials  
Credit Hours: 1, Contact Hours: 1  
Division: Health Occupations  
This course will introduce students to informatics in health care and, in particular, nursing. Students will enhance their ability to use modern informatics such as computer and Internet resources as well as Electronic Medical Record (EMR) software, in the health care environment. This course will be offered in a hybrid online and face-to-face format. Group 2 course.  
Required Prerequisites: Admission to ADN, PN, or LPN Completion nursing programs  
Recommended Prerequisites: HNR 102 may be taken concurrently

HAH 101 - Medical Terminology  
Credit Hours: 3, Contact Hours: 3  
Division: Health Occupations  
The student will learn the basic construction of medical words through the use of medical prefixes, suffixes, combining vowels and root words. This foundation will facilitate the understanding of new medical vocabulary encountered in other course work or work situations. Group 2 course.

HAH 120 - Infection Control  
Credit Hours: 2, Contact Hours: 2  
Division: Health Occupations  
This course details the structure of infectious organisms and mechanisms of disease transmission, including host defenses against disease and specific diseases of concern to dental and medical personnel. In addition, the course provides an overview of MIOSHA (Michigan Occupational Safety and Health Administration) regulations and occupational safety measures as they relate to the dental and medical fields. Group 2 course.

HAH 200 - Emergency Assess.& Intervention  
Credit Hours: 3, Contact Hours: 4  
Division: Health Occupations  
A comprehensive study of the concepts and practices of first aid techniques. The course provides training for emergency care through assessment, critical thinking, implementation, documentation, and evaluation. It also addresses situations when injury or sudden illness becomes a threat to life, or problems develop that endanger physical or psychological well-being. Certification for CPR for the Professional Rescuer, HAZMAT, and Medical First Responder may be earned in cooperation with state and/or national agencies. Group 2 course.
American Sign Language (ASL)

ASL 101 - American Sign Language I
Credit Hours: 4, Contact Hours: 4
Division: Communications
ASL 101 introduces students to the language and culture of Deaf people in the United States and most of Canada. This course will focus on building vocabulary and dialogue structures needed for introductory conversations about purposeful topics, the use of non-manual grammatical markers such as facial expression, use of fingers spelling and numbers, and an introduction to the rich history and culture of the Deaf community. Students will participate in interactive classroom activities using a 'voices off' policy to ensure ASL immersion. Group 2 course. Communications - Direct, Critical Thinking - Direct, Degree Req:Cultural Persp/Div.
Recommended Prerequisites: Students will be required to communicate in sign language; need a minimal amount of technological knowledge and skill to take advantage of outside-of-class requirements; need to be able to play a course-required DVD; and need internet access as much of the course is supported by Moodle.

ASL 102 - American Sign Language II
Credit Hours: 4, Contact Hours: 4
Division: Communications
ASL 102 furthers student knowledge and experience of the language and culture of Deaf people in the United States and most of Canada. The introduction of additional vocabulary and grammar structures furthers students' ability to communicate meaningfully with ASL users. Students will develop greater insight into the Deaf culture through the context of ASL literature and current topics relevant to the Deaf community are explored. 'Voice off' policy is used for more extended periods of time. While developing communication skills, students will simultaneously mature in their understanding of the Deaf experience. Group 2 course. Communications - Direct, Critical Thinking - Direct, Degree Req:Cultural Persp/Div.
Required Prerequisites: ASL 101 or instructor permission
Recommended Prerequisites: Students will be required to communicate in sign language; need a minimal amount of technological knowledge and skill to take advantage of outside-of-class requirements; need to be able to play a course-required DVD; and need internet access as much of the course is supported by Moodle.

ASL 103 - American Sign Language III
Credit Hours: 4, Contact Hours: 4
Division: Communications
ASL 103 is a continuation of ASL 101 and ASL 102, expanding the emphasis on ASL grammar, vocabulary development, and Deaf culture. Dialogue, short stories, narratives, and short conversation, both receptive and expressive, will be featured throughout the course. Meaningful conversational topic development is emphasized. Group 2 course. Communications - Direct, Critical Thinking - Direct, Degree Req:Cultural Persp/Div.
Required Prerequisites: ASL 102 or instructor permission
Recommended Prerequisites: Students will be required to communicate in sign language; need a minimal amount of technological knowledge and skill to take advantage of outside-of-class requirements; need to be able to play a course-required DVD; and need internet access as much of the course is supported by Moodle.

ASL 104 - American Sign Language IV
Credit Hours: 4, Contact Hours: 4
Division: Communications
ASL 104 is a continuation of ASL 101, ASL 102, and ASL 103. Students will further develop ASL grammar, vocabulary development, and Deaf culture. Dialogue, short stories, narratives, and short conversation, both receptive and expressive, will be featured through the course. Meaningful conversational topic development is emphasized. Group 2 course. Communications - Direct, Critical Thinking - Direct, Degree Req:Cultural Persp/Div.
Required Prerequisites: ASL 103 or instructor permission
Recommended Prerequisites: Students will be required to communicate in sign language; need a minimal amount of technological knowledge and skill to take advantage of outside-of-class requirements; need to be able to play a course-required DVD; and need internet access as much of the course is supported by Moodle.

Anishinaabemowin (ANI)

ANI 101 - Elementary Anishinaabemowin I
Credit Hours: 4, Contact Hours: 4
Division: Communications
This course represents a comprehensive introduction to the Anishinaabemowin language for the true beginner. Students will develop the ability to communicate in Anishinaabemowin in everyday practical situations while acquiring some of the necessary skills for reading, writing, listening, and speaking. Cultural topics are integrated into each unit. Group 2 course. Communications - Direct, Critical Thinking - Direct, Degree Req:Cultural Persp/Div.
Recommended Prerequisites: You will be required to read, write, listen, and speak in Anishinaabemowin. You will need a minimal ability using technology to take advantage of outside of class requirements.

ANI 102 - Elementary Anishinaabemowin II
Credit Hours: 4, Contact Hours: 4
Division: Communications
ANI 102 is a continuation of ANI 101 and focuses on the expansion of the communication skills of reading, writing, listening, and speaking. Cultural topics are integrated into each unit. Group 2 course. Communications - Direct, Critical Thinking - Direct, Degree Req:Cultural Persp/Div.
Required Prerequisites: ANI 101 with a minimum grade of 2.0 or instructor permission.
Recommended Prerequisites: You will be required to read, write, listen, and speak in Anishinaabemowin. You will need a minimal ability using technology to take advantage of outside of class requirements.

Anthropology (ANT)

ANT 102 - Underwater Archaeology
Credit Hours: 3, Contact Hours: 3
Division: Social Science
This course will provide students with an introduction to theory, method, technologies, and practice in underwater archaeology, with case studies of prehistoric and historical sites worldwide, including the Michigan Great Lakes. This is a lecture-based course that provides a specialization in anthropology and the applied social sciences. This course also qualifies for NAS Part 3 credits. No diving is required. Group 2 course. Communications - Direct, Critical Thinking - Direct.
Recommended Prerequisites: ENG 99 or placement into ENG 11/111
ANT 113 - Intro to Cultural Anthropology  
**Credit Hours:** 3, **Contact Hours:** 3  
**Division:** Social Science  
The study of the role of society and culture in humankind's adaptation to a variety of environments is the focus of this course. A variety of cultures are studied, utilizing cross-cultural comparisons. This is an introductory course which provides a broad overview of the four fields of anthropology with some concentration on archaeology. Among topics considered are field methods, theories of cultural evolution, the family, kinship, economics, religion, political organization and language. Group 1 course.  
**Communications:** Direct, **Critical Thinking:** Direct, **Degree Req:** Cultural Persp/Div.  
**Recommended Prerequisites:** ENG 99 or placement into ENG 11/111  

**ANT 201 - Nautical Archaeology I**  
**Credit Hours:** 3, **Contact Hours:** 3  
**Division:** Social Science  
This is an entry level course to the Nautical Archaeology Society Training Program and is aimed at introducing nautical archaeology to divers and non-divers, and promoting their interest in the subject. It provides the basic training in archaeological survey and project management with the aim of teaching students how to design, plan and run their own field work projects. The curriculum will be presented in the classroom and in an open water setting (or foreshore site for non-divers) in the field. Group 2 course.  
**Communications:** Direct, **Critical Thinking:** Direct, **Quantitative Reasoning:** Direct, **Degree Req:** Cultural Persp/Div.  
**Required Prerequisites:** ENG 99/108 or placement into ENG 11/111.  
**Recommended Prerequisites:** ANT 102. The minimum diving qualification level for those taking part in the pool exercises is CMAS 1-Star or equivalent, e.g., BSAC Ocean Diver, SAA Open Water Diver, or PADI Open Water.  

**ANT 202 - Nautical Archaeology II**  
**Credit Hours:** 3, **Contact Hours:** 3  
**Division:** Social Science  
This is a field archaeology course that allows students the opportunity to practice skills they learned in ANT 201. Students will design and execute a maritime archaeology project in the Grand Traverse region or other maritime landscape. Students may also participate in larger projects during special summer field schools hosted at NMC and abroad. Beach projects will be developed for non-divers. The course will be offered throughout the summer semester on a flexible time schedule and is based on individual availability and weather conditions. Group 2 course.  
**Communications:** Direct, **Critical Thinking:** Direct, **Quantitative Reasoning:** Direct, **Degree Req:** Cultural Persp/Div, **Infused:** Writing Intensive.  
**Recommended Prerequisites:** ANT 201, ENG 99/108 or placement into ENG 11/111.  

**Art (ART)**  

**ART 100 - Art Appreciation**  
**Credit Hours:** 3, **Contact Hours:** 3  
**Division:** Humanities  
Art Appreciation is a course which allows for a great deal of exploration into the world of art as we see it. The course provides an avenue for understanding this world by investigating technique, media, idea, personal expression and meaning. In examining personal expression, surrounding issues and their effect upon society will also be analyzed. Students in this course will develop a foundation for understanding art through analytical observation, examination, interpretation and writing about art. Group 1 course. **Critical Thinking:** Direct.  

**ART 111 - History of Western Art I**  
**Credit Hours:** 4, **Contact Hours:** 4  
**Division:** Humanities  
The course will introduce major trends of Western Art from Pre-History through Greece, Rome and the Middle Ages. Significant works of painting, sculpture and architecture will be presented within the social, political and cultural context of each period. Group 1 course. **Critical Thinking:** Direct, **Degree Req:** Cultural Persp/Div.  
**Recommended Prerequisites:** ENG 111  

**ART 112 - History of Western Art II**  
**Credit Hours:** 4, **Contact Hours:** 4  
**Division:** Humanities  
This course is designed to introduce major trends in Western Art from the Renaissance through Modernism to the present. Significant works of painting, sculpture and architecture will be presented within the social, political and cultural context of each period. Group 1 course. **Critical Thinking:** Direct, **Degree Req:** Cultural Persp/Div.  
**Recommended Prerequisites:** ENG 111  

**ART 121 - Drawing I**  
**Credit Hours:** 3, **Contact Hours:** 4  
**Division:** Humanities  
Drawing I introduces the students to basic drawing skills and techniques through the use of line, form, composition, perspective and the use of chiaroscuro. The course emphasis is on using drawing as a vehicle for seeing and communicating. Students will learn to judge proportions, create volume, depict the illusion of space and to analyze their own work as well as others. Black and white dry medium will be used for all assignments. Group 2 course. **Critical Thinking:** Direct.  
**Recommended Prerequisites:** Students are encouraged to have good reading skills or seek help.  

**ART 122 - Drawing II**  
**Credit Hours:** 3, **Contact Hours:** 4  
**Division:** Humanities  
Course will explore advanced methods in drawing including the effects of lighting, multiple panel design and conceptualizing of compositions with an emphasis on the use of new media and developing a personal style. Advanced use of color media and theory will be explored in this course. Assignments will include still life and object studies designed by both the instructors and students. Group 2 course.  
**Required Prerequisites:** ART 121  
**Recommended Prerequisites:** Students are encouraged to have good reading skills or seek help.  

**ART 131 - 2-D Design**  
**Credit Hours:** 3, **Contact Hours:** 4  
**Division:** Humanities  
A problem-solving course covering the principles of composition and design. Course will study the concepts and theory of two-dimensional design, pattern, and color as they apply to visual perception and communication. Uses predominately abstract shapes and black, white, and achromatic gray ranges. Students will study visual structure, color and their application. Group 2 course.  
**Recommended Prerequisites:** Students are encouraged to have good reading skills or seek help.
ART 3-D Design
Credit Hours: 3, Contact Hours: 4
Division: Humanities
An introduction to the elements of construction and production of three-dimensional design. Shape, volume, mass, and interaction of forms and colors will be studied within a variety of conceptual modes e.g. architecture, sculpture, package design, display, etc. Group 2 course. Recommended Prerequisites: Students are encouraged to have good reading skills or seek help.

ART 161 - Ceramics I
Credit Hours: 3, Contact Hours: 4
Division: Humanities
This course will introduce students to the complexities of working with clay. Students will be introduced to the pottery wheel and will explore the wheel as a tool to make functional and sculptural objects. This class will also explore a variety of hand-building techniques as well as various firing processes. Group 2 course.

ART 165 - Watercolor Painting I
Credit Hours: 3, Contact Hours: 4
Division: Humanities

ART 166 - Watercolor Painting II
Credit Hours: 3, Contact Hours: 4
Division: Humanities
Watercolor deals with advanced problems in watercolor painting with special emphasis on individual development and creativity particularly in the area of compositional conceptualization. Group 2 course. Critical Thinking - Direct. Required Prerequisites: ART 165

ART 174 - Digital Photography I
Credit Hours: 3, Contact Hours: 4
Division: Humanities
The student will gain a strong understanding of manual exposure with a digital camera, working in camera raw, digital workflow, and natural light. Students are introduced to the artistic principles of aesthetics, composition, color, and applying those principles to the digital photography medium. Students also work in post processing with lightroom, photoshop, and output to digital prints. Group 2 course. Critical Thinking - Direct.

ART 181 - Printmaking I
Credit Hours: 3, Contact Hours: 4
Division: Humanities
Printmaking I is an introductory survey course that introduces the student to a wide variety of print media: relief, intaglio, embossing and monotype. Students will gain knowledge of the history, conception, production and presentation of achromatic prints. Group 2 course. Critical Thinking - Direct. Recommended Prerequisites: Students are encouraged to have good reading skills or seek help.

ART 182 - Printmaking II
Credit Hours: 3, Contact Hours: 4
Division: Humanities
Printmaking II expands on processes and concepts explored in Printmaking I with the emphasis on more complex techniques including lithography, reduction relief prints, and multi-color intaglio prints. Students will refine their technical skills and concepts begun in Printmaking I. Students will explore contemporary printing techniques and issues. Group 2 course. Critical Thinking - Direct. Required Prerequisites: ART 181
Recommended Prerequisites: Students are encouraged to have good reading skills or seek help.

ART 213 - Modern Art History
Credit Hours: 3, Contact Hours: 3
Division: Humanities
This course examines the history of art from the beginning of the 20th century to present. Emphasis is placed on the continuing connection between modern art movements and the relationship of art to current social and cultural contexts. Group 1 course. Communications - Direct, Critical Thinking - Direct. Recommended Prerequisites: ENG 111
ART 221 - Life Drawing I
Credit Hours: 3, Contact Hours: 4
Division: Humanities
Life Drawing I involves comprehensive studies in drawing the human figure with a variety of materials and discusses the solution of the problems of figure drawing used to advance the general qualities of grace, rhythm, and form. Explorations include gesture drawing, contour drawing and drawing the figure in motion. Life Drawing I will work primarily in charcoal and pencil. Group 2 course. Critical Thinking - Direct.
Required Prerequisites: ART 121
Recommended Prerequisites: Students are encouraged to have good reading skills or seek help.

ART 222 - Life Drawing II
Credit Hours: 3, Contact Hours: 4
Division: Humanities
Life Drawing II is an advanced study of problems in drawing the human figure in multiple views and in longer studies with an accent on composition and dealing not only with the model but the environment the model is in. Life Drawing II will include the introduction of color and wet media. Group 2 course. Critical Thinking - Direct.
Required Prerequisites: ART 221
Recommended Prerequisites: Students are encouraged to have good reading skills or seek help.

ART 274 - Digital Photography II
Credit Hours: 3, Contact Hours: 4
Division: Humanities
Digital Photography II is an intermediate photography course covering advanced techniques in capturing & processing of photographs in the digital form. Specific topics will include image enhancement by use of software programs (Adobe Lightroom & Photoshop), color management, in depth artistic principles and expression for a photographic series, and output to digital prints. Students also work in studio with professional studio lighting to create work in the commercial and portrait genres. Group 2 course.
Required Prerequisites: ART 174

AST 100 - Observational Astronomy
Credit Hours: 2, Contact Hours: 2
Division: Science Math
This course is an introduction to astronomy. The goal of this course is to acquaint the student with the constellations, solar system objects and their motions, the celestial sphere concept and co-ordinate system. Stars, star clusters, nebulae and galaxies are also studied. Students will use naked-eye observations as well as telescopes, spectrograph, photometer and CCD camera to observe and report findings. Each session includes training in the operation of astronomical equipment. Group 2 course.
Recommended Prerequisites: ENG 111, MTH 23

AST 109 - Planetary Astronomy
Credit Hours: 4, Contact Hours: 5
Division: Science Math
Characteristics and properties of the solar system and its components are presented to students in the context of the history of discovery. This information is integrated with student observational data to develop a mathematical model in the laboratory. The model is developed by incorporating equations used to compute characteristics and properties of solar system components. The model is utilized by students to encourage understanding of why the solar system has evolved to its current state by evaluating the effects of changes in values of fundamental measured properties and characteristics. Group 1 lab course. Critical Thinking - Direct.
Required Prerequisites: MTH 111; ENG 11/111 or ENG 111 may be taken concurrently
Corequisites: AST 109L

AST 109L - Planetary Astronomy Lab
Credit Hours: 0, Contact Hours: 0
Division: Science Math
See AST 109 for course description.
Corequisites: AST 109

AST 119 - Astronomy
Credit Hours: 4, Contact Hours: 5
Division: Science Math
History of discovery of the nature of the cosmos and its contents is the format utilized to develop understanding of the nature of stars and the universe, and the physical principles determining this nature. These principles underlie our proficiency for prediction of the nature of the universe and our ability to make observations of our universe. The principles are analyzed by means of a student developed mathematical model incorporating the quantitative relationships derived by physicists and astronomers. Observations provide students with the sky knowledge and data necessary for prediction of stellar characteristics. Group 1 lab course. Critical Thinking - Direct.
Required Prerequisites: MTH 111; ENG 11/111 or ENG 111 may be taken concurrently
Corequisites: AST 119L

AST 119L - Astronomy Lab
Credit Hours: 0, Contact Hours: 0
Division: Science Math
See AST 119 for course description.
Corequisites: AST 119
Audio Technology (AUD)

AUD 100 - Applied Music - Audio Tech
Credit Hours: 2, Contact Hours: 2
Division: Humanities
This course consists of one-on-one mentoring in audio technology with our NMC Audio Technology Staff. It is designed to customize the audio tech training experience for each student, helping to identify interests and aptitude, or to provide tutoring as needed. Group 2 course.
Required Prerequisites: AUD 100

AUD 100B - Applied Music - Audio Tech
Credit Hours: 2, Contact Hours: 2
Division: Humanities
This course consists of one-on-one mentoring in audio technology with our NMC Audio Technology Staff. It is designed to customize the audio tech training experience for each student, helping to identify interests and aptitude, or to provide tutoring as needed. Group 2 course.
Required Prerequisites: AUD 100B

AUD 100C - Applied Music - Audio Tech
Credit Hours: 2, Contact Hours: 2
Division: Humanities
The course consists of one-on-one mentoring in audio technology with our NMC Audio Technology Staff. It is designed to customize the audio tech training experience for each student, helping to identify interests and aptitude, or to provide tutoring as needed. Group 2 course.
Required Prerequisites: AUD 100C

AUD 100D - Applied Music - Audio Tech
Credit Hours: 2, Contact Hours: 2
Division: Humanities
This course consists of one-on-one mentoring in audio technology with our NMC Audio Technology Staff. It is designed to customize the audio tech training experience for each student, helping to identify interests and aptitude, or to provide tutoring as needed. Group 2 course.
Required Prerequisites: AUD 100D

AUD 100E - Applied Music - Audio Tech
Credit Hours: 2, Contact Hours: 2
Division: Humanities
This course consists of one-on-one mentoring in audio technology with our NMC Audio Technology Staff. It is designed to customize the audio tech training experience for each student, helping to identify interests and aptitude, or to provide tutoring as needed. Group 2 course.
Required Prerequisites: AUD 100E

AUD 101 - Theory for Studio Engineers
Credit Hours: 2, Contact Hours: 2
Division: Humanities
This course is a study of song forms, notation of rhythms, chord symbols, key and time signatures, and familiarization with lead sheets and scores as commonly used in Pop and Jazz. This course will provide students the knowledge needed to work in a variety of musical genres and mediums. Group 2 course.

AUD 110 - Studio Recording I
Credit Hours: 2, Contact Hours: 2
Division: Humanities
This course is a combination of the study of audio and recording theory with instruction and practice in audio studio recording techniques. There is an emphasis on developing skills in the use of current technology. Group 2 course.

AUD 111 - Studio Recording II
Credit Hours: 2, Contact Hours: 2
Division: Humanities
This course is a study of audio signal processing theory, history, and application using current industry standard technology. There is an emphasis on developing skills in the operation of hardware and software to manipulate digital audio recordings. Group 2 course.
Required Prerequisites: AUD 110 with a grade of 2.0 or higher.

AUD 120 - Digital Audio I
Credit Hours: 2, Contact Hours: 2
Division: Humanities
This course includes a brief history of MIDI, the MIDI specification and setting up a MIDI studio. Students will learn techniques of MIDI and audio recording and editing, creating MIDI and audio tracks using MIDI software sequencers and Digital Audio Workstations (DAW). This course will present the content required for taking the Logic Level One User Certification exam. Group 2 course.

AUD 121 - Digital Audio II
Credit Hours: 2, Contact Hours: 2
Division: Humanities
This course is the continuation of AUD 120, Digital Audio I. This course explores Pro Tools, MIDI recording and editing, then delves further into advanced MIDI editing techniques. The use and operation of control surfaces and MIDI session strategies are explored. Group 2 course.
Required Prerequisites: AUD 120 with a grade of 2.0 or higher.

AUD 130 - Live Sound I
Credit Hours: 2, Contact Hours: 2
Division: Humanities
This course is an introduction to live sound techniques, including basic properties of sound, sound equipment, signal flow, and system engineering. Group 2 course.

AUD 131 - Live Sound II
Credit Hours: 2, Contact Hours: 2
Division: Humanities
This course is a continuation of live sound techniques, including acoustic properties of sound, sound equipment, signal flow, and system engineering. Group 2 course.
Required Prerequisites: AUD 130 with a grade of 2.0 or higher.

AUD 210 - Studio Recording III
Credit Hours: 2, Contact Hours: 2
Division: Humanities
This course builds on the topics covered in AUD 110 and AUD 111, focusing on the refining and addition of skills in digital audio recording. Students develop competencies in working with hardware and software in audio project-based settings. Group 2 course.
Required Prerequisites: AUD 111 with a grade of 2.0 or higher.
AUD 220 - Digital Audio III  
Credit Hours: 3, Contact Hours: 2 
Division: Humanities 
Digital Audio III is the continuation of AUD 121, Digital Audio II. This course further explores MIDI and audio recording and editing in Logic and Pro Tools, and also delves into an exploration of software sound synthesizers and sampler instruments found in Digital Audio Workstations. Group 2 course. 
Required Prerequisites: AUD 121 with a grade of 2.0 or higher. 

AUD 230 - Live Sound III  
Credit Hours: 2, Contact Hours: 2 
Division: Humanities 
This course is an advanced exploration of live sound techniques, including room acoustics, digital sound equipment, software analysis, and system engineering. Group 2 course. 
Required Prerequisites: AUD 131 with a grade of 2.0 or higher. 

AUD 250 - Audio Tech Practicum  
Credit Hours: 2, Contact Hours: 2 
Division: Humanities 
This course is designed to give students practical experience in digital audio recording. Students participate in a variety of recording situations using various hardware and software recording techniques. Students apply techniques used in previous recording and digital audio courses. Group 2 course. 
Required Prerequisites: AUD 110, AUD 120, AUD 130 all with a grade of 2.0 or higher. 

AUD 260 - Audio Tech Internship  
Credit Hours: 3, Contact Hours: 3 
Division: Humanities 
This course is required for the Associate of Applied Science degree in Audio Technology. The purpose of the internship is to provide on-the-job experience for the student who wishes to pursue a career in audio related fields. The internship will be customized to meet the learning needs of the student and the job requirements of the sponsoring firms. Students must apply one month prior to the semester in which they will complete the internship. Group 2 course. 
Required Prerequisites: AUD 210, AUD 230, AUD 250 all with a grade of 2.0 or higher; or instructor approval 

AUD 270 - Audio Tech Final Project  
Credit Hours: 3, Contact Hours: 3 
Division: Humanities 
This course is required for the Associate of Applied Science degree in Audio Technology. The purpose of the Audio Tech Final Project course is to provide in-depth intensive training experience in an area of specialization in audio technology. The student will be paired with staff in their area of expertise. Examples are Audio for Worship, Mastering, Audio for Film, Scoring, etc. Group 2 course. 
Required Prerequisites: AUD 210, AUD 230, AUD 250 all with a grade of 2.0 or higher. 

**Automotive Technology (AT)**

**AT 100 - Automotive Service Basics**  
Credit Hours: 2, Contact Hours: 2 
Division: Technical 
This is the first course in the Automotive Service Program. Engine theory, cooling systems, and lube requirements will be covered. Bolts, micrometers and basic specialty tools are integrated into the class. Training in the use of acetylene torch equipment will be taught along with its use in the automotive field. Group 2 course. 
Recommended Prerequisites: ENG 99/108 

**AT 110 - Automotive Brake Systems**  
Credit Hours: 5, Contact Hours: 7 
Division: Technical 
This course covers theory, components, nomenclature, and service of automotive brake systems. Students will use standard skills to diagnose hydraulic systems, drum and disk brakes, power assist units and systems. The study and repair of modern ABS systems along with the replacement of associated parts such as wheel bearings will also be covered. Group 2 course. Critical Thinking - Direct. 
Required Prerequisites: AT 100-may be taken concurrently 

**AT 120 - Automotive Electrical I**  
Credit Hours: 5, Contact Hours: 8 
Division: Technical 
This course covers basic electricity, circuits, testing equipment, and solid state electronics. Group 2 course. Critical Thinking - Direct. 
Required Prerequisites: AT 100-may be taken concurrently 

**AT 130 - Engine Performance I**  
Credit Hours: 5, Contact Hours: 8 
Division: Technical 
This course is designed to familiarize the student with the theory and operation of the automotive ignition system and fuel system. Group 2 course. Critical Thinking - Direct. 
Required Prerequisites: AT 220 

**AT 140 - Suspension and Steering**  
Credit Hours: 4, Contact Hours: 6 
Division: Technical 
This course is designed to familiarize the student with the nomenclature, theory, and service techniques for the modern steering and suspension system. Group 2 course. Critical Thinking - Direct. 
Required Prerequisites: AT 100-may be taken concurrently 

**AT 150 - Automatic Transmissions**  
Credit Hours: 6, Contact Hours: 9 
Division: Technical 
This course is designed to familiarize the student with hydraulic theory, internal transmission powerflow, electronic control and torque converter operation. All aspects of transmission operation will be covered as well as removal, overhaul, and installation procedures. Students will remove, dyno-test, and install actual failed units in the lab. Group 2 course. Critical Thinking - Direct. 
Required Prerequisites: Instructor signature required
AT 160 - Engine Repair  
Credit Hours: 6, Contact Hours: 8  
Division: Technical  
This course covers the theory, construction, and repair of the four stroke automotive engine. This will include the proper use of compression leakage and test equipment, precision measuring tools, special engine tools and valve grinding equipment. Group 2 course. Critical Thinking - Direct.  
Required Prerequisites: AT 100 may be taken concurrently

AT 170 - Heating and Air Conditioning  
Credit Hours: 6, Contact Hours: 8  
Division: Technical  
This course covers the principles of refrigeration with emphasis on the particular problems of application to automotive air conditioning. The course also covers automotive heating systems which include heater cores, blower motors, vent systems and the electronic controls for them. The student will learn how to use refrigerant recovery and charging equipment and will have hands-on experience in the lab with that equipment. Group 2 course. Critical Thinking - Direct.  
Required Prerequisites: AT 120

AT 180 - Manual Drivetrain and Axles  
Credit Hours: 6, Contact Hours: 9  
Division: Technical  
This course covers the basic operating principles, construction, power flow and repair of clutches, manual transaxles, and drive shafts. Differential theory and overhaul will be covered including ring and pinion replacement and set up. Group 2 course. Critical Thinking - Direct.  
Required Prerequisites: AT 120

AT 200 - Service Department Management  
Credit Hours: 2, Contact Hours: 2  
Division: Technical  
This course is designed to acquaint the student who plans a career in the automotive service industry with the duties, responsibilities, qualifications, and problems of service department manager. The student will learn general shop organization, types of service, and cost and returns by department. Time will be devoted to employer-employee and customer relations, and instruction in the use of the service manual. Group 2 course.

AT 210 - Hybrid Technology  
Credit Hours: 5, Contact Hours: 8  
Division: Technical  
This course provides a comprehensive systems overview of the operating principles, maintenance, and service of hybrid electric vehicles. Group 2 course. Critical Thinking - Direct.  
Required Prerequisites: AT 130 or Certification in Electrical and Engine Tune Up.

AT 220 - Automotive Electrical II  
Credit Hours: 5, Contact Hours: 8  
Division: Technical  
This course covers advanced automotive electronics with the emphasis placed on operation, troubleshooting, and repair of lighting, gauges, accessories, and power option circuits. Body hardware is covered including diagnostics of modern systems with body control modules. Group 2 course. Critical Thinking - Direct.  
Required Prerequisites: AT 120

AT 230 - Engine Performance II  
Credit Hours: 4, Contact Hours: 6  
Division: Technical  
This course covers computerized engine controls including the latest emission control systems. The student will become proficient with the use of scanners, scopes, and the latest engine analyzers. The art of diagnostics and troubleshooting will be stressed. The student will have hands-on experience in this area including practice using the computer as a source of information. Group 2 course. Critical Thinking - Direct.  
Required Prerequisites: AT 130

AT 290 - Automotive Internship  
Credit Hours: 3, Contact Hours: 3  
Division: Technical  
The purpose of the internship is to provide on-the-job training for the student who wishes to pursue a career in a technical field of study. The internship will be customized to meet the learning needs of the student and the job requirements of the sponsoring firm. Students spend 10-15 hours per week in this paid, supervised on-the-job training experience. In addition to the required 50 hours at a work site, students participate in semi-monthly seminars. Students must apply one month prior to the semester in which they will complete the internship. Group 2 course. Communications - Direct.  
Required Prerequisites: 30 credits of program specific courses with a GPA of 2.0 or higher.

Aviation Flight (AVF)

AVF 111 - Private Flight  
Credit Hours: 5, Contact Hours: 5  
Division: Aviation  
A flight course structured to provide a minimum of 40 dual and solo flight hours to meet the aeronautical experience requirements for a private pilot. Upon completion of this course, the student will have attained the FAA Private Pilot Rating. Course requires 42.4 hours of flight time, 8.0 hours of pre/post, and 17.5 hours of ground instruction. Hourly rates effective March 2018 are $59/hour for ground instruction and $230/hour for the aircraft and flight instructor. Group 2 course.  
Required Prerequisites: Instructor Permission Required

AVF 132 - Instrument Flight  
Credit Hours: 4, Contact Hours: 4  
Division: Aviation  
A flight course designed to meet the aeronautical experience requirements for the FAA Instrument check ride. Upon completion of this course, the student will have attained the FAA Instrument Rating. Course requires 39.8 flight hours, 9.8 hours of pre/post, and 17.7 hours of ground instruction. Hourly rates effective March 2018 are $59/hour for ground instruction and $230/hour for the aircraft and flight instructor. Group 2 course.  
Required Prerequisites: Private Pilot Rating; AVF 111 and AVG 101

AVF 141 - Remote Pilot Flight  
Credit Hours: 3, Contact Hours: 4  
Division: Aviation  
Students will be introduced to the world of Unmanned Aerial Systems. This course takes a look at everything from current Unmanned Aircraft Systems to future civilian applications. In addition to learning about this new industry, students will be introduced to flying remotely piloted aircraft and operating entry level Unmanned Aerial Vehicles. Group 2 course.
AVF 211 - Commercial Drone Operations  
**Credit Hours:** 4, **Contact Hours:** 4  
**Division:** Aviation  
This course will guide students deeper into the Unmanned Aerial Systems Industry. Topics will include Federal Regulations for UAS, components of Unmanned Aerial Vehicles, autopilot programming and flight plan development. Students will be working with UAS autopilot simulators and also be introduced to flying professional UAS systems. Group 2 course.  
Required Prerequisites: AVF 141, AVG 142  
Recommended Prerequisites: AVG 101

AVF 230 - Commercial Flight I  
**Credit Hours:** 2, **Contact Hours:** 2  
**Division:** Aviation  
The student will advance their skills required by the FAA to obtain a Commercial Pilot Certificate. They will gain experience in different aircraft with the opportunity to gain a Tailwheel Endorsement or Seaplane Rating. Students will increase their instrument proficiency while conducting cross country flights. Course requires 35 flight hours, 6 of pre/post, and 7 hours of ground instruction. Hourly rates effective March 2018 are $59/hour for ground instruction and $230/hour for the aircraft and flight instructor. Group 2 course.  
Required Prerequisites: AVF 130 or AVF 132 and AVG 252, both with a 2.0 or better or equivalent rating.

AVF 232 - Commercial Flight II  
**Credit Hours:** 3, **Contact Hours:** 3  
**Division:** Aviation  
A flight course structured to provide a dual and solo flight hours to partially fulfill the flight hour requirements for the FAA Commercial Pilot Certificate. This course will provide a review of VFR cross country navigation procedures and introduce the student to multi-engine flight. Course requires 35 flight hours, 3.0 hours of pre/post, and 27.8 hours of ground instruction. Hourly rates effective March 2018 are $59/hour for single engine ground instruction and $69/hour for multi-engine flight instruction and $230/hour for the single aircraft and flight instructor and $340/hour for the multi-engine aircraft and instructor. Group 2 course.  
Required Prerequisites: AVF 230 with a 2.0 or better - may be taken concurrently.

AVF 234 - Commercial Flight III  
**Credit Hours:** 2, **Contact Hours:** 2  
**Division:** Aviation  
This course is the last of three flight courses required to obtain the FAA Commercial Pilot Certificate. This course consists of flight hours with an emphasis on commercial flight maneuvers in preparation for the Commercial Pilot FAA Practical Test. Upon completion of this course, the student will have attained the FAA Commercial Pilot Certificate. Course requires 24.6 flight hours, 3.6 hours of pre/post, and 8.0 hours of ground instruction. Hourly rates effective March 2018 are $59/hour for ground instruction and $230/hour for the aircraft and flight instructor. Group 2 course.  
Required Prerequisites: AVF 232 with a 2.0 or better.

AVF 241 - Advanced Drone Operations  
**Credit Hours:** 3, **Contact Hours:** 4  
**Division:** Aviation  
Students will apply what they have learned in previous courses by working largely in the field conducting simulated and real life flight missions. This course focuses on applying Unmanned Aerial Systems to future civilian applications such as inspections, aerial mapping, and aerial photography. Group 2 course.  
Required Prerequisites: AVF 141 and either AVF 211 or AVG 210

AVF 261 - Aerosonde UAS Flight Training  
**Credit Hours:** 3, **Contact Hours:** 4  
**Division:** Aviation  
This hands on flight course allows students to earn a manufactures certification from one of the leading UAS platform manufacturers in the U.S. Students will participate in live flight training utilizing the Aerosonde Small UAS platform, a leading platform currently operated for U.S Department of Defense customers around the globe. Group 2 course.  
Required Prerequisites: AVF 241 - may be taken concurrently and AVG 260

AVF 271 - Multi-Engine Flight  
**Credit Hours:** 1, **Contact Hours:** 1  
**Division:** Aviation  
This flight course is designed to give the student the aeronautical knowledge, proficiency, and experience required to meet the FAA Practical Test Standards for the Private or Commercial Multi-engine rating. Upon completion of this course, the student will have attained the FAA Multi-engine Land Rating. Course requires 4 flight hours, 1 hour of pre/post, and 1 ground hour. Hourly rates effective March 2018 are $69/hour for ground instruction and $340/hour for the aircraft and flight instructor. Group 2 course.  
Required Prerequisites: AVF 234 with a 2.0 or better.

AVF 272 - Multi Engine Instructor  
**Credit Hours:** 2, **Contact Hours:** 2  
**Division:** Aviation  
In this course, the student will learn the skills to be a Certified Multi Engine Flight Instructor (MEI). They will master the skills of the Private and Commercial Pilot ratings. In addition, they will learn how to be an effective teacher and understand all FAA rules and regulations that accompany being an instructor. Course requires 5 flight hours, 1.3 hours of pre/post, and 5 hours of ground instruction. Hourly rates effective March 2018 are $69/hour for ground instruction and $271/hour for the aircraft and flight instructor. Group 2 course.  
Required Prerequisites: AVF 382

AVF 274 - Tailwheel Flight  
**Credit Hours:** 1, **Contact Hours:** 1  
**Division:** Aviation  
This course is designed to provide the student with the skills, knowledge, and experience to receive a logbook endorsement to fly tailwheel aircraft. Course requires 4 flight hours and 1 hour of pre/post. Hourly rate effective March 2018 is $209/hour for the aircraft and flight instructor. Group 2 course.  
Required Prerequisites: AVF 111 and AVG 101 - both with a 2.0 or better.

AVF 275 - Seaplane Flight  
**Credit Hours:** 2, **Contact Hours:** 2  
**Division:** Aviation  
In this course, the student will gain the skills, knowledge, and experience to receive endorsement for the FAA Practical Test. Students will learn in a Piper Super Cub on floats as they demonstrate maneuvers and landings. Course requires 5 flight hours, 1.2 hours of pre/post, and 1 hour of ground instruction. Hourly rates effective March 2018 are $59/hour for ground instruction and $209/hour for the aircraft and flight instructor. Group 2 course.  
Required Prerequisites: AVF 234 with a 2.0 or better.
AVF 283 - Upset Maneuver Training  
Credit Hours: 1, Contact Hours: 1  
Division: Aviation  
In this course, the student will learn the foundations to safely perform basic aeronautic maneuvers. Also, the student will gain confidence and skills necessary to recover from various unusual flight attitudes that will increase the students’ overall flight safety. Course requires 6 flight hours, 1.5 hours of pre/post, and 2 hours of ground instruction. Hourly rates effective March 2018 are $59/hour for ground instruction and $209/hour for the aircraft and flight instructor. Group 2 course.  
Required Prerequisites: AVF 111 and AVG 101, both with a 2.0 or better

AVF 284 - Instrument Flight Instructor  
Credit Hours: 2, Contact Hours: 2  
Division: Aviation  
The student perfects both teaching and instrument flying skills while sitting in the right seat of the cockpit. The student develops the knowledge and ability to teach others instrument flying procedures. Course requires 6 flight hours, 1.2 hours of pre/post, and 8 hours of ground instruction. Hourly rates effective March 2018 are $59/hour for ground instruction and $230/hour for the aircraft and flight instructor. Group 2 course.  
Required Prerequisites: AVF 382 with a 2.0 or better

AVF 382 - Flight Instructor Rating  
Credit Hours: 4, Contact Hours: 4  
Division: Aviation  
In this course the student will learn the skills to be a Certified Flight Instructor (CFI). They will master the skills of the Private and Commercial Pilot ratings. In addition they will learn how to be an effective teacher and understand all FAA rules and regulations that accompany being an instructor. Course requires 18 flight hours, 4.5 hours of pre/post, and 20 hours of ground instruction. Hourly rates for effective March 2018 are $59/hour for ground instruction and $212/hour for the aircraft and flight instructor. Group 2 course.  
Required Prerequisites: AVF 234 with a 2.0 or better

AVG 101 - Private Ground School  
Credit Hours: 5, Contact Hours: 5  
Division: Aviation  
This course will provide the aeronautical knowledge required of a private pilot and prepare the student to take the FAA Private Pilot written examination. Topics include: aerodynamics, engine and aircraft systems, airport operations, weight and balance, aircraft performance, Federal Aviation Regulations, meteorology, airspace, navigation, and flight physiology. Group 2 course.  
Required Prerequisites: Instructor Permission Required

AVG 102 - Leadership in Aviation  
Credit Hours: 2, Contact Hours: 2  
Division: Aviation  
This course identifies and develops leadership characteristics specifically applicable to professional pilots. This course is designed to teach students how to combine strong technical knowledge, aeronautical decision-making and ethics to be a successful leader and contributor in the aviation industry. Group 2 course.  
Required Prerequisites: AVF 111, may be taken concurrently.

AVG 142 - Remote Pilot Ground  
Credit Hours: 3, Contact Hours: 3  
Division: Aviation  
An online course structured to provide the aeronautical knowledge required of a remote pilot and to prepare the student to take the FAA Unmanned Aircraft General written examination. Topics include: airport operations, aircraft performance, regulations, meteorology, airspace, maintenance, sUAS operations, risk assessment/management. This course will be completed upon the student passing the FAA Unmanned Aircraft General written examination. Group 2 course.

AVG 161 - Mechanics for Pilots  
Credit Hours: 3, Contact Hours: 3  
Division: Aviation  
This course will teach the students about the systems, components, safe repair, and regulations involved with maintaining and operating small aircraft. Students will learn in the classroom and in the maintenance hangar. Group 2 course.

AVG 190 - Aviation Weather  
Credit Hours: 3, Contact Hours: 3  
Division: Aviation  
This course offers thorough coverage in the application and analysis of meteorological charts and how they pertain to aviation. It emphasizes the need for advanced knowledge on how NWS/NOAA charts are derived and how to understand their use in aviation today. Additional emphasis will be placed on predominant weather patterns, associated weather and planning flights to avoid severe weather. A basic understanding in the theory of meteorology is desired. Group 2 course.  
Recommended Prerequisites: AVG 101

AVG 201 - International Aviation  
Credit Hours: 3, Contact Hours: 3  
Division: Aviation  
This course will provide an overview and analysis of the international aviation industry. International oversight organizations will be reviewed along with interactions with national regulations. Students will evaluate country differences with regard to aviation regulations, global aviation safety and business forecasts. An analysis of cultural differences for International Aviation Operations will be covered with case studies from current international pilots. Group 2 course.  
Recommended Prerequisites: Placement into ENG 111

AVG 202 - Advanced Aircraft Systems  
Credit Hours: 3, Contact Hours: 3  
Division: Aviation  
This course is designed to prepare those students seeking to be career pilots to be successful in the intense aircraft systems ground schools offered by the airlines, manufacturers, and private training providers such as Flight Safety. Each major system of large turbine aircraft will be studied, first, in a general overview and then for a specific model, large transport category, jet aircraft. Group 2 course.  
Recommended Prerequisites: AVG 101

AVG 204 - Airline Aircraft Ground School  
Credit Hours: 3, Contact Hours: 3  
Division: Aviation  
This course is designed to prepare those students seeking to be career pilots to be successful in the intense aircraft ground schools provided by the airlines. Canadair Regional Jet systems, limitations, normal and emergency checklist, and flows and flight procedures will be covered in this course. Group 2 course.  
Recommended Prerequisites: AVG 202
AVG 231 - Aviation Law
Credit Hours: 3, Contact Hours: 3
Division: Aviation
A study of fundamental legal and aviation law principles as they apply to the various segments of the aviation industry. There will be special emphasis on contemporary aviation legal issues. Group 2 course.

AVG 240 - Corporate Aviation Ground
Credit Hours: 3, Contact Hours: 3
Division: Aviation
Students taking this course will learn about the aspects of business aviation. Aircraft types, regulations, business customs, and future outlooks of corporate aviation will be presented. Group 2 course.
Recommended Prerequisites: AVG 202

AVG 251 - Commercial Ground School
Credit Hours: 4, Contact Hours: 4
Division: Aviation
This course is an advanced study of aviation topics including: GPS, meteorology, radio communications, airspace, and Federal Aviation Regulations. In addition, aircraft systems, career opportunities, aviation safety, aircraft weight and balance, performance charts, and aerodynamics are reviewed with emphasis on commercial pilot operations. Group 2 course.
Required Prerequisites: AVG 252 with a 2.0 or higher

AVG 252 - Instrument Ground School
Credit Hours: 4, Contact Hours: 4
Division: Aviation
This course provides the aeronautical knowledge required for the instrument rating and prepare the student to take the FAA Instrument Rating - Airplane written examination. Topics include: flight instruments, radio navigation, departure, enroute and arrival procedures, VOR, NDB, ILS, and GPS approaches, IFR emergencies, aviation weather, and IFR cross-country flight planning. Group 2 course.
Required Prerequisites: AVF 111 and AVG 101 both with a 2.0 or higher; or equivalent rating.

AVG 260 - Aerosonde UAS Ground
Credit Hours: 4, Contact Hours: 5
Division: Aviation
This ground school and simulator course will provide the foundation training on the Textron Aerosonde UAS platform, one of the leading UAS platforms in the U.S. Students will learn the systems and operational procedures along with in-depth simulator training that will prepare them for the Aerosonde UAS Flight Course. Group 2 course.
Required Prerequisites: AVF 111 and AVG 251 both with a 2.0 or higher; or equivalent rating.

AVG 285 - Crew Resource Management
Credit Hours: 3, Contact Hours: 3
Division: Aviation
This course is an introduction to the principles of crew resource management (CRM) and will acquaint students with the concepts and skills required of aircrew members in safely operating multi-place aircraft. Topics will include flight safety concepts, communications skills, effective teamwork principles, and aircraft accident case studies. Students will practice CRM concepts in the Frasca flight training device. Group 2 course.
Required Prerequisites: AVG 252 may be taken concurrently

AVG 381 - Instructor Ground School
Credit Hours: 5, Contact Hours: 5
Division: Aviation
A course of study that will provide basic education principles and a review of the aeronautical knowledge required for the flight instructor (airplane single engine) certificate and prepare the student to take the FAA Fundamentals of Instruction (FOI) and the Flight Instructor-Airplane Single Engine written examinations. Through classroom presentations and one-on-one student teaching, students will gain practical teaching experience. Group 2 course.
Required Prerequisites: AVF 230 and AVG 251 both with a 2.0 or higher

Biology (BIO)

BIO 106 - Human Biology
Credit Hours: 4, Contact Hours: 5
Division: Science Math
A survey of human anatomy and physiology with a primary focus on health and disease. Topics to be discussed will include the cell structure, simple chemistry of biology, homeostasis, the organ systems, genetics, evolution, nutrition, exercise physiology, cancer, heart disease, immunology, AIDS, and other topics of current interest. This course does not meet the requirements for the Nursing program. Consult an advisor before enrolling. Group 1 lab course. Critical Thinking - Direct.
Recommended Prerequisites: ENG 111, MTH 23
Corequisites: BIO 106L

BIO 106L - Human Biology Lab
Credit Hours: 0, Contact Hours: 0
Division: Science Math
See BIO 106 for course description.
Corequisites: BIO 106

BIO 108 - Plant Biology
Credit Hours: 4, Contact Hours: 5
Division: Science Math
In this class, we will examine some of the major ideas biologists use to study the living world. These will include the scientific method, biology of cells, and genetics. The emphasis in this course will be on: plant anatomy, the life cycle of plants, growth and its regulation, metabolism, and reproduction. Field and laboratory exercises, as well as experiments in the greenhouse, will allow the student to observe these principles, and practice the skills required to cultivate and propagate plants. Group 1 lab course. Quantitative Reasoning.
Recommended Prerequisites: ENG 111, MTH 23
Corequisites: BIO 108L

BIO 108L - Plant Biology Lab
Credit Hours: 0, Contact Hours: 0
Division: Science Math
See BIO 108 for course description.
Corequisites: BIO 108

BIO 110 - Essential Biology
Credit Hours: 4, Contact Hours: 5
Division: Science Math
Essential Biology is geared toward the non-major. The course will cover broad areas of biology, engage the student in how biology relates to their own life, and how science and society interact. Core concepts covered include: Evolution, Structure and Function, Information Flow, Exchange and Storage, Pathways and Transformations of Energy and Matter, and Living Systems. Group 1 lab course. Critical Thinking - Direct.
Recommended Prerequisites: ENG 111, MTH 23
Corequisites: BIO 110L
BIO 110L - Essential Biology Lab
Credit Hours: 0, Contact Hours: 0
Division: Science Math
See BIO 110 for course description.
Corequisites: BIO 110

BIO 115 - Cell, Plant & Ecosystem Biology
Credit Hours: 4, Contact Hours: 6
Division: Science Math
An introduction to the fundamental concepts of biology, including an investigation of the major kingdoms of life, classification, ecology, botany, cellular anatomy and biochemistry, DNA structure and function, genetic engineering, cloning and stem cell technologies. Laboratory includes field work and investigative exercises which illustrate lecture topics. Group 1 lab course. Critical Thinking - Direct.
Recommended Prerequisites: ENG 111, MTH 111
Corequisites: BIO 115L

BIO 116 - Genetic, Evolution, Animal Bio
Credit Hours: 4, Contact Hours: 6
Division: Science Math
The lecture and laboratory portions of this course focus on cell division, classical genetics, evolution and phylogeny as well as the classification and Phyla-level natural history of invertebrate and vertebrate animals. Also, the course covers the anatomy and physiology of organisms found in the Animal Kingdom. The treatment of the topics in this course necessarily assumes a degree of familiarity with the basic biological concepts covered in BIO 115. Students who have not completed BIO 115 should expect to spend extra time reviewing these concepts throughout the course. Group 1 lab course. Critical Thinking - Direct.
Recommended Prerequisites: BIO 115, ENG 111, MTH 111
Corequisites: BIO 116L

BIO 116L - Genetic, Evolu, Animal Bio Lab
Credit Hours: 0, Contact Hours: 0
Division: Science Math
See BIO 116 for course description.
Corequisites: BIO 116

BIO 120 - The Science of Stress
Credit Hours: 3, Contact Hours: 3
Division: Science Math
Students will explore current research on stress and its impacts on body systems. Discussion of scientific research and application of coping strategies will provide an experiential understanding of stress on learning, anxiety and depression as well as tools for resilience. This class meets in the anatomy and physiology lab to directly understand regions of the brain and body that are affected by stress. We will also meet on occasion in the SIM lab in order to measure biological parameters of stress as the class progresses. Critical Thinking - Direct.

BIO 208 - Microbiology
Credit Hours: 4, Contact Hours: 6
Division: Science Math
This course reviews the two types of cells (prokaryotic and eukaryotic). Microbial anatomy, physiology, and diversity are introduced. Microbiological disease pathology and the role of microbes in food production are also discussed. This class includes an oral presentation on a disease caused by microbes. Laboratory work culminates with the identification of an unknown bacterial solution. Group 1 lab course. Quantitative Reasoning.
Required Prerequisites: Completion of any 100-level BIO course
Recommended Prerequisites: ENG 111, MTH 111
Corequisites: BIO 208L

BIO 208L - Microbiology Lab
Credit Hours: 0, Contact Hours: 0
Division: Science Math
See BIO 208 for course description.
Corequisites: BIO 208

BIO 215 - Genetics
Credit Hours: 3, Contact Hours: 3
Division: Science Math
A comprehensive treatment of classical genetics will be covered in addition to an in-depth study of molecular genetics, research techniques and applications of recombinant DNA technology. A major emphasis will be on the current results of genetic research as it applies to the molecular mechanisms of inheritance, and other topics such as gene therapy, cloning stem cell research and genetically modified organisms. Population genetics will also be covered. Group 1 course. Quantitative Reasoning.
Required Prerequisites: Completion of any 100-level BIO course.
Recommended Prerequisites: ENG 111, MTH 111

BIO 220 - Nutrition in Human Health
Credit Hours: 3, Contact Hours: 3
Division: Science Math
This course is an exploration of the fundamentals of nutrition: energy nutrients, vitamins and minerals. Function and sources of each is presented, as well as the role each plays in maintaining health. Students complete their own Food Intake Record and use this information throughout the semester so as to better understand human nutrition. In addition, study is made of the role nutrition along with other lifestyles plays in the prevention and protection from disease. Discussion also includes the relationship between nutrition and fitness. Group 2 course. Critical Thinking - Direct.
Recommended Prerequisites: ENG 111, MTH 111, and completion of any 100-level BIO course.
BIO 227 - Human Anatomy & Physiology I  
**Credit Hours:** 4, **Contact Hours:** 6  
Division: Science Math  
This course will include an introduction to cells, histology, biochemistry, and homeostasis. In addition, the following systems will be discussed: integumentary, skeletal, muscle, nervous, and special senses. Lecture will be accompanied by lab work and applications, which will stress the anatomy, histology and function of these organ systems. Group 1 lab course. Quantitative Reasoning.  
**Required Prerequisites:** MTH 111 and ENG 11/111 or ENG 111 both may be taken concurrently  
**Recommended Prerequisites:** CHM 101, HAH 101, and completion of any 100-level Biology course. It is highly recommended that students have college level reading skills. Students enrolling in BIO 227 who have not completed these requirements should plan on additional study time.  
**Corequisites:** BIO 227L  

BIO 227L - Human Anatomy & Phys I Lab  
**Credit Hours:** 0, **Contact Hours:** 0  
Division: Science Math  
See BIO 227 for course description.  
Corequisites: BIO 227  

BIO 228 - Human Anatomy & Physiology II  
**Credit Hours:** 4, **Contact Hours:** 6  
Division: Science Math  
This is the second part of a two-semester course. The second semester will continue major systems in the body including: the endocrine system, cardiovascular system, lymphatic system, respiratory system, digestive system, metabolism, urinary system, fluid balance, reproduction and inheritance. Lecture will be accompanied by lab work, which will stress the anatomy and histology of these organ systems. Group 1 lab course.  
**Quantitative Reasoning.**  
**Required Prerequisites:** BIO 227, BIO 227L, MTH 111; ENG 11/111 or ENG 111  
**Corequisites:** BIO 228L  

BIO 228L - Human Anatomy & Phys II Lab  
**Credit Hours:** 0, **Contact Hours:** 0  
Division: Science Math  
See BIO 228 course description.  
Corequisites: BIO 228  

BIO 240 - Normal and Clinical Nutrition  
**Credit Hours:** 3, **Contact Hours:** 3  
Division: Science Math  
Nutrition is considered from a strong biological point of view. Discussions will include a brief overview of principles of normal nutrition and then will proceed to how these principles apply to cause and treatment of specific disease states and the nutrition care process required. Group 2 course.  
**Critical Thinking - Direct.**  
**Required Prerequisites:** MTH 23  
**Recommended Prerequisites:** BIO 227, ENG 111, MTH 111  

BIO 255 - Pathophysiology  
**Credit Hours:** 4, **Contact Hours:** 4  
Division: Science Math  
This course covers the etiology, progression, and treatment of disease in the human body. Cellular and tissue structure and function are addressed along with the role of the immune system in body defenses. Disorders and diseases for each body system are covered, including investigation of clinical case studies of pathophysiology. Group 1 course.  
**Quantitative Reasoning.**  
**Required Prerequisites:** BIO 228, BIO 228L with grade of 2.0 or better.  
**Recommended Prerequisites:** BIO 208, ENG 111, HNR 107  

BIO 268 - Biochemistry  
**Credit Hours:** 3, **Contact Hours:** 3  
Division: Science Math  
This course is a study of the basic fundamentals of the chemical composition of living matter with application of concepts to normal and abnormal human function. Structure and function of proteins, lipids, carbohydrates and nucleic acids will be covered as well as their metabolic interrelationships. The course also covers the most current biochemical techniques, and an investigation of molecular genetics and published findings in the field of biochemistry. Group 1 course.  
**Critical Thinking - Direct.**  
**Required Prerequisites:** CHM 101, CHM 101L  
**Recommended Prerequisites:** BIO 227, BIO 227L, ENG 111, MTH 23  

BIO 293 - Biology Study Abroad  
**Credit Hours:** 1, **Contact Hours:** 1  
Division: Science Math  
In this class, students are provided the opportunity to travel to a specified destination affiliated with the corresponding biology non-trip course. This course will serve to integrate the student learning experience and provide a sense of cultural perspective, diversity and regional awareness. The course is an opportunity for students to explore other areas around the world while applying discipline-specific course content. For a more specific course description, please review the course description of the associated non-trip course. Group 2 course.  
**Required Prerequisites:** BIO 110 and BIO 110L, or BIO 115 and BIO 115L, or BIO 116 and BIO 116L  

### Business Administration (BUS)  

BUS 101 - Introduction to Business  
**Credit Hours:** 3, **Contact Hours:** 3  
Division: Business  
American business in the 21st century is exciting and challenging. Students will be introduced to a variety of opportunities by exploring ownership, free enterprise, the world economy, management, marketing, international business, social responsibility and business ethics, and entrepreneurship. Group 2 course.  
**Communications - Direct.**  
**Recommended Prerequisites:** ENG 11/111 minimum placement  

BUS 105 - Business Math  
**Credit Hours:** 3, **Contact Hours:** 3  
Division: Business  
Apply basic mathematical principles to solve problems in modern business practice. Topics include trade pricing, markups, profit and loss, interest, payroll, taxes, and investments. It is designed for day-to-day business applications. Group 2 course.  
**Quantitative Reasoning.**  
**Required Prerequisites:** MTH 08 with grade 2.0 or higher, or placement into MTH 23.
BUS 155 - Interpersonal Communications
Credit Hours: 3, Contact Hours: 3
Division: Business
To be well prepared for employment in the 21st century it will be mandatory for students to demonstrate effective human relations. Individuals who enter the workforce in any field will need to possess interpersonal and customer service skills. The global workplace will demand competence in interpersonal or 'soft' skills. Excellent customer service and relationship building skills are a necessary component of overall business communication. Topics include: communication and identity, conflict and communication climates, and how to build and maintain effective relationships with external and internal customers. Group 2 course. Communications - Direct.
Recommended Prerequisites: ENG 11/111 minimum placement

BUS 231 - Professional Communications
Credit Hours: 3, Contact Hours: 3
Division: Business
Communicating professionally is a critical skill in today's world. This course is designed to help students understand communication theory and its application in their professional lives. Students will develop effective writing skills by analyzing complex issues, organizing thoughts logically, and communicating those ideas concisely—in verbal and written form. Students will also practice effective listening skills, understand the components of a successful job search, and use teamwork skills in solving communication problems. Group 2 course. Communications - Direct, Infused: Writing Intensive.
Recommended Prerequisites: CIT 100, ENG 111 minimum placement

BUS 251A - Lean Office Facilitation
Credit Hours: 1, Contact Hours: 1
Division: Business
Through structured classroom and hands-on skill building, the student will learn the concepts and application of Lean Office philosophies, processes and tools. These include team chartering, problem solving, and facilitating improvement teams. Group 2 course. Communications - Direct, Critical Thinking - Direct.
Recommended Prerequisites: MTH 23 or placement into MTH 111, ENG 111

BUS 251B - Lean Office Intro to VSM
Credit Hours: 1, Contact Hours: 1
Division: Business
Through structured classroom and hands-on skill building, the student will learn the concepts and application of Lean Office philosophies, processes and tools. This course includes an introduction to creating value stream maps and data gathering. Group 2 course. Communications - Direct, Critical Thinking - Direct.
Recommended Prerequisites: BUS 251A

BUS 251C - Lean Office Advanced VSM
Credit Hours: 1, Contact Hours: 1
Division: Business
Through structured classroom and hands-on skill building, the student will learn the concepts and application of Lean Office philosophies, processes and tools. These include analyzing value stream maps, measuring and documenting results. Group 2 course. Communications - Direct, Critical Thinking - Direct.
Recommended Prerequisites: BUS 251B

BUS 251D - Lean Office 5S Workplace Org
Credit Hours: 1, Contact Hours: 1
Division: Business
Through structured classroom and hands-on skill building, the student will learn the concepts and application of Lean Office philosophies, processes and tools. These include records and file management, creating standardized work, and ergonomics. Group 2 course. Communications - Direct, Critical Thinking - Direct.
Recommended Prerequisites: BUS 251C

BUS 251E - Lean Office Cell Flow & Hoshin
Credit Hours: 1, Contact Hours: 1
Division: Business
Through structured classroom and hands-on skill building, the student will learn the concepts and application of Lean Office philosophies, processes and tools. These include leading change, problem solving, and project coaching. Group 2 course. Communications - Direct.
Recommended Prerequisites: BUS 251D

BUS 251F - Lean Office Coaching & PDCA
Credit Hours: 1, Contact Hours: 1
Division: Business
Through structured classroom and hands-on skill building, the student will learn the concepts and application of Lean Office philosophies, processes and tools. These include leading change, problem solving, and culture change. Group 2 course. Communications - Direct.
Recommended Prerequisites: BUS 251E

BUS 261 - Business Law I
Credit Hours: 3, Contact Hours: 3
Division: Business
This course is a study of the U.S. legal system and specific areas of law related to business, with an emphasis on the techniques of legal decision-making. Topics include the judicial system, torts, contracts, and criminal law. Group 2 course. Critical Thinking - Direct.
Recommended Prerequisites: ENG 111 minimum placement

BUS 290 - Business Admin Internship
Credit Hours: 3, Contact Hours: 3
Division: Business
This course is a requirement for the Associate of Applied Science degree in Business Administration. The objective of the internship is to assess the Business Administration Program Outcomes, and to provide an on-the-job experience for the student pursuing a career in business. At the end of the semester students take a third party assessment to measure their knowledge of business operations, the business organization and business procedures. Students will spend 150 hours over the semester in a supervised training experience. In addition students will meet with the Experiential Learning Coordinator as needed throughout the semester for: internship support, feedback, review of professional employment documents and an internship exit interview. Group 2 course.
Communications - Direct.
Required Prerequisites: 30 credit hours towards program requirements and a 2.0 GPA in occupational courses
Carpentry (CAR)

CAR 100 - Introductory Craft Skills  
**Credit Hours:** 2, **Contact Hours:** 3  
This course provides an introduction to essential construction skills. Through structured classroom and hands-on skill building, the student will be introduced to the construction industry, building materials, safety, hand and power tools, print reading, construction math, communication and employability skills. Group 2 course.

Recommended Prerequisites: Placement into MTH 23 or higher, or co-enrollment in the recommended developmental math course. Placement into ENG 11/111 or higher, or co-enrollment in the recommended English course.

CAR 101 - Introduction to Carpentry  
**Credit Hours:** 3, **Contact Hours:** 4  
This course provides an introduction to residential carpentry. Through structured classroom and hands-on skill building, the student will learn about the construction industry, building materials, fasteners and adhesives, hand and power tools, introduction to print reading, and floor systems. Group 2 course.

Recommended Prerequisites: Placement into MTH 23 or higher, or co-enrollment in the recommended developmental math course. Placement into ENG 11/111 or higher, or co-enrollment in the recommended English course.

CAR 102 - Intro to Woodworking  
**Credit Hours:** 3, **Contact Hours:** 4  
This course is for the student that has a desire to experience woodworking in the area of basic cabinet and furniture. Techniques in the usage and maintaining of basic hand and power tools, understanding of how wood movement will affect design of an assembly, application of basic joinery, adhesives, and fasteners in the woodworking completion of this class establishes a foundation in which the student can build simple furniture and cabinets. Group 2 course.

Recommended Prerequisites: Students will greatly benefit from having competency up to MTH111.

CAR 103 - Construction Blueprint Reading  
**Credit Hours:** 3, **Contact Hours:** 3  
Students will learn the skills needed to read and understand construction drawings, as well as an understanding of manufacturers’ literature of component parts used in buildings. Both commercial and residential construction materials and drawings are studied. Problems encountered in design development such as site limitations, zoning restrictions, utility availability, coordination of product specifications, adherence to building codes and life safety are explored. Group 2 course.

Recommended Prerequisites: Placement into MTH 111 or co-enrollment in MTH 08 or 23, placement into ENG 111 or co-enrollment in ENG 99/108.

CAR 104 - Woodworking Applications I  
**Credit Hours:** 3, **Contact Hours:** 4  
This course is for the student with a strong understanding of hand and power tools used in the craft of woodworking. A desire to expand their knowledge in the aspects involved with basic furniture and cabinet building is a must. Students will be constructing projects that, by design, will challenge those of the advanced beginner and intermediate skill abilities. Students will plan and implement the necessary steps to address the projects’ hardware and joinery requirements. Group 2 course.

Required Prerequisites: CAR 102  
Recommended Prerequisites: MTH 23

CAR 105 - Foundations and Framing  
**Credit Hours:** 3, **Contact Hours:** 4  
Through structured classroom and hands-on skill building, the student will learn about various roofing materials and applications. Floor, wall, ceiling and roof framing will be covered, as well as basic stair layout and construction. Group 2 course.

Recommended Prerequisites: Placement into MTH 23 or co-enrollment in the recommended developmental Math course, placement into ENG 11/111 or co-enrollment in the recommended English course.

CAR 121 - Exterior Construction  
**Credit Hours:** 3, **Contact Hours:** 4  
Through structured classroom and hands-on skill building, the student will learn about various roofing materials and applications, window and door installation, siding, cornice design and installation, gutters, downspouts, decks and fences. Group 2 course.

Recommended Prerequisites: Placement into MTH 23 or co-enrollment in the recommended developmental math course. Placement into ENG 11/111 or higher, or co-enrollment in the recommended English course.

CAR 125 - Interior Construction  
**Credit Hours:** 3, **Contact Hours:** 4  
Through structured classroom and hands-on skill building, the student will learn about drywall products, installation, and finishing, wall panels, tile, suspended ceilings, finish trim, flooring, and cabinet and countertop installation. Group 2 course.

Recommended Prerequisites: Placement in MTH 23 or co-enrollment in the recommended developmental Math course. Placement into ENG 11/111 or Co-enrollment in the recommended English Course.

CAR 135 - Site Layout and Formwork  
**Credit Hours:** 3, **Contact Hours:** 4  
Through structured classroom and hands-on skill building, the student will learn about trenching and excavation, foundations and slab-on-grade, vertical formwork, horizontal formwork and tilt-up wall panels. Group 2 course.
Chemistry (CHM)

CHM 101 - Introductory Chemistry  
Credit Hours: 4, Contact Hours: 5  
Division: Science Math  
A one-semester chemistry course for the non-science major exploring the language, concepts and methods of chemistry. Topics include atomic theory, chemical periodicity, chemical bonding, stoichiometry, gases, nuclear energy, equilibrium, and acid/base chemistry. The laboratory will include descriptive and analytical experiments, focusing on measurement, physical and chemical properties of materials, acids and bases, laboratory procedures and calculations. Science, engineering, and premedical students must select CHM 150 and 151 to meet chemistry requirements. Consult with an advisor before enrolling. Group 1 lab course. Quantitative Reasoning.  
Required Prerequisites: MTH 111 with a grade of 2.0 or better.  
Recommended Prerequisites: ENG 111; the ability to work algebraic problems involving unknown variables, fractions, percents and proportions. Students enrolling in CHM 101 who have not completed these requirements should plan on additional study time.  
Corequisites: CHM 101L

CHM 101L - Introductory Chemistry Lab  
Credit Hours: 0, Contact Hours: 0  
Division: Science Math  
See CHM 101 for course description.  
Corequisites: CHM 101

CHM 150 - General Chemistry I  
Credit Hours: 4, Contact Hours: 5  
Division: Science Math  
First semester of a two-semester course covering matter and chemical measurement, basic laws, chemical symbols and formulas, stoichiometry and chemical calculations, gases and the gas laws, thermochemistry, atomic structure, electron configurations and the periodic table, elements, chemical bonding and molecular structure, intermolecular forces, liquids and solids. The laboratory includes descriptive and quantitative experiments illustrating the above topics. The recitation includes problem solving, quizzes, and laboratory preparation to accompany lectures. Group 1 lab course. Quantitative Reasoning.  
Required Prerequisites: MTH 111 with a grade of 2.0 or better.  
Recommended Prerequisites: ENG 111; CHM 101L with a grade of 2.0 or better.  
Corequisites: CHM 150L, CHM 150R

CHM 150L - General Chemistry I Lab  
Credit Hours: 0, Contact Hours: 0  
Division: Science Math  
See CHM 150 for course description.  
Corequisites: CHM 150, CHM 150R

CHM 150R - General Chemistry I, Recitation  
Credit Hours: 1, Contact Hours: 2  
Division: Science Math  
Problem solving quizzes and laboratory preparation to accompany lectures. Group 1 course.  
Required Prerequisites: MTH 111 with a grade of 2.0 or better  
Recommended Prerequisites: ENG 111 with a grade of 2.0 or better; MTH 121  
Corequisites: CHM 150, CHM 150L

CHM 151 - General Chemistry II  
Credit Hours: 4, Contact Hours: 5  
Division: Science Math  
A second semester course covering chemical reactions in aqueous solution including acid-base and oxidation and reduction reactions, properties of solutions, chemical kinetics, gaseous equilibria, acids and bases, acid-base equilibria, pH, common ion effect, buffer systems, solubility product constant, thermodynamics, enthalpy, entropy, and free energy, electrochemistry, and nuclear chemistry. The laboratory will cover the above topics using quantitative and qualitative procedures. The recitation involves problem solving, quizzes and laboratory preparation to accompany lectures. Group 1 lab course. Quantitative Reasoning.  
Required Prerequisites: CHM 150, CHM 150L, CHM 150R; MTH 111, all with a grade of 2.0 or better.  
Recommended Prerequisites: ENG 111 with a grade of 2.0 or better  
Corequisites: CHM 151L, CHM 151R

CHM 151L - General Chemistry II Lab  
Credit Hours: 0, Contact Hours: 0  
Division: Science Math  
See CHM 151 for course description.  
Corequisites: CHM 151, CHM 151R

CHM 151R - General Chemistry II Recitation  
Credit Hours: 1, Contact Hours: 2  
Division: Science Math  
Problem solving, quizzes and laboratory preparation to accompany lectures. Group 1 course.  
Required Prerequisites: CHM 150, CHM 150L, CHM 150R; MTH 111, all with a grade of 2.0 or better.  
Recommended Prerequisites: ENG 111 with a grade of 2.0 or better  
Corequisites: CHM 151, CHM 151L

CHM 201 - Intro to Organic Chemistry  
Credit Hours: 4, Contact Hours: 5  
Division: Science Math  
An introduction to organic chemistry. Topics include the classes of organic compounds, reactions, synthesis, and mechanisms. Includes laboratory. NOTE: This course is a one semester course and is not appropriate for all majors. Please check with an advisor prior to registration. Group 1 lab course. Quantitative Reasoning.  
Required Prerequisites: CHM 101 or CHM 150 and MTH 111, all with a grade of 2.0 or better.  
Recommended Prerequisites: ENG 111 with a grade of 2.0 or better  
Corequisites: CHM 201L

CHM 201L - Intro to Organic Chemistry Lab  
Credit Hours: 0, Contact Hours: 0  
Division: Science Math  
See CHM 201 for course description. Quantitative Reasoning.  
Corequisites: CHM 201
CHM 250 - Organic Chemistry I
Credit Hours: 5, Contact Hours: 9
Division: Science Math
The first semester of a two-semester course covering the chemistry of carbon compounds. Designed to meet the requirements for majors in chemistry, chemical engineering, biological science, pre-medicine, etc. Topics include nomenclature, structure, aliphatic compounds, free-radical, nucleophilic substitution and elimination reactions, electrophilic addition reaction and mechanisms, alkyl halides, alkenes, alkynes and alcohols. The laboratory portion will cover fundamental organic laboratory techniques of synthesis, separation and analysis. Group 1 lab course. Quantitative Reasoning.
Required Prerequisites: CHM 151, CHM 151L, CHM 151R, MTH 111, all with a grade of 2.0 or better.
Recommended Prerequisites: ENG 111 with a grade of 2.0 or better.
Corequisites: CHM 250L

CHM 250L - Organic Chemistry I Lab
Credit Hours: 0, Contact Hours: 0
Division: Science Math
See CHM 250 for course description.
Corequisites: CHM 250

CHM 251 - Organic Chemistry II
Credit Hours: 5, Contact Hours: 9
Division: Science Math
A follow-up to CHM 250. Topics include alcohols, aromatics, ethers and epoxides, arenes, carbonyls, carboxylic and sulfonic acids and their derivatives, amines, phenols, aryl halides, carbohydrates, amino acids, biochemical processes, and others together with appropriate mechanistic theories and structural concepts. Instrumental techniques discussed include infrared spectroscopy (IR), nuclear magnetic resonance (NMR), mass spectrometry (MS), and ultraviolet (UV) spectroscopy. The lab exercises will continue the development of organic chemistry laboratory technique on both semi-microscale and microscale. In addition, analytical techniques using infrared spectroscopy and gas chromatography will be developed. Group 1 lab course. Quantitative Reasoning.
Required Prerequisites: CHM 250, CHM 250L, MTH 111, all with a grade of 2.0 or better.
Recommended Prerequisites: ENG 111 with a grade of 2.0 or better.
Corequisites: CHM 251L

CHM 251L - Organic Chemistry II Lab
Credit Hours: 0, Contact Hours: 0
Division: Science Math
See CHM 251 for course description.
Corequisites: CHM 251

Communications (COM)

COM 101 - Introduction to Communication
Credit Hours: 4, Contact Hours: 4
Division: Communications
The course is designed to introduce the student to the basic components of the communication process as they operate in four contexts: interpersonal, group, organizational and mass media. The four contexts will be integrated under the rubric of Meaning Theory in the latter part of the course. The direct application of theories to the student's individual career choice or personal life experience is stressed. Group 2 course. Communications - Direct, Critical Thinking - Direct.
Recommended Prerequisites: Placement into ENG 111, ENG 11/111, or successful completion of ENG 99/108.

COM 111 - Public Speaking
Credit Hours: 4, Contact Hours: 4
Division: Communications
Designed to acquaint students with the fundamentals of the discipline and to give them confidence in speech situations. This course considers voice, platform technique, message organization and audience analysis. Emphasis is upon the formal speaking situation. Group 2 course. Communications - Direct, Critical Thinking - Direct.

COM 121 - Broadcasting Practicum I
Credit Hours: 2, Contact Hours: 2
Division: Communications
Practical experience in underwriting, announcing, script writing, 'on-air' studio operations and the management of the non-profit college radio station are all part of this course. Internships with local radio stations may be arranged. Group 2 course. Communications - Direct.
Recommended Prerequisites: College level reading and writing skills

COM 122 - Broadcasting Practicum II
Credit Hours: 2, Contact Hours: 2
Division: Communications
This course continues practical experience in underwriting, announcing, script writing, 'on-air' studio operations and management. Internships with local radio stations may be arranged. Group 2 course. Communications - Direct.
Recommended Prerequisites: College-level reading and writing skills

COM 201 - Mass Communication and Culture
Credit Hours: 4, Contact Hours: 4
Division: Communications
The course is designed to introduce the student to various perspectives on the analysis, evaluation and understanding of mediated communication in mass culture. The course is divided into two major parts. The first focuses on industrial-age theories of mass communication and culture. The second part is designed to give the student the necessary tools to make information-age adaptations to the explanatory/predictive models of the effects of mass communication and culture. The direct application of theories, critical thinking and analysis of communication having relevance to the student's individual career choice of life experience is stressed. Group 2 course. Communications - Direct, Critical Thinking - Direct.
Recommended Prerequisites: Placement into ENG 111, ENG 11/111, or successful completion of ENG 99/108.

Computer Info Technology (CIT)

CIT 100 - Computers in Business-An Intro
Credit Hours: 3, Contact Hours: 3
Division: Business
A first exposure to the world of computer applications in business, this course covers the hands-on use of word processing, spreadsheets, database, and presentation graphics programs. In addition, the Windows operating system, file and folder management, basic concepts, terminology and security threats will be covered. Group 2 course. Communications - Direct, Critical Thinking - Direct.
CIT 110 - Programming Logic and Design
Credit Hours: 3, Contact Hours: 4
Division: Business
The student is introduced to topics in programming logic and design in preparation for subsequent programming courses. The course lecture material is presented via readings and videos, with activities being largely focused on coding, testing, debugging, and documenting applications. Good coding practices and simple design pattern are emphasized. Topics covered include: Simple Data Types, Control Structures, Decisions and Conditionals, Arrays, Lists, Methods, Functions, Enums, Classes, and File I/O. Group 2 course. Critical Thinking - Direct.

CIT 112 - Scripting and Automation
Credit Hours: 3, Contact Hours: 4
Division: Business
This course introduces students to scripting and programming to achieve realizable goals in a networked environment. Students will write programs that will be reusable, scalable, and efficient for interfacing with a system, retrieving information from various networked resources, and performing routine tasks. Group 2 Course.
Required Prerequisites: CIT 110, may be taken concurrently.

CIT 118 - Microsoft Office - Word Intro
Credit Hours: 1, Contact Hours: 1
Division: Business
This course is designed to provide students with an introduction to word processing using Microsoft Word. Skills students will learn include preparing documents, formatting characters and paragraphs, customizing paragraphs, and formatting pages. Group 2 course.

CIT 119 - Microsoft Office - Word
Credit Hours: 3, Contact Hours: 3
Division: Business
This course teaches students how to use Microsoft Word and prepares them to pass the Microsoft Office Specialist (MOS) Word certification exam. Skills students will learn include navigating in a document, customizing and formatting text, paragraphs and pages, inserting objects, maintaining and proofing documents, performing mail merge operations, document sharing and management, tracking and referencing documents, and managing macros and forms. Students enrolling in this course will take the Microsoft Office certification exam. Group 2 course.

CIT 120A - Computer & Internet Basics I
Credit Hours: 1, Contact Hours: 1
Division: Business
Students will learn the essential skills required to use a computer with the Microsoft Windows operating system. The student will learn to interact with the Windows desktop to access software and data. The course emphasizes the importance of file and folder maintenance. The course also includes introductions to the World Wide Web, e-mail and searching. Students completing this course will master skills required for online courses. This course requires a Windows PC or a Mac with a Windows partition. Group 2 course.

CIT 120B - Microsoft Office - PowerPoint Intro
Credit Hours: 1, Contact Hours: 1
Division: Business
This course teaches students how to use Microsoft PowerPoint and prepares them to pass the Microsoft Office Specialist (MOS) PowerPoint certification exam. Skills students will learn include preparing and modifying a presentation, using help, formatting slides and inserting elements in slides, creating tables, charts, and SmartArt graphics, using slide masters and action buttons, applying custom animation and setting up shows, and integrating, reviewing, protecting and saving presentations. Students enrolling in this course will take the certification exam. Group 2 course.

CIT 121 - Game Development and Design
Credit Hours: 3, Contact Hours: 3
Division: Business
Introductory course exploring the concepts of game design before building fully functional, working prototypes after learning modern game development techniques within a 2D game engine. Game design investigates topics such as objective, narrative, genre, challenge and reward. Once students have developed a solid concept, the game development portion of the class will look at how to turn that into a working reality by creating sprite sheets, artwork, audio or other game assets before adding functionality. Completed games may be published to the web or for mobile devices for testing and feedback. Group 2 course. Communications - Direct, Critical Thinking - Direct.

CIT 156 - CompTIA A+ Certification I
Credit Hours: 3, Contact Hours: 4
Division: Business
This course, in conjunction with CIT 157, covers the current objectives of the two CompTIA A+ Certification exams. Major topics include PC hardware, networking, laptops, printers, operational procedures, operating systems, security, mobile devices, troubleshooting, safety and professionalism. Group 2 course. Critical Thinking - Direct.
Recommended Prerequisites: Recommended competency: Windows skills

CIT 157 - CompTIA A+ Certification II
Credit Hours: 3, Contact Hours: 4
Division: Business
This course, in conjunction with CIT 156, covers the current objectives of the two CompTIA A+ Certification exams. Major topics include PC hardware, networking, laptops, printers, operational procedures, operating systems, security, mobile devices, troubleshooting, safety and professionalism. Group 2 course. Critical Thinking - Direct.
Recommended Prerequisites: CIT 156

CIT 160 - Cisco Internetworking I
Credit Hours: 3, Contact Hours: 4
Division: Business
This course, in conjunction with CIT 161 and CIT 260 provides the necessary preparation to pass the Cisco CCNA Routing & Switching Exam (Cisco Certified Network Associate). The following topics are covered in detail: router configuration, static and dynamic routing, VLANs, ACLs, DHCP, and NAT. This course utilizes the Cisco Networking Academy ‘CCNA Routing and Switching’ Routing and Switching Essentials’ curriculum and integrates online curriculum, classroom activities, hands-on lab exercises, and group projects. Group 2 course. Critical Thinking - Direct.
Recommended Prerequisites: CIT 213
CIT 161 - Cisco Internetworking II  
Credit Hours: 3, Contact Hours: 4  
Division: Business  
This course, in conjunction with CIT 160 and CIT 260, provides the necessary preparation to pass the Cisco CCNA Routing & Switching Exam (Cisco Certified Network Associate). The following topics are covered in detail: router and switch configuration, VLANs, inter-VLAN routing, EtherChannel, STP, DHCP, SLAAC, FHRP, WLAN concepts and configuration, routing concepts, LAN security concepts, and static routing. This course utilizes the Cisco Networking Academy ‘CCNA Routing and Switching: Switching, Routing, and Wireless Essentials’ curriculum and integrates online curriculum, classroom activities, hands-on lab exercises, and group projects. Group 2 course. Critical Thinking - Direct.  
Required Prerequisites: CIT 160 may be taken concurrently

CIT 170 - Microsoft Office - Access  
Credit Hours: 3, Contact Hours: 3  
Division: Business  
This course introduces database management using Microsoft Access. Students will design, construct, and administer databases. Students will create and modify database objects including tables, queries, forms and reports. Students will enter, delete, modify, import, and export data. Students will configure database features such as security and backup. Course content is mapped to the current Microsoft Office Specialist (MOS) Access learning objectives and students enrolled in this course will take the certification exam. Group 2 course. Critical Thinking - Direct.

CIT 178 - Relational Databases  
Credit Hours: 3, Contact Hours: 4  
Division: Business  
This course introduces students to core database concepts including data, data types, and relationships. Students will interpret and create relational data structures and use SQL language to perform basic create, read, update, and delete operations. Students will perform, administrative, backup and security functions. Students will recognize the value of optimized data and produce normalized designs. Course content is mapped to the MTA 98-364 Database Fundamentals learning objectives and students enrolled in this course will take the certification exam. Group 2 course. Critical Thinking - Direct.

CIT 180 - Web Development  
Credit Hours: 3, Contact Hours: 4  
Division: Business  
This course covers how to plan, develop and publish websites using industry standard software. Students will learn responsive web design using HTML5 (Hypertext Markup Language) and CSS3 (Cascading Style Sheets). Students will develop a wide variety of web projects, which include navigation menus, multimedia, forms, lists, tables and CSS animation. Interactivity will be achieved through CSS and beginning JavaScript. Emphasis will be placed on Industry standard coding practices, ADA compliance, semantic HTML5, beginning, intermediate and advanced CSS. Course content is mapped to the MTA 98-383 Introduction to Programming using HTML and CSS learning objectives and students enrolled in this course will take the certification exam. Group 2 course. Critical Thinking - Direct.

CIT 190 - JavaScript Programming  
Credit Hours: 3, Contact Hours: 4  
Division: Business  
Students in this course develop web client scripting skills using JavaScript and jQuery. Students use variables, decisions, loops, functions, objects, and other programming concepts as they add robust and powerful interactivity to web pages. Students create responsive web solutions integrating HTML, CSS, JavaScript, jQuery, JSON, and Ajax technologies. Course content is mapped to the MTA 98-382 Introduction to Programming Using JavaScript learning objectives and students enrolled in this course will take the certification exam. Group 2 course. Critical Thinking - Direct.  
Required Prerequisites: CIT 180 with a grade of 2.0 or higher, or instructor permission

CIT 195 - Application Development  
Credit Hours: 3, Contact Hours: 4  
Division: Business  
The student is introduced to .NET application and game development. Students use Visual Studio to develop applications and games featuring XAML-based and graphical interfaces, user devices such as game controllers, and database integration. Object-oriented concepts including encapsulation, inheritance, polymorphism, collections, delegates, and events are included. Application design patterns including 3-tier architecture and proper documentation are emphasized. Group 2 course. Critical Thinking - Direct.  
Required Prerequisites: CIT 110 with a grade of 2.0 or higher

CIT 210 - Microsoft Office - Excel  
Credit Hours: 3, Contact Hours: 3  
Division: Business  
This course deals with a comprehensive study of Microsoft Office Excel spreadsheet software and the business applications which can be created and used with the software. The entry of data with different formats, formula creations, file transfer of data, graphing, data tables, solver programs, apply what-if scenarios and an introduction to macros will be covered. Course content is mapped to the current Microsoft Office Specialist (MOS) Excel learning objectives and students enrolled in this course will take the certification exam. Group 2 course. Quantitative Reasoning.

CIT 211 - Intro to Data Analytics  
Credit Hours: 3, Contact Hours: 3  
Division: Business  
Introductory course exploring the practice of data analytics. Using current business intelligence tools, students will learn data modeling, visualization, and analytical techniques. Power Pivot and Power Query will be used to import, cleanse, and shape data. Data Analysis Expressions (DAX) are then used to create simple to complex calculations within Power BI before creating interactive visualizations that bring big data to life. Group 2 course. Quantitative Reasoning.  
Recommended Prerequisites: Familiarity with spreadsheets.

CIT 213 - Networking Technologies  
Credit Hours: 4, Contact Hours: 5  
Division: Business  
This course covers the knowledge and skills needed to troubleshoot, configure, and manage wired and wireless networks. The OSI model will be studied and identified to better enhance the understanding of how various parts work together. Included is an in-depth study of TCP/IP and the characteristics for maintaining a network and ensuring its security. Cloud computing and virtualization technologies will also be introduced. This course maps to the CompTIA Network+ certification exam objectives. Group 2 course. Critical Thinking - Direct.
CIT 215 - Windows Server Environment
Credit Hours: 3, Contact Hours: 4
Division: Business
In this course students will learn about the latest Windows Server operating system. Students will install many server roles and features. Concepts studied include remote administration, storage, virtualization, Windows Containers, Windows Server Update Services, and high-availability. Students will have an opportunity to work with different types of server installations. Windows PowerShell and Hyper-V will also be introduced. This course maps to the Microsoft 70-740 Installation, Storage and Compute with Windows Server 2016 certification exam. Group 2 course. Critical Thinking - Direct.
Required Prerequisites: CIT 213 or instructor permission.

CIT 216 - Computerized Acctg Systems
Credit Hours: 3, Contact Hours: 3
Division: Business
This course is designed to give the student experience with setting up an accounting system on the computer. QuickBooks software will be used. Accounts receivable, accounts payable, general ledger, inventory and payroll will be covered, with an emphasis on conversion from manual accounting systems to both desktop and/or cloud-based platforms. Group 2 course.
Required Prerequisites: ACC 121

CIT 218 - Web Application Development
Credit Hours: 3, Contact Hours: 4
Division: Business
The student will develop multi-tier web applications using client-server technologies in a variety of frameworks. Development will include design patterns such as MVC and MVVM with students writing client-side and server-side code to create a functional, consistent, and robust web application. As a capstone project, the students will develop and deploy a functional web application. Group 2 course. Critical Thinking - Direct.
Required Prerequisites: CIT 190 with a grade of 2.0 or higher, CIT 195 with a grade of 2.0 or higher
Recommended Prerequisites: CIT 228, CIT 255

CIT 228 - Advanced Database Systems
Credit Hours: 3, Contact Hours: 4
Division: Business
This course builds upon database knowledge gained in CIT178 by extending into other data sources and connection technologies. Students will be able to identify and evaluate data options and access data via code. Group 2 course. Critical Thinking - Direct.
Required Prerequisites: CIT 110, CIT 180 and either CIT 178 or CIT 248, all with a grade of 2.0 or higher.

CIT 231 - Current Topics in IT
Credit Hours: 3, Contact Hours: 3
Division: Business
The student is introduced to IT topics, each presented in five week modules, that are both timely and relevant to the IT industry. The course uses these modules to both present the new technologies and provide opportunity for the student to identify skills and resources relevant to profession development in the IT industry. Group 2 course. Critical Thinking - Direct.

CIT 233 - Project Management
Credit Hours: 3, Contact Hours: 3
Division: Business
This course is intended for CIT students and business professionals who need to manage project activities or resources on time, on budget, and according to performance standards. Students use a variety of project management tools to schedule tasks, and monitor resources, cost, and project progress. Group 2 course. Critical Thinking - Direct.

CIT 240 - Network Security Management
Credit Hours: 3, Contact Hours: 4
Division: Business
This course covers the knowledge and skills required to install and configure systems to secure applications, networks, and devices while supporting the principles of confidentiality, integrity, and availability. Additional topics include threat analysis and mitigation, risk assessments, and compliance. Course content is mapped to the CompTIA Security+ certification exam objective. Group 2 course. Critical Thinking - Direct.
Required Prerequisites: CIT 213

CIT 243 - Cloud Technologies
Credit Hours: 3, Contact Hours: 3
Division: Business
Students will explore cloud topics including cloud concepts, virtualization, infrastructure, resource and security management, security, and cloud system management. Cloud concepts will be explored using Microsoft Azure, Amazon Web Services, and Google Cloud Services. This course will prepare students for the CompTIA Cloud+ certification exam. Group 2 course.
Required Prerequisites: CIT 213

CIT 246 - Windows Server Infrastructure
Credit Hours: 3, Contact Hours: 3
Division: Business
Students taking this course will learn how to setup, configure, and maintain a Windows Server Infrastructure. Topics covered include Dynamic Host Configuration Protocol (DHCP), Domain Name Systems (DNS), Distributed File Systems (DFS), and Virtual Private Networks. This course maps to the 70-741 Networking with Windows Server 2016 certification exam. Group 2 course. Critical Thinking - Direct.
Required Prerequisites: CIT 213 or instructor permission

CIT 247 - Enterprise Solutions
Credit Hours: 3, Contact Hours: 4
Division: Business
In this course students will gain practical experience building enterprise systems using Identity solutions. Students will study Active Directory, Group Policy, Certificate Services and Federation and access solutions. This course maps to the 70-742 Identity with Windows Server 2016 certification exam. Group 2 course. Critical Thinking - Direct.
Required Prerequisites: CIT 213 or instructor permission

CIT 255 - Object-Oriented Programming
Credit Hours: 3, Contact Hours: 4
Division: Business
The student builds on object-oriented fundamentals learned in CIT 195, focusing on implementing SOLID Principles throughout the course. Projects will explore design patterns, UI/UX considerations, multiple forms of desktop and online persistence, and the integration of various technologies to form a complete solution. Group 2 course. Critical Thinking - Direct.
Required Prerequisites: CIT 178 with a grade of 2.0 or higher, CIT 195 with a grade of 2.0 or higher
CIT 256 - Linux Administration
Credit Hours: 3, Contact Hours: 4
Division: Business
In this course students will take an in-depth look at Linux, focusing on proper installation, command line usage, and administration of the operating system. Students will examine various server technologies, including BASH scripting, X11, display managers, localization settings, printing, and security. Exploration will take the form of a practical, hands-on approach, using a mix of hands-on projects as well as web resources. This course will prepare students for the CompTIA Linux+ Exam. Group 2 course.
Required Prerequisites: CIT 213

CIT 257 - Linux Administration II
Credit Hours: 3, Contact Hours: 4
Division: Business
In this course students will take an in-depth look at Linux, focusing on proper installation, command line usage, and administration of the operating system. Students will examine various server technologies, including BASH scripting, X11, display managers, localization settings, printing, and security. Exploration will take the form of a practical, hands-on approach, using a mix of hands-on projects as well as web resources. This course will prepare students for the second CompTIA Linux+ exam. Group 2 course.
Required Prerequisites: CIT 256

CIT 260 - Cisco Internetworking III
Credit Hours: 3, Contact Hours: 4
Division: Business
This course, in conjunction with CIT 160 and CIT 161 prepares the student for the Cisco CCNA Exam (Cisco Certified Network Associate). Describes the architectures and considerations related to designing, securing, operating, and troubleshooting enterprise networks. Students will configure and troubleshoot routers and switches and resolve common issues with OSPF, ACLs, NAT, VPNs, and QoS for IPv4 and IPv6 networks, while also implementing network management, design, troubleshooting, virtualization, and automation techniques. This course utilizes the Cisco Networking Academy ‘CCNA Routing & Switching: Enterprise Networking, Security and Automation’ curriculum and integrates online curriculum, classroom activities, hands-on lab exercises and group projects. Group 2 course. Critical Thinking - Direct.
Required Prerequisites: CIT 161

CIT 263 - Security ASMT. and Compliance
Credit Hours: 3, Contact Hours: 4
Division: Business
In this course, students will learn and practice current security assessment techniques. This includes the ability to plan/scope an assessment, understand legal/compliance requirements, perform vulnerability scanning/penetrations tests and analyze/report on their findings. This course aligns with the CompTIA Pentest+ certification exam. Group 2 course. Critical Thinking - Direct.
Required Prerequisites: CIT 240, or instructor permission.
Recommended Prerequisites: Passing of CompTIA Security+ certification exam.

CIT 264 - Security Analytics & Assurance
Credit Hours: 3, Contact Hours: 4
Division: Business
In this course, students will learn how to employ data analytics to interpret and identify security vulnerabilities, threats, and risks to an organization. Students will configure and use various threat detection tools and learn how to secure and protect applications and systems within an organization. This course aligns with the CompTIA CySA+ certification exam. Group 2 course. Critical Thinking - Direct.
Required Prerequisites: CIT 240, or instructor permission.
Recommended Prerequisites: Passing of CompTIA Security+ certification exam.

CIT 266 - Advanced Enterprise Security
Credit Hours: 3, Contact Hours: 4
Division: Business
In this course, students will work in small teams with realizable objectives in several areas including risk management, security architecture, security operations, security integration, and security collaboration. Students will conceptualize, engineer, and implement secure solutions across complex environments to create a resilient enterprise. This course aligns with the CompTIA CASP+ certification exam. Group 2 course. Critical Thinking - Direct.
Required Prerequisites: CIT 263, CIT 264
Recommended Prerequisites: CIT 256

CIT 280 - Systems Analysis and Design
Credit Hours: 4, Contact Hours: 5
Division: Business
This is the capstone course in the CIT Developer AAS. Students will gain practical knowledge in systems analysis and design through participation in a team-based software/hardware project that follows the systems development life cycle using agile development with industry patterns and practices. A capstone project will be developed and presented to a review group. Students will conduct a feasibility study, perform requirements analysis, model objects and data, develop and test the solution, and communicate effectively. Group 2 course. Critical Thinking - Direct.
Required Prerequisites: CIT 255 with a grade of 2.0 or higher
Recommended Prerequisites: CIT 228

CIT 290 - CIT Internship
Credit Hours: 3, Contact Hours: 3
Division: Business
Work experience is an integral part of the CIT student's program. In this course, students are placed in settings that utilize their business and CIT skills. Students will work 150 hours during the semester in a supervised on-the-job training experience. Students must meet with their academic advisor and submit a resume for review before they will be allowed to enroll in this course. Group 2 course.
Required Prerequisites: 20 credits with a minimum of 3.0 GPA in CIT courses and instructor permission.
CIT 291 - Web Developer Internship  
Credit Hours: 3, Contact Hours: 3  
Division: Business  
Work experience is an integral part of the Web Developer Certificate program. In this course, students are placed in settings that utilize their web installation and development skills as well as business and CIT skills. Students will work 150 hours during the semester in a supervised on-the-job training experience. In addition to the required 150 hours in the internship placement, students participate in semi-monthly seminars. Students must apply one month prior to the semester in which they will complete the internship. Group 2 course. 
Required Prerequisites: Instructor permission

CIT 292 - Support Specialist Internship  
Credit Hours: 3, Contact Hours: 3  
Division: Business  
Work experience is an integral part of the Support Specialist Certificate program. Students are placed in settings that utilize their technical, business applications, and interpersonal communications skills. Students will work 150 hours during the semester in a supervised on-the-job training experience. Students must meet with their academic advisor and submit a resume for review before enrolling. Group 2 course. 
Required Prerequisites: 27-30 hours in the Administrative Support Specialist Certificate and instructor permission.

Construction Management (CMT)

CMT 107 - Construction Supervision  
Credit Hours: 4, Contact Hours: 4  
Students will learn the skills needed for construction management including: business management, estimating and job costing, design and building science, contracts, liability and risk management, marketing and sales, project management and scheduling, the Michigan Residential Code, MIOSHA construction safety standards, and effective communication for construction project management. Group 2 course. 
Critical Thinking - Direct. 
Recommended Prerequisites: It is recommended that students have taken or are co-enrolled in MTH 08 or 23 and ENG 99/108.

CMT 207 - Construction Cost Estimating  
Credit Hours: 3, Contact Hours: 3  
In this course students will explore topics pertaining to the processes of construction estimating and bidding techniques. Those topics will include, but are not limited to, the discussion and exploration of the identification and quantification of construction materials, labor, and equipment for the construction bidding process. Some computer estimation programs and/or cost data publications will be used to develop estimates. Group 2 course. 
Quantitative Reasoning. 
Required Prerequisites: CAR 103, CMT 107, MTH 111 or higher, CIT 100. 
Recommended Prerequisites: ENG 111—may be taken concurrently, math and reading skills are necessary for success in this course.

Criminal Justice (CJ)

CJ 101 - Intro to Criminal Justice  
Credit Hours: 4, Contact Hours: 4  
Division: Social Science  
The student is introduced to the criminal justice system and the criminal justice process. Includes the history, present structure, current functions and contemporary problems of the police, the prosecution, the courts, corrections, and security agencies. Group 2 course. 
Communications - Direct, Critical Thinking - Direct.

CJ 202 - Police Administration  
Credit Hours: 3, Contact Hours: 3  
Division: Social Science  
This course will present an overview of public administration with the emphasis on the vitality and capacity for pragmatic change within our American police system. This understanding will be brought about by the comprehensive and analytical study of the structures, processes, and behavior of the typical police infrastructure in the United States. Group 2 course. 
Communications - Direct. 
Recommended Prerequisites: CJ 101

CJ 211 - Criminal Law  
Credit Hours: 3, Contact Hours: 3  
Division: Social Science  
This course will study the history and nature of criminal law, defenses to criminal conduct, and substantive criminal offenses. Group 2 course. 
Critical Thinking - Direct.

CJ 221 - Juvenile Delinquency  
Credit Hours: 3, Contact Hours: 3  
Division: Social Science  
This course is a study of juvenile delinquency theories of causation and current preventive programs. It will explore the nature and extent of delinquency and examine suspected causes of delinquent behavior. It will also cover critical issues in juvenile delinquency and examine crucial policies and programs in the Criminal Justice system that addresses juvenile delinquency. It will also include issues facing juvenile probation officers and it will look at the role of police agencies and their relationship to juvenile courts. Group 2 course. 
Communications - Direct. 
Recommended Prerequisites: SOC 101, placement into ENG 11/111. 
Students are encouraged to have good reading, writing, and organizational skills or seek help through the resources available to them through the NMC Writing Center and academic counseling.

CJ 231 - Survey of Corrections  
Credit Hours: 3, Contact Hours: 3  
Division: Social Science  
This course will examine the historical and philosophical development of corrections in the United States. Special consideration is given to the theoretical approaches to changing and controlling criminal behavior. Practical limitations and justification to probation, parole, and the operational functions of institutional supervision are also studied. Group 2 course. 
Communications - Direct. 
Recommended Prerequisites: Placement into ENG 111.

CJ 242 - Evidence & Criminal Procedures  
Credit Hours: 3, Contact Hours: 3  
Division: Social Science  
An overview of the criminal court system and the process of a criminal proceeding from incident to disposition and appeal, including the rules of evidence affecting the trial of a criminal case. It also includes an overview of the criminal procedure rules concerning arrest, search and seizure, and interrogation and confession, which regulate law enforcement and protect citizens' rights of privacy and presumed innocence. The course includes pertinent Supreme Court decisions. Group 2 course. 
Critical Thinking - Direct. 
Recommended Prerequisites: Placement into ENG 111.

CJ 290A - Academic Service/Internship  
Credit Hours: 1-4, Contact Hours: 1-4  
Division: Social Science  

Culinary Arts (CUL)

CUL 101 - Today's Hospitality Industry
Credit Hours: 3, Contact Hours: 3
Division: Business
This course is designed for students who wish to pursue a career in the hospitality industry. It introduces the student to segments of the industry and the different career tracks within each one. The course will acquaint the student with the rigor of hospitality and the particular nature of this people-oriented industry. A foundation course in the study of resort and resort settings, the course provides the student with an awareness of the unique problems associated with the development, management and marketing of a resort. Also, the seasonal nature of most resorts and the challenges presented by this issue are discussed. The nature and unique characteristics of the hospitality industry as a career choice are discussed. Group 2 course. Communications - Direct.
Recommended Prerequisites: ENG 99/108 or higher.

CUL 110 - Safety and Sanitation
Credit Hours: 2, Contact Hours: 2
Division: Business
This course is designed for students who wish to pursue a career in culinary arts or hotel and restaurant management. With today's complex safety and health laws, it is essential as well as required by many firms to have an in-depth understanding and certification in safety and sanitation. This course provides the students with both. Students study food service safety including fire safety and kitchen and dining room safety. Students also learn all aspects of food service sanitation and earn the NRA Educational Institute ServSafe Sanitation Certificate. Group 2 course. Critical Thinking - Direct.

CUL 111 - Professional Cookery
Credit Hours: 5, Contact Hours: 10
Division: Business
An intensive study of foods and cooking, this course exposes the student to commercial equipment, quality food production, and professional presentation. It provides the chef training student with the practice and theory involved in the preparation of foods in a commercial operation. Basic cooking terminology, methods and procedures are introduced. The course also includes kitchen safety and sanitation, knife and equipment identification and technique, preparation of stocks, soups, and mother sauces, meats, poultry and seafood, and the presentation of a complete meal. Uniforms and knives will need to be purchased through the course. Group 2 course. Quantitative Reasoning.
Recommended Prerequisites: Placement into MTH 08 or higher or ENG 99/108 or higher.

CUL 118 - Introduction to Baking
Credit Hours: 4, Contact Hours: 8
Division: Business
This course is designed for students seeking a career in Culinary Arts. In this intensive study of fundamental baking techniques, students will become familiar with baking operation and production. This course covers fundamental pastry and dessert recipes as well as the preparation of yeast dough. Also included are tortes, pies, tarts, and other desserts. Group 2 course. Quantitative Reasoning.
Required Prerequisites: ENG 99/108 or higher, MTH 08 or higher, CUL 110 may be taken concurrently
Corequisites: CUL 110

CUL 190 - Culinary Internship
Credit Hours: 2, Contact Hours: 2
Division: Business
A culinary internship integrates academics with professional work experience. Students earn college credit while working in varied culinary-focused businesses, gaining valuable hands-on experience. Students are encouraged to contact the internship coordinator at least two months prior to the semester they are requesting placement. Culinary internships require a minimum of 320 hours of work during the enrolled semester. Group 2 course. Communications - Direct.
Required Prerequisites: CUL 110, CUL 111
Recommended Prerequisites: Placement into ENG 99/108

CUL 210 - Nutrition for Culinary Arts
Credit Hours: 2, Contact Hours: 2
Division: Business
This course is designed for students who wish to pursue a career in culinary arts. Healthy eating is attracting more attention as Americans struggle with the problems of obesity and disease prevention. In this atmosphere it is essential for prospective chefs to be aware of the needs of their customers. This course presents the principles of nutrition within the context of professional food preparation. Various ingredients and their role in good nutrition, planning healthy menus and alternative eating styles are discussed. Group 2 course. Communications - Direct, Quantitative Reasoning.

CUL 211 - Menu Planning and Purchasing
Credit Hours: 3, Contact Hours: 3
Division: Business
This course provides the student with the understanding of the menu as the center of the food outlet, around which is built the facility. Menu theme is the driver for food, non-food, and equipment purchases, staffing, location and floor plan. An understanding of this complex item is vital to anyone involved in food service. This course is designed to familiarize the student with all aspects of planning a modern menu - from market research to the physical layout of the document. Various types of menus are covered including A’La Carte, Table d’Hote, Institutional and Special Occasion. Menus will be analyzed for effectiveness and pricing strategies. Group 2 course. Quantitative Reasoning.
Required Prerequisites: CUL 110, CUL 111
Recommended Prerequisites: Placement into ENG 99

CUL 213 - World Cuisine
Credit Hours: 2, Contact Hours: 2
Division: Business
This course is designed for students who wish to pursue a career in the context of professional food preparation. Various ingredients and their role in good nutrition, planning healthy menus and alternative eating styles are discussed. Group 2 course. Communications - Direct, Quantitative Reasoning.

CUL 213 - World Cuisine
Credit Hours: 2, Contact Hours: 2
Division: Business
This course is designed for students who wish to pursue a career in professional food preparation. Various ingredients and their role in good nutrition, planning healthy menus and alternative eating styles are discussed. Group 2 course. Communications - Direct, Quantitative Reasoning.

Required Prerequisites: CUL 110, CUL 111
Recommended Prerequisites: Placement into ENG 99/108
CUL 215 - Garde Manger
Credit Hours: 4, Contact Hours: 8
Division: Business
This course is designed for students who wish to pursue a career in culinary arts. As America's sophistication regarding food has increased, it is essential that students training to be chefs be exposed to the most up-to-date cooking and presentation techniques. Students prepare cold foods for display: pates, galantines, terrines and moussees. Decorative garnishes and other functional banquet presentations are covered in this course. Meat and seafood fabrication is also practiced. Projects made will be used and displayed at various functions and events at the Great Lakes Campus and at other special occasions. Group 2 course. Quantitative Reasoning.
Required Prerequisites: CUL 110, CUL 111, CUL 118, CUL 213

CUL 217 - Kitchen and Dining Room Mgmt
Credit Hours: 3, Contact Hours: 3
Division: Business
This course is designed for students who wish to pursue a career in the food service industry. Its focus is the control of the dynamics of the kitchen and dining room in a modern restaurant. In the highly competitive restaurant business, it is necessary for prospective food and beverage professionals to have a thorough understanding of this aspect of the industry. Many restaurants fail because of a lack of coordination between the front and back of the house. The course focuses on the basic principles of management as applied to kitchen and dining room situations. Other topics include management techniques, team building, motivational techniques, stress management, production management, and styles of table service. Group 2 course. Communications - Direct.
Recommended Prerequisites: CUL 101

CUL 218 - Advanced Baking
Credit Hours: 4, Contact Hours: 8
Division: Business
This course is designed for students seeking a career in culinary and/or pastry arts. In this intensive study of advanced baking techniques, students become familiar with baking operations and production, dessert and pastry finishing, and plate presentation. This course covers advanced pastry and dessert recipes, yeast and sourdoughs, dessert sauces, cake making, icing and decorating, tortes, mousses, Bavarians, tarts, and other desserts. Group 2 course. Quantitative Reasoning.
Required Prerequisites: CUL 110, CUL 118

CUL 221 - Chocolate and Cake Design
Credit Hours: 4, Contact Hours: 8
Division: Business
This course is designed for students who wish to pursue a career in pastry arts. It is designed for students that would like to expand their creative talents in areas of chocolate artistry and cake decorating. In this course students will learn through lecture, demonstrations and lab work the characteristics of chocolate, chocolate tempering and modeling, candies, fillings, centerpieces, molds & decorations. The cake decoration portion of the course will cover buttercream recipes, history of cake decorating and tools, preparation of boards, papers, columns, boxes, etc., the art of icing a cake, basic cake covering using combs and spatulas, basic piping skills and the use of decorating tips, border skills, floral piping skills, art of swag and drapery applications, art of writing and coloring on a cake. Course includes how to create and display wedding cakes, icings, fondant, pastillage, and gum paste. Group 2 course. Quantitative Reasoning.
Required Prerequisites: CUL 110, CUL 118, CUL 218 may be taken concurrently

CUL 222 - Cafe Operations
Credit Hours: 3, Contact Hours: 6
Division: Business
This course focuses on practical bakery training. Students rotate through the front-of-the-house and the bakery in this intensive course. Front-of-the-house students learn barista and cafe service. Menu merchandising is stressed throughout the course. Guest relations and timing of service are also emphasized as advanced students serve both to-go and eat-in pastries and beverages at the Great Lakes Culinary Institute's teaching restaurant. Bakery certificate students practice a variety of baking and pastry skills learned in their program. Other areas covered include recipe construction and costing, the use and care of equipment, the pressure of cafe preparation and service, and the effective handling and use of supplies. Group 2 course. Quantitative Reasoning.
Required Prerequisites: CUL 110, CUL 118, CUL 218, CUL 221

CUL 293 - Culinary Study Abroad
Credit Hours: 1, Contact Hours: 1
Division: Business
In this class, students are provided the opportunity to travel to a specified destination affiliated with the corresponding culinary non-trip course. This course will serve to integrate the student learning experience and provide a sense of cultural perspective, diversity and regional awareness. The course is an opportunity for students to explore other areas around the world while applying discipline-specific course content. For a more specific course description, please review the course description of the associated non-trip course. Group 2 course.
Required Prerequisites: CUL 118, or CUL 101, CUL 102, and CUL 111, may be taken concurrently

CUL 295 - Contemporary Service & Cuisine
Credit Hours: 12, Contact Hours: 24
Division: Business
This course focuses on practical hands-on training. Students rotate through the front-of-the-house and the restaurant kitchen in this intensive semester-long course. Front-of-the-house students learn various styles of table, wine and beverage service. Menu merchandising is stressed throughout the course. Guest relations and timing of service are also emphasized as advanced students serve lunch to guests in Lobdell's, the Great Lakes Culinary Institute's teaching restaurant. Heart-of-the-house students learn classical food preparation preparing designated menu items. Other areas covered include recipe construction and costing, the use and care of equipment, the pressure of a la carte preparation and service, and the effective handling and use of supplies. Group 2 course. Quantitative Reasoning.
Required Prerequisites: CUL 110, CUL 111, CUL 118, CUL 211, CUL 213

Dance (DNC)

DNC 101 - Beg. Dance: An Exploration
Credit Hours: 2, Contact Hours: 4
Division: Humanities
This course will introduce the major disciplines of dance: ballet, jazz, and modern. Basic dance skills will be acquired through the practice of exercises, steps, and techniques. This course is designed for those with little or no background in dance. Group 2 course.
DNC 110 - Modern Dance I
Credit Hours: 2, Contact Hours: 4
Division: Humanities
This course is designed to introduce students to the physical training and the creative thought process involved in executing modern dance as an art form. This course will consist of technique, improvisation, and creative problem solving through movement. Modern dance and its relationship to music and the historical development of modern dance will also be explored. Group 2 course.
Recommended Prerequisites: DNC 101 or previous experience.

DNC 111 - Modern Dance II
Credit Hours: 2, Contact Hours: 4
Division: Humanities
This course is designed as an extension of Modern Dance I. This class will consist of increasing proficiency in modern dance through extended studies in technique, improvisation, creative problem-solving, and performance. Dance history and critical perspectives in dance will also be explored. Group 2 course.
Required Prerequisites: DNC 110 or previous experience

DNC 120 - Choreography & Performance
Credit Hours: 2, Contact Hours: 4
Division: Humanities
Study choreography by participating in an instructor-led choreographed dance, created through structured improvisation and creative problem-solving techniques. Students will also create and develop their own dances through the exploration of a wide range of approaches to choreography. Performance and its relationship to community and cultural values will also be explored. The culmination of the class work will be a dance performance for the public. Group 2 course.
Required Prerequisites: DNC 101, DNC 110 or previous experience

DNC 121 - Yoga I
Credit Hours: 1, Contact Hours: 4
Division: Humanities
Yoga techniques focus on understanding and controlling the body, the breath, and the mind through exercises (asanas), breathing techniques (pranayamas), and meditation training (quieting the mind and body). Yoga poses are designed to develop strength and give maximum flexibility to the muscular, skeletal, and nervous systems with special emphasis on building a strong, supple spine. Benefits include improved circulation, hormonal balance, poise, and a more stable emotional nature. Learning proper breathing will help you cope with stress and increase your energy level. Wear loose, comfortable, layered clothing and plan to work barefooted. Bring two blankets, a mat, and a bath towel. Group 2 course.
Prerequisite(s): DNC 131 or instructor permission.
Required Prerequisites: DNC 132

DNC 132 - Yoga II
Credit Hours: 1, Contact Hours: 2
Division: Humanities
Yoga techniques focus on understanding and controlling the body, the breath, and the mind through exercises (asanas), breathing techniques (pranayamas), and meditation training (quieting the mind and body). Yoga poses are designed to develop strength and give maximum flexibility to the muscular, skeletal, and nervous systems with special emphasis on building a strong, supple spine. Benefits include improved circulation, hormonal balance, poise, and a more stable emotional nature. Learning proper breathing will help you cope with stress and increase your energy level. Wear loose, comfortable, layered clothing and plan to work barefooted. Bring two blankets, a mat, and a bath towel. Group 2 course.
Prerequisite(s): DNC 131 or instructor permission.

DNC 135 - Dental Materials
Credit Hours: 2, Contact Hours: 4
Division: Health Occupations
Students learn the preparation, manipulation, and use of dental materials commonly found in the dental office. There will be discussion regarding the equipment needed, mixing techniques, and proper usage of waxes, restorative materials, impression materials, gypsum products, cements, metals and therapeutic materials. Preparation of each material will be demonstrated. Group 2 course.
Recommended Prerequisites: HAH 120, HDA 120
Corequisites: HDA 113

Dental Assistant (HDA)

HDA 101 - Introduction to Dentistry
Credit Hours: 2, Contact Hours: 2
Division: Health Occupations
Students are introduced to the role of the dental assistant and the dental team and opportunities for employment. Students will be informed of the requirements for certification and registration and the various organizations and associations within dentistry and dental assisting. Other areas studied will include dental specialties, dental terminology, applied psychology in the dental office, office preparedness to manage medical and dental emergencies, instrument and equipment identification and charting. The student will have an opportunity to view a dental office to see the set up and to observe the roles of each person on the dental team. Group 2 course. Communications - Direct.

HDA 112 - Dental Materials
Credit Hours: 2, Contact Hours: 2
Division: Health Occupations
Students are introduced to the role of the dental assistant and the dental team and opportunities for employment. Students will be informed of the requirements for certification and registration and the various organizations and associations within dentistry and dental assisting. Other areas studied will include dental specialties, dental terminology, applied psychology in the dental office, office preparedness to manage medical and dental emergencies, instrument and equipment identification and charting. The student will have an opportunity to view a dental office to see the set up and to observe the roles of each person on the dental team. Group 2 course. Communications - Direct.
HDA 113 - Dental Materials Lab
Credit Hours: 1, Contact Hours: 2
Division: Health Occupations
This course familiarizes the student with the handling of dental materials commonly used in the dental office. Opportunities are provided in the laboratory to develop skills in mixing techniques, impression taking, construction of study models, bleach and acrylic trays, and cleaning and polishing appliances. Group 2 course.
Corequisites: HDA 112

HDA 120 - Dental Anatomy
Credit Hours: 3, Contact Hours: 3
Division: Health Occupations
The student will learn the anatomy and physiology of the oral cavity, teeth and head. Students will learn the histology of the teeth and surrounding structures, the bones of the skull, the nerves and blood supply of the head and neck, the muscles of mastication, and the names and functions of the teeth and oral structures. This class will also provide detailed information on the anatomy of the individual teeth. Group 2 course.

HDA 140 - Oral Pathology/Pharmacology
Credit Hours: 2, Contact Hours: 2
Division: Health Occupations
The purpose of this course is to familiarize the student with disease processes related to the oral cavity and to enable the student to identify these diseases. The student will become familiar with various drugs and their uses in dentistry, prescription writing and documentation, the sources of drugs, routes of administration, and the conditions that modify the reactions of drugs. Group 2 course.
Recommended Prerequisites: HDA 120

HDA 150 - Dental Office Management
Credit Hours: 2, Contact Hours: 2
Division: Health Occupations
Students are acquainted with the procedures necessary for efficient dental office management. Topics include appointment book control, accounts receivable and payable, payroll, dental record keeping, third party payment, patient recall, inventory control, telephone techniques, and use of computer hardware and software unique to the dental office. This course is offered in a self-paced format. Group 2 course.

HDA 160 - Dental Emergencies
Credit Hours: 1, Contact Hours: 1
Division: Health Occupations
This course acquaints the student with the types of emergencies that may arise in the dental office. The students will learn the procedures to follow when medical and dental emergencies occur, the importance and significance of obtaining accurate and complete patient histories, the proper emergency equipment necessary in a dental office to manage these emergencies and the maintenance of that equipment, and the taking and recording of vital signs. Group 2 course.

HDA 170 - Preventive Dentistry
Credit Hours: 2, Contact Hours: 2
Division: Health Occupations
This course deals with educating dental patients in proper oral hygiene and nutrition. The topics of discussion will include vitamins, minerals, fats, carbohydrates, proteins, food groups, fluoride treatments, oral examinations, pit and fissure sealants, public health dentistry, and oral hygiene instructions. Student demonstration and participation is emphasized. A dietary analysis will be learned and demonstrated by students. Two community presentations will be designed and presented by each student. Group 2 course. Communications - Direct.

HDA 240 - Chairside Procedures
Credit Hours: 5, Contact Hours: 5
Division: Health Occupations
This course provides the foundation for dental assistant clinical procedures performed in both general and specialty dental offices. Topics include theory and application of four-handed dentistry; application of infection control procedures; an overview of procedures and techniques unique to dental specialties; and background information and technical skills performed by the Registered Dental Assistant. In addition, local dental specialists serve as guest speakers. Group 2 course.
Recommended Prerequisites: HAH 120, HDA 101, HDA 120, HDA 160, HDA 242, HDA 243
Corequisites: HDA 241

HDA 241 - Chairside Procedures Lab
Credit Hours: 2, Contact Hours: 2
Division: Health Occupations
This is the clinical component of Chairside Procedures. Students learn and practice operative and specialty chairside techniques in a fully equipped dental clinic. Students assist our staff dentist during simulated dental procedures. Expanded duties for dental assistants are also introduced in this course. Group 2 course.
Corequisites: HDA 240

HDA 242 - Dental Radiography
Credit Hours: 2, Contact Hours: 2
Division: Health Occupations
The fundamentals of radiology as applied to dentistry will be presented. Special consideration will be given to radiation physics, hazards, biological effects, protection and quality control methods. Basic interpretation and radiographic anatomy will also be included. While extraoral techniques are discussed, emphasis will be given to the proper techniques for exposing, processing, and mounting traditional and digital intraoral radiographs of diagnostic quality. Group 2 course.
Recommended Prerequisites: HAH 120, HDA 120, HDA 160
Corequisites: HDA 243

HDA 243 - Dental Radiography Lab
Credit Hours: 1.5, Contact Hours: 3
Division: Health Occupations
Clinical component of Dental Radiography lecture. Students will be introduced to a variety of radiography techniques and will learn how to expose, process and mount radiographs of diagnostic quality. Requirements include multiple sets on dental manikins and four FMX sets on dental patients utilizing digital and traditional techniques. Group 2 course.
Corequisites: HDA 242

HDA 282 - CDA/RDA Written Exam Prep
Credit Hours: 2, Contact Hours: 2
Division: Health Occupations
The purpose of this course is to prepare students and working dental assistants for the CDA and RDA written exams. Included are review sessions covering General Chairside, Infection Control, and Radiography for both exams and additional specific topics that relate directly to Michigan’s expanded functions for dental assistants. Group 2 course.
Recommended Prerequisites: HAH 120, HDA 101, HDA 112, HDA 113, HDA 120, HDA 140, HDA 150, HDA 160, HDA 242, HDA 243
**HDA 286 - RDA Clinical Exam Prep**  
Credit Hours: 1, Contact Hours: 1  
Division: Health Occupations  
This course will provide dental assistant students with study/application sessions for the clinical portion of the state licensure exam. Expanded functions of special interest are dental amalgams, temporary crowns, and dental dams. Must be a current dental assisting student or graduate of a post-secondary dental assisting program approved by the State Board of Dentistry. Group 2 course.  
Required Prerequisites: HDA 282  

**HDA 290 - Dental Assistant Internship**  
Credit Hours: 5, Contact Hours: 5  
Division: Health Occupations  
Students are assigned to dental offices in the community. 300 hours of hands-on experience includes chairside assisting in general offices, office management, laboratory techniques and expanded functions. A minimum of 200 hours must be completed in a general practice and the additional 100 hours can be in a specialty practice. Each student must also observe for four hours in each of the following: endodontics, oral surgery, orthodontics and periodontics. This course includes 6 hours of internship meetings with the instructor and classmates. During the internship experience, students must show progression from 'O' (observed) to 'W' (with assistance) to 'A' (assisted alone) on their journal entries. Group 2 course. Communications - Direct.  
Required Prerequisites: HDA 240, HDA 241  
Corequisites: HDA 286

### Drafting and Design (DD)

**DD 101 - Print Reading and Sketching**  
Credit Hours: 3, Contact Hours: 4  
Division: Technical  
Students will learn to read engineering drawings of products and tooling used in today’s manufacturing. Basic drawing format and layout are presented using product, tooling assembly, and tooling detail drawings. Students learn methods of three dimensional shape description, dimensioning and tolerancing. Types of fasteners along with related terminology and manufacturing processes, material specifications, and welding symbols are presented. Students learn the presentation skills of orthographic projection, isometric and oblique pictorial drawings using straight line and free hand sketches. Group 2 course. Critical Thinking - Direct.

**DD 110 - Basic Metallurgy**  
Credit Hours: 3, Contact Hours: 3  
Division: Technical  
This course presents the making and forming of steel and the classification of steel and cast iron. Mechanical and physical properties are presented along with hardness and tensile testing labs. Principles of alloying, crystal structure, and the iron-carbon diagram help students understand how annealing, hardening, and tempering processes alter the mechanical properties of steel. Non-ferrous metallurgy is presented with an emphasis on aluminum. Group 2 course.  
Recommended Prerequisites: Placement into MTH 23 and ENG 99/108 recommended for entry.

**DD 160 - Tolerancing and GD&T**  
Credit Hours: 3, Contact Hours: 3  
Division: Technical  
This course first presents conventional tolerancing terminology, expressions, and accumulations in both inch and metric formats. Next, Geometric Dimensioning and Tolerancing (GD&T) presents an international system of symbols used to dimension products or tooling components. The course is based on the current ASME Y14.5M2009 Dimensioning and Tolerancing standard. Engineers, designers, drafters, cost estimators, machinists, and inspectors must understand this system. Students study actual product drawings and make design sketches of workholding and inspection devices. Group 2 course. Critical Thinking - Direct.  
Recommended Prerequisites: DD 101

**DD 170 - CADD/Computer Modeling**  
Credit Hours: 4, Contact Hours: 5  
Division: Technical  
Graphic communication course using 3D parametric modeling techniques. Topics include 3D modeling using SolidWorks software in an engineering design environment. Students will also develop 2D drafting skills including proper organization and layout of component drawing views, dimensioning and tolerancing, sectioning and detailing, detail descriptive geometry and rapid prototyping. Group 2 course. Critical Thinking - Direct.  
Recommended Prerequisites: Placement into MTH 23 and ENG 99/108 recommended for entry.

**DD 290 - Drafting Internship**  
Credit Hours: 3, Contact Hours: 3  
Division: Technical  
The purpose of the internship is to provide on-the-job training for the student who wishes to pursue a career in a technical field of study. The internship will be customized to meet the learning needs of the student and the job requirements of the sponsoring firm. Students spend 10-15 hours per week in this paid, supervised on-the-job training experience. In addition to the required 50 hours per credit in a work site, students participate in semi-monthly seminars. Students must apply one month prior to the semester in which they will complete the internship. Group 2 course. Communications - Direct.  
Required Prerequisites: 30 credits of program specific courses with a GPA of 2.0 or higher

### Early Childhood Education (ECE)

**ECE 101 - Early Childhood Education**  
Credit Hours: 3, Contact Hours: 3  
Division: Social Science  
This course familiarizes students with the history and present state of early childhood education, from birth to 10 years of age. Each age group (infant/toddler, preschooler and school-age) receives a minimum of 10 classroom hours of focused study related to the course content. An overview of child development theories is presented in the context of the role of the educator/caregiver. Resources and careers, and contemporary issues such as school readiness and exploration of various education philosophies are also included. Early Education environment observations and a personal philosophy of education project are required. The observations are set by students to meet their schedules. Group 2 course.
ECE 202 - Human Development and Learning  
Credit Hours: 5, Contact Hours: 5  
Division: Social Science  
This course focuses on the issues related to child development and learning. It examines the reasons for child study and its influence on families and education. The interactions between education/learning and all the developmental domains will be studied from conception up to adolescence. Each age group (infant/toddler, preschooler and school-age) receives a minimum of 20 classroom hours of focused study related to the course content. Students will become familiar with the most recent research, and design their own field observation and projects that support and test current theories of development. In addition, students will explore how professional work with children is changing and how they can become advocates for the well-being of children and families in their community, nation and the world. Group 2 course. Critical Thinking - Direct.  
Recommended Prerequisites: ECE 101 or PSY 101; placement into ENG 11/111

ECE 203 - Curriculum for Child Guidance  
Credit Hours: 4, Contact Hours: 4  
Division: Social Science  
This course examines the preparation of a positive learning environment. The development and use of positive guidance strategies with children birth through 10 years of age is explored. There is a special emphasis on the development of techniques in personal interactions with children. Current concepts and approaches that directly relate to the mental health of the child and his/her family are explored. Anger management and conflict resolution skills are especially emphasized through the building of positive environments. This course includes 32 practicum hours of experiential learning in an early care and education setting for preschoolers. Group 2 course.  
Recommended Prerequisites: ECE 101

ECE 204 - Early Childhood Curriculum  
Credit Hours: 4, Contact Hours: 4  
Division: Social Science  
An active learning approach is used to develop student’s skills in planning, implementing and evaluating developmentally appropriate learning experiences for children ages 1 year to 10 years. Various curriculum areas are covered: science, pre-math, math, drama and music, creative art, sensory, gross and fine motor, social studies and language arts. Basic skills and concepts, resource materials and teaching methods (developmental) are explored for each curriculum area. There is a strong emphasis on individualizing curriculum using the child’s interests, modality of learning and intelligence theories. This course includes 32 practicum hours of experiential learning in an early care and education setting for preschoolers. Group 2 course.  
Recommended Prerequisites: ECE 101

ECE 206 - Infant Toddler Care Curriculum  
Credit Hours: 4, Contact Hours: 4  
Division: Social Science  
This course provides an in-depth study of the physical, cognitive, social and emotional development and learning of the infant and toddler. There will be a focus on attachment and bonding and how that relates to brain development and later social and academic development. Students will develop skills to build a respectful and responsive curriculum and learning environment. They will learn how to use best practice methods with infants and toddlers and their families. This course includes 32 practicum hours of experiential learning in an early care and education setting for infants or toddlers. Group 2 course.  
Recommended Prerequisites: ECE 101

ECE 220 - Early Education Administration  
Credit Hours: 3, Contact Hours: 3  
Division: Social Science  
This course provides information and experiences to gain knowledge in program administration for establishing policies, implementing and evaluating programs, assessing, recording and reporting children’s progress, scheduling activities, promoting good support systems between home and school. In addition, focus will be aimed at understanding administrative organization, leading and managing personnel, financing and budgeting and contributing to the profession. Course instruction is based on the quality principles/standards required by Child Development Associate Credential and the National Association of the Education of the Young Child (NAEYC). Group 2 course.  
Recommended Prerequisites: ECE 101, placement into ENG 11/111

ECE 230 - Early Literacy and Learning  
Credit Hours: 3, Contact Hours: 3  
Division: Social Science  
This course is designed to teach students how to recognize and implement appropriate environmental strategies that support early literacy development and appropriate early experiences with books and writing for infants, toddlers and preschoolers. Each age group receives a minimum of 15 classroom hours of focused study related to the course content. Emphasis is placed on speaking and listening, as well as reading and writing readiness. This group of skills includes expressive and receptive language, concepts of print and appreciation of literature, emergent writing, letter knowledge, and phonological awareness. Upon completion of the course, students will be able to select, plan, implement, and evaluate appropriate early literacy experiences. Group 2 course.  
Critical Thinking - Direct.  
Recommended Prerequisites: ECE 101, placement into ENG 11/111

ECE 240 - Integrated Arts in Curriculum  
Credit Hours: 3, Contact Hours: 3  
Division: Social Science  
The integration of the arts in early education will be explored and implemented for children birth to 10 years of age. Each age group (infant/toddler, preschooler and school-age) receives a minimum of 10 classroom hours of focused study related to the course content. There will be a focus on the integration of studio art, music, dance and drama in early childhood curriculum planning, practice and implementation. Observation and practicum hours in an early care setting will be required. Group 2 course.  
Critical Thinking - Direct.  
Recommended Prerequisites: ECE 101, ECE 204, and placement into ENG 11/111

ECE 290A - Early Education Internship  
Credit Hours: 1, Contact Hours: 1  
Division: Social Science  
Internship placement in a daycare, nursery school, early elementary grades in grade school or other agencies that deal with students, children and/or families. The student will have the opportunity to interact with individuals and assist with planning for curriculum or program activities under direct supervision. Each credit hour is equivalent to 32 internship hours and can be divided over more than one semester. At least 1 credit hour (32 internship hours) must be spent in an infant/toddler learning environment. Group 2 course.  
Recommended Prerequisites: ECE 101
ECE 290B - Early Education Internship
Credit Hours: 2, Contact Hours: 2
Division: Social Science
Internship placement in a daycare, nursery school, early elementary grades in grade school or other agencies that deal with students, children and/or families. The student will have the opportunity to interact with individuals and assist with planning for curriculum or program activities under direct supervision. Each credit hour is equivalent to 32 internship hours and can be divided over more than one semester. At least 1 credit hour (32 internship hours) must be spent in an infant/toddler learning environment. Group 2 course.
Recommended Prerequisites: ECE 101

ECE 290C - Early Education Internship
Credit Hours: 3, Contact Hours: 3
Division: Social Science
Internship placement in a daycare, nursery school, early elementary grades in grade school or other agencies that deal with students, children and/or families. The student will have the opportunity to interact with individuals and assist with planning for curriculum or program activities under direct supervision. Each credit hour is equivalent to 32 internship hours and can be divided over more than one semester. At least 1 credit hour (32 internship hours) must be spent in an infant/toddler learning environment. Group 2 course.
Required Prerequisites: ECE 101

Economics (ECO)

ECO 201 - Principles of Macroeconomics
Credit Hours: 3, Contact Hours: 3
Division: Social Science
This principles level course provides an in-depth overview and analysis of macroeconomic theory and concepts; and applies them to the contemporary economic issues, problems, and policies in the United States and other economies. Topics include the nature and scope of economics; national income accounting; government revenues, expenditures, and national debt; unemployment, inflation, and interest rates; economic growth; and monetary, fiscal and international trade policies. Group 1 course. Critical Thinking - Direct.
Recommended Prerequisites: MTH 23, placement into ENG 111. It is recommended that students take ECO 201 before ECO 202.

ECO 202 - Principles of Microeconomics
Credit Hours: 3, Contact Hours: 3
Division: Social Science
This principles level course analyzes microeconomic theory and concepts; and applies them to contemporary economic issues, problems, and policies. Topics include supply and demand analysis, productivity and the firm's costs of production, price and output determination under various market structures, government interventions in markets, factor allocation and pricing, and international trade. Group 1 course. Critical Thinking - Direct.
Recommended Prerequisites: MTH 23, placement into ENG 111. It is recommended that students take ECO 201 before ECO 202.

Education (EDU)

EDU 100 - College Success
Credit Hours: 2, Contact Hours: 2
Division: Social Science
This course is designed to provide students with the strategies necessary to succeed in college. Participants will examine the characteristics of successful students as well as learn strategies for taking greater responsibility for their own learning. Additionally, the course will provide ways of developing greater intrinsic motivation, increased perseverance, and more effective time management skills, as well as help them discover and revise limiting beliefs and self-defeating behaviors. Practical skills will include a variety of note taking and study strategies as well as confident and effective test preparation. Group 2 course. Critical Thinking - Direct.

EDU 101 - Introduction to Teaching
Credit Hours: 3, Contact Hours: 3
Division: Social Science
This course will serve as an introduction to teaching as a career. It will provide an overview of students' behaviors and effective teachers' responsibilities in preparation for further study in the field of education. This course includes 30 hours of classroom observation in a K-12 classroom. Instructor permission is needed for non-high school graduates. Group 2 course. Communications - Direct, Critical Thinking - Direct.
Recommended Prerequisites: Placement into ENG 111

EDU 212 - Educating Exceptional Children
Credit Hours: 3, Contact Hours: 3
Division: Social Science
This course addresses the complexity of understanding and educating the exceptional child (one with special needs, disabilities and differing abilities including gifted and talented). Areas covered will include exceptional child development, family development and dynamics, identification processes, methods for contributing to the child's healthy development and educational needs, community resources and referral procedures. This course will address the unique challenges related to creating developmentally appropriate accommodations and inclusion practices in the educational and early care setting. Group 2 course. Critical Thinking - Direct.
Required Prerequisites: ECE 202 or PSY 101
Recommended Prerequisites: Placement into ENG 11/111

EDU 290A - Academic Service/Internship
Credit Hours: 1-4, Contact Hours: 1-4
Division: Social Science

Electrical/Electronics Tech (EET)

EET 102 - Intro to Engineering Tech
Credit Hours: 2, Contact Hours: 2
Division: Technical
This course is designed to give students an overview of Engineering Technology and the career options this profession provides. This course highlights the technical specializations within the Engineering Technology degree at NMC. Course topics also include engineering design methods, project management principles and practices, team work skills, engineering ethics, and the role of engineering in global and environmental issues. Group 2 course. Communications - Direct.
Recommended Prerequisites: Placement into MTH 23 and ENG 99/108 or higher.
EET 103 - Electrical Studies I
Credit Hours: 3, Contact Hours: 4
Division: Technical
Explore the fundamentals of electricity and electronics by developing introductory analysis, construction and troubleshooting techniques for DC and AC circuits. Safe electrical practices will be emphasized throughout the course as the student constructs circuits from schematics and diagrams using proper wiring and soldering techniques. Electrical measurements will be performed using multimeters and oscilloscopes. Group 2 course. Quantitative Reasoning.

EET 161 - Fundamentals of Light & Lasers
Credit Hours: 4, Contact Hours: 6
Division: Technical
This course introduces the elements of a laser, operation of a helium-neon gas laser, laser physics, optical-cavities, properties of laser light and a survey of laser systems. Safety procedures concerning lasers and related equipment are presented in this course. Group 2 course. Quantitative Reasoning.
Required Prerequisites: EET 103

EET 180 - Biomedical Equipment I
Credit Hours: 3, Contact Hours: 4
Division: Technical
This course introduces the learner to the field of the biomedical equipment technology and the role of the technician. Safety, patient care, ethics, regulatory requirements, healthcare equipment technology and function will be emphasized. Proper procedures and protocols for the calibration, test and troubleshooting of medical equipment will be developed. Common diagnostic equipment will be used for signal analysis. The course will begin the preparation for the CBET certification exam. Group 2 course.
Required Prerequisites: BIO 106, EET 204, HAH 101

EET 190 - Biomedical Internship
Credit Hours: 1, Contact Hours: 1
Division: Technical
The purpose of the internship is to provide on-the-job training for the student who wishes to pursue a career in Biomedical Equipment. The internship will be customized to meet the learning needs of the student and the job requirements of the sponsoring firm. Students spend 5-10 hours per week in this, supervised on-the-job training experience. In addition to the required 50 hours per credit in a work site, students participate in three seminars. Students must apply one month prior to the semester in which they will complete the internship. Group 2 course.
Required Prerequisites: EET 180

EET 204 - Electrical Studies II
Credit Hours: 3, Contact Hours: 4
Division: Technical
A systems level approach to electronics and electrical devices will be used to analyze semiconductor applications including integrated circuits, power supplies, transistors, amplifiers, and digital logic families. Circuits will be bench tested, and integrated with others to meet system requirements. Design modifications, circuit improvements, component protection and application to other areas of engineering technology will be emphasized as designs are developed into working prototypes. Group 2 course. Quantitative Reasoning.
Required Prerequisites: EET 103

EET 212 - Elements of Photonics
Credit Hours: 4, Contact Hours: 5
Division: Technical
Elements of Photonics builds upon and applies principles presented in Fundamentals of Light and Lasers. The course includes modules on operational characteristics of lasers, specific laser types, optical detectors and human vision, principles of optical fiber communications, photonics devices for imaging, storage and display, and laser welding and surface treatment. Group 2 course. Quantitative Reasoning.
Required Prerequisites: EET 161

EET 221 - Industrial Controls
Credit Hours: 3, Contact Hours: 4
Division: Technical
This course studies control circuits, electrical schematics and line diagrams. Motor circuits utilizing motor starters, contactors, timers and counters are used to demonstrate control circuitry. Industrial control devices are examined, including solid-state control devices, electromechanical relays, proximity sensors, photoelectric sensing devices and programmable logic controllers. Group 2 course.
Required Prerequisites: EET 103 or ELE 105 or MNG 234

EET 232 - Programmable Logic Controllers
Credit Hours: 3, Contact Hours: 4
Division: Technical
This course studies programmable logic controllers (PLCs). Basic models and complete applications are applied to control inputs and outputs of PLCs. Ladder logic and device wiring techniques are studied, along with advanced program instructions such as counters, timers, sequencers and integer moves. Input/output devices are used to examine PLC program logic during the control process. Group 2 course.
Required Prerequisites: EET 221

EET 233 - PLC Applications I
Credit Hours: 3, Contact Hours: 4
Division: Technical
This course is a study of the integration of program styles and components used in industry. Program structures and instructions will be used in lab projects to simulate how PLCs can be used to create a variety of useful functions. A mixture of textbook and component manuals will be used to learn the necessary information to complete these functions. Group 2 course.
Required Prerequisites: EET 232, ELE 142

EET 234 - PLC Applications II
Credit Hours: 3, Contact Hours: 4
Division: Technical
This course is a continuation of the study of the integration of program styles and components used in industry. Program structure and project development will be studied. Installation of different types of components integrated with PLCs will also be studied. Group 2 course.
Required Prerequisites: EET 233, ELE 146

EET 260 - System Engineering in Practice
Credit Hours: 3, Contact Hours: 4
Division: Technical
This class introduces students to the practice of system design and development. Students apply specific methodologies for problem-based learning and project management. Technical content from prior courses is applied to address challenges and create solutions. Student teams create prototypes and communicate results with classroom activities supporting teamwork, project planning, requirements analysis, design, development, testing, demonstration, and reporting. Group 2 course.
Required Prerequisites: EET 102, EET 103, RAM 155
Recommended Prerequisites: AVF 141, RAM 205 or WSI 200
EET 281 - Biomedical Equipment II
Credit Hours: 3, Contact Hours: 4
Division: Technical
This course continues the study of biomedical equipment technology and the role of the technician. Healthcare problem solving techniques will be developed through the analysis, testing and troubleshooting of medical equipment. Information technology needs and requirements will be reviewed as they pertain to the healthcare environment as well as anatomy and physiology specific to the field. Students will continue preparing for the CBET certification exam. Group 2 course. Critical Thinking - Direct.
Required Prerequisites: EET 180

EET 290 - Engineering Tech Internship
Credit Hours: 3, Contact Hours: 3
Division: Technical
The purpose of the internship is to provide on-the-job training for the student who wishes to pursue a career in a technical field of study. The internship will be customized to meet the learning needs of the student and the job requirements of the sponsoring firm. Students spend 10-15 hours per week in this paid, supervised on-the-job training experience. In addition to the required 50 hours per credit in a work site, students participate in semi-monthly seminars. Students must apply one month prior to the semester in which they will complete the internship. Group 2 course. Communications - Direct.
Required Prerequisites: 30 credits of program specific courses with a GPA of 2.0 or higher

EET 292 - Technical Career Development
Credit Hours: 1, Contact Hours: 1
Division: Technical
This course provides the career tools necessary for the student to reach their full professional potential. The student will develop essential career success skills through class activities and direct practice in the technical community. Hands-on assignments in each session will allow the student to research employers; learn about application requirements, practice meeting professionals in their field, and practice successful interviewing techniques. Group 2 course.
Required Prerequisites: 30 Technical division program credits

EET 304 - Marine Electronics
Credit Hours: 3, Contact Hours: 4
Division: Technical
Marine Electronics focuses on the systems, applications, electronics, and safety requirements specific to the marine and ROV environments. The design, repair and integration of cabling, tether, communication devices, sensors, and components into electrical systems will be emphasized. Students will use test equipment and protocols to develop troubleshooting methods to analyze and integrate this technology. Group 2 course. Critical Thinking - Direct.
Required Prerequisites: EET 104 or EET 204

Electrician (ELE)

ELE 101 - Introduction to Electrical
Credit Hours: 3, Contact Hours: 4
This course provides an introduction to the electrical. Through structured classroom and hands-on skill building, the student will learn safety, basic electricity, Ohm's Law, basic electric circuits, meters and wire sizes. Group 2 course.
Recommended Prerequisites: Placement in MTH 111 or higher, or co-enrollment in the appropriate developmental Math course, placement into ENG 11/111 or higher or co-enrollment in the appropriate developmental English course.

ELE 105 - Beg Residential Electrical
Credit Hours: 3, Contact Hours: 4
Through structured classroom and hands-on skill building, the student will learn general information for electrical installations in the residential field to include: electrical symbols and outlets, determining the required number of lighting and receptacle outlets, conductor sizing and connections, switch control, bonding/grounding, ground-fault circuit interrupters and similar devices, and begin calculations for wiring various rooms in a common residential building. Group 2 course.
Required Prerequisites: ELE 101 or EET 103 or HVA 101

ELE 110 - Electrical Code Studies I
Credit Hours: 3, Contact Hours: 3
This preparatory course reflects many of the important changes that appear in the current edition of the National Electrical Code. The changes are presented as they pertain to Single Family Dwellings, Multifamily Dwellings, Commercial Locations, Industrial Locations, and Hazardous Locations. It is designed to enable the student to learn electrical print reading and become familiar with applicable sections of the National Electrical Code. Group 2 course.
Required Prerequisites: ELE 105
Recommended Prerequisites: This course is recommended for those seeking more in-depth knowledge of the National Electrical Code and those who intend to sit for the Michigan Electrical Journeyman Exam with the next year.

ELE 111 - Electrical Code Studies II
Credit Hours: 3, Contact Hours: 3
This course will help the student in learning to read and interpret the meaning of the Code, and to find information about how to do wiring installations. Upon completion of this course, the student will be able to find information from the Code needed to do residential, commercial, farm, and industrial wiring and to be successful with electrical examinations. Group 2 course.
Required Prerequisites: ELE 110
Recommended Prerequisites: This course is recommended for those seeking more in-depth knowledge of the National Electrical Code and those who intend to sit for the Michigan Electrical Journeyman Exam with the next year.

ELE 121 - Adv Residential Electrical
Credit Hours: 3, Contact Hours: 4
Through structured classroom and hands-on skill building, the student will learn advanced residential wiring techniques including: workshop circuits, special purpose outlets, gas and oil central heating systems, low-voltage wiring, alarms and security systems, service entrance equipment, overcurrent protection, service entrance calculations, swimming pools, home automation systems, and standby power systems. Group 2 course.
Required Prerequisites: ELE 105
ELE 125 - Pre-Commercial Electrical
Credit Hours: 3, Contact Hours: 4
Through structured classroom and hands-on skill building, the student will learn small sources of electricity, basics of alternating current, AC circuits containing inductance, AC circuits containing capacitors, AC circuits containing resistance-inductance-capacitance, three-phase power, transformers, DC machines, and AC machines. Group 2 course. Required Prerequisites: ELE 105

ELE 131 - Commercial Electrical
Credit Hours: 3, Contact Hours: 4
Through structured classroom and hands-on skill building, the student will learn commercial building plans and specifications, reading electrical drawings, calculating the electrical load, branch circuits, wiring methods, motor and appliance circuits, feeders, special systems, and working drawings. Group 2 course. Required Prerequisites: ELE 105

ELE 135 - Adv Commercial Electrical
Credit Hours: 3, Contact Hours: 4
Through structured classroom and hands-on skill building, the student will learn special circuits, panelboards selection and installation, the electric service, lamps and ballasts for lighting, luminaires, emergency, standby and optional standby systems, overcurrent protection, short-circuit calculations, equipment and conductor short-circuit protection, low-voltage remote-control, and the cooling system. Group 2 course. Required Prerequisites: ELE 131

ELE 142 - Industrial Electrical
Credit Hours: 3, Contact Hours: 4
Through structured classroom and hands-on skill building, the student will learn special circuits, panelboards selection and installation, the electric service, lamps and ballasts for lighting, luminaires, emergency, standby and optional standby systems, overcurrent protection, short-circuit calculations, equipment and conductor short-circuit protection, low-voltage remote-control, and the cooling system. Group 2 course. Required Prerequisites: ELE 105

ELE 146 - Adv. Industrial Electrical
Credit Hours: 3, Contact Hours: 4
Through structured classroom and hands-on skill building, the student will learn special circuits, panelboards selection and installation, the electric service, lamps and ballasts for lighting, luminaires, emergency, standby and optional standby systems, overcurrent protection, short-circuit calculations, equipment and conductor short-circuit protection, low-voltage remote-control, and the cooling system. Group 2 course. Required Prerequisites: ELE 142

Engineering (EGR)

EGR 113 - Engineering Graphics I
Credit Hours: 3, Contact Hours: 4
Division: Science Math
This course introduces traditional and contemporary methods of graphical communication in the context of engineering design, including sketching, orthographic projection, dimensioning, and tolerancing. Students also utilize modern parametric design software to generate 3-D models and 2-D drawings to benchmark and refine designs, including the use of finite element analysis and 3-D printing. Group 2 course. Critical Thinking - Direct. Recommended Prerequisites: ENG 111, MTH 122

EGR 131 - Elementary Surveying
Credit Hours: 5, Contact Hours: 5
Division: Science Math
This course is designed to satisfy the elementary surveying requirement for a student entering engineering. In this course students will learn the theory involved in plane and geometric surveying including both linear and angular measurement, differential leveling, trigonometric leveling, traverse computations, electronic distant measurements, GPS mapping, topographical mapping and the design of horizontal and vertical curves as related to construction surveys. Students are expected to perform lab experiments in which they demonstrate their knowledge of the concepts learned in lecture, incorporating the basic skill learned in lecture to field settings. Care, adjustment, and use of basic surveying instruments: leveling, taping, horizontal angle measurements, traverse surveys, use of EDM’s, GPS usage, topographic mapping, and layout of horizontal curves. Computer software will be used throughout the semester. Group 2 course. Critical Thinking - Direct. Required Prerequisites: MTH 122 Recommended Prerequisites: ENG 111 Corequisites: EGR 131L

EGR 131L - Elementary Surveying Lab
Credit Hours: 0, Contact Hours: 0
Division: Science Math
See EGR 131 for course description. Corequisites: EGR 131

EGR 201 - Statics
Credit Hours: 3, Contact Hours: 3
Division: Science Math
This course addresses force systems in two and three dimensions and includes composition and resolution of forces and force systems, principles of equilibrium applied to various bodies, simple structures, friction, centroids, and moments of inertia. Vector algebra and first semester calculus is used throughout the course. Group 2 course. Critical Thinking - Direct. Required Prerequisites: MTH 141 Recommended Prerequisites: ENG 111, MTH 142

EGR 202 - Mechanics of Materials
Credit Hours: 3, Contact Hours: 3
Division: Science Math
This course introduces the engineering behavior of real materials, including stress/strain at a point, principle stresses and strains, stress-strain relationships, determination of stresses and deformations in situations involving axial loading, torsional loading of circular cross sections, and flexural loading of straight members. Also covers stresses due to combined loading and buckling of columns. Vector algebra and differential calculus are used throughout this course. Group 2 course. Critical Thinking - Direct. Required Prerequisites: EGR 201 Recommended Prerequisites: ENG 111, MTH 142
EGR 203 - Dynamics
Credit Hours: 4, Contact Hours: 4
Division: Science Math
This course introduces the principles of engineering dynamics, including kinematics and kinetics of particles, rigid bodies in translation, rotation, and plane motion. Principles of work and energy, impulse and momentum, and introductory vibrations will be covered. Group 2 course. Critical Thinking - Direct.
Required Prerequisites: EGR 201
Recommended Prerequisites: ENG 111, MTH 241

EGR 211 - Electrical Circuits I
Credit Hours: 3, Contact Hours: 3
Division: Science Math
This course will cover basic electrical concepts, resistive circuits, nodal and loop analysis techniques, superposition, Thevenin and Norton equivalents, maximum power transfer, capacitance and inductance, AC steady-state analysis, steady-state power analysis. Group 2 course. Critical Thinking - Direct.
Required Prerequisites: MTH 142, may be taken concurrently.
Recommended Prerequisites: ENG 111

EGR 220 - Engineering Practice I
Credit Hours: 2, Contact Hours: 4
Division: Science Math
Students develop the laboratory and computer skills necessary for success in engineering. Topics include benchmarking, prototyping, data acquisition devices and methods, data post processing and interpretation using engineering software, and use of finite element analysis methods. Group 2 course. Critical Thinking - Direct.
Required Prerequisites: EGR 101, EGR 113, EGR 201, ENG 111

EGR 221 - Material Science
Credit Hours: 3, Contact Hours: 3
Division: Science Math
Introduction to the structure, processing, properties, and performance of engineering materials, including metals, polymers, glasses, ceramics, and composites. Presents case studies covering selection of materials, component design, and analysis of component failures. Group 2 course. Critical Thinking - Direct.
Required Prerequisites: MTH 141, ENG 111; CHM 150 may be taken concurrently.

EGR 232 - Introductory Thermodynamics
Credit Hours: 3, Contact Hours: 3
Division: Science Math
This course introduces concepts of energy, energy conversion, and mechanisms of heat and work transfer in processes and in cycles. It also covers the first and the second laws of thermodynamics. Group 2 course. Critical Thinking - Direct.
Required Prerequisites: MTH 141, PHY 221, PHY 221L, PHY 221R

English (ENG)

ENG 11 - English/Writing Methods
Credit Hours: 2, Contact Hours: 2
Division: Communications
ENG 11 is to be taken concurrently with ENG 111, and helps facilitate the objectives of ENG 111. Special attention is given to individual student needs in the conventions of standard written prose. An additional two (2) credits provided by ENG 11 are non-transferable hours.
Required Prerequisites: Placement into ENG 111/111 or successful completion of ENG 99 and ENG 108. Based on placement testing. See advisor.
Corequisites: ENG 111

ENG 12 - English/Writing Methods
Credit Hours: 2, Contact Hours: 2
Division: Communications
ENG 12 is to be taken concurrently with ENG 112 and will help to facilitate the objectives of ENG 112. Special attention is given to individual student needs in the conventions of standard written prose, argumentation, and research. An additional two (2) credits provided by ENG 12 are non-transferable hours.
Required Prerequisites: Successful completion of ENG 111 or ENG 11 and ENG 111.
Recommended Prerequisites: This course is highly recommended (but not required) for students who complete their first semester of freshman composition with a 1.0 or 1.5, or for students who simply express a need to work on the ENG 112 curriculum in a smaller class, with more time and individual attention.
Corequisites: ENG 112

ENG 97 - Fundamentals of Reading/Writing
Credit Hours: 4, Contact Hours: 4
Division: Communications
This course is to be taken concurrently with ENG 107 and will provide an overview to reading, writing and college readiness. The course will provide students with basic skills required for college success, thereby empowering them to become more responsible and actively engaged in their own education. Students will learn and practice basic reading skills such as annotation, think-aloud, and main idea identification. Students will also be introduced to the writing process and learn a variety of methods such as free writing, invention, essay planning, drafting, and revision. In addition, they will learn strategies to assist them in successful college completion by learning the following skills: time management, goal setting, note taking, organization, and motivation.
Required Prerequisites: Appropriate placement score
Corequisites: ENG 107

ENG 99 - Intro to College Writing
Credit Hours: 3, Contact Hours: 3
Division: Communications
This is an introductory writing course. Students will engage with the writing process as they write a variety of responses, analyses and thesis-driven essays. This course builds on skills students already have and prepares them for college composition courses. It also focuses on grammar, punctuation and sentence construction and variety. ENG 99 also covers a broad range of thematic topics to help students develop critical writing and thinking skills.
Required Prerequisites: Students are placed in this course according to placement guidelines set by NMC.
Corequisites: ENG 108
ENG 107 - Academic Study Methods  
Credit Hours: 2, Contact Hours: 2  
Division: Communications  
This course is designed to provide students with the strategies necessary to succeed in college. Participants will examine the characteristics of successful students as well as learn strategies for taking greater responsibility for their own learning. Additionally, the course will provide ways of developing greater intrinsic motivation, increased perseverance, and more effective time management skills, as well as help them discover and revise limiting beliefs and self-defeating behaviors. Practical skills will include a variety of note taking and study strategies as well as confident and effective test preparation. Group 2 course. Communications - Direct, Critical Thinking - Direct.

ENG 108 - Critical Reading Strategies  
Credit Hours: 3, Contact Hours: 3  
Division: Communications  
The focus of this course is on improving college-level reading skills. Students read and interact with complex texts including fiction, non-fiction memoir, articles, and books. Students also learn to employ a variety of reading strategies to enhance comprehension and critical thinking. Group 2 course. Communications - Direct, Critical Thinking - Direct.

Required Prerequisites: Students are placed in this course according to placement guidelines set by NMC.  
Corequisites: ENG 99

ENG 111 - English Composition  
Credit Hours: 4, Contact Hours: 4  
Division: Communications  
ENG 111 is the first semester of a two-semester composition sequence introducing analytical and information literacy skills that lay a foundation for success in all disciplines. ENG 111 introduces and emphasizes rhetorical knowledge (including audience and purpose), invention, and reading/writing processes. Group 1 course. Communications - Direct, Critical Thinking - Direct, Infused: Writing Intensive.

ENG 112 - English Composition  
Credit Hours: 4, Contact Hours: 4  
Division: Communications  
This is a writing course based on critical reading from various fields. Writing assignments reinforce skills in summary, analysis, evaluation, and synthesis. Emphasis is on argumentation, research methods, and information literacy. Group 1 course. Communications - Direct, Critical Thinking - Direct, Infused: Writing Intensive.

Required Prerequisites: Successful completion of ENG 111 or ENG 111/11.

ENG 210 - Children's Literature  
Credit Hours: 3, Contact Hours: 3  
Division: Communications  
Focus is on developing criteria, terminology and resources for evaluation and selection of good quality children's literature and on developing methods for sharing that literature with children. The course surveys both picture books and novels from a variety of genres and cultures and also examines the impact of social change on children's literature. Humanities or English credit. Group 1 course. Communications - Direct, Critical Thinking - Direct, Degree Req: Cultural Persp/Div, Infused: Writing Intensive.

Required Prerequisites: Placement into ENG 111

ENG 211 - Introduction to Linguistics  
Credit Hours: 3, Contact Hours: 3  
Division: Communications  
This course is designed to acquaint students with modern developments in the science and philosophy of language, and to improve their understanding of the intersection of culture and language. It addresses issues of sound, word formation, syntax, semantics, language acquisition, language variation and change, and more. Group 2 course. Communications - Direct, Critical Thinking - Direct, Infused: Writing Intensive.

Required Prerequisites: Placement into ENG 111

ENG 220 - Technical Writing  
Credit Hours: 3, Contact Hours: 3  
Division: Communications  
This course introduces students to a variety of technical writing situations in business, industry, science, and education. It emphasizes audience awareness, research methods, problem solving, critical thinking, professional ethics, and types of formal reports including proposals, analytical reports, progress reports, and technical instructions and descriptions. Group 2 course. Communications - Direct, Critical Thinking - Direct, Infused: Writing Intensive.

Required Prerequisites: ENG 111

ENG 221 - Creative Writing  
Credit Hours: 3, Contact Hours: 3  
Division: Communications  
Study and practice of the basic techniques of effective imaginative creative writing: concrete language, conflict, characterization, point of view, narrative, lyricism, pace, and setting. Course focuses on multiple genres of creative writing. Employs workshop format to develop reading and feedback skills. Skills developed include close reading, close observation, craft in above-described techniques, revision, discipline and practice, giving and receiving feedback, developing access to imaginative powers. Text is supplemented with additional examples of contemporary creative writing. Group 2 course. Communications - Direct, Critical Thinking - Direct, Infused: Writing Intensive.

Required Prerequisites: ENG 112 or permission of instructor

Recommended Prerequisites: Students should have language skills at least equivalent to ENG 112.

ENG 222 - Advanced Creative Writing  
Credit Hours: 3, Contact Hours: 3  
Division: Communications  
Continued study and practice of basic techniques of effective imaginative prose learned in ENG 221: concrete language, conflict, characterization, point of view, narrative arc, pace and setting. Focus on fiction, but allowance for nonfiction. Employs workshop format to develop reading and feedback skills. Skills developed include close reading, close observation, craft techniques, revision, discipline and practice, giving and receiving feedback, developing access to imaginative powers. Explores ways to suggest and shape meaning in fiction. Group 2 course. Communications - Direct, Critical Thinking - Direct, Degree Req: Cultural Persp/Div, Infused: Writing Intensive.

Required Prerequisites: ENG 221 or instructor permission

Recommended Prerequisites: Students should have language skills at least equivalent to ENG 112.
ENG 223 - Creative Writing - Poetry  
Credit Hours: 3, Contact Hours: 3  
Division: Communications  
Study and practice of basic elements of poetic composition, by reading and writing a variety of forms. Employs workshop format to develop reading and feedback skills. Skills developed include close reading, close observation, craft techniques, revision, discipline and practice, giving and receiving feedback, developing access to imaginative powers. Engages deeply with several works of contemporary poetry. Group 2 course.  
Communications - Direct, Critical Thinking - Direct, Degree Req:Cultural Persp/Div, Infused: Writing Intensive.  
Required Prerequisites: ENG 111 or permission of instructor  
Recommended Prerequisites: Students should have language skills at least equivalent to ENG 112.

ENG 224 - Journalism Fundamentals  
Credit Hours: 3, Contact Hours: 3  
Division: Communications  
This course examines the changing face of journalism and media today, providing students with theory and practice in four core areas: interviewing, newswriting, reporting and research. Students will learn the form and conventions of hard news, opinion/editorial, feature writing and alternative story formats across media platforms: print, on-line blog, radio and video. Students will examine the history of journalism, press law and ethic while exploring the changing roles of journalism and how its processes and products impact readers in our highly mediated contemporary society. Group 2 course. Communications - Direct, Critical Thinking - Direct, Infused: Writing Intensive.  
Recommended Prerequisites: Interest in or curiosity about print and digital media and reporting; knowledge of word processing, preferably in Windows and/or Macintosh environments.

ENG 240 - Introduction to Literature  
Credit Hours: 3, Contact Hours: 3  
Division: Communications  
An introduction to a variety of literary styles, themes, and forms such as fiction, drama, and poetry. Intended to develop an understanding and enjoyment of reading as well as an understanding of current critical approaches to the study of literature. Humanities or English credit. Group 1 course. Communications - Direct, Critical Thinking - Direct, Infused: Writing Intensive.  
Required Prerequisites: Placement into ENG 111  
Recommended Prerequisites: ENG 112 or permission of instructor

ENG 242 - Introduction to Women Writers  
Credit Hours: 3, Contact Hours: 3  
Division: Communications  
This course features an examination of essays, novels, stories, and poems written by women from various socioeconomic, racial, and historical backgrounds. Examination of how women writers have reshaped definitions of literary genres and themes. Humanities or English credit. Group 1 course. Communications - Direct, Critical Thinking - Direct, Degree Req:Cultural Persp/Div, Infused: Writing Intensive.  
Required Prerequisites: Placement into ENG 111

ENG 246 - British Literature I  
Credit Hours: 3, Contact Hours: 3  
Division: Communications  
This course offers intensive readings of works from British authors spanning from early medieval works such as Beowulf through the Neoclassical era. Literature will be analyzed as artifacts within sociocultural and historical contexts and as representatives of styles and genres within this literary tradition. English or Humanities credit. Group 1 course. Communications - Direct, Critical Thinking - Direct, Degree Req:Cultural Persp/Div, Infused: Writing Intensive.  
Required Prerequisites: Placement into ENG 111

ENG 247 - British Literature II  
Credit Hours: 3, Contact Hours: 3  
Division: Communications  
This course offers intensive readings of works from British authors spanning from the Romantic era through contemporary times. Literature will be analyzed as artifacts within sociocultural and historical contexts and as representatives of styles and genres within this literary tradition. English or Humanities credit. Group 1 course. Communications - Direct, Critical Thinking - Direct, Degree Req:Cultural Persp/Div, Infused: Writing Intensive.  
Required Prerequisites: Placement into ENG 111

ENG 254 - Shakespeare  
Credit Hours: 3, Contact Hours: 3  
Division: Communications  
This course is an introduction to representative major dramatic works of Shakespeare and the Elizabethan Age, and includes lecture, film, and discussion. Humanities or English credit. Group 1 course. Communications - Direct, Critical Thinking - Direct, Infused: Writing Intensive.  
Required Prerequisites: Placement into ENG 111

ENG 256 - Environmental Literature  
Credit Hours: 3, Contact Hours: 3  
Division: Communications  
This course will explore the changing perceptions and definitions of wilderness and nature in American literature and culture. Students will read and discuss poetry, fiction, and nonfiction by American authors, including Emerson, Thoreau, Muir, Leopold, Austin, Carson, Stegner, Jeffers, Silko, Snyder, Oliver, Abbey, and Williams. We will also explore the interaction between literature and environmental activism, and consider the impact of nature and wilderness on American art. Group 1 course. Communications - Direct, Critical Thinking - Direct, Degree Req:Cultural Persp/Div, Infused: Writing Intensive.  
Required Prerequisites: Placement into ENG 111
ENG 262 - American Literature  
Credit Hours: 3, Contact Hours: 3  
Division: Communications  
Students in this course study the American tradition, early and modern, in prose and poetry. Selections will emphasize the cultural and intellectual background giving rise to our national literature, the major phases or movements in that literature, and how certain writers transcended those movements to create work of universal value. Humanities or English credit. Group 1 course. Communications - Direct, Critical Thinking - Direct, Infused: Writing Intensive.  
Required Prerequisites: Placement into ENG 111  

ENG 263 - World Literature  
Credit Hours: 3, Contact Hours: 3  
Division: Communications  
This course exposes students to a variety of readings drawn from Africa, Asia, Europe, and Latin America, and/or Oceania. While the reading and writing assignments will certainly require close literary analysis, the class will also attempt to situate the works culturally, historically, and theoretically. Humanities or English credit. Group 1 course. Communications - Direct, Critical Thinking - Direct, Degree Req:Cultural Persp/Div, Infused: Writing Intensive.  
Required Prerequisites: Placement into ENG 111  

ENG 265 - Science Fiction and Fantasy  
Credit Hours: 3, Contact Hours: 3  
Division: Communications  
The primary emphasis of this course is reading and writing about Science Fiction and Fantasy stories as they are found in a range of cultural tests like print, motion pictures, radio drama, television, and more. Students will learn to identify and discuss mythologies and related symbols, and genre and formula conventions such as icons, stereotypes, rituals, plots, motifs, settings, and more as they investigate the social history of these stories. Humanities or English credit. Group 1 course. Communications - Direct, Critical Thinking - Direct, Infused: Writing Intensive.  
Required Prerequisites: Placement into ENG 111  

ENG 266 - Popular Culture  
Credit Hours: 3, Contact Hours: 3  
Division: Communications  
The primary emphasis of this course centers on the critical reading of and writing about popular culture and its historical development in United States and world cultures. Topics to be addressed include myth and mythmaking, iconography, stereotypes, rituals, genres and formulas, the mass media and more. Humanities or English credit. Group 1 course. Communications - Direct, Critical Thinking - Direct, Infused: Writing Intensive.  
Required Prerequisites: Placement into ENG 111  

ENG 267 - Film as Literature  
Credit Hours: 3, Contact Hours: 3  
Division: Communications  
This course offers students the opportunity to examine and critique a selection of films through discussion and writing by employing techniques similar to those used in literary analysis. Humanities or English credit. Group 1 course. Communications - Direct, Critical Thinking - Direct, Infused: Writing Intensive.  
Required Prerequisites: Placement into ENG 111  

ENG 271 - Adolescent Literature  
Credit Hours: 3, Contact Hours: 3  
Division: Communications  
This course provides a study of universal and diverse themes and ideas expressed through adolescent literature. It features protagonists and authors from a variety of cultures both within and outside of the United States, and emphasizes the relationship between culture and the lives of young people. Humanities or English credit. Group 1 course. Communications - Direct, Critical Thinking - Direct, Degree Req:Cultural Persp/Div, Infused: Writing Intensive.  
Required Prerequisites: Placement into ENG 111  

English Second Language (ESL)  

ESL 88 - ESL Reading & Vocabulary I  
Credit Hours: 3, Contact Hours: 3  
Division: Communications  
ESL Reading & Vocabulary I begins giving second language learners the literacy skills they will need to be successful in college. Acquiring new vocabulary is an important part of this course. Students will do both extensive and intensive reading as well as read for pleasure. Vocabulary development, active reading strategies, silent reading and comprehension, and English sentence structure is covered in ESL 88. Recommended Prerequisites: Students may be placed in this course based on TOEFL scores and/or appropriate placement scores. Writing samples will aid in placement.  
Corequisites: ESL 89  

ESL 89 - ESL Writing & Grammar I  
Credit Hours: 3, Contact Hours: 3  
Division: Communications  
ESL Writing & Grammar I will lay the foundations of English writing for students learning English as a second language. Students will learn strategies for summarizing others’ work, writing well organized sentences and paragraphs, and writing basic thesis-driven essays. ESL 89 will expand students’ understanding of English grammar which will improve their writing on a sentence level. Recommended Prerequisites: Students may be placed in this course based on TOEFL scores and/or appropriate placement scores. Writing samples will aid in placement.  
Corequisites: ESL 88  

ESL 98 - ESL Reading & Vocabulary II  
Credit Hours: 3, Contact Hours: 3  
Division: Communications  
ESL Reading & Vocabulary II is designed to give second language learners the literacy skills they need for college level reading by building on skills they already have. Emphasis on acquiring vocabulary from academic word lists will help prepare students for reading intensive courses. Students will do both extensive and intensive reading on a variety of academic topics. Recommended Prerequisites: Students may be placed in this course based on TOEFL scores, appropriate placement scores, or passing a lower level Reading and Vocabulary I class. Writing samples will aid in placement.  
Corequisites: ESL 99
ESL 99 - ESL Writing & Grammar II
Credit Hours: 3, Contact Hours: 3
Division: Communications
ESL Writing & Grammar II gives the second language learners the skills they need to approach college level writing. It builds on skills students already have to prepare them for college composition courses (ENG 111-111). Learners will write thesis driven essays and complete smaller writing assignments as well as learn to comprehend and perform advanced grammatical sentence structures. Students will learn to use library research to support their ideas in writing.
Recommended Prerequisites: Students may be placed in this course based on TOEFL scores, appropriate placement scores, or passing a lower level Writing and Grammar class. Writing samples will aid in placement.
Corequisites: ESL 98

ESL 290A - Academic Service/Internship
Credit Hours: 1-4, Contact Hours: 1-4
Division: Communications

Environmental Sciences (ENV)

ENV 103 - Earth Science
Credit Hours: 4, Contact Hours: 5
Division: Science Math
Designed for the student who does not intend to major in a physical science. Subject matter deals with features of the planet Earth, astronomy, and weather. The laboratory portion includes a practical study of rocks and minerals as well as a study of topographic, geologic and weather maps. Field trips investigate landforms in the Grand Traverse area. Group 1 lab course. Quantitative Reasoning.
Required Prerequisites: MTH 08 or equivalent
Recommended Prerequisites: ENG 111
Corequisites: ENV 103L

ENV 103L - Earth Science Lab
Credit Hours: 0, Contact Hours: 0
Division: Science Math
See ENV 103 for course description.
Corequisites: ENV 103

ENV 104 - Life of the Past
Credit Hours: 4, Contact Hours: 5
Division: Science Math
This course introduces students to the record of life on Earth. The roles of global change, origins, evolution, and extinction in life history are examined. Great Lakes and North American fossil records with Pre-Paleozoic microorganisms and Paleozoic invertebrates and vertebrates are highlighted. Appearance, evolution, and disappearance of dinosaurs during the Mesozoic Era, human evolution, and the recent demise of the giant Ice Age mammals are analyzed in depth. Laboratory and class activities are included. Group 1 lab course. Quantitative Reasoning.
Required Prerequisites: MTH 08 or equivalent
Recommended Prerequisites: ENG 111
Corequisites: ENV 104L

ENV 104L - Life of the Past Lab
Credit Hours: 0, Contact Hours: 0
Division: Science Math
See ENV 104 for course description.
Corequisites: ENV 104

ENV 111 - Physical Geology
Credit Hours: 4, Contact Hours: 5
Division: Science Math
This course explores processes which transform planet Earth. Landforms, minerals, rocks, and geologic structures are examined in classroom, laboratory, and field studies, which focus on these geologic processes, and on the techniques of geology. Lab studies apply the methodology and techniques of geology by introduction of map reading, field and map study, study of surficial processes, and study of minerals and rocks.
Group 1 lab course. Quantitative Reasoning.
Required Prerequisites: MTH 23 or equivalent
Recommended Prerequisites: ENV 111
Corequisites: ENV 111L

ENV 111L - Physical Geology Lab
Credit Hours: 0, Contact Hours: 0
Division: Science Math
See ENV 111 for course description.
Corequisites: ENV 111

ENV 112 - Historical Geology
Credit Hours: 4, Contact Hours: 5
Division: Science Math
Rocks and fossils of North America, the Great Lakes and the Grand Traverse region which reveal the physical, chemical, and biological evolution of the planet Earth are explored in classroom, laboratory, and field studies (including a required 4-day field excursion to Elliot Lake, Ontario). Group 1 lab course. Quantitative Reasoning.
Recommended Prerequisites: ENV 103 or ENV 111 or GEO 105; ENG 111, MTH 111
Corequisites: ENV 112L

ENV 112L - Historical Geology Lab
Credit Hours: 0, Contact Hours: 0
Division: Science Math
See ENV 112 for course description.
Corequisites: ENV 112

ENV 117 - Meteorology & Climatology
Credit Hours: 4, Contact Hours: 5
Division: Science Math
Designed to acquaint the student with the science and art of weather analysis, this course includes studies of the basic properties of gases, organization and composition of the atmosphere, basic energy flow, and general weather phenomena that result. Global climates are also investigated. The laboratory portion presents the function and effect of selected physical processes, and includes the use of weather instruments and weather maps. Group 1 lab course. Quantitative Reasoning.
Required Prerequisites: MTH 23
Recommended Prerequisites: ENG 111
Corequisites: ENV 117L

ENV 117L - Meteorology & Climatology Lab
Credit Hours: 0, Contact Hours: 0
Division: Science Math
See ENV 117 for course description.
Corequisites: ENV 117
ENV 131 - Oceanography
Credit Hours: 4, Contact Hours: 5
Division: Science Math
This course explores the origins, structure, and evolution of ocean basins and their role in global climate dynamics. It shall include an investigation of the physical properties that govern waves, currents, tides, air-sea interactions as well as the physical and chemical properties of seawater. It also explores plant and animal life within the oceans including impacts of human activities on the marine environment. Group 1 lab course. Quantitative Reasoning.
Required Prerequisites: MTH 23
Recommended Prerequisites: ENG 111
Corequisites: ENV 131L

ENV 131L - Oceanography Lab
Credit Hours: 0, Contact Hours: 5
Division: Science Math
See ENV 131 for course description.
Corequisites: ENV 131

ENV 140 - Watershed Science
Credit Hours: 4, Contact Hours: 5
Division: Science Math
This course is designed for the learner who wishes to gain an in-depth understanding of watersheds. It will focus on the physical and biological systems that are responsible for the quality and characteristics of a watershed. Human interactions, stewardship, management and impacts on our local water resources will also be explored. The laboratory portion of the course will place emphasis on field investigations and the analysis of data and water samples collected. Basic scientific principles will be incorporated throughout the course. Group 1 lab course. Quantitative Reasoning.
Recommended Prerequisites: ENG 111, MTH 23
Corequisites: ENV 140

ENV 140L - Watershed Science Lab
Credit Hours: 0, Contact Hours: 0
Division: Science Math
See ENV 140 for course description.
Corequisites: ENV 140

ENV 270A - Michigan Basin Geology
Credit Hours: 2, Contact Hours: 3
Division: Science Math
This course is a six-day field study of the Michigan Basin. The class focuses on the Paleozoic geologic history, fossil record, and economic geology of the lower Peninsula and eastern Upper Peninsula. The relationships of bedrock layers to recent surficial geologic processes and their associated landforms will be explored. Group 1 course. Communications - Direct.
Required Prerequisites: Completion of any science course with laboratory and instructor permission.
Recommended Prerequisites: ENG 111, MTH 23

ENV 270B - Field Mapping Techniques
Credit Hours: 2, Contact Hours: 3
Division: Science Math
This course is a one-week field course. It will focus on the fundamentals of map interpretation and generation. Students will gain a basic understanding of the principles of cartography and field mapping techniques employed by various disciplines in the acquisition of spatial data. Group 1 course. Quantitative Reasoning.
Required Prerequisites: MTH 23, instructor permission required
Recommended Prerequisites: ENG 111, completion of any Science course with laboratory

ENV 270C - Precambrian Geology of MI
Credit Hours: 2, Contact Hours: 3
Division: Science Math
This course is a six-day field study of the Precambrian geology of the western Upper Peninsula of Michigan. The class will focus on rock and mineral identification, economic geology, and the geologic history of Michigan's Upper Peninsula. The relationships of ancient bedrock layers to recent surficial geologic processes and their associated landforms will also be explored. Group 1 course. Communications - Direct.
Required Prerequisites: Completion of any science course with laboratory and instructor permission.
Recommended Prerequisites: ENG 111, MTH 23

French (FRN)

FRN 101 - Elementary French I
Credit Hours: 4, Contact Hours: 4
Division: Communications
This course represents a comprehensive introduction to the French language for the true beginner. Students will develop the ability to communicate in French in everyday practical situations while acquiring some of the necessary skills for reading, writing, listening, and speaking. Cultural topics are integrated in each unit. Group 2 course. Communications - Direct, Critical Thinking - Direct, Degree Req:Cultural Persp/Div.
Recommended Prerequisites: Students will be required to read, write, listen, and speak in French. You will need a minimal ability using technology to take advantage of outside-of-class requirements.

FRN 102 - Elementary French II
Credit Hours: 4, Contact Hours: 4
Division: Communications
FRN 102 is a continuation of FRN 101 and focuses on the expansion of the communication skills of reading, writing, listening, and speaking. Cultural topics are integrated in each unit. Group 2 course. Communications - Direct, Critical Thinking - Direct, Degree Req:Cultural Persp/Div.
Required Prerequisites: FRN 101 with a minimum grade of 2.0 or required score on the NMC language placement test or instructor permission
Recommended Prerequisites: Students will be required to read, write, listen, and speak in French. You will need a minimal ability using technology to take advantage of outside-of-class requirements.

FRN 201 - Intermediate French I
Credit Hours: 4, Contact Hours: 4
Division: Communications
FRN 201 is designed to further develop language proficiency in reading, writing, listening, and speaking. A deeper exploration of French culture is presented in this course, allowing students to transform themselves into truly active and proficient language users. Group 1 course. Communications - Direct, Critical Thinking - Direct, Degree Req:Cultural Persp/Div.
Required Prerequisites: FRN 102 with a minimum grade of 2.0 or required score on the NMC language placement test or instructor permission
Recommended Prerequisites: You will be required to read, write, listen, and speak in French. You will need a minimal ability using technology to take advantage of outside-of-class requirements.
FRN 202 - Intermediate French II
Credit Hours: 4, Contact Hours: 4
Division: Communications
FRN 202 is a continuation of FRN 201 and focuses on the application of the communication skills of reading, writing, listening, and speaking within cultural contexts. Group 1 course. Communications - Direct, Critical Thinking - Direct, Degree Req:Cultural Persp/Div.
Required Prerequisites: FRN 201 with a minimum grade of 2.0 or required score on the NMC placement test or instructor permission
Recommended Prerequisites: Students will be required to read, write, listen, and speak in French. You will need a minimal ability using technology to take advantage of outside-of-class requirements.

GEO 109 - World Regional Geography
Credit Hours: 3, Contact Hours: 3
Division: Social Science
This course is a study of world regions. For each region we will consider the relationship between the natural environment, cultural background, economic conditions, and local problems that relate to world issues.
Group 1 course. Communications - Direct, Critical Thinking - Direct, Degree Req:Cultural Persp/Div.

GEO 115 - Introduction to GIS
Credit Hours: 3, Contact Hours: 4
Division: Social Science
This course explores the fundamentals of Geographic Information Systems (GIS) for map reading, interpretation and analysis, in conjunction with the principles of cartography. Computer and Internet technologies are utilized for the generation, manipulation, storage and retrieval of maps and associated geographic attributes. Topics covered include: basic GIS concepts, display of data and attributes, queries, metadata, tabular relationships, data editing, projections and datums, and basic cartography. Group 1 course. Communications - Direct.
Required Prerequisites: MTH 23
Recommended Prerequisites: Intermediate computer skills (Windows) and Internet experience required.

German (GRM)

GRM 101 - Elementary German I
Credit Hours: 4, Contact Hours: 4
Division: Communications
This course represents a comprehensive introduction to the German language for the true beginner. Students will develop the ability to communicate in German in everyday practical situations while acquiring some of the necessary skills for reading, writing, listening, and speaking. Cultural topics are integrated into each unit. Group 2 course.
Communications - Direct, Critical Thinking - Direct, Degree Req:Cultural Persp/Div.
Recommended Prerequisites: Students will be required to read, write, listen and speak in German. You will need a minimal ability using technology to take advantage of outside-of-class requirements.

GRM 102 - Elementary German II
Credit Hours: 4, Contact Hours: 4
Division: Communications
GRM 102 is a continuation of GRM 101 and focuses on the expansion of the communication skills of reading, writing, listening, and speaking. Cultural topics are integrated into each unit. Group 2 course.
Communications - Direct, Critical Thinking - Direct, Degree Req:Cultural Persp/Div.
Required Prerequisites: GRM 101 with a minimum of 2.0, required score on the NMC language placement test or instructor permission.
Recommended Prerequisites: Students will be required to read, write, listen and speak in German. You will need a minimal ability using technology to take advantage of outside-of-class requirements.
GRM 201 - Intermediate German I
Credit Hours: 4, Contact Hours: 4
Division: Communications
GRM 201 is designed to further develop language proficiency in reading, writing, listening, and speaking. A deeper exploration of German culture is presented in this course allowing students to transform themselves into truly active and proficient language users. Group 1 course. Communications - Direct, Critical Thinking - Direct, Degree Req:Cultural Persp/Div.
Required Prerequisites: You will be required to read, write, listen, and speak in German. You will need a minimal ability using technology to take advantage of outside-of-class requirements

GRM 202 - Intermediate German II
Credit Hours: 4, Contact Hours: 4
Division: Communications
GRM 202 is a continuation of GRM 201 and focuses on the application of the communication skills of reading, writing, listening, and speaking with cultural contexts. Group 1 course. Communications - Direct, Critical Thinking - Direct, Degree Req:Cultural Persp/Div.
Required Prerequisites: GRM 201 with a minimum grade of 2.0 or required score on the NMC language placement test or instructor permission. Recommended Prerequisites: Students will be required to read, write, listen, and speak in German. You will need a minimal ability using technology to take advantage of outside-of-class requirements

Heating and Ventilation (HVA)

HVA 101 - Introduction to HVAC/R
Credit Hours: 3, Contact Hours: 4
This course covers safety concerns associated with the HVAC field, identification and use of trade tools and basic blueprint reading. Students are introduced to different types of pipe and tubing used for equipment and will learn threading and soldering techniques. A strong emphasis is placed on electrical theory and application as well as learning how to read electrical diagrams. Group 2 course. Recommended Prerequisites: Placement into ENG 111 and MTH 111, both may be taken concurrently.

HVA 106 - Fundamentals of Heating
Credit Hours: 3, Contact Hours: 4
This course focuses on the variety of heating systems in the HVAC career field. Students are introduced to the principles of combustion and the importance of combustion analysis. Gas furnaces, heating controls, oil fired equipment, humidification and electric heating systems are also explored. Group 2 course. Required Prerequisites: HVA 101 Recommended Prerequisites: Placement in ENG 111 and MTH 111.

HVA 122 - Refrigeration Fundamentals
Credit Hours: 3, Contact Hours: 4
This course introduces students to the relationship between matter and energy as it relates to refrigeration process and discusses the Laws of Thermodynamics and effects of pressures and vacuums on a system. A thorough coverage of the basic refrigeration cycle is discussed along with types of refrigerants and system components they will encounter. Students will also learn basic servicing and testing techniques on refrigeration systems. Group 2 course. Required Prerequisites: HVA 101 Recommended Prerequisites: Placement in ENG 111 and MTH 111.

HVA 126 - Residential and Commercial A/C
Credit Hours: 3, Contact Hours: 4
This course focuses on different types of air conditioning systems, ventilation and de-humidification equipment used in residential and light commercial applications. Students will learn about air source and geothermal heat pumps, mechanical and electrical troubleshooting techniques for air conditioning systems and explore indoor air quality and planned maintenance issues for all types of equipment. Group 2 course. Required Prerequisites: HVA 122 with a grade of 2.5 or higher Recommended Prerequisites: Placement in ENG 111 and MTH 111.

HVA 132 - Commercial A/C & Refrigeration
Credit Hours: 3, Contact Hours: 4
This course focuses on larger commercial systems encountered in the HVAC field for air conditioning and refrigeration applications. Emphasis is placed on chilled water and hydronic heating systems, boilers, air handling equipment and cooling towers. Students will also learn about larger scale refrigeration systems used in supermarket and cold storage applications, ice machine operation and discussion of control systems used throughout the field. Group 2 course. Required Prerequisites: HVA 126 with a grade of 2.5 or higher Recommended Prerequisites: Placement into MTH 111 and ENG 111.

HVA 136 - EPA Certification
Credit Hours: 3, Contact Hours: 3
This course examines the impact of refrigerants on the environment and focuses on federal regulations regarding the use, recovery and disposal methods. Students are given the opportunity to earn their Type I, Type II or Universal Certification through this course. Upon successful completion of each test, the student will earn levels of certification recognized by the HVAC/R industry nationwide. Group 2 course. Quantitative Reasoning. Required Prerequisites: HVA 126 Recommended Prerequisites: Placement in ENG 111 and MTH 111.

History (HST)

HST 101 - Western Civilization to 1500AD
Credit Hours: 4, Contact Hours: 4
Division: Humanities
This is the first course in a year-long study of western civilizations from the birth of civilization through the First World War. The main instructional goal is to have students demonstrate an understanding of the diverse societies and culture of the western world. It's important that students recognize that western civilization includes many diverse cultures and has interacted with many other diverse cultures throughout its development. In addition, students will analyze the distinctive characteristics of western civilizations, identify the achievements and limitations of western civilizations, and develop an awareness of how contemporary problems were caused by past forces. As students achieve these goals, they will develop skills in communication and critical thinking. This course covers the period from the birth of civilization through the Renaissance. Group 1 course. Communications - Direct, Critical Thinking - Direct, Degree Req:Cultural Persp/Div, Infused: Writing Intensive. Recommended Prerequisites: Placement into ENG 111

HST 102 - Western Civilization to 1877
Credit Hours: 4, Contact Hours: 4
Division: Humanities
This is the second course in a year-long study of western civilizations from the birth of civilization through the First World War. The main instructional goal is to have students demonstrate an understanding of the diverse societies and culture of the western world. It's important that students recognize that western civilization includes many diverse cultures and has interacted with many other diverse cultures throughout its development. In addition, students will analyze the distinctive characteristics of western civilizations, identify the achievements and limitations of western civilizations, and develop an awareness of how contemporary problems were caused by past forces. As students achieve these goals, they will develop skills in communication and critical thinking. This course covers the period from the birth of civilization through the Renaissance. Group 1 course. Communications - Direct, Critical Thinking - Direct, Degree Req:Cultural Persp/Div, Infused: Writing Intensive. Recommended Prerequisites: Placement into ENG 111

HST 103 - Western Civilization to 1990
Credit Hours: 4, Contact Hours: 4
Division: Humanities
This is the third course in a year-long study of western civilizations from the birth of civilization through the First World War. The main instructional goal is to have students demonstrate an understanding of the diverse societies and culture of the western world. It's important that students recognize that western civilization includes many diverse cultures and has interacted with many other diverse cultures throughout its development. In addition, students will analyze the distinctive characteristics of western civilizations, identify the achievements and limitations of western civilizations, and develop an awareness of how contemporary problems were caused by past forces. As students achieve these goals, they will develop skills in communication and critical thinking. This course covers the period from the birth of civilization through the Renaissance. Group 1 course. Communications - Direct, Critical Thinking - Direct, Degree Req:Cultural Persp/Div, Infused: Writing Intensive. Recommended Prerequisites: Placement into ENG 111

HST 104 - Western Civilization to 2020
Credit Hours: 4, Contact Hours: 4
Division: Humanities
This is the fourth and final course in a year-long study of western civilizations from the birth of civilization through the First World War. The main instructional goal is to have students demonstrate an understanding of the diverse societies and culture of the western world. It's important that students recognize that western civilization includes many diverse cultures and has interacted with many other diverse cultures throughout its development. In addition, students will analyze the distinctive characteristics of western civilizations, identify the achievements and limitations of western civilizations, and develop an awareness of how contemporary problems were caused by past forces. As students achieve these goals, they will develop skills in communication and critical thinking. This course covers the period from the birth of civilization through the Renaissance. Group 1 course. Communications - Direct, Critical Thinking - Direct, Degree Req:Cultural Persp/Div, Infused: Writing Intensive. Required Prerequisites: Placement into ENG 111
HST 102 - Western Civilization from 1500
Credit Hours: 4, Contact Hours: 4
Division: Humanities
This is the second course in a year-long study of western civilizations from the birth of civilization through the First World War. The main instructional goal is to have students demonstrate an understanding of the diverse societies and cultures of the western world. It's important that students recognize that western civilization includes many diverse cultures and has interacted with many other diverse cultures throughout its development. In addition, students will analyze the distinctive characteristics of western civilizations, identify the achievements and limitations of western civilizations, and develop an awareness of how contemporary problems were caused by past forces. As students achieve these goals, they will develop skills in communication and critical thinking. This course covers the period from the Reformation through the First World War. Group 1 course. Communications - Direct, Critical Thinking - Direct, Degree Req:Cultural Persp/Div, Infused: Writing Intensive.
Recommended Prerequisites: Placement into ENG 111

HST 111 - U S History to 1865
Credit Hours: 4, Contact Hours: 4
Division: Humanities
This is the first course in a year-long study of U.S. history from Native American origins to the modern world. A main instructional goal is to have students demonstrate an understanding of how diverse societies and cultures have contributed to the development of the United States. In addition, students will analyze the distinctive characteristics of the development of the United States, identify the achievements and limitations of these developments, and develop an awareness of how contemporary problems were caused by past forces. Students will learn how American society developed from Native American origins through the Civil War, and how society has impacted both individuals and groups in America. As students achieve this goal, they will develop skills in communication and critical thinking. Group 1 course. Communications - Direct, Critical Thinking - Direct, Degree Req:Cultural Persp/Div, Infused: Writing Intensive.
Recommended Prerequisites: Placement into ENG 111

HST 112 - U S History Since 1865
Credit Hours: 4, Contact Hours: 4
Division: Humanities
This is the second course in a year-long study of U.S. History from Native American origins to the modern era. A main instructional goal is to have students demonstrate an understanding of how diverse societies and cultures have contributed to the development of the United States. In addition, students will analyze the distinctive characteristics of the development of the US, identify the achievements and limitations of these developments, and develop an awareness of how contemporary problems were caused by past forces. As students achieve these goals, they will develop skills in communication and critical thinking. Students will learn how American society developed from Reconstruction to the modern era, and how society has impacted both individuals and groups in America. Group 1 course. Communications - Direct, Critical Thinking - Direct, Degree Req:Cultural Persp/Div, Infused: Writing Intensive.
Recommended Prerequisites: Placement into ENG 111

HST 211 - Native American History
Credit Hours: 3, Contact Hours: 3
Division: Humanities
A history of the Native American experience from the pre-Columbian period to the post World War II era. Major emphasis is placed upon the social, political, and economic role of the Native American community in American society and its unique role as a part of that society. Students will also demonstrate an awareness of how contemporary problems were caused by past forces. Students will develop skills in analysis, critical thinking, historical reasoning and writing. Group 1 course. Communications - Direct, Critical Thinking - Direct, Degree Req:Cultural Persp/Div, Infused: Writing Intensive. Recommended Prerequisites: Placement into ENG 111.

HST 212 - African-American History
Credit Hours: 3, Contact Hours: 3
Division: Humanities
This course is a history of the African-American experience from African origins to the Modern era in America. Major emphasis is placed upon the social, political, and economic role of the African-American community in American society and its unique role as a part of that society. Students will also demonstrate an awareness of how contemporary problems were caused by past forces. As students achieve this goal, they will develop skills in analysis, critical thinking, historical reasoning, and writing. Group 1 course. Communications - Direct, Critical Thinking - Direct, Degree Req:Cultural Persp/Div, Infused: Writing Intensive. Recommended Prerequisites: Placement into ENG 111.

HST 213 - American Women's History
Credit Hours: 3, Contact Hours: 3
Division: Humanities
A history of American women's experience from Native American origins to the Modern Era. Major emphasis is placed upon the social, political, and economic role American women in American society and their unique role as a part of that society. Students will also demonstrate an awareness of how contemporary problems were caused by past forces. As students achieve this goal, they will develop skill in analysis, critical thinking, historical reasoning, and writing. Group 1 course. Communications - Direct, Critical Thinking - Direct, Degree Req:Cultural Persp/Div, Infused: Writing Intensive. Recommended Prerequisites: Placement into ENG 111.

HST 225 - American Civil War
Credit Hours: 3, Contact Hours: 3
Division: Humanities
This course is a study of the American Civil War. The instructional goal of this course is to have students demonstrate through discussions and essays the causes of the Civil War in antebellum America, how the war was waged, why the North won and the South lost the war, how the war affected American society, and how the war led to Reconstruction. Students will demonstrate an awareness of how contemporary problems were caused by past forces. As students achieve this goal they will develop skills in communications and critical thinking. Group 1 course. Communications - Direct, Critical Thinking - Direct, Infused: Writing Intensive. Recommended Prerequisites: Placement into ENG 111.
HST 228 - The Vietnam War
Credit Hours: 3, Contact Hours: 3
Division: Humanities
This course is a study of the history of the Vietnam War. The instructional goal of this course is to have students demonstrate through discussions and essays how America became involved in Vietnam, how the war was waged, the war's effect on American society, and how the war affected Vietnam. Students will also demonstrate an awareness of how Vietnamese culture affected the war and how Vietnam has affected America's contemporary society. As students achieve this goal, they will develop skills in analysis, critical thinking, historical reasoning, and writing. Group 1 course. Communications - Direct, Critical Thinking - Direct, Infused: Writing Intensive.
Recommended Prerequisites: Placement into ENG 111.

HST 230 - A History of Michigan
Credit Hours: 3, Contact Hours: 3
Division: Humanities
This course is a history of Michigan from Native American origins to the modern era. The instructional goal of this course is to have students demonstrate through discussion and essays the distinctive characteristics of Michigan history, the common characteristics of Michigan history as compared to other states, the identification of achievements and limitations of Native American societies within Michigan, and an awareness of how contemporary problems were caused by past forces. As students achieve this goal, they will develop skills in analysis, critical thinking, historical reasoning, and writing. Group 1 course. Communications - Direct, Critical Thinking - Direct, Infused: Writing Intensive.
Recommended Prerequisites: Placement into ENG 111

HST 235 - 20th Century Europe
Credit Hours: 3, Contact Hours: 3
Division: Humanities
This course is a study of the history of Europe in the 20th Century with emphasis on Germany, England, France, and Russia. The instructional goal of this course is to have students demonstrate through discussions and essays the distinctive characteristics of European civilizations, the common characteristics of European civilizations, and the identification of achievements and limitations of European civilizations. Students will demonstrate an awareness of how contemporary problems were caused by past forces. As students achieve this goal, they will develop skills in analysis, critical thinking, historical reasoning, and writing. Group 1 course. Communications - Direct, Critical Thinking - Direct, Infused: Writing Intensive.
Recommended Prerequisites: Placement into ENG 111

HST 293 - History Study Abroad
Credit Hours: 1, Contact Hours: 1
Division: Humanities
In this class, students are provided the opportunity to travel to a specified destination affiliated with the corresponding history non-trip course. This course will serve to integrate the student learning experience and provide a sense of cultural perspective, diversity and regional awareness. The course is an opportunity for students to explore other areas around the world while applying discipline-specific course content. For a more specific course description, please review the course description of the associated non-trip course. Group 2 course.
Required Prerequisites: HST 101, or HST 102, or HST 112, or HST 235

Humanities (HUM)

HUM 101 - Introduction to Humanities
Credit Hours: 3, Contact Hours: 3
Division: Humanities
An interdisciplinary study of Western Culture focusing on the interrelationships of art, literature, and philosophy as they reveal the major ideas and values of Classical Greek, Roman, Medieval, and Renaissance civilizations. Group 1 course. Communications - Direct, Critical Thinking - Direct, Degree Req:Cultural Persp/Div, Infused: Writing Intensive.
Recommended Prerequisites: Placement into ENG 111.

HUM 102 - Introduction to Humanities
Credit Hours: 3, Contact Hours: 3
Division: Humanities
An interdisciplinary study of Western Civilization focusing on the interrelationships of art, literature, and philosophy as they reveal the major ideas and values of the Reformation, Baroque, Neo-Classic, Romantic, 19th Century, and Modern periods. Group 1 course. Communications - Direct, Critical Thinking - Direct, Degree Req:Cultural Persp/Div, Infused: Writing Intensive.
Recommended Prerequisites: Placement into ENG 111

HUM 116 - World Cultures
Credit Hours: 4, Contact Hours: 4
Division: Humanities
The purpose of this course is to introduce major trends of non-Western culture. HUM 116 explores the culture of Asia, Africa, and the Americas utilizing an interdisciplinary and thematic approach focusing on social/political/historical issues, cultural and religious rituals, painting, sculpture, architecture, film, music, and customs and traditions of each region. Lectures focus on how cultures shape the world today, with appropriate references to historical events and trends. Group 1 course. Communications - Direct, Critical Thinking - Direct, Degree Req:Cultural Persp/Div, Infused: Writing Intensive.
Recommended Prerequisites: Placement into ENG 111

HUM 293 - Humanities Study Abroad
Credit Hours: 1, Contact Hours: 1
Division: Humanities
In this class, students are provided the opportunity to travel to a specified destination affiliated with the corresponding humanities non-trip course. This course will serve to integrate the student learning experience and provide a sense of cultural perspective, diversity and regional awareness. The course is an opportunity for students to explore other areas around the world while applying discipline-specific course content. For a more specific course description, please review the course description of the associated non-trip course. Group 2 course.
Required Prerequisites: HUM 116
**Law Enforcement (LWE)**

**LWE 102 - Police Operations**  
Credit Hours: 4, Contact Hours: 4  
Division: Social Science  
The student is introduced to educational and training requirements for employment in law enforcement, police community relations, the functions and objectives of a police department and the police response and responsibilities to the community. Student must be registered with LWE coordinator prior to class enrollment. Group 2 course. Communications - Direct.  
Required Prerequisites: Must be approved by MCOLES and registered with the Director of the Police Academy prior to enrollment.

**LWE 195 - Police Practicum**  
Credit Hours: 4, Contact Hours: 4  
Division: Social Science  
The course will provide Law Enforcement students with the practical experience of observing five various shifts with officers. This should assure that candidates will understand what law enforcement officers actually do. Recording the experiences will also assist the student in report writing. Group 2 course. Communications - Direct.  
Required Prerequisites: Must be approved by MCOLES and registered with the Director of the Police Academy prior to enrollment.

**LWE 210 - Cultural Awareness/Diversity**  
Credit Hours: 2, Contact Hours: 2  
Division: Social Science  
Students explore ethics, cultural diversity, interpersonal skills and the laws as they apply to today's modern policing. Title VII or the 1964 Civil Rights Act, Elliot Larson Civil Rights Act, Americans with Disabilities Act, ethnic intimidation, and sexual harassment will also be addressed. Group 2 course. Critical Thinking - Direct, Degree Req:Cultural Persp/Div.  
Required Prerequisites: Must be approved by MCOLES and registered with the Director of the Police Academy prior to enrollment.

**LWE 212 - Criminal Investigation**  
Credit Hours: 3, Contact Hours: 3  
Division: Social Science  
Students will be introduced to criminal investigation procedures including theory of an investigation, conduct at crime scenes, collection and preservation of physical evidence, methods used in police science laboratory, fingerprints, ballistics, documents, serology, photography, and related forensic sciences. Student must be registered with LWE coordinator prior to class enrollment. Group 2 course. Critical Thinking - Direct.  
Required Prerequisites: Must be approved by MCOLES and registered with the Director of the Police Academy prior to enrollment.

**LWE 214 - Firearms**  
Credit Hours: 4, Contact Hours: 8  
Division: Social Science  
This course will assist the students in the development of safety skills and the appropriate use of firearms in completing the Michigan Commission on Law Enforcement Standards basic firearms course. Included will be an orientation to firearms, policies, procedures, and liability of firearms use and hands-on firearms range techniques. Student must be registered with LWE coordinator prior to class enrollment. Group 2 course. Critical Thinking - Direct.  
Required Prerequisites: Must be approved by MCOLES and registered with the Director of the Police Academy prior to enrollment.

**LWE 215 - Defensive Driving**  
Credit Hours: 3, Contact Hours: 6  
Division: Social Science  
Defensive Driving will cover motor vehicle law, its application and jurisdiction and vehicle stops. This course will also include the teaching of driving skills needed by a law officer. Student must be registered with LWE coordinator prior to class enrollment. Group 2 course. Critical Thinking - Direct.  
Required Prerequisites: Must be approved by MCOLES and registered with the Director of the Police Academy prior to enrollment.

**LWE 216 - Traffic Enforcement & Invest**  
Credit Hours: 3, Contact Hours: 3  
Division: Social Science  
Traffic Enforcement and Investigation will include traffic control enforcement, the law and prosecution of operating under the influence of alcohol. Student must be registered with LWE coordinator prior to class enrollment. Group 2 course. Critical Thinking - Direct.  
Required Prerequisites: Must be approved by MCOLES and registered with the Director of the Police Academy prior to enrollment.

**LWE 218 - Physical Training/Wellness**  
Credit Hours: 4, Contact Hours: 5  
Division: Social Science  
This course is designed to give the students a complete understanding of wellness/physical fitness. The goal of the class is to develop a mentality that fitness is long term. Includes course lectures on the following topics: Fitness and wellness, benefits and guidelines for exercise, coronary risk factors, stress management, nutrition, weight control, low back care, motivation and behavior change, and various ways to perform fitness tasks. This class also includes workouts, and testing students against Cooper Standards. Student must be registered with LWE coordinator prior to class enrollment. Group 2 course. Communications - Direct.  
Required Prerequisites: Must be approved by MCOLES and registered with the Director of the Police Academy prior to enrollment.

**LWE 225 - Defensive Tactics**  
Credit Hours: 4, Contact Hours: 5  
Division: Social Science  
Students learn subject control with new mandatory guidelines from MCOLES (Michigan Commission on Law Enforcement Standards). Students will understand survival mindset, tactical communication, fear/anger management, and post force incident responsibilities. Student will demonstrate proficiencies in 14 defensive tactics outcomes specific to the career of Law Enforcement and will be assessed through written, Practical and Scenario based testing. Student must be registered with LWE coordinator prior to class enrollment and be in excellent physical condition. Group 2 course. Communications - Direct.  
Required Prerequisites: Must be approved by MCOLES and registered with the Director of the Police Academy prior to enrollment.

**LWE 226 - Michigan Criminal Law**  
Credit Hours: 3, Contact Hours: 3  
Division: Social Science  
The study of substantive criminal law as a means of defining and preserving social order. Sources of criminal law; classification of crimes against persons, property and public welfare; principles of criminal liability; elements necessary to establish crime and criminal intent; specific crimes and defenses; and constitutional limitations are examined. Students must be registered with LWE coordinator prior to class enrollment. Group 2 course. Critical Thinking - Direct.  
Required Prerequisites: Must be approved by MCOLES and registered with the Director of the Police Academy prior to enrollment.
LWE 227 - Criminal Procedures  
Credit Hours: 3, Contact Hours: 3  
Division: Social Science  
Criminal Procedures will study the administration of criminal justice, the nature and scope of police power, the concept of exclusion, laws of arrest, search and seizure and interrogation, the acquisition of evidence, and judicial protection of the accused. Must be registered with LWE coordinator prior to class enrollment. Group 2 course. Critical Thinking - Direct.  
Required Prerequisites: Must be approved by MCOLES and registered with the Director of the Police Academy prior to enrollment.  
Recommended Prerequisites: LWE 226  

LWE 228 - Speed Measurement/PBT  
Credit Hours: 3, Contact Hours: 3  
Division: Social Science  
This course will teach the legal and practical aspects of radar and PBT (preliminary breath tester) operations. Class discussions will primarily be based on relationship between excessive speed, drinking and highway crashes. The course will also explore departmental policies and procedures concerning radar and PBT use. Students will understand and demonstrate basic accident investigation and related accident evidence collection. Must register with the LWE coordinator prior to course enrollment. Group 2 course. Critical Thinking - Direct.  
Required Prerequisites: Must be approved by MCOLES and registered with the Director of the Police Academy prior to enrollment.

Management (MGT)  

MGT 241 - Principles of Management  
Credit Hours: 3, Contact Hours: 3  
Division: Business  
This applications-oriented course will teach students the basics of day-to-day managerial work-planning, organization, leading, and controlling. Realistic scenarios are explored in areas of leadership, communication, planning, conflict, strategy, problem solving, and working in teams. Group 2 course. Communications - Direct, Critical Thinking - Direct, Infused: Writing Intensive.  
Recommended Prerequisites: BUS 101, ENG 111 minimum placement

MGT 245 - Principles of Entrepreneurship  
Credit Hours: 3, Contact Hours: 3  
Division: Business  
This course provides practical knowledge needed for entrepreneurs with special attention focusing on creativity, opportunity, and feasibility of a new start up. Sources of funding and resources for small ventures are addressed in depth in this course to prepare the learner for practical application. This course primarily focuses on idea generation and start up of the business including risk, funding sources, cash flow, and awareness of external environmental factors that impact the business. The course project is the development of a feasibility study or related project. Feasibility studies include the extent to which an idea is viable, realistic, and the extent to which the entrepreneur is aware of internal and external forces that could affect the business. Group 2 course. Communications - Direct, Critical Thinking - Direct.  
Recommended Prerequisites: BUS 101, MKT 201  

MGT 246 - Entrepreneur Marketing/Finance  
Credit Hours: 4, Contact Hours: 4  
Division: Business  
This course provides the student with a micro-business experience in which teams will start, manage, and close an enterprise in 15 weeks. An in-depth focus and experience on marketing and finance issues unique to entrepreneurs will be provided. Topics include niche marketing, guerilla marketing, strategic partnerships, social media, e-marketing to international markets, capital resource acquisition, cash flow, pro-forma planning, strategic ownership models, sales skills and strategy. The topics are put into play by the assignment of a community business mentor. Group 2 course. Communications - Direct, Critical Thinking - Direct.  
Required Prerequisites: MGT 245 or instructor permission  
Recommended Prerequisites: ACC 121, MKT 201

MGT 251 - Human Resources Management  
Credit Hours: 3, Contact Hours: 3  
Division: Business  
Human Resource managers are especially challenged today navigating employment waters that require expertise in employment legislation, recruitment, selection, training and development, compensation, labor relations, safety and health. Theory and practice of these topics are explored with special emphasis on day-to-day applications in the workplace. Group 2 course. Communications - Direct, Critical Thinking - Direct, Infused: Writing Intensive.  
Recommended Prerequisites: BUS 101, ENG 111 minimum placement

MGT 290 - Management Internship  
Credit Hours: 3, Contact Hours: 3  
Division: Business  
The purpose of the internship is to provide on-the-job training for the student who wishes to pursue a career in Management. The internship will be customized to meet the learning needs of the student and the job requirements of the sponsoring firm. Students spend 10-15 hours per week in this supervised on-the-job training experience. In addition to the required 50 hours per credit in a work site, students will meet with the Experiential Coordinator as needed throughout the semester for internship support feedback, review of professional employment documents and an internship exit interview. Students must apply one month prior to the semester in which they will complete the internship. Group 2 course. Communications - Direct.  
Required Prerequisites: 30 credits of program specific courses with a GPA of 2.0 or higher.

Manufacturing Technologies (MFG)  

MFG 104 - Fluid Power  
Credit Hours: 3, Contact Hours: 4  
Division: Technical  
The Fluid Power course is designed to provide students with a basic understanding of the concepts and applications of fluid power technology and the necessary skills for further study in the field. The course is an overview of fluid power technology applications; the general concept of fluid power systems; an introduction to energy input, energy output, energy control, and systems auxiliary components; as well as the design and function of components. Group 2 course. Critical Thinking - Direct, Quantitative Reasoning.  
Recommended Prerequisites: Placement into MTH 111 and ENG 99/108
MFG 111 - Math for Manufacturing
Credit Hours: 3, Contact Hours: 3
Division: Technical
This course will apply principles of mathematics, geometry, and basic trigonometry to applications in manufacturing. Topics will include proportions, calculation of machine speed and feed and geometric relationships of triangles and circles. Problem solving will require the use of the Pythagorean Theorem and the sine, cosine, and tangent functions to solve right triangles. The Law of Sines and Law of Cosines will be used to solve oblique triangle applications. Group 2 course. Quantitative Reasoning.

MFG 113 - Machining I
Credit Hours: 3, Contact Hours: 5
Division: Technical
The student will be introduced to measurement and the safe use of layout and bench tools, drill press operations, and basic lathe facing and turning operations. Basic vertical milling operations will also be included. Group 2 course. Critical Thinking - Direct.
Recommended Prerequisites: Print reading, precision measurement, basic machining knowledge and skills, competencies in Communications equal to ENG99 and math equal to MTH23. Students will greatly benefit from having competency up to MTH 111.

MFG 114 - Machining II
Credit Hours: 3, Contact Hours: 5
Division: Technical
This course will introduce students to machining procedures beyond the basic operations. The student should have previously acquired basic machining knowledge and skills. Lathe procedures will include threading and cutting tapers. Milling operations will include the offset boring head, and broaching. Precision grinding of parallel and angular surfaces using gauge blocks and a sine bar will be introduced. Students will study the process and perform hands on operations. Group 2 course. Critical Thinking - Direct.
Required Prerequisites: MFG 113 or MNG 260
Recommended Prerequisites: Print reading, precision measurement, basic machining knowledge and skills, competencies in Communications equal to ENG 99/108 and Math equal to MTH 23. Students will greatly benefit from having competency up to MTH 111.

MFG 203 - Manuf/Engineering Processes
Credit Hours: 3, Contact Hours: 4
Division: Technical
The Manufacturing and Engineering Processes course will provide students with an overview of various processes used in the design and development of new products. Students will be introduced to the engineering steps and processes required to take a product from concept through production. This is a project-based class in which students will design and fabricate a component aligned with their area of interest. Group 2 course. Critical Thinking - Direct.
Required Prerequisites: DD 170, ENG 99/108, MTH 23

MFG 217 - CNC Operations - Lathe
Credit Hours: 4, Contact Hours: 6
Division: Technical
This course will introduce students to CNC (Computer Numerical Control) turning machines or CNC lathes. CNC lathe procedures will include set up from a list of guidelines to properly and safely make a part to blueprint specifications. Students will spend lab time going over machine demonstrations with individual practice and support, supplemented with classroom and online learning going over safety procedures and machine set up operations. Group 2 course. Quantitative Reasoning.
Recommended Prerequisites: MFG 113
Recommended Prerequisites: MTH 23 or higher

MFG 219 - CNC Mill Operations
Credit Hours: 4, Contact Hours: 6
Division: Technical
This course includes the operation of CNC (Computer Numerical Control) mills including calling up programs, loading and unloading parts, part inspection, and monitoring tool wear. This course will provide an introduction to planning and writing programs for CNC mills and using standard G and M codes. Learners will set up work pieces in machines, enter programs, set tool offsets, enter work offsets, and complete part projects. Group 2 course. Quantitative Reasoning.
Recommended Prerequisites: MFG 113 or MNG 260

MFG 290 - Manufacturing Tech Internship
Credit Hours: 2-4, Contact Hours: 2-4
Division: Technical
The purpose of the internship is to provide on-the-job training for the student who wishes to pursue a career in a technical field of study. The internship will be customized to meet the learning needs of the student and the job requirements of the sponsoring firm. Students spend 10-15 hours per week in this paid, supervised on-the-job training experience. In addition to the required 50 hours per credit in a work site, students participate in semi-monthly seminars. Students must apply one month prior to the semester in which they will complete the internship. Group 2 course. Communications - Direct.
Required Prerequisites: 30 credits of program specific courses with a GPA of 2.0 or higher.

MFG 304 - Marine Hydraulics
Credit Hours: 3, Contact Hours: 4
Division: Technical
Marine Hydraulics focuses on the systems, applications, hydraulics, and safety requirements specific to the marine and offshore Remote Operated Vehicle (ROV) environments. The design, repair and maintenance of launch and recovery equipment, hoses, sensors and components associated with ROV hydraulics systems will be emphasized. Students will use test equipment and protocols to develop trouble shooting methods to analyze and integrate this technology. Group 2 course. Critical Thinking - Direct.
Required Prerequisites: MFG 104, MTH 111 or higher, PHY 121
Maritime-Deck (MDK)

MDK 100 - Survival at Sea
Credit Hours: 1, Contact Hours: 1
Division: Maritime
This course of instruction covers the following: concentrated instruction and training for the U.S. Coast Guard certification as Proficiency in Survival Craft and Rescue boats (PSC); including the fundamentals of seamanship, small boat handling with power and sail; construction equipment, and marking of the standard lifeboat; construction, equipment, and operation of inflatable life rafts; abandon ship procedures, man overboard procedures, and survival swimming; the launching and retrieval of lifeboats; sailboat nomenclature and operation. STCW.
Required Prerequisites: All prerequisites for all GLMA courses are satisfied by following the approved Course Sequence Guide and any deviation from this guide needs to be approved by the cadet's adviser.

MDK 104 - Rigging & Ship Maintenance Lab
Credit Hours: 1, Contact Hours: 1
Division: Maritime
The purpose of this course is to provide the cadet an opportunity to acquire practical experience in general seamanship: including marlinespike seamanship, line handling; splicing line, splicing wire rope; rigging, block and tackle nomenclature and use; vessel maintenance, the practical application of the procedures and equipment needed in vessel upkeep. STCW
Required Prerequisites: All prerequisites for all GLMA courses are satisfied by following the approved Course Sequence Guide and any deviation from this guide needs to be approved by the cadet's adviser.

MDK 106 - Watchstanding I
Credit Hours: 1, Contact Hours: 1
Division: Maritime
The purpose of this course is to provide an opportunity for the cadet to acquire practical experience in shiphandling with vessels sufficiently large to duplicate shiphandling problems encountered with much larger vessels. Cadets are exercised in line handling, towing, anchoring techniques, landing techniques, and shipboard safety. Cadets will then advance through the use of simulation to shiphandling exercises dealing with the general principles of vessel control and the problems of handling a vessel in narrow channels. STCW.
Required Prerequisites: All prerequisites for all GLMA courses are satisfied by following the approved Course Sequence Guide and any deviation from this guide needs to be approved by the cadet's adviser.

MDK 112 - Rules of the Nautical Road
Credit Hours: 2, Contact Hours: 2
Division: Maritime
Comprehensive study of the International Rules of the Road (COLREGS) including their origin, purpose, history, technical provisions, and application. Included is a comparative study of both international and inland rules, their interpretation and practical application as well as a study of case histories and legal interpretations resulting from collisions at sea. STCW.
Required Prerequisites: All prerequisites for all GLMA courses are satisfied by following the approved Course Sequence Guide and any deviation from this guide needs to be approved by the cadet's adviser.

MDK 121 - Navigation I
Credit Hours: 3, Contact Hours: 3
Division: Maritime
An introduction to the principles of piloting and marine navigation. Includes chart projection, the magnetic compass, chart usage, buoyage systems, aids to navigation, fixes and running fixes, and the use of standard tables. STCW.
Required Prerequisites: All prerequisites for all GLMA courses are satisfied by following the approved Course Sequence Guide and any deviation from this guide needs to be approved by the cadet's adviser.
Corequisites: MDK 122

MDK 122 - Navigation I Lab
Credit Hours: 1, Contact Hours: 1
Division: Maritime
This lab is taken concurrently with MDK 121 and concentrates on applying the principles of piloting to plotting on the chart. Chart projection and use will be introduced. Dead reckoning, terrestrial fixes, set and drift, lines of position, and the use of navigational instruments will be covered. STCW.
Required Prerequisites: All prerequisites for all GLMA courses are satisfied by following the approved Course Sequence Guide and any deviation from this guide needs to be approved by the cadet's adviser.
Corequisites: MDK 121

MDK 149 - Damage Control & Safety
Credit Hours: 2, Contact Hours: 2
Division: Maritime
This course is designed to give the cadet a comprehensive knowledge of shipboard safety with particular emphasis on firefighting and damage control. Subject areas include: personal safety, pollution, U.S. Coast Guard rules and regulations, temporary damage repair, shoring principles and practical shoring problems. STCW.
Required Prerequisites: All prerequisites for all GLMA courses are satisfied by following the approved Course Sequence Guide and any deviation from this guide needs to be approved by the cadet's adviser.

MDK 200 - Ship Business & Labor Relations
Credit Hours: 3, Contact Hours: 3
Division: Maritime
This course provides instruction in the organization, administrative functions, and management of a merchant vessel as well as the systems of operation of ship’s business. It includes the study of union contracts, grievance procedures and labor management relations.
Required Prerequisites: All prerequisites for all GLMA courses are satisfied by following the approved Course Sequence Guide and any deviation from this guide needs to be approved by the cadet's adviser.

MDK 206 - Watchstanding II
Credit Hours: 1, Contact Hours: 1
Division: Maritime
The purpose of this course is to begin to develop a cadet’s piloting and watch management skills. The use of the Shiphandling Simulator/ Academy Vessels will allow the development of the Bridge Team Concept through piloting exercises.
Required Prerequisites: All prerequisites for all GLMA courses are satisfied by following the approved Course Sequence Guide and any deviation from this guide needs to be approved by the cadet's adviser.
MDK 210 - Deck Sea Project I
Credit Hours: 6, Contact Hours: 6
Division: Maritime
During this internship the cadet is aboard TS State of Michigan or a Great Lakes commercial vessel. The cadet follows a prescribed course and studies: vessel operations, safety and navigation equipment and techniques. In addition the cadet spends a minimum of eight hours per day under the supervision of licensed officers gaining experience in various duties and responsibilities. STCW.
Required Prerequisites: Must complete first academic year with a 2.0 or higher in all required courses. All prerequisites for all GLMA courses are satisfied by following the approved Course Sequence Guide and any deviation from this guide needs to be approved by the cadet's adviser.

MDK 221 - Lakes Piloting
Credit Hours: 2, Contact Hours: 2
Division: Maritime
Study of the Great Lakes and principal ports; this includes currents, depths, aids to navigation, prevailing winds and their effects, recommended courses, shoals, reefs, and high traffic areas. Historic analysis will explain current practices.
Required Prerequisites: All prerequisites for all GLMA courses are satisfied by following the approved Course Sequence Guide and any deviation from this guide needs to be approved by the cadet's adviser.

MDK 222 - River Piloting
Credit Hours: 3, Contact Hours: 3
Division: Maritime
An in-depth study of the rivers, channels, and the aids to navigation in these rivers and channels. The focus will be on the rivers that make up the Great Lakes connecting bodies such as the St. Mary's, St. Clair, Detroit Rivers and the Welland Canal.
Required Prerequisites: All prerequisites for all GLMA courses are satisfied by following the approved Course Sequence Guide and any deviation from this guide needs to be approved by the cadet's adviser.

MDK 242 - Ship Stability
Credit Hours: 3, Contact Hours: 3
Division: Maritime
A study of the principles of stability; righting moment and righting arm; calculation of metacentric height; inclining experiment; stability computers and tables; practical stability and trim considerations. STCW.
Required Prerequisites: All prerequisites for all GLMA courses are satisfied by following the approved Course Sequence Guide and any deviation from this guide needs to be approved by the cadet's adviser.

MDK 250 - Stability for the Engineer
Credit Hours: 1, Contact Hours: 1
Division: Maritime
Principles, terms, and procedures used in the determination of transverse, longitudinal, and damage stability of ships. Investigation of the physical laws affecting a floating body. Effects of cargo operation, free surface, fuel consumption, and flooding on vessel stability. Scrutiny of case studies involving both partial or total loss of stability. STCW.
Required Prerequisites: All prerequisites for all GLMA courses are satisfied by following the approved Course Sequence Guide and any deviation from this guide needs to be approved by the cadet's adviser.

MDK 290A - Academic Service Internship
Credit Hours: 1-4, Contact Hours: 1-4
Division: Maritime

MDK 311 - Deck Sea Project II
Credit Hours: 6, Contact Hours: 6
Division: Maritime
This internship is a continuation of MDK 210 and is designed to provide the cadet with advanced knowledge and sailing time to meet the licensing requirements prescribed by the U.S. Coast Guard and the criteria established by the Maritime Administration. STCW.
Required Prerequisites: Completion to second academic year with a 2.0 or higher in all required courses. All prerequisites for all GLMA courses are satisfied by following the approved Course Sequence Guide and any deviation from this guide needs to be approved by the cadet's adviser.

MDK 312 - Deck Sea Project III
Credit Hours: 6, Contact Hours: 6
Division: Maritime
This internship is a continuation of MDK 311 and is designed to provide the cadet with advanced knowledge and sailing time to meet the licensing requirements prescribed by the US Coast Guard and the criteria established by the Maritime Administration. STCW.
Required Prerequisites: All prerequisites for all GLMA courses are satisfied by following the approved curriculum guide and any deviation from the curriculum guide needs to be approved by the department head.

MDK 324 - Navigation III
Credit Hours: 3, Contact Hours: 3
Division: Maritime
An introduction into nautical astronomy concerning: the practical application of celestial navigation, the solving of the spherical triangle, star identification, measurement of time and the use of the instruments. This course will cover plane, mid-latitude and mercator sailings and how to apply them to navigational problems through the various time zones. Sunrise, sunset, twilight, moonrise and moon-set calculations for a moving vessel will be covered. STCW.
Required Prerequisites: All prerequisites for all GLMA courses are satisfied by following the approved Course Sequence Guide and any deviation from this guide needs to be approved by the cadet's adviser.
Recommended Prerequisites: ENG 111 and MTH 111

MDK 330 - Medical First Aid Provider
Credit Hours: 2, Contact Hours: 2
Division: Maritime
This course meets the mandatory minimum requirements specified under STCW as related to proficiency in medical first aid for all merchant mariners. This course is part of the STCW certification process. Cadets will learn to take immediate action upon encountering an accident or other medical emergency. STCW.
Required Prerequisites: All prerequisites for all GLMA courses are satisfied by following the approved Course Sequence Guide and any deviation from this guide needs to be approved by the cadet's adviser.

MDK 331 - Electronic Navigation
Credit Hours: 3, Contact Hours: 3
Division: Maritime
An in depth study of the various electronic navigation systems with emphasis on RADAR. Covers the theory, operation, use, advantages, disadvantages and general maintenance of: RADAR, gyrocompass, GPS, speed logs, fathometers, and electronic chart systems. REQUIRED COURSE that must be completed successfully before the student may receive an original "RADAR Observer Certificate". STCW.
Required Prerequisites: All prerequisites for all GLMA courses are satisfied by following the approved Course Sequence Guide and any deviation from this guide needs to be approved by the cadet's adviser.
Recommended Prerequisites: ENG 111 and MTH 111
Corequisites: MDK 332
**MDK 332 - Electronic Navigation Lab**  
*Credit Hours: 1, Contact Hours: 1*  
*Division: Maritime*  
A practical course to understand the use and operation of a marine radar; including: how to avoid collision situations using Rapid Radar Plotting. This required course must be successfully completed before the student may receive an original “Radar Observer Certificate”. STCW  
Required Prerequisites: All prerequisites for all GLMA courses are satisfied by following the approved Course Sequence Guide and any deviation from this guide needs to be approved by the cadet’s adviser.  
Recommended Prerequisites: ENG 111 and MTH 111  
Corequisites: MDK 331

**MDK 333 - Automatic Radar Plotting Aids**  
*Credit Hours: 1, Contact Hours: 1*  
*Division: Maritime*  
This course presents the principals and operation of automatic radar plotting aids. It includes the legal aspects of ARPA including IMO and USCG standards, the theory in input and processing characteristic of ARPA, the theory of operation, control functions and adjustments, the acquisition and tracking of contacts, the limitations and potential errors of ARPA and special ARPA related features. STCW  
Required Prerequisites: All prerequisites for all GLMA courses are satisfied by following the approved Course Sequence Guide and any deviation from this guide needs to be approved by the cadet’s adviser.  
Recommended Prerequisites: ENG 111 and MTH 111  
Corequisites: MDK 331

**MDK 341 - Ship Construction**  
*Credit Hours: 2, Contact Hours: 2*  
*Division: Maritime*  
A study of hull construction as applied to all types of vessels. Includes construction nomenclature, criteria of design, methods of construction, materials used in construction and stress calculations. STCW  
Required Prerequisites: All prerequisites for all GLMA courses are satisfied by following the approved Course Sequence Guide and any deviation from this guide needs to be approved by the cadet’s adviser.  
Recommended Prerequisites: ENG 111 and MTH 111

**MDK 345 - Dry Cargo Stowage**  
*Credit Hours: 3, Contact Hours: 3*  
*Division: Maritime*  
Principles and problems of the stowage and carriage of cargoes. Bulk cargo, container cargo, refrigerated cargo, grain cargoes and dangerous cargoes. Cargo handling operations both loading and offloading equipment. Cargoes stowage plans will be developed and reviewed. Students will critique loads they were involved with during their time aboard ship. STCW  
Required Prerequisites: All prerequisites for all GLMA courses are satisfied by following the approved Course Sequence Guide and any deviation from this guide needs to be approved by the cadet’s adviser.  
Recommended Prerequisites: ENG 111 and MTH 111

**MDK 404 - Marine Supervisory Lab**  
*Credit Hours: 1, Contact Hours: 1*  
*Division: Maritime*  
This course will provide senior cadets with the experience of supervising subordinate cadets. This experience will include job planning, sequencing of tasks, tools and equipment needed, and personnel required to complete the job. The student will experience what it will be like to be responsible for the crew both in terms of safety and output. STCW  
Required Prerequisites: All prerequisites for all GLMA courses are satisfied by following the approved Course Sequence Guide and any deviation from this guide needs to be approved by the cadet’s adviser.

**MDK 411 - Marine Communications**  
*Credit Hours: 2, Contact Hours: 2*  
*Division: Maritime*  
This course is designed to acquaint the student with communication systems commonly found in the Marine Industry. It includes the basic layout of the Global Maritime Distress and Safety System (GMDSS), communication equipment requirements, licensing requirements, principles and procedures for marine communications, the characteristics of radio wave propagation, frequencies, and modulation. Included also is the Morse Code Flashing Light, and general Distress Signals. STCW  
Required Prerequisites: All prerequisites for all GLMA courses are satisfied by following the approved Course Sequence Guide and any deviation from this guide needs to be approved by the cadet’s adviser.  
Recommended Prerequisites: ENG 111 and MTH 122

**MDK 421 - ECDIS**  
*Credit Hours: 3, Contact Hours: 3*  
*Division: Maritime*  
The purpose of this course is to meet the training requirements in STCW, as amended, for the operational use of Electronic Chart Display and Information Systems (ECDIS). This course provides the knowledge, skill and understanding of ECDIS emphasizing both the application and learning of ECDIS in a variety of underway contexts. This is achieved through use of a sophisticated navigation simulation integrated with a type-approved ECDIS. STCW  
Required Prerequisites: All prerequisites for all GLMA courses are satisfied by following the approved Course Sequence Guide and any deviation from this guide needs to be approved by the cadet’s adviser.  
Recommended Prerequisites: ENG 111; MTH 111 or higher

**MDK 444 - Cargo Systems**  
*Credit Hours: 2, Contact Hours: 2*  
*Division: Maritime*  
An in-depth study of the Great Lakes self-unloading vessel, container vessels, tankers, passenger vessels, regulations concerning hazardous materials, government regulations and the relationship between vessel and shoreside operations.  
Required Prerequisites: All prerequisites for all GLMA courses are satisfied by following the approved Course Sequence Guide and any deviation from this guide needs to be approved by the cadet’s adviser.  
Recommended Prerequisites: ENG 111; MTH 111 or higher

**MDK 445 - Liquid Cargo Stowage**  
*Credit Hours: 2, Contact Hours: 2*  
*Division: Maritime*  
A study of the tanker industry and the operational aspects of the tank vessel, pollution, prevention, precautions and procedures; layouts of different types of tankers; operations sequence and oil tanker construction and terminology. USCG and OPA ’90 regulations will be covered. STCW  
Required Prerequisites: All prerequisites for all GLMA courses are satisfied by following the approved Course Sequence Guide and any deviation from this guide needs to be approved by the cadet’s adviser.  
Recommended Prerequisites: ENG 111 and MTH 111
Maritime-Engine (MNG)

MNG 100 - Intro to Vessel Operations
Credit Hours: 1, Contact Hours: 1
Division: Maritime
This course is a general introduction to the shipboard Engine Room. The duties and responsibilities of the engine room personnel will be covered. The course will include an introduction to the engine room propulsion systems (Diesel and Steam), and an overview of safety and pollution practices and regulations, and an introduction to the domestic and international bodies that govern our industry. This course provides a foundation for the deck and engineering cadet to build upon in his/her GLMA program of study. STCW
Required Prerequisites: All prerequisites for all GLMA courses are satisfied by following the approved Course Sequence Guide and any deviation from this guide needs to be approved by the cadet's adviser.

MNG 104 - Engine Systems Graphics
Credit Hours: 3, Contact Hours: 3
Division: Maritime
The course will acquaint the student to the proper use of measuring systems and drafting equipment. The course will introduce the techniques used in the production of multi-view projection, orthographic representation, auxiliary views, section views, and dimensioning. The student will be familiar with the correct (ANSI) symbols used in piping, electrical, and fluid power schematics. The student will be exposed in the use of CAD to produce the listed topics. STCW
Required Prerequisites: All prerequisites for all GLMA courses are satisfied by following the approved Course Sequence Guide and any deviation from this guide needs to be approved by the cadet's adviser.
Corequisites: MNG 110

MNG 105 - Shipboard Information Systems
Credit Hours: 3, Contact Hours: 3
Division: Maritime
This course will introduce the student to the PC and its use as typically found aboard a Merchant Vessel. Basic computer setup, maintenance, and system troubleshooting are covered. Operating systems, communications programs, databases, word processors, spreadsheets, internet research, and CBT programs are discussed and demonstrated. The future of computers in the marine industry is explored. Special emphasis is given to group communications, group dynamics and problem solving and recognition, by developing process. Required Prerequisites: All prerequisites for all GLMA courses are satisfied by following the approved Course Sequence Guide and any deviation from this guide needs to be approved by the cadet's adviser.

MNG 110 - Engineering Mechanics
Credit Hours: 3, Contact Hours: 3
Division: Maritime
Survey of the construction, operation, and maintenance of shipboard systems. The major emphasis will be on piping, valves, control valves, and pumps. Practical application of the above items will be supported in the lab portion of this course with computer simulation exercises. STCW.
Required Prerequisites: All prerequisites for all GLMA courses are satisfied by following the approved Course Sequence Guide and any deviation from this guide needs to be approved by the cadet's adviser.
Corequisites: MNG 104
MNG 234 - Electronic Fundamentals  
Credit Hours: 4, Contact Hours: 4  
Division: Maritime  
This course bridges the gap between theoretical physics and practical hands on technology. Industrial electrical safety, shock hazards and emergency procedures are stressed. The cadet receives practical hands on experience with both analog and digital meters and oscilloscopes. Digital and analog circuits are created both in the lab and as computer simulations. Practical considerations of circuit construction in the field are discussed in terms of ABS, USCG, and IEEE regulations and requirements.  
Required Prerequisites: All prerequisites for all GLMA courses are satisfied by following the approved Course Sequence Guide and any deviation from this guide needs to be approved by the cadet's adviser.

MNG 250 - Fluid Systems  
Credit Hours: 3, Contact Hours: 3  
Division: Maritime  
This course will introduce the cadet to the shipboard hydraulic and pneumatic systems. The cadet will be introduced to the principles of fluid power: theory, components construction, operation, installation and maintenance, with an overview of these systems on a ship. STCW.  
Required Prerequisites: All prerequisites for all GLMA courses are satisfied by following the approved Course Sequence Guide and any deviation from this guide needs to be approved by the cadet's adviser.

MNG 260 - Maritime Machining  
Credit Hours: 2, Contact Hours: 2  
Division: Maritime  
This is a basic course that when completed a student will know the fundamentals and be able to operate common machine tool equipment like an engine lathe, band saw and vertical milling machine. Also covered will be measuring and inspection tools, drill press and surface plate. Quantitative Reasoning.  
Required Prerequisites: Completion of first academic year. All prerequisites for all GLMA courses are satisfied by following the approved Course Sequence Guide and any deviation from this guide needs to be approved by the cadet's adviser.

MNG 270 - Issues in Power Production  
Credit Hours: 3, Contact Hours: 3  
Division: Maritime  
This course will delve into current issues in the field of power production, including such areas as local, state, and federal requirements and interfaces. Renewable energy such as solar, wind, and biomass will be covered in detail. The future of energy and how it affects society will be explored. The student will develop an understanding of issues currently facing the power production issue.  
Required Prerequisites: All prerequisites for all GLMA courses are satisfied by following the approved Course Sequence Guide and any deviation from this guide needs to be approved by the cadet's adviser.

MNG 271 - Maritime Welding  
Credit Hours: 2, Contact Hours: 2  
Division: Maritime  
A welding theory and practice course. Manipulative skills are emphasized for the Gas Metal Arc and Shielded Metal Arc Welding processes. Plasma Arc and Oxy-Fuel Cutting are also introduced. Appropriate reading assignments are included. Critical Thinking - Direct.  
Required Prerequisites: Completion of first academic year. All prerequisites for all GLMA courses are satisfied by following the approved Course Sequence Guide and any deviation from this guide needs to be approved by the cadet's adviser.  
Recommended Prerequisites: ENG 111 and MTH 111  
Corequisites: MNG 271L

MNG 271L - Maritime Welding Lab  
Credit Hours: 0, Contact Hours: 0  
Division: Maritime  
See MNG 271 for course description. Critical Thinking - Direct.  
Required Prerequisites: All prerequisites for all GLMA courses are satisfied by following the approved Course Sequence Guide and any deviation from this guide needs to be approved by the cadet's adviser.  
Recommended Prerequisites: ENG 111 and MTH 111  
Corequisites: MNG 271

MNG 275 - Refrigeration  
Credit Hours: 3, Contact Hours: 3  
Division: Maritime  
This course bridges the gap between theoretical physics and practical hands on technology. Industrial electrical safety, shock hazards and emergency procedures are stressed. The cadet receives practical hands on experience with both analog and digital meters and oscilloscopes. Digital and analog circuits are created both in the lab and as computer simulations. Practical considerations of circuit construction in the field are discussed in terms of ABS, USCG, and IEEE regulations and requirements.  
Required Prerequisites: All prerequisites for all GLMA courses are satisfied by following the approved Course Sequence Guide and any deviation from this guide needs to be approved by the cadet's adviser.

MNG 290 - Power Systems Internship  
Credit Hours: 5-6, Contact Hours: 5-6  
Division: Maritime  
During this course, the student will be working in a commercial power facility following a prescribed course in the study of plant operations with particular emphasis on the machinery room and auxiliary equipment, including safety requirements. In addition, the student spends a minimum of eight hours a day under the supervision of a licensed operator gaining experience in the various engineering duties and responsibilities.  
Required Prerequisites: All prerequisites for all GLMA courses are satisfied by following the approved Course Sequence Guide and any deviation from this guide needs to be approved by the cadet's adviser.

MNG 314 - Diesel Engineering  
Credit Hours: 7, Contact Hours: 10  
Division: Maritime  
A comprehensive course dealing with the development of the diesel engine as it applies to marine propulsion. This course is designed to cover the construction, operation, and maintenance of the marine diesel engine and its support systems. Lecture is reinforced with extensive use of hands-on labs and computerized simulations. STCW.  
Required Prerequisites: All prerequisites for all GLMA courses are satisfied by following the approved Course Sequence Guide and any deviation from this guide needs to be approved by the cadet's adviser.
MNG 317 - Engineering Sea Project I  
**Credit Hours:** 3, **Contact Hours:** 3  
**Division:** Maritime  
During this course the cadet is on board the TS State of Michigan. The cadet follows a prescribed course of study in vessel operations with particular emphasis on engine room and auxiliary equipment, including safety requirements. In addition, the cadet spends eight hours a day under the supervision of a licensed officer gaining experience in various engineering duties and responsibilities. STCW. Critical Thinking - Direct.  
**Required Prerequisites:** All prerequisites for all GLMA courses are satisfied by following the approved Course Sequence Guide and any deviation from this guide needs to be approved by the cadet's adviser.

MNG 318 - Engineering Sea Project II  
**Credit Hours:** 6, **Contact Hours:** 6  
**Division:** Maritime  
This course is a continuation of MNG 317 and is designed to provide the cadet with advanced knowledge and sailing time to meet the licensing requirements of the U.S. Coast Guard, STCW and the criteria established by the Maritime Administration. STCW. Critical Thinking - Direct.  
**Required Prerequisites:** All prerequisites for all GLMA courses are satisfied by following the approved Course Sequence Guide and any deviation from this guide needs to be approved by the cadet's adviser.

MNG 319 - Engineering Sea Project III  
**Credit Hours:** 6, **Contact Hours:** 6  
**Division:** Maritime  
This course is a continuation of MNG 318 and is designed to further enhance the cadet's professional knowledge and sailing time to meet the licensing requirements of the U.S. Coast Guard, STCW and the criteria established by the Maritime Administration. STCW. Critical Thinking - Direct.  
**Required Prerequisites:** All prerequisites for all GLMA courses are satisfied by following the approved Course Sequence Guide and any deviation from this guide needs to be approved by the cadet's adviser.

MNG 321 - Marine Boilers  
**Credit Hours:** 3.5, **Contact Hours:** 3.5  
**Division:** Maritime  
This course is an intensive study of Marine Boilers and covers all types of Water Tube boilers. Emphasis is placed on construction, operation and maintenance of equipment. Sub systems such as fuel handling and combustion chemistry, air handling; water preparation and chemistry, automated combustion systems and water regulation systems are covered in detail. Special emphasis is placed on USCG regulations and STCW competencies. STCW.  
**Required Prerequisites:** All prerequisites for all GLMA courses are satisfied by following the approved Course Sequence Guide and any deviation from this guide needs to be approved by the cadet's adviser.

MNG 322 - Marine Turbines  
**Credit Hours:** 2.5, **Contact Hours:** 2.5  
**Division:** Maritime  
This course is an in-depth study of marine turbine propulsion plants. It covers theory, construction, operation, maintenance and inspection procedures typically associated with marine use. Associated systems such as lubrication, exhaust and condensate systems are also covered. Drive trains, reduction gear, stern tubes shafting and propellers are also discussed. STCW.  
**Required Prerequisites:** All prerequisites for all GLMA courses are satisfied by following the approved Course Sequence Guide and any deviation from this guide needs to be approved by the cadet's adviser.

MNG 323 - Marine Steam Lab  
**Credit Hours:** 1, **Contact Hours:** 1  
**Division:** Maritime  
This is a hands-on course intended to reinforce MNG 321 and MNG 322. Students will disassemble, inspect, and reassemble machinery typical of what is found aboard ship. Machinery condition will be noted and recommendations made. Machinery records will be updated. STCW.  
**Required Prerequisites:** All prerequisites for all GLMA courses are satisfied by following the approved Course Sequence Guide and any deviation from this guide needs to be approved by the cadet's adviser.

MNG 335 - Electric Machines and Controls  
**Credit Hours:** 4, **Contact Hours:** 4  
**Division:** Maritime  
This course covers the theory, application, operation, and maintenance of rotating machines as typically found aboard U.S. Merchant Ships and related industrial applications. Generators (DC and AC), motors (DC, multiple and single phase AC), transformers, and related equipment are covered. Special attention is given to magnetic relay and electronic logic control circuits. Regulations specific to CFR title 46 and IEEE are reviewed. STCW.  
**Required Prerequisites:** All prerequisites for all GLMA courses are satisfied by following the approved Course Sequence Guide and any deviation from this guide needs to be approved by the cadet's adviser.  
**Corequisites:** MNG 336

MNG 336 - Electric Mach. & Controls Lab  
**Credit Hours:** 2, **Contact Hours:** 2  
**Division:** Maritime  
This course is a companion class to MNG 335. Course material is reinforced with practical hands-on experience with universal electrical lab machinery. The operating characteristics of typical rotating machines are studied. Special attention is given to problems associated with multiple generator AC distribution. Safe and effective troubleshooting techniques are practiced on live 110/208 volt electrical control systems. STCW.  
**Required Prerequisites:** All prerequisites for all GLMA courses are satisfied by following the approved Course Sequence Guide and any deviation from this guide needs to be approved by the cadet's adviser.  
**Corequisites:** MNG 335

MNG 455 - Engine Room Resource Mgmt.  
**Credit Hours:** 2, **Contact Hours:** 2  
**Division:** Maritime  
This course uses the Engineering Simulators to strengthen the watch standing skills of the engineering cadet. The cadet will be required to operate shipboard systems, manage engine room personnel, and become familiar with preparing reports required in the operation of a modern engine room.  
**Required Prerequisites:** All prerequisites for all GLMA courses are satisfied by following the approved Course Sequence Guide and any deviation from this guide needs to be approved by the cadet's adviser.  
**Corequisites:** MNG 466, MNG 496
MNG 466 - Engine Room Business
Credit Hours: 2, Contact Hours: 2
Division: Maritime
This course is intended to acquaint the Cadet to the every day management and administrative activities confronting the Marine Engineer. The Cadet will be introduced to management and personnel skills necessary to deal with people problems peculiar to the marine environment. General issues of alcohol, drug abuse, and sexual harassment in the marine environment will be discussed, and placed in perspective with USCG and STCW protocols.
Required Prerequisites: All prerequisites for all GLMA courses are satisfied by following the approved Course Sequence Guide and any deviation from this guide needs to be approved by the cadet's adviser.
Corequisites: MNG 455, MNG 496

MNG 496 - License Preparation - Engine
Credit Hours: 2, Contact Hours: 2
Division: Maritime
A complete review of all professional subjects studied in the Maritime Engineering program. This course is designed to cover the essentials of the Third Assistant Engineer's examination administered by the U.S. Coast Guard. The final grade for this course is dependent on taking the U.S. Coast Guard license exam.
Required Prerequisites: All prerequisites for all GLMA courses are satisfied by following the approved Course Sequence Guide and any deviation from this guide needs to be approved by the cadet's adviser.
Corequisites: MNG 455, MNG 466

Marketing (MKT)

MKT 201 - Principles of Marketing
Credit Hours: 3, Contact Hours: 3
Division: Business
This course surveys the wide scope of marketing as it influences both profit and nonprofit firms with emphasis on the marketing concept as a business philosophy. Ethics, globalization, and technological advances in marketing will be explored. Elements of the marketing mix and the elements of the promotional mix will be studied and incorporated into a marketing plan. Target marketing and segmentation of consumer markets along with consumer buying behavior will be studied in this course. Group 2 course. Communications - Direct, Critical Thinking - Direct, Infused: Writing Intensive.
Recommended Prerequisites: BUS 101, ENG 111 minimum placement

MKT 208 - Digital Marketing
Credit Hours: 2, Contact Hours: 2
Division: Business
Students will learn how to develop a digital marketing strategy which may include display ads, search marketing, content marketing, email marketing and social media marketing. Developing an awareness of digital marketing strategies leads to an informed, critical internet consumer. Basic email and internet usage skills required. Group 2 course. Communications - Direct, Critical Thinking - Direct.
Recommended Prerequisites: ENG 111 minimum placement

MKT 241 - Principles of Advertising
Credit Hours: 3, Contact Hours: 3
Division: Business
This course will prepare the learner with an understanding of the real economic, social, and cultural impact of advertising and conversely, the impact of society's values on advertising. The strategic function of advertising within the broader context of business and marketing will be discussed in this course. The creative aspects of advertising will be studied, and students will develop an advertising campaign or related project. The global effect of marketing and advertising on business and national economies will be addressed along with ethical issues related to truth in advertising in today's society. Group 2 course. Communications - Direct, Critical Thinking - Direct, Infused: Writing Intensive.
Recommended Prerequisites: BUS 101, ENG 111 minimum placement

MKT 290 - Marketing Internship
Credit Hours: 3, Contact Hours: 3
Division: Business
The purpose of the internship is to provide on-the-job training for the student who wishes to pursue a career in Marketing. The internship will be customized to meet the learning needs of the student and the job requirements of the sponsoring firm. Students spend 10-15 hours per week in this supervised on-the-job training experience. In addition to the required 50 hours per credit in a work site, students will meet with the Experiential Coordinator as needed throughout the semester for internship support feedback, review of professional employment documents and an internship exit interview. Students must apply one month prior to the semester in which they will complete the internship. Group 2 course. Communications - Direct.
Required Prerequisites: 30 credits of program specific courses with a GPA of 2.0 or higher

Mathematics (MTH)

MTH 08 - Pre-Algebra
Credit Hours: 4, Contact Hours: 4
Division: Science Math
This course provides a review of basic arithmetic skills. It begins by reviewing traditional by-hand calculations, including multiplication and long division. Integers are introduced (signed numbers) and then all operations are combined, including exponents and grouping symbols, using the correct order of operations. The concepts of prime factorization, LCM and GCD are introduced to lead into fraction arithmetic. Fraction arithmetic includes addition, subtraction, multiplication, and division of fractions and mixed numbers as well as combined operations using the order of operations. Basic proportions and unit prices are used to solve problems. Decimals, and their relation to fractions, with both negative and positive signs are studied. All basic operations are applied to decimals. Then percentages and ratios and proportions are studied. We finish the course by learning about measurement systems and unit analysis, along with basic geometry including the Pythagorean Theorem. Every unit of study features applications as well as pure theory. By-hand calculations are taught and used at all levels.
Required Prerequisites: Placement into MTH 08
Recommended Prerequisites: Basic arithmetic skills
MTH 23 - Beginning Algebra
Credit Hours: 4, Contact Hours: 4
Division: Science Math
This is a basic course in algebra covering the following topics: operations on integers, rational numbers, numbers in scientific notation, and polynomials; exponent rules; dimensional analysis; solving linear equations; applications of linear equations in geometry, mixture, percents, and motion; graphing and analysis of graphs, particularly lines, in the coordinate plane; factoring; solving quadratic equations by factoring, applications of quadratic equations in geometry, mixture, percents and motion. The course concludes with an introduction to simplifying multiplying and dividing rational expressions and solving proportions. Good math writing form is stressed.
Required Prerequisites: A grade of 2.0 or better in MTH 08 or appropriate placement.

MTH 111 - Intermediate Algebra
Credit Hours: 4, Contact Hours: 4
Division: Science Math
Intermediate Algebra covers elementary set notation, a description of the Real number system, its major subsets, and an introduction to the Complex number system. Simplifying exponents, and algebraic expressions. Solving linear, quadratic, rational, and radical equations. Linear inequalities and systems of equations are also solved. The function concept is referenced throughout including the graphical, symbolic and numerical representations. Group 2 course.
Required Prerequisites: A grade of 2.0 or better in MTH 23 or appropriate placement.
Recommended Prerequisites: Placement into ENG 111

MTH 120 - Mathematical Explorations
Credit Hours: 3, Contact Hours: 3
Division: Science Math
This course is designed to meet the MTA graduation requirements in math for students whose programs of study have no further math requirements. This course is designed to develop quantitative reasoning skills as applied to personal and social issues. Topics will convey to the student the beauty and utility of mathematics, and its applications to modern society. Core topics include logic, models of growth (linear & exponential), personal finance, basic statistics and probability. Group 1 course. Quantitative Reasoning.
Required Prerequisites: A grade of 2.0 or better in MTH 23 or appropriate placement.
Recommended Prerequisites: Placement into ENG 111

MTH 121 - College Algebra
Credit Hours: 4, Contact Hours: 4
Division: Science Math
This course covers algebra topics including functions, mathematical models, solving equations algebraically and graphically, polynomial functions, logarithmic functions, exponential functions, inverse functions, and linear and non-linear systems of equations. Applications are integrated throughout. Group 1 course. Quantitative Reasoning.
Required Prerequisites: A grade of 2.0 or better in MTH 111 or higher (excluding MTH 120 and MTH 131) or appropriate placement.
Recommended Prerequisites: Placement into ENG 111

MTH 122 - Trigonometry
Credit Hours: 3, Contact Hours: 3
Division: Science Math
This course covers the definitions and graphic representations of the trigonometric functions. Triangles, angle measure, equations, identities, and inverse functions are discussed in detail. Law of Sines, Law of Cosines, and equations of the conic sections will also be covered. Group 1 course. Quantitative Reasoning.
Required Prerequisites: A grade of 2.0 or better in MTH 121 or higher (excluding MTH 131) or appropriate placement.
Recommended Prerequisites: Placement into ENG 111

MTH 131 - Intro to Prob & Stats
Credit Hours: 3, Contact Hours: 3
Division: Science Math
Descriptive statistics, experimental design, an introduction to probability concepts and inferential statistics are included in the course. Descriptive statistics includes graphs of both numerical and categorical data, measures of central tendency, and measures of variation. The normal density function, linear regression, and the binomial model are included. One and two sample problems involving confidence intervals and significance tests are studied for the sample mean and the sample proportion. Group 1 course. Quantitative Reasoning.
Required Prerequisites: A grade of 2.0 or better in MTH 111 or MTH 120 or higher or appropriate placement.
Recommended Prerequisites: Placement into ENG 111

MTH 141 - Calculus I
Credit Hours: 5, Contact Hours: 5
Division: Science Math
This is the first course in a traditional calculus sequence, emphasizing the development of the mathematical thought process. The topics covered include limits (definitions and limit proofs), continuity, derivatives of algebraic and trigonometric functions, applications of the derivative, the indefinite and definite integral, the fundamental theorem of calculus, and applications of integration. Group 1 course. Quantitative Reasoning.
Required Prerequisites: A grade of 2.0 or better in MTH 122 or higher (excluding MTH 131) or appropriate placement.
Recommended Prerequisites: Placement into ENG 111

MTH 142 - Calculus II
Credit Hours: 5, Contact Hours: 5
Division: Science Math
This course is a continuation of Calculus I. The topics include differentiation and integration involving exponential, logarithmic, and inverse trigonometric functions. There is an introduction of various integration methods. L'Hospital's Rule, improper integrals, parametric equations, polar coordinates, and infinite sequences and series are also investigated. Group 1 course. Quantitative Reasoning.
Required Prerequisites: A grade of 2.0 or better in MTH 141 or equivalent
Recommended Prerequisites: Placement into ENG 111

MTH 241 - Calculus III
Credit Hours: 5, Contact Hours: 5
Division: Science Math
The course covers multivariable calculus including three-dimensional analytical geometry, vector valued functions, partial differentiation, and multiple integration (with applications of each), and vector calculus. Group 1 course. Quantitative Reasoning.
Required Prerequisites: A grade of 2.0 or better in MTH 142 or equivalent
Recommended Prerequisites: Placement into ENG 111
MTH 251 - Differential Equations  
Credit Hours: 4, Contact Hours: 4  
Division: Science Math  
This course introduces the concepts of differential equations. Topics include: solving first and second order differential equations, and systems of linear differential equations. Solutions are found using analytical, numerical, or graphical techniques relating to quantitative modeling. Laplace transforms and solving non-linear differential equations are introduced. Complex numbers and their usefulness in solving differential equations is identified. Linear algebra is introduced including the topics of; vector spaces, subspaces, spanning sets, linear dependence and independence, basis and dimensions, eigenvalues, eigenvectors, and linear transformations. Group 1 course. Quantitative Reasoning.  
Required Prerequisites: A grade of 2.0 or better in MTH 142 or equivalent  
Recommended Prerequisites: Placement into ENG 111

Music (MUS)

MUS 90 - Applied Music-Remedial Instruc  
Credit Hours: 1-2, Contact Hours: 1-2  
Division: Humanities  
MUS 90 is remedial instruction for students wanting to take 100 level applied instruction in voice, piano, organ, guitar, or any of the traditional wind, percussion or string instruments, but lack either music reading, technical skills, artistic skills or tone production skills. An audition and interview, or if no music is prepared, only an interview will take place to determine the competency levels of a student. This course does not apply toward graduation. MUS 90 level instruction can be repeated until remediation is complete. Students will meet with an assigned faculty member for weekly instruction at a pre-arranged time and place. Materials specific to the students’ needs will be assigned. The Applied Faculty will recommend to the acting Department Chair when the competencies have been met.

MUS 100A - Intro to Music Theory I  
Credit Hours: 3, Contact Hours: 3  
Division: Humanities  
Intro to Music Theory I is designed for students who are pursuing music as an academic major or minor, particularly for those who need further work before entering MUS 101. This course focuses on the basic materials of music: the structures of tonality, harmonic progression, and the technique of harmonization. Students are required to complete and analyze music using practices listed above. Group 2 course.  
Recommended Prerequisites: A basic understanding of music theory is recommended.  
Corequisites: MUS 105A, MUS 106

MUS 100B - Intro to Music Theory II  
Credit Hours: 3, Contact Hours: 3  
Division: Humanities  
Intro to Music Theory II is designed for students who are pursuing music as an academic major or minor, particularly for those who have completed MUS 100A or its equivalent and are not yet prepared to enter MUS 101. This course builds on the fundamentals of MUS 100A and includes a focus on more complex rhythmic and harmonic structures. Students are required to complete and analyze music, using practices and skills learned in the course. Group 2 course.  
Required Prerequisites: MUS 100A  
Corequisites: MUS 105B, MUS 107

MUS 101 - Theory of Music  
Credit Hours: 3, Contact Hours: 3  
Division: Humanities  
Theory of Music is a four-semester/two-year sequence of coursework designed for students who are pursuing music as an academic major or minor. The first year includes the basic materials of music: the structures of tonality, harmonic progression, and the technique of harmonization. Students are required to complete and analyze music using practices listed above. Group 2 course.  
Recommended Prerequisites: An understanding of music fundamentals.  
Corequisites: MUS 103, MUS 106

MUS 102 - Theory of Music  
Credit Hours: 3, Contact Hours: 3  
Division: Humanities  
The course in Theory of Music is the second semester of a four-semester/two-year sequence of coursework designed for students who are pursuing music as an academic major or minor. The first year includes the basic materials of music: the structures of tonality, harmonic progression, and the technique of harmonization. Students are required to complete and analyze music using practices listed above. Group 2 course.  
Required Prerequisites: MUS 101, MUS 103, MUS 106; or equivalent competency  
Corequisites: MUS 104, MUS 107

MUS 103 - Sight Singing & Ear Training  
Credit Hours: 1, Contact Hours: 2  
Division: Humanities  
This is the first of a four-semester/two year sequence of coursework designed for students who are pursuing music as an academic major or minor. The content of this course is the building of skills in reading music, and developing aural competency in interval relationships, scales, and triads, through a variety of musical practices. Group 2 course.  
Corequisites: MUS 101, MUS 106

MUS 104 - Sight Singing & Ear Training  
Credit Hours: 1, Contact Hours: 2  
Division: Humanities  
This is the second of a four-semester/two year sequence of coursework designed for students who are pursuing music as an academic major or minor. The content of this course is a continued building of skills as listed in MUS 103 through a variety of musical practices. Group 2 course.  
Required Prerequisites: MUS 101, MUS 103, MUS 106; or equivalent competency  
Corequisites: MUS 102, MUS 107

MUS 105 - Introduction to Music  
Credit Hours: 2, Contact Hours: 2  
Division: Humanities  
An introduction to the techniques of reading and writing music, notation, pitch, rhythmic organization, elementary sight singing, dictation, and keyboard familiarity will be covered during the semester. This course is designed for the student who lacks previous or little musical training. Group 2 course. Prerequisite(s): ENG 99 or has qualified for entry to ENG 111.
MUS 105A - Intro to Ear Training I
Credit Hours: 1, Contact Hours: 2
Division: Humanities
This coursework is designed for students who are pursuing music as an academic major or minor, particularly for those who need further work before entering MUS 103. The content of this course is the building of skills in reading music, and developing aural competency in interval relationships, scales, and triads, through a variety of musical practices, principally the voice. Group 2 course.
Recommended Prerequisites: A basic understanding of music theory is recommended.
Corequisites: MUS 100A, MUS 106

MUS 105B - Intro to Ear Training II
Credit Hours: 1, Contact Hours: 2
Division: Humanities
This coursework is designed for students who are pursuing music as an academic major or minor, particularly for those who have completed MUS 105A or its equivalent and are not yet ready for MUS 103. This course will build on the skills learned in MUS 105A and will focus on developing more advanced skills, in reading music, aural competency in interval relationships, scales, and triads, through a variety of musical practices, principally the voice. Group 2 course.
Required Prerequisites: MUS 100A, MUS 105A, MUS 106
Corequisites: MUS 100B, MUS 107

MUS 106 - Class Piano I
Credit Hours: 2, Contact Hours: 2
Division: Humanities
Piano study for the beginning or near-beginning student. Cultivation of technical-musical awareness and keyboard playing ability, individually and in ensemble. Group 2 course.
Recommended Prerequisites: An understanding of music fundamentals.

MUS 107 - Class Piano II
Credit Hours: 2, Contact Hours: 2
Division: Humanities
This course is the second of a four-semester/ two-year sequence of the study of piano. Objectives are the cultivation of technical-musical awareness and keyboard playing ability. Group 2 course.
Required Prerequisites: MUS 106 or equivalent competency

MUS 108 - Class Voice I
Credit Hours: 2, Contact Hours: 2
Division: Humanities
A study of the process of singing. Stresses fundamentals and development of techniques that would produce a vocal tone considered appropriate for the signing of classical/folk and standard song literature. Designed to benefit the student interested in solo and choral singing.

MUS 109 - Class Voice II
Credit Hours: 2, Contact Hours: 2
Division: Humanities
A continuation of skills begun in MUS 108 with emphasis on advanced vocal exercises, more complex song literature, and additional physiological concepts in their relation to the act of singing.

MUS 110 - Music Appreciation Stand Lit
Credit Hours: 3, Contact Hours: 3
Division: Humanities
This course is a survey of the history of Western Music from medieval Europe to the present. Each music era of Western culture will be examined in regards to significant composers and compositions. This course places a strong emphasis on learning to listen and also provides students the opportunity to become familiar with the basic elements of music. No musical background or training is assumed or required. Group 1 course. Communications - Direct.

MUS 111 - Music Appreciation Jazz
Credit Hours: 3, Contact Hours: 3
Division: Humanities
Jazz Appreciation is a survey of the stylistic and historical elements of jazz from its earliest beginnings and influences through the contemporary jazz scene. Emphasis is placed on listening to the significant jazz artists and styles of each period of jazz. The class will also introduce students to the many musical characteristics, techniques, and terms found in the jazz tradition, as well as their historical significance. No musical background or training is assumed or required. Group 1 course. Communications - Direct.

MUS 112 - Class Guitar I
Credit Hours: 2, Contact Hours: 2
Division: Humanities
This course is designed for the student who wishes to acquire basic knowledge and techniques for guitar playing. The instruction introduces the basic information of music notation, as well as mechanical skills for the development of individual playing ability. The format is a structured approach covering hand position, fundamentals of reading music and chord knowledge. Repertoire will include Folk music, popular music and the Blues, and will utilize both strumming and picking techniques. Group 2 course.

MUS 113 - Class Guitar II
Credit Hours: 2, Contact Hours: 2
Division: Humanities
This course is a continuation of MUS 112. Emphasis is placed on developing music reading skills for the guitar, along with further development of Folk picking techniques and understanding of the Blues. An introduction to Jazz chords along with fundamentals of music theory will also be presented. Group 2 course.
Required Prerequisites: MUS 112 or equivalent competency

MUS 114 - NMC Grand Traverse Chorale
Credit Hours: 1, Contact Hours: 2
Division: Humanities
This large, mixed (SATB) choral ensemble is open to all students with past choral experience. The Grand Traverse Chorale provides its members with an educational experience and personal enrichment made possible through singing of quality choral literature selected from Antiquity through the 21st Century with an emphasis on large masterworks. Performance excellence is principal to the purpose of the ensemble. The Grand Traverse Chorale performs throughout the semester and frequently performs with the Traverse Symphony Orchestra. Group 2 course.
Required Prerequisites: Choral experience or instructor permission.
MUS 115 - NMC Grand Traverse Chorale
Credit Hours: 1, Contact Hours: 2
Division: Humanities
MUS 115 is a continuation of rehearsal and performance as begun in MUS 114. This large, mixed (SATB) choral ensemble is open to all students with past choral experience. The Grand Traverse Chorale provides its members with an educational experience and personal enrichment made possible through singing of quality choral literature selected from Antiquity through the 21st Century with an emphasis on large masterworks. Performance excellence is principal to the purpose of the ensemble. The Grand Traverse Chorale performs throughout the semester and frequently performs with the Traverse Symphony Orchestra. Group 2 course.
Required Prerequisites: MUS 114, choral experience or instructor permission.

MUS 116 - NMC Chamber Singers
Credit Hours: 1, Contact Hours: 3
Division: Humanities
This mixed (SATB) choral ensemble is open to all students with past choral experience. The Chamber Singers provides its members with an educational experience and personal enrichment made possible through singing of quality choral literature selected from Antiquity through the 21st Century with an emphasis on newer works and works for small choral ensembles. Performance excellence is principal to the purpose of the ensemble. The Chamber Singers perform throughout the semester and frequently perform with the Traverse Symphony Orchestra. Group 2 course.
Required Prerequisites: Choral experience or instructor permission.

MUS 117 - NMC Chamber Singers
Credit Hours: 1, Contact Hours: 3
Division: Humanities
MUS 117 is a continuation of rehearsal and performance as begun in MUS 116. This mixed (SATB) choral ensemble is open to all students with past choral experience. The Chamber Singers provides its members with an educational experience and personal enrichment made possible through singing of quality choral literature selected from Antiquity through the 21st Century with an emphasis on newer works and works for small choral ensembles. Performance excellence is principal to the purpose of the ensemble. The Chamber Singers perform throughout the semester and frequently perform with the Traverse Symphony Orchestra. Group 2 course.
Required Prerequisites: MUS 116, choral experience or instructor permission.

MUS 118 - NMC Concert Band
Credit Hours: 1, Contact Hours: 2
Division: Humanities
MUS 118 is a continuation of rehearsal and performance as begun in MUS 117. This course will provide a survey of significant concert and symphonic band repertoire. Students will learn performance techniques on their instrument as are relevant to the concert band medium. Students will also learn the role that their instrument plays within the context of a concert band. Generally, two to four concerts will be performed each semester. Students must have a high school level competency on a wind or percussion instrument. An audition or personal interview with the conductor will be required for placement in the ensemble. Group 2 course.
Required Prerequisites: MUS 117, previous band experience or instructor permission.

MUS 119 - NMC Concert Band
Credit Hours: 1, Contact Hours: 2
Division: Humanities
MUS 119 is a continuation of rehearsal and performance as begun in MUS 118. This course will provide a survey of significant concert and symphonic band repertoire. Students will learn performance techniques on their instrument as are relevant to the concert band medium. Students will also learn the role that their instrument plays within the context of a concert band. Generally, two to four concerts will be performed each semester. Students must have a high school level competency on a wind or percussion instrument. An audition or personal interview with the conductor will be required for placement in the ensemble. Group 2 course.
Required Prerequisites: MUS 118, previous band experience or instructor permission.

MUS 120 - NMC Jazz Band
Credit Hours: 1, Contact Hours: 2
Division: Humanities
A course for the performer with a focus on big band jazz ensemble techniques and styles. A wide range of jazz styles are covered including swing, be-bop, ballads, rock/fusion and Latin. Some improvisation is briefly explored and always encouraged, although it is not the main focus of this course. A minimum of one concert will be performed each semester and all members are required to attend and participate in all scheduled performances. Group 2 course.
Required Prerequisites: Previous band or jazz band experience or instructor permission.

MUS 121 - NMC Jazz Band
Credit Hours: 1, Contact Hours: 2
Division: Humanities
A course for the performer with a focus on big band jazz ensemble techniques and styles. A wide range of jazz styles are covered including swing, be-bop, ballads, rock/fusion and Latin. Some improvisation is briefly explored and always encouraged, although it is not the main focus of this course. A minimum of one concert will be performed each semester and all members are required to attend and participate in all scheduled performances. Group 2 course.
Required Prerequisites: MUS 120, previous band or jazz band experience or instructor permission.

MUS 122 - Ensembles in Applied Music I
Credit Hours: 1, Contact Hours: 1
Division: Humanities
This course prepares students for public performance and develops abilities in ensemble techniques. Students study individually and in small ensembles (duets, trios, quartets, quintets, and octets) under faculty direction. The course is designed for a year's participation and permission of the instructor is required. Group 2 course.
Required Prerequisites: Previous choral experience, or instructor permission.

MUS 123 - Ensembles in Applied Music II
Credit Hours: 1, Contact Hours: 1
Division: Humanities
See MUS 122 for course description.
MUS 124 - NMC Collegiate Singers  
**Credit Hours:** 1, **Contact Hours:** 1  
**Division:** Humanities  
This choral ensemble is open to all students. The Collegiate Singers is designed for beginning and intermediate choral singers with specific instructional emphasis placed on singing and ensemble skills. This course will provide students with a broad base of skills that will be applicable to other choral ensembles in future collegiate years and beyond. The Collegiate Singers perform throughout the semester. Group 2 course.

MUS 125 - NMC Collegiate Singers  
**Credit Hours:** 1, **Contact Hours:** 1  
**Division:** Humanities  
MUS 125 is a continuation of rehearsal and performance as begun in MUS 124. The choral ensemble is open to all students. The Collegiate Singers is designed for beginning and intermediate choral singers with specific instructional emphasis placed on singing and ensemble skills. This course will provide students with a broad base of skills that will be applicable to other choral ensembles in future collegiate years and beyond. The Collegiate Singers perform throughout the semester. Group 2 course.

MUS 129 - History of Rock and Roll  
**Credit Hours:** 3, **Contact Hours:** 3  
**Division:** Humanities  
This course will study the development of rock music styles from its roots to the present. We will watch historical footage and listen to musical examples of each musical period. Students will develop the ability to hear a direct relationship between the historical origins of rock music and the music currently popular. The class will include the analysis of the significant musical qualities and influential musicians of the different periods and styles of rock. The history and development of rock music will also be examined in the context of the political, historical, and social forces at work in the modern and post-modern world. Group 1 course. Communications - Direct.

MUS 131A - Ensembles - Percussion I  
**Credit Hours:** 1, **Contact Hours:** 1  
**Division:** Humanities  
This course prepares students for public performance and develops abilities in ensemble techniques. Students study in small ensembles (duets, trios, quartets, quintets, and octets) under faculty direction. Students are expected to perform, at a minimum, for one Music Convocation each semester. Course number suffix A designates fall semester and suffix B designates spring semester. Permission of instructor is required. Group 2 course.

MUS 131B - Ensembles - Percussion I  
**Credit Hours:** 1, **Contact Hours:** 1  
**Division:** Humanities  
This course prepares students for public performance and develops abilities in ensemble techniques. Students study in small ensembles (duets, trios, quartets, quintets, and octets) under faculty direction. Students are expected to perform, at a minimum, for one Music Convocation each semester. Course number suffix A designates fall semester and suffix B designates spring semester. Permission of instructor is required. Group 2 course.

MUS 132A - Ensembles - Guitar I  
**Credit Hours:** 1, **Contact Hours:** 1  
**Division:** Humanities  
This course prepares students for public performance and develops abilities in ensemble techniques. Students study in small ensembles (duets, trios, quartets, quintets, and octets) under faculty direction. Students are expected to perform, at a minimum, for one Music Convocation each semester. Course number suffix A designates fall semester and suffix B designates spring semester. Permission of instructor is required. Group 2 course.

MUS 132B - Ensembles - Guitar I  
**Credit Hours:** 1, **Contact Hours:** 1  
**Division:** Humanities  
This course prepares students for public performance and develops abilities in ensemble techniques. Students study in small ensembles (duets, trios, quartets, quintets, and octets) under faculty direction. Students are expected to perform, at a minimum, for one Music Convocation each semester. Course number suffix A designates fall semester and suffix B designates spring semester. Permission of instructor is required. Group 2 course.

MUS 133A - Ensembles - Jazz Wind I  
**Credit Hours:** 1, **Contact Hours:** 1  
**Division:** Humanities  
This course prepares students for public performance and develops abilities in ensemble techniques. Students study in small ensembles (duets, trios, quartets, quintets, and octets) under faculty direction. Students are expected to perform, at a minimum, for one Music Convocation each semester. Course number suffix A designates fall semester and suffix B designates spring semester. Permission of instructor is required. Group 2 course.

MUS 133B - Ensembles - Jazz Wind I  
**Credit Hours:** 1, **Contact Hours:** 1  
**Division:** Humanities  
This course prepares students for public performance and develops abilities in ensemble techniques. Students study in small ensembles (duets, trios, quartets, quintets, and octets) under faculty direction. Students are expected to perform, at a minimum, for one Music Convocation each semester. Course number suffix A designates fall semester and suffix B designates spring semester. Permission of instructor is required. Group 2 course.

MUS 134A - Ensembles - Small Jazz I  
**Credit Hours:** 1, **Contact Hours:** 1  
**Division:** Humanities  
This course prepares students for public performance and develops abilities in ensemble techniques. Students study in small ensembles (duets, trios, quartets, quintets, and octets) under faculty direction. Students are expected to perform, at a minimum, for one Music Convocation each semester. Course number suffix A designates fall semester and suffix B designates spring semester. Permission of instructor is required. Group 2 course.

MUS 134B - Ensembles - Small Jazz I  
**Credit Hours:** 1, **Contact Hours:** 1  
**Division:** Humanities  
This course prepares students for public performance and develops abilities in ensemble techniques. Students study in small ensembles (duets, trios, quartets, quintets, and octets) under faculty direction. Students are expected to perform, at a minimum, for one Music Convocation each semester. Course number suffix A designates fall semester and suffix B designates spring semester. Permission of instructor is required. Group 2 course.
MUS 135A - Ensembles - Vocal Opera I
Credit Hours: 1, Contact Hours: 1
Division: Humanities
This course prepares students for public performance and develops abilities in ensemble techniques. Students study in small ensembles (duets, trios, quartets, quintets, and octets) under faculty direction. Students are expected to perform, at a minimum, for one Music Convocation each semester. Course number suffix A designates fall semester and suffix B designates spring semester. Permission of instructor is required. Group 2 course.

MUS 135B - Ensembles - Vocal Opera I
Credit Hours: 1, Contact Hours: 1
Division: Humanities
This course prepares students for public performance and develops abilities in ensemble techniques. Students study in small ensembles (duets, trios, quartets, quintets, and octets) under faculty direction. Students are expected to perform, at a minimum, for one Music Convocation each semester. Course number suffix A designates fall semester and suffix B designates spring semester. Permission of instructor is required. Group 2 course.

MUS 136A - Ensembles - Vocal Jazz I
Credit Hours: 1, Contact Hours: 1
Division: Humanities
A small ensemble of men’s and women’s voices rehearses and performs vocal jazz works. Develop skills in vocal jazz styles, blending harmonies, microphone technique, and jazz theory. Group 2 course. Required Prerequisites: Previous choral experience or instructor permission.

MUS 136B - Ensembles - Vocal Jazz I
Credit Hours: 1, Contact Hours: 1
Division: Humanities
A small ensemble of men’s and women’s voices rehearses and performs vocal jazz works. Develop skills in vocal jazz styles, blending harmonies, microphone technique, and jazz theory. Group 2 course. Required Prerequisites: MUS 136A, previous choral experience or instructor permission.

MUS 137A - Ensembles - Strings I
Credit Hours: 1, Contact Hours: 1
Division: Humanities
This course prepares students for public performance and develops abilities in ensemble techniques. Students study in small ensembles (duets, trios, quartets, quintets, and octets) under faculty direction. Students are expected to perform, at a minimum, for one Music Convocation each semester. Course number suffix A designates fall semester and suffix B designates spring semester. Permission of instructor is required. Group 2 course.

MUS 137B - Ensembles - Strings I
Credit Hours: 1, Contact Hours: 1
Division: Humanities
This course prepares students for public performance and develops abilities in ensemble techniques. Students study in small ensembles (duets, trios, quartets, quintets, and octets) under faculty direction. Students are expected to perform, at a minimum, for one Music Convocation each semester. Course number suffix A designates fall semester and suffix B designates spring semester. Permission of instructor is required. Group 2 course.

MUS 138A - Ensembles - Chamber Quintet
Credit Hours: 1, Contact Hours: 1
Division: Humanities
This course prepares students for public performance and develops abilities in ensemble techniques. Students study in small ensembles (duets, trios, quartets, quintets, and octets) under faculty direction. Students are expected to perform, at a minimum, for one Music Convocation each semester. Course number suffix A designates fall semester and suffix B designates spring semester. Permission of instructor is required. Group 2 course.

MUS 138B - Ensembles - Chamber Quintet
Credit Hours: 1, Contact Hours: 1
Division: Humanities
This course prepares students for public performance and develops abilities in ensemble techniques. Students study in small ensembles (duets, trios, quartets, quintets, and octets) under faculty direction. Students are expected to perform, at a minimum, for one Music Convocation each semester. Course number suffix A designates fall semester and suffix B designates spring semester. Permission of instructor is required. Group 2 course.

MUS 139A - Ensembles - Brass
Credit Hours: 1, Contact Hours: 1
Division: Humanities
This course prepares students for public performance and develops abilities in ensemble techniques. Students study in small ensembles (duets, trios, quartets, quintets, and octets) under faculty direction. Students are expected to perform, at a minimum, for one Music Convocation each semester. Course number suffix A designates fall semester and suffix B designates spring semester. Permission of instructor is required. Group 2 course.

MUS 139B - Ensembles - Brass
Credit Hours: 1, Contact Hours: 1
Division: Humanities
This course prepares students for public performance and develops abilities in ensemble techniques. Students study in small ensembles (duets, trios, quartets, quintets, and octets) under faculty direction. Students are expected to perform, at a minimum, for one Music Convocation each semester. Course number suffix A designates fall semester and suffix B designates spring semester. Permission of instructor is required. Group 2 course.

MUS 140 - Applied Music - Violin
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jacobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.
MUS 140B - Applied Music - Violin
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 141 - Applied Music - Viola
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 141B - Applied Music - Viola
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 142 - Applied Music - Cello
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 142B - Applied Music - Cello
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 143 - Applied Music - Double Bass
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 143B - Applied Music - Double Bass
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 144 - Applied Music - Flute
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.
MUS 144B - Applied Music - Flute
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 145 - Applied Music - Oboe
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 145B - Applied Music - Oboe
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 146 - Applied Music - English Horn
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 146B - Applied Music - English Horn
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 147 - Applied Music - Clarinet
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 147B - Applied Music - Clarinet
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 148 - Applied Music - Bass Clarinet
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.
MUS 148B - Applied Music - Bass Clarinet
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 149 - Applied Music - Bassoon
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 149B - Applied Music - Bassoon
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 150B - Applied Music - Contrabassoon
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 151 - Applied Music - Saxophone
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 151B - Applied Music - Saxophone
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 152 - Applied Music - Trumpet
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 152B - Applied Music - Trumpet
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.
MUS 153 - Applied Music - French Horn  
Credit Hours: 1-2, Contact Hours: 1-2  
Division: Humanities  
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 153B - Applied Music - French Horn  
Credit Hours: 1-2, Contact Hours: 1-2  
Division: Humanities  
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 154 - Applied Music - Trombone  
Credit Hours: 1-2, Contact Hours: 1-2  
Division: Humanities  
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 154B - Applied Music - Trombone  
Credit Hours: 1-2, Contact Hours: 1-2  
Division: Humanities  
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 155 - Applied Music - Bass Trombone  
Credit Hours: 1-2, Contact Hours: 1-2  
Division: Humanities  
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.
MUS 156B - Applied Music - Baritone
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 157 - Applied Music - Tuba
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 157B - Applied Music - Tuba
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 158B - Applied Music - Percussion
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 158C - Applied Music - Percussion
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 159 - Applied Music - Piano
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 159B - Applied Music - Piano
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.
MUS 160 - Applied Music - Voice
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 160B - Applied Music - Voice
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 160C - Applied Music - Voice
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 162 - Applied Music - Guitar
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 162B - Applied Music - Guitar
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 162C - Applied Music - Jazz Guitar
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 163 - Applied Music - Jazz Guitar
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.
MUS 164 - Applied Music-Classical Guitar  
Credit Hours: 1-2, Contact Hours: 1-2  
Division: Humanities  
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 164B - Applied Music - Electric Bass  
Credit Hours: 1-2, Contact Hours: 1-2  
Division: Humanities  
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 164C - Applied Music-Classical Guitar  
Credit Hours: 1-2, Contact Hours: 1-2  
Division: Humanities  
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 165 - Applied Music - Electric Bass  
Credit Hours: 1-2, Contact Hours: 1-2  
Division: Humanities  
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 165B - Applied Music - Electric Bass  
Credit Hours: 1-2, Contact Hours: 1-2  
Division: Humanities  
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 165C - Applied Music - Electric Bass  
Credit Hours: 1-2, Contact Hours: 1-2  
Division: Humanities  
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 166 - Applied Music - Organ  
Credit Hours: 1-2, Contact Hours: 1-2  
Division: Humanities  
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 166B - Applied Music - Organ  
Credit Hours: 1-2, Contact Hours: 1-2  
Division: Humanities  
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.
MUS 167 - Applied Music - Harp
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 168 - Applied Music - Jazz Improv.
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Students may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music majors should enroll for 2.0 credits. After registering for applied lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu or 995-1338), before or during the first week of classes for placement with an applied music instructor. A prearranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course. Required Prerequisites: Students must have a high school level competency on a musical instrument and be able to read music at a high school level.

MUS 170B - Applied Music-Digital Audio
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
A pre-arranged lesson time with the assigned instructor is arranged and studies/projects, as appropriate, are prepared for continuing musical development. A jury examination will be given at the conclusion of each semester of 100-level instruction. Students are to keep 12:30 - 1:30 p.m. on Wednesdays clear to participate as audience and soloists in convocation. Group 2 course.

MUS 170C - Applied Music-Digital Audio
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
A pre-arranged lesson time with the assigned instructor is arranged and studies/projects, as appropriate, are prepared for continuing musical development. A jury examination will be given at the conclusion of each semester of 100-level instruction. Students are to keep 12:30 - 1:30 p.m. on Wednesdays clear to participate as audience and soloists in convocation. Group 2 course.

MUS 201 - Theory of Music
Credit Hours: 3, Contact Hours: 3
Division: Humanities
The third semester of a four-semester/two year sequence of coursework designed for students who are pursuing music as an academic major. Harmonic analysis, traditional and non-traditional compositional techniques and musical form make up the course content. Group 1 course. Communications - Direct. Required Prerequisites: MUS 102, MUS 104, MUS 107; or equivalent competency. Corequisites: MUS 203, MUS 206

MUS 202 - Theory of Music
Credit Hours: 3, Contact Hours: 3
Division: Humanities
The fourth semester of a four-semester/two year sequence of coursework designed for students who are pursuing music as an academic major. The course content is a continuation of MUS 201 with the addition of the study of 20th Century compositional and beginning counterpoint. Group 1 course. Required Prerequisites: MUS 201, MUS 203, MUS 206; or equivalent competency. Corequisites: MUS 204, MUS 207

MUS 203 - Sight Singing & Ear Training
Credit Hours: 1, Contact Hours: 2
Division: Humanities
The third semester of a four-semester/two-year sequence of course work designed for students who are pursuing music as an academic major. The content of this course includes the building of skills in reading music, melodic and harmonic dictation and aural competency through a variety of musical practices, principally the voice. Group 2 course. Required Prerequisites: MUS 102, MUS 104, MUS 107 or the equivalent competency. Corequisites: MUS 201, MUS 206

MUS 204 - Sight Singing & Ear Training
Credit Hours: 1, Contact Hours: 2
Division: Humanities
The fourth semester of a four-semester/two-year sequence of course work designed for students who are pursuing music as an academic major. A continuation of MUS 203, this course deals with the building of advanced skills in reading music, melodic and harmonic dictation and aural competency through a variety of musical practices, principally the voice. Group 2 course. Required Prerequisites: MUS 201, MUS 203, MUS 206 or equivalent competency. Corequisites: MUS 202, MUS 207

MUS 206 - Class Piano III
Credit Hours: 2, Contact Hours: 2
Division: Humanities
This is the third of a four-semester/two-year sequence of the study of piano. Objectives are the cultivation of technical-musical awareness and keyboard playing ability. Group 2 course. Required Prerequisites: MUS 107, equivalent competency or instructor permission. Corequisites: MUS 201, MUS 203

MUS 207 - Class Piano IV
Credit Hours: 2, Contact Hours: 2
Division: Humanities
This is the fourth of a four-semester/two-year sequence of the study of piano. Objectives are the cultivation of technical-musical awareness and keyboard playing ability. Group 2 course. Required Prerequisites: MUS 206, equivalent competency or instructor permission. Corequisites: MUS 202, MUS 204
MUS 214 - NMC Grand Traverse Chorale  
Credit Hours: 1, Contact Hours: 2  
Division: Humanities  
MUS 214 is a continuation of rehearsal and performance as begun in MUS 115. This large, mixed (SATB) choral ensemble is open to all students with past choral experience. The Grand Traverse Chorale provides its members with an educational experience and personal enrichment made possible through singing of quality choral literature selected from Antiquity through the 21st Century with an emphasis on large masterworks. Performance excellence is principal to the purpose of the ensemble. The Grand Traverse Chorale performs throughout the semester and frequently performs with the Traverse Symphony Orchestra. Group 2 course.  
Required Prerequisites: MUS 115, choral experience or instructor permission.

MUS 215 - NMC Grand Traverse Chorale  
Credit Hours: 1, Contact Hours: 2  
Division: Humanities  
MUS 215 is a continuation of rehearsal and performance as begun in MUS 214. This large, mixed (SATB) choral ensemble is open to all students with past choral experience. The Grand Traverse Chorale provides its members with an educational experience and personal enrichment made possible through singing of quality choral literature selected from Antiquity through the 21st Century with an emphasis on large masterworks. Performance excellence is principal to the purpose of the ensemble. The Grand Traverse Chorale performs throughout the semester and frequently performs with the Traverse Symphony Orchestra. Group 2 course.  
Required Prerequisites: MUS 214, choral experience or instructor permission.

MUS 216 - NMC Chamber Singers  
Credit Hours: 1, Contact Hours: 3  
Division: Humanities  
MUS 216 is a continuation of rehearsal and performance as begun in MUS 117. This mixed (SATB) choral ensemble is open to all students with past choral experience. The Chamber Singers provides its members with an educational experience and personal enrichment made possible through singing of quality choral literature selected from Antiquity through the 21st Century with an emphasis on newer works and works for small choral ensembles. Performance excellence is principal to the purpose of the ensemble. The Chamber Singers perform throughout the semester and frequently perform with the Traverse Symphony Orchestra. Group 2 course.  
Required Prerequisites: MUS 117, choral experience or instructor permission.

MUS 217 - NMC Chamber Singers  
Credit Hours: 1, Contact Hours: 3  
Division: Humanities  
MUS 217 is a continuation of rehearsal and performance as begun in MUS 216. This mixed (SATB) choral ensemble is open to all students with past choral experience. The Chamber Singers provides its members with an educational experience and personal enrichment made possible through singing of quality choral literature selected from Antiquity through the 21st Century with an emphasis on newer works and works for small choral ensembles. Performance excellence is principal to the purpose of the ensemble. The Chamber Singers perform throughout the semester and frequently perform with the Traverse Symphony Orchestra. Group 2 course.  
Required Prerequisites: MUS 216, choral experience or instructor permission.

MUS 218 - NMC Concert Band  
Credit Hours: 1, Contact Hours: 2  
Division: Humanities  
MUS 218 is a continuation of rehearsal and performance as begun in MUS 119. This course will provide a survey of significant concert and symphonic band repertoire. Students will learn performance techniques on their instrument as are relevant to the concert band medium. Students will also learn the role that their instrument plays within the context of a concert band. Generally, two to four concerts will be performed each semester. Students must have a high school level competency on a wind or percussion instrument. An audition or personal interview with the conductor will be required for placement in the ensemble. Group 2 course.  
Required Prerequisites: MUS 119, previous band experience or instructor permission.

MUS 219 - NMC Concert Band  
Credit Hours: 1, Contact Hours: 2  
Division: Humanities  
MUS 219 is a continuation of rehearsal and performance as begun in MUS 218. This course will provide a survey of significant concert and symphonic band repertoire. Students will learn performance techniques on their instrument as are relevant to the concert band medium. Students will also learn the role that their instrument plays within the context of a concert band. Generally, two to four concerts will be performed each semester. Students must have a high school level competency on a wind or percussion instrument. An audition or personal interview with the conductor will be required for placement in the ensemble. Group 2 course.  
Required Prerequisites: MUS 218, previous band experience or instructor permission.

MUS 220 - NMC Jazz Band  
Credit Hours: 1, Contact Hours: 2  
Division: Humanities  
A course for the performer with a focus on big band jazz ensemble techniques and styles. A wide range of jazz styles are covered including swing, be-bop, ballads, rock/fusion and Latin. Some improvisation is briefly explored and always encouraged, although it is not the main focus of this course. A minimum of one concert will be performed each semester and all members are required to attend and participate in all scheduled performances. Group 2 course.  
Required Prerequisites: MUS 121, previous band or jazz band experience or instructor permission.

MUS 221 - NMC Jazz Band  
Credit Hours: 1, Contact Hours: 2  
Division: Humanities  
A course for the performer with a focus on big band jazz ensemble techniques and styles. A wide range of jazz styles are covered including swing, be-bop, ballads, rock/fusion and Latin. Some improvisation is briefly explored and always encouraged, although it is not the main focus of this course. A minimum of one concert will be performed each semester and all members are required to attend and participate in all scheduled performances. Group 2 course.  
Required Prerequisites: MUS 220, previous band experience or instructor permission.

MUS 222 - Ensembles in Applied Music III  
Credit Hours: 1, Contact Hours: 1  
Division: Humanities  
Open to students who have completed a year of Ensembles in Applied Music. See MUS 122 for course description.
MUS 223 - Ensembles in Applied Music IV
Credit Hours: 1, Contact Hours: 1
Division: Humanities
Open to students who have completed a year of Ensembles in Applied Music. See MUS 122 for course description.

MUS 224 - NMC Collegiate Singers
Credit Hours: 1, Contact Hours: 3
Division: Humanities
Open to students who have completed MUS 125 or a year of a collegiate choral ensemble. The Collegiate Singers is designed for beginning and intermediate choral singers with specific instructional emphasis placed on singing and ensemble skills. This course will provide students with a broad base of skills that will be applicable to other choral ensembles in future collegiate years and beyond. The Collegiate Singers perform throughout the semester. Group 2 course.

MUS 225 - NMC Collegiate Singers
Credit Hours: 1, Contact Hours: 1
Division: Humanities
Open to students who have completed MUS 224 or a year of a collegiate choral ensemble. The Collegiate Singers is designed for beginning and intermediate choral singers with specific instructional emphasis placed on singing and ensemble skills. This course will provide students with a broad base of skills that will be applicable to other choral ensembles in future collegiate years and beyond. The Collegiate Singers perform throughout the semester. Group 2 course.

MUS 228 - Traverse Symphony Orchestra
Credit Hours: 1, Contact Hours: 1
Division: Humanities
Continuation of MUS 227. Group 2 course. Prerequisite(s): MUS 227
Recommended Prerequisites: MUS 227

MUS 231A - Ensembles - Percussion II
Credit Hours: 1, Contact Hours: 1
Division: Humanities
A continuation of Ensembles, with emphasis on performance and repertoire. This course prepares students for public performance and develops abilities in ensemble techniques. Students study in small ensembles (duets, trios, quartets, quintets, and octets) under faculty direction. Students are expected to perform, at a minimum, for one Music Convocation each semester. Course number suffix A designates fall semester and suffix B designates spring semester. Permission of instructor is required. Group 2 course.

MUS 231B - Ensembles - Percussion II
Credit Hours: 1, Contact Hours: 1
Division: Humanities
A continuation of Ensembles, with emphasis on performance and repertoire. This course prepares students for public performance and develops abilities in ensemble techniques. Students study in small ensembles (duets, trios, quartets, quintets, and octets) under faculty direction. Students are expected to perform, at a minimum, for one Music Convocation each semester. Course number suffix A designates fall semester and suffix B designates spring semester. Permission of instructor is required. Group 2 course.

MUS 232A - Ensembles - Guitar II
Credit Hours: 1, Contact Hours: 1
Division: Humanities
A continuation of Ensembles, with emphasis on performance and repertoire. This course prepares students for public performance and develops abilities in ensemble techniques. Students study in small ensembles (duets, trios, quartets, quintets, and octets) under faculty direction. Students are expected to perform, at a minimum, for one Music Convocation each semester. Course number suffix A designates fall semester and suffix B designates spring semester. Permission of instructor is required. Group 2 course.

MUS 232B - Ensembles - Guitar II
Credit Hours: 1, Contact Hours: 1
Division: Humanities
A continuation of Ensembles, with emphasis on performance and repertoire. This course prepares students for public performance and develops abilities in ensemble techniques. Students study in small ensembles (duets, trios, quartets, quintets, and octets) under faculty direction. Students are expected to perform, at a minimum, for one Music Convocation each semester. Course number suffix A designates fall semester and suffix B designates spring semester. Permission of instructor is required. Group 2 course.

MUS 233A - Ensembles - Jazz Wind II
Credit Hours: 1, Contact Hours: 1
Division: Humanities
A continuation of Ensembles, with emphasis on performance and repertoire. This course prepares students for public performance and develops abilities in ensemble techniques. Students study in small ensembles (duets, trios, quartets, quintets, and octets) under faculty direction. Students are expected to perform, at a minimum, for one Music Convocation each semester. Course number suffix A designates fall semester and suffix B designates spring semester. Permission of instructor is required. Group 2 course.

MUS 233B - Ensembles - Jazz Wind II
Credit Hours: 1, Contact Hours: 1
Division: Humanities
A continuation of Ensembles, with emphasis on performance and repertoire. This course prepares students for public performance and develops abilities in ensemble techniques. Students study in small ensembles (duets, trios, quartets, quintets, and octets) under faculty direction. Students are expected to perform, at a minimum, for one Music Convocation each semester. Course number suffix A designates fall semester and suffix B designates spring semester. Permission of instructor is required. Group 2 course.

MUS 234A - Ensembles - Small Jazz II
Credit Hours: 1, Contact Hours: 1
Division: Humanities
A continuation of Ensembles, with emphasis on performance and repertoire. This course prepares students for public performance and develops abilities in ensemble techniques. Students study in small ensembles (duets, trios, quartets, quintets, and octets) under faculty direction. Students are expected to perform, at a minimum, for one Music Convocation each semester. Course number suffix A designates fall semester and suffix B designates spring semester. Permission of instructor is required. Group 2 course.
MUS 234B - Ensembles - Small Jazz II
Credit Hours: 1, Contact Hours: 1
Division: Humanities
A continuation of Ensembles, with emphasis on performance and repertoire. This course prepares students for public performance and develops abilities in ensemble techniques. Students study in small ensembles (duets, trios, quartets, quintets, and octets) under faculty direction. Students are expected to perform, at a minimum, for one Music Convocation each semester. Course number suffix A designates fall semester and suffix B designates spring semester. Permission of instructor is required. Group 2 course.

MUS 235A - Ensembles - Vocal Opera II
Credit Hours: 1, Contact Hours: 1
Division: Humanities
A continuation of Ensembles, with emphasis on performance and repertoire. This course prepares students for public performance and develops abilities in ensemble techniques. Students study in small ensembles (duets, trios, quartets, quintets, and octets) under faculty direction. Students are expected to perform, at a minimum, for one Music Convocation each semester. Course number suffix A designates fall semester and suffix B designates spring semester. Permission of instructor is required. Group 2 course.

MUS 236B - Ensembles - Vocal Jazz II
Credit Hours: 1, Contact Hours: 1
Division: Humanities
A small ensemble of men’s and women’s voices rehearses and performs vocal jazz works. Develop skills in vocal jazz styles, blending harmonies, microphone technique, and jazz theory. Group 2 course.

MUS 237A - Ensembles - Strings II
Credit Hours: 1, Contact Hours: 1
Division: Humanities
A continuation of Ensembles, with emphasis on performance and repertoire. This course prepares students for public performance and develops abilities in ensemble techniques. Students study in small ensembles (duets, trios, quartets, quintets, and octets) under faculty direction. Students are expected to perform, at a minimum, for one Music Convocation each semester. Course number suffix A designates fall semester and suffix B designates spring semester. Permission of instructor is required. Group 2 course.

MUS 239B - Ensembles - Brass
Credit Hours: 1, Contact Hours: 1
Division: Humanities
A continuation of Ensembles, with emphasis on performance and repertoire. This course prepares students for public performance and develops abilities in ensemble techniques. Students study in small ensembles (duets, trios, quartets, quintets, and octets) under faculty direction. Students are expected to perform, at a minimum, for one Music Convocation each semester. Course number suffix A designates fall semester and suffix B designates spring semester. Permission of instructor is required. Group 2 course.

MUS 240 - Applied Music - Violin
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jcobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform for, at a minimum, one Music Convocation each semester. Group 2 course.

Recommended Prerequisites: MUS 140
MUS 240B - Applied Music - Violin
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 240C - Applied Music - Violin
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 241 - Applied Music - Viola
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 241B - Applied Music - Viola
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 242 - Applied Music - Cello
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 242B - Applied Music - Cello
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 242C - Applied Music - Cello
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 243 - Applied Music - Double Bass
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

Recommended Prerequisites: MUS 142

MUS 244 - Applied Music - Oboe
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

Recommended Prerequisites: MUS 143
MUS 243B - Applied Music - Double Bass
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.
Recommended Prerequisites: MUS 144

MUS 244 - Applied Music - Flute
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 244B - Applied Music - Flute
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 244D - Applied Music - Flute
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 244E - Applied Music - Flute
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 245 - Applied Music - Oboe
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.
Recommended Prerequisites: MUS 145

MUS 245B - Applied Music - Oboe
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.
MUS 246 - Applied Music - English Horn
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 246B - Applied Music - English Horn
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 247 - Applied Music - Clarinet
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

Recommended Prerequisites: MUS 147

MUS 247B - Applied Music - Clarinet
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 248 - Applied Music - Bass Clarinet
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 248B - Applied Music - Bassoon
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 249 - Applied Music - Bassoon
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 249B - Applied Music - Bassoon
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.
MUS 250 - Applied Music - Contrabassoon
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 250B - Applied Music - Contrabassoon
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 251 - Applied Music - Saxophone
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course. Recommended Prerequisites: MUS 151

MUS 251B - Applied Music - Saxophone
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 252 - Applied Music - Trumpet
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course. Recommended Prerequisites: MUS 152

MUS 252B - Applied Music - Trumpet
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 253 - Applied Music - French Horn
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 253B - Applied Music - French Horn
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.
MUS 254 - Applied Music - Trombone
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

Recommended Prerequisites: MUS 154

MUS 254B - Applied Music - Trombone
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 254C - Applied Music - Trombone
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 255 - Applied Music - Bass Trombone
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 255B - Applied Music - Bass Trombone
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 256 - Applied Music - Baritone
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 256B - Applied Music - Baritone
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.
MUS 257 - Applied Music - Tuba
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 257B - Applied Music - Tuba
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 258 - Applied Music - Percussion
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 258B - Applied Music - Percussion
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.
MUS 260B - Applied Music - Voice
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 260C - Applied Music - Voice
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 260D - Applied Music - Voice
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 261 - Applied Music - Recorder
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 261B - Applied Music - Recorder
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 262 - Applied Music - Guitar
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 262B - Applied Music - Guitar
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.
MUS 263 - Applied Music - Jazz Guitar
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.
Recommended Prerequisites: MUS 163

MUS 263B - Applied Music - Jazz Guitar
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.
Recommended Prerequisites: MUS 163

MUS 263C - Applied Music - Jazz Guitar
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 264 - Applied Music - Classical Guitar
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.
Recommended Prerequisites: MUS 164

MUS 264B - Applied Music - Classical Guitar
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 265 - Applied Music - Electric Bass
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.
Recommended Prerequisites: MUS 165

MUS 265B - Applied Music - Electric Bass
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.

MUS 266 - Applied Music - Organ
Credit Hours: 1-2, Contact Hours: 1-2
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.
Recommended Prerequisites: MUS 166
Naval Science (MNS)

MNS 100 - Naval Science
Credit Hours: 2, Contact Hours: 2
Division: Maritime
This course is required of all Maritime Academy cadets and is an introduction to Naval Science specifically oriented toward Merchant Marine officers. It is intended to familiarize students with the role of the Merchant Marine in national defense and policy and with the various concepts of cooperation between the Navy and the Merchant Marine Industry. Group 2 course.

MNS 200 - Naval Science II
Credit Hours: 2, Contact Hours: 2
Division: Maritime
This course is required of all Maritime Academy cadets who are midshipmen in the Merchant Marine Reserve/U.S. Naval Reserve program. It familiarizes the student with naval missions and heritage as well as to assist the Merchant Marine officer make the transition from civilian to sailor. Group 2 course.
Required Prerequisites: MNS 100

MNS 250 - Leadership and Ethics
Credit Hours: 2, Contact Hours: 2
Division: Maritime
This course is required of all Maritime Academy cadets who are midshipmen in the Merchant Marine Reserve/U.S. Naval Reserve program. It introduces students to western moral traditions and ethical philosophy with a variety of topics, such as military leadership, core values, and professional ethics that will prepare them for their role and responsibilities as a leader in the U.S. Navy of the 21st century. Group 2 course.
Required Prerequisites: MNS 200 or instructor permission.

Nursing (HNR)

HNR 101 - Fundamentals of Nursing-Lectur
Credit Hours: 4, Contact Hours: 4
Division: Health Occupations
The students learn the foundation for professional nursing practice. Emphasis is placed on the principles and skills needed to apply the clinical judgment required for safe patient-centered care. Communication is emphasized as an essential aspect of the professional role. Group 2 course.
Required Prerequisites: Admission to the nursing program; BIO 228 with a grade of 2.5 or higher; may be taken concurrently.
Corequisites: HNR 102, HNR 106

HNR 102 - Fund of Nursing-Clinical
Credit Hours: 4, Contact Hours: 12
Division: Health Occupations
Through laboratory and/or clinical experience students learn about the professional identity of the nurse while acquiring and applying basic nursing knowledge, judgment, and skills in order to provide safe patient-centered care. Group 2 course. Critical Thinking - Direct, Quantitative Reasoning.
Required Prerequisites: Admission to the nursing program; BIO 228 with a grade of 2.5 or higher, may be taken concurrently.
Corequisites: HAH 100C, HNR 101, HNR 106, HPD 110

HNR 106 - Pharmacology I
Credit Hours: 1, Contact Hours: 1
Division: Health Occupations
Students learn an overview of pharmacology with emphasis on clinical applications within the context of the nursing process. The course explores pharmacological principles, including indications, modes of action, side effects, contraindications and medical calculations for the safe administration of medications. Specific nursing judgment and collaborative responsibilities for drug administration are emphasized. Legal statutes and standards regulating drug administration within the scope of nursing professional identity are presented. Individualized patient variables across the lifespan will also be a focus of study. Group 2 course. Quantitative Reasoning.
Required Prerequisites: Admission to the nursing program, BIO 228 with a grade of 2.5 or better, may be taken concurrently.
Corequisites: HNR 101, HNR 102

HNR 107 - Pharmacology II
Credit Hours: 2, Contact Hours: 2
Division: Health Occupations
Students learn an overview of pharmacology with emphasis on clinical applications within the context of the nursing process. The course is organized by medication classification. It explores indications, modes of action, side effects, contraindications and interactions for the safe administration of select drugs. Specific individualized patient care, nursing judgment, and collaborative responsibilities to drug administration are emphasized. Group 2 course.
Required Prerequisites: HAH 100C, HNR 101, and HNR 106 with a grade of 2.5 or above; HNR 102 with an S
Corequisites: HNR 125, HNR 126

HNR 125 - Lifespan Nursing Lecture
Credit Hours: 5, Contact Hours: 5
Division: Health Occupations
Presentation of nursing management of health care issues related to uncomplicated pregnancy, birth, and neonatal period. Introduction of nursing management of common health alterations found in both chronically and acutely ill clients across the lifespan. Emphasis will be made on utilizing evidence-based practice to identify appropriate nursing interventions to achieve the desired outcome for the client based on their developmental level across the lifespan. Group 2 course.
Required Prerequisites: BIO 228, HAH 100C, HNR 101, and HNR 106 with a grade of 2.5 or higher; HNR 102 with an S
Corequisites: HNR 107, HNR 126
HNR 126 - Lifespan Nursing - Clinical
Credit Hours: 5, Contact Hours: 15
Division: Health Occupations
Clinical experiences providing opportunities to apply principles studied in HNR 125. Clinical learning environments will include the opportunity to apply medical-surgical, pediatric, and obstetric nursing interventions in a variety of settings, including acute care and simulation experiences. Group 2 course. Quantitative Reasoning.
Required Prerequisites: BIO 228, HAH 100C, HNR 101 HNR 106 with a grade of 2.5 or higher; HNR 102 with an S
Corequisites: HNR 107, HNR 125

HNR 245 - Practical Nursing Roles & Issues
Credit Hours: 1, Contact Hours: 1
Division: Health Occupations
Reviews ethical/legal responsibilities of the LPN. Presents issues and trends related to LPN practice, nursing organizations, continuing education, and licensure. Discusses occupational opportunities and provides information on employment search, job-seeking skills and transition issues. Group 2 course. Critical Thinking - Direct.
Required Prerequisites: HNR 125 with a grade of 2.5 or higher, and HNR 126 with an S, may be taken concurrently

HNR 221 - Acute Care Nursing I
Credit Hours: 1.5, Contact Hours: 1.5
Division: Health Occupations
Presentation of nursing interventions and concepts required for adult patients with complex medical-surgical disorders. Emphasizes advanced assessment, analysis, nursing judgment, and nursing accountability. The focus is on adult patients with multiple complex requirements. Geriatric considerations are presented and integrated throughout. Group 2 course.
Required Prerequisites: HNR 251 with 2.5 or higher, HNR 252 with an S
Corequisites: HNR 241, HNR 242

HNR 222 - Acute Care Nursing II
Credit Hours: 1.5, Contact Hours: 1.5
Division: Health Occupations
A continuation of presentation of nursing interventions and concepts required for adult patients with complex medical-surgical disorders. Emphasizes advanced assessment, analysis, nursing judgment, and nursing accountability. The focus is on adult patients with multiple complex requirements. Geriatric considerations are presented and integrated throughout. Group 2 course.
Required Prerequisites: HNR 221 and HNR 241 with a grade of 2.5 or higher, HNR 242 with an S
Corequisites: HNR 248, HNR 261

HNR 241 - Adv Maternal Child Nursing - Lec
Credit Hours: 3, Contact Hours: 3
Division: Health Occupations
This course provides information on complex problems facing families coping with complications during the childbearing/childrearing process, including an identification of at-risk families. These concepts will be applied to review of complications occurring during childhood and the prenatal, intrapartum and postpartum periods. Group 2 course.
Required Prerequisites: HNR 251 with a grade of 2.5 or higher and HNR 252 with an S
Corequisites: HNR 221, HNR 242

HNR 242 - Adv Maternal Child Nursing - Cli
Credit Hours: 2, Contact Hours: 6
Division: Health Occupations
This course provides for the clinical application of the principles presented in the co requisite: HNR 241. Maternity clinical time will occur in an inpatient unit and pediatric clinical time will be in an acute or community pediatric setting observing and caring for pediatric patients. Students will complete a detailed family assessment, be involved in clinical simulations, and participate in these experiences by observing and/or directly providing care to at-risk families coping with childbearing and/or childrearing stressors/issues. Group 2 course. Communications - Direct, Quantitative Reasoning.
Required Prerequisites: HNR 251 with a grade of 2.5 or higher and HNR 252 with an S
Corequisites: HNR 221, HNR 241

HNR 248 - Acute Care Nursing - Clinical
Credit Hours: 4, Contact Hours: 12
Division: Health Occupations
Clinical experience providing opportunities to apply principles presented in HNR 221 and HNR 222. Emphasis is upon refinement of organization, decision-making, critical thinking, and priority-setting skills in the care of multiple clients with complex medical-surgical disorders. Group 2 course. Communications - Direct, Quantitative Reasoning.
Required Prerequisites: HNR 221, HNR 241, HNR 242
Corequisites: HNR 222, HNR 261

HNR 251 - Mental Health Nursing - Lec
Credit Hours: 2, Contact Hours: 2
Division: Health Occupations
This course is designed to enable the student to better understand behavior exhibited by persons with mental disorders. Classifications, causes, and symptoms of mental diseases are presented and treatments such as individual, group, and activity therapies are explored. Emphasis is placed on the ways by which the nurse determines, develops, implements, and evaluates a therapeutic environment for the client. The implementing of theories of human behavior is the scientific aspect of mental health-psychiatric nursing; the purposeful use of the self in the performance of care is the artful aspect. The goal is preventative and corrective impact upon mental illness and the restoration of optimal mental health for individuals. Group 2 course.
Required Prerequisites: HNR 125 and HNR 107 with a grade of 2.5 or higher; HNR 126 with a grade of S
Corequisites: HNR 252

HNR 252 - Mental Health Nursing - Clinical
Credit Hours: 1, Contact Hours: 3
Division: Health Occupations
Clinical experience providing opportunities to apply principles presented in HNR 251. A variety of clinical settings addressing mental health issues in acute care, long-term care, and in community agencies are utilized. Emphasis is placed upon the exercise of critical thinking in addressing mental health issues and concerns. Additionally, students identify and analyze community resources of use to persons with mental health issues. Group 2 course. Communications - Direct, Quantitative Reasoning.
Required Prerequisites: HNR 125 and HNR 107 with a grade of 2.5 or higher; HNR 126 with a grade of S
Corequisites: HNR 251
HNR 261 - Nursing Management
Credit Hours: 3, Contact Hours: 3
Division: Health Occupations
Introduces principles of leadership and management as these relate to providing nursing care to a group of patients. The principles of delegation, communication, and priority-setting are reviewed and a variety of nursing management challenges are discussed, including team building, managing change, conflict resolution, power and authority, political action, economic aspects of health care, legal/ethical issues, and emergency preparedness. Job-seeking skills, NCLEX-RN preparation, and issues related to role transition are discussed. Group 2 course.
Required Prerequisites: HNR 221 and HNR 241 with a grade of 2.5 or higher; HNR 242 with S
Corequisites: HNR 222, HNR 248, HNR 262

HNR 262 - Nursing Management Clinical
Credit Hours: 4, Contact Hours: 12
Division: Health Occupations
Clinical experience providing opportunities to apply principles presented in HNR 261. Emphasis is placed upon organizational skills, time management, critical thinking, and the exercise of clinical judgment in managing the care for a normal RN caseload of patients. Students perform nursing care in the clinical area 24 hours per week for eight weeks with the goal of promoting a successful role transition from student to entry-level professional nurse. Group 2 course. Quantitative Reasoning.
Required Prerequisites: HNR 222 with a grade of 2.5 or higher; HNR 248 with S
Corequisites: HNR 261

Philosophy (PHL)

PHL 105 - Critical Thinking
Credit Hours: 3, Contact Hours: 3
Division: Humanities
This course is about listening, reading, speaking, and writing more effectively. Students learn ways to assess information and to form sound evaluative judgments about what is seen, read, and heard. Critical questions provide a structure for critical thinking that supports a continuing search for better opinions, decisions, and judgments. Exercises in understanding and composing logically sound arguments are emphasized. Students learn what is fair and reasonable in an argument’s structure. Examples are taken from various areas such as law, medicine, and politics, as well as from everyday life. Fallacies in rhetoric, such as name calling and begging the question, are identified and understood. Group 1 course. Communications - Direct, Critical Thinking - Direct, Degree Req:Cultural Persp/Div, Infused: Writing Intensive.
Recommended Prerequisites: Completion of ENG 11/111 or placement into ENG 111

PHL 121 - Western Religions
Credit Hours: 4, Contact Hours: 4
Division: Humanities
Western Religions is a study of the historical development, main religious teachings, leading personalities, ethical values, and worship practices of the major religious traditions of the western world: Judaism, Christianity, and Islam. Group 1 course. Communications - Direct, Critical Thinking - Direct, Degree Req:Cultural Persp/Div, Infused: Writing Intensive.
Recommended Prerequisites: Completion of ENG 11/111 or placement into ENG 111

PHL 122 - Eastern Religions
Credit Hours: 4, Contact Hours: 4
Division: Humanities
Eastern Religions is a study of the historical development, main religious teachings, leading personalities, ethical values, and worship practices of the major religious traditions of India, China, and Japan: Hinduism, Buddhism, Confucianism, and Taoism. Group 1 course. Communications - Direct, Critical Thinking - Direct, Degree Req:Cultural Persp/Div, Infused: Writing Intensive.
Recommended Prerequisites: Completion of ENG 11/111 or placement into ENG 111

PHL 201 - Ethics
Credit Hours: 3, Contact Hours: 3
Division: Humanities
Ethics is a thoughtful analysis of a variety of value systems found in societies today. It explores the nature and meaning of good and evil and how these concepts relate to concepts of right and wrong. Through the use of critical judgment and philosophical thought, the course explores ethical theories from classical to modern times and includes consideration of ethics that are part of Eastern philosophical traditions as well as sources from other non-traditional frameworks and paradigms.
Group 1 course. Communications - Direct, Critical Thinking - Direct, Degree Req:Cultural Persp/Div, Infused: Writing Intensive.
Recommended Prerequisites: Completion of ENG 11/111 or placement into ENG 111
PHL 202 - Contemporary Ethical Dilemmas  
**Credit Hours:** 3, **Contact Hours:** 3  
**Division:** Humanities  
Contemporary Ethical Dilemmas examines the moral and ethical issues confronting modern societies locally and globally. Possible topics to be examined may include: the natural environment, the ethical treatment of animals, biomedical ethics; abortion and issues of human reproduction such as stem-cell research and cloning; business ethics; criminal justice and capital punishment; racism, sexism, and other forms of discrimination, welfare and economics distribution. This course relies on the discipline of philosophy for its methods of inquiry with critical thinking serving as a guiding concept. Traditional approaches to ethics will be incorporated throughout the course. Eastern/Asian and Native American philosophy may also be considered for contrast with standard western approaches to ethical and social issues. This course considers various topics and specific cases in order to provide an overall view of how ethical reasoning might be applied to current issues. Group 1 course.  
**Communications - Direct, Critical Thinking - Direct, Degree Req:** Cultural Persp/Div, Infused: Writing Intensive.  
Recommended Prerequisites: Completion of ENG 11/111 or placement into ENG 111

PHL 203 - Environmental Ethics  
**Credit Hours:** 3, **Contact Hours:** 3  
**Division:** Humanities  
Environmental Ethics is an introduction to the major approaches to environmental ethics, including anthropocentrism, biocentrism, deep ecology, and ecofeminism, as well as several others based on both Western and non-western philosophical and religious traditions. Since environmental ethics draws on a variety of disciplines, some of the perspectives presented will draw heavily on scientific arguments which emphasize methods based on reason, logic, objectivity, and repeatability. Other perspectives will draw on intuition, emotion, imagination, artistic, historic, and religious views, as well as everyday experience. A variety of perspectives will be examined for the purpose of both forming and informing one’s own environmental ethics. Group 1 course.  
**Communications - Direct, Critical Thinking - Direct, Degree Req:** Cultural Persp/Div, Infused: Writing Intensive.  
Recommended Prerequisites: Completion of ENG 11/111 or placement into ENG 111

PHL 202 - Philosophy Study Abroad  
**Credit Hours:** 1, **Contact Hours:** 1  
**Division:** Humanities  
In this class, students are provided the opportunity to travel to a specified destination affiliated with the corresponding philosophy non-trip course. This course will serve to integrate the student learning experience and provide a sense of cultural perspective, diversity and regional awareness. The course is an opportunity for students to explore other areas around the world while applying discipline-specific course content. For a more specific course description, please review the course description of the associated non-trip course. Group 2 course.  
Required Prerequisites: PHL 121, or PHL 122

**Physics (PHY)**

PHY 105 - Physics of the World Around Us  
**Credit Hours:** 4, **Contact Hours:** 5  
**Division:** Science Math  
This course is an introduction to the fundamental principles developed to describe the physical universe. In particular, the subjects of mechanics, heat, electricity and magnetism, waves, and light are surveyed. The development of conceptual understanding and critical-thinking skills is emphasized. Group 1 lab course. Quantitative Reasoning.  
Required Prerequisites: MTH 23  
Recommended Prerequisites: ENG 111  
Corequisites: PHY 105L

PHY 105L - Physics/World Around Us Lab  
**Credit Hours:** 0, **Contact Hours:** 0  
**Division:** Science Math  
See PHY 105 for course description.  
Corequisites: PHY 105

PHY 121 - General Physics I  
**Credit Hours:** 4, **Contact Hours:** 6  
**Division:** Science Math  
This is the first course in a two semester sequence in General Physics. Topics include kinematics, Newton's Laws, conservation of momentum, conservation of energy, rotational motion, oscillations, and fluids. The laboratory covers the preceding topics in parallel with the lecture whenever possible. The development of conceptual understanding and problem solving skills is emphasized. Group 1 lab course. Quantitative Reasoning.  
Required Prerequisites: MTH 122  
Recommended Prerequisites: ENG 111  
Corequisites: PHY 121L

PHY 121L - General Physics I Lab  
**Credit Hours:** 0, **Contact Hours:** 0  
**Division:** Science Math  
See PHY 121 for course description.  
Corequisites: PHY 121

PHY 122 - General Physics II  
**Credit Hours:** 4, **Contact Hours:** 6  
**Division:** Science Math  
This course is a continuation of PHY 121. Topics include thermodynamics, waves, electricity, electric circuits, magnetism, and optics. The laboratory covers the preceding topics in parallel with the lecture whenever possible. The development of conceptual understanding and problem solving skills is emphasized. Group 1 lab course. Quantitative Reasoning.  
Required Prerequisites: PHY 121, PHY 121L, MTH 122  
Recommended Prerequisites: ENG 111  
Corequisites: PHY 122L

PHY 122L - General Physics II Lab  
**Credit Hours:** 0, **Contact Hours:** 0  
**Division:** Science Math  
See PHY 122 for course description.  
Corequisites: PHY 122
PHY 221 - Problems & Princ.of Physics I
Credit Hours: 4, Contact Hours: 5
Division: Science Math
This course is the first semester of a two-semester course sequence primarily intended for those students preparing for engineering, science, or math careers. Topics include kinematics, Newton's Laws, conservation of momentum, conservation of energy, rotational motion, oscillations, and fluids. The development of conceptual understanding and problem-solving skills are emphasized. Computers are used for data acquisition and analysis. The laboratory covers the preceding topics in parallel with the lecture whenever possible. Group 1 lab course. Quantitative Reasoning.
Required Prerequisites: MTH 141, may be taken concurrently
Recommended Prerequisites: ENG 111
Corequisites: PHY 221L, PHY 221R

PHY 221L - Prob./Prin. of Physics I Lab
Credit Hours: 0, Contact Hours: 0
Division: Science Math
See PHY 221 for course description.
Corequisites: PHY 221, PHY 221R

PHY 222 - Prob. & Princ. of Physics II
Credit Hours: 4, Contact Hours: 5
Division: Science Math
This course is a continuation of PHY 221. Topics include thermodynamics, waves, electricity, electric circuits, magnetism and optics. The laboratory covers the preceding topics in parallel with the lecture whenever possible. The development of conceptual understanding and problem solving skills is emphasized. Group 1 lab course. Quantitative Reasoning.
Required Prerequisites: PHY 221, PHY 221L, PHY 221R, MTH 141
Recommended Prerequisites: ENG 111
Corequisites: PHY 222L, PHY 222R

PHY 222L - Prob./ Prin. of Physics II Lab
Credit Hours: 0, Contact Hours: 0
Division: Science Math
See PHY 221/222 for course description.
Corequisites: PHY 222, PHY 222R

PHY 222R - Prob. & Princ. of Physics II R
Credit Hours: 1, Contact Hours: 2
Division: Science Math
This course is a recitation to accompany PHY 222. Group 1 course.
Corequisites: PHY 222, PHY 222L

PLU 105 - Plumbing Components
Credit Hours: 3, Contact Hours: 4
Through structured classroom and hands-on skill building, the student will learn to work with copper pipe and fittings, cast-iron pipe and fittings, carbon steel pipe and fittings, corrugated stainless steel tubing, fixtures and faucets, drain waste and vent systems and water distribution systems. Group 2 course.
Required Prerequisites: PLU 101

PLU 121 - Commercial Plumbing
Credit Hours: 3, Contact Hours: 4
Through structured classroom and hands-on skill building, the student will learn to read commercial drawings, install hangers, supports, structural penetrations, and fire stopping, installation and testing DWV piping. Group 2 course.
Required Prerequisites: PLU 105

PLU 125 - Plumbing Installation
Credit Hours: 3, Contact Hours: 4
Through structured classroom and hands-on skill building, the student will learn installation of roof, floor, and drain areas, types of valves, installing and testing water supply piping, installing fixtures, valves, and faucets, basic electricity, installing water heaters, fuel gas systems and servicing plumbing fixtures. Group 2 course.
Required Prerequisites: PLU 121

Political Science (PLS)

PLS 101 - Intro to American Politics
Credit Hours: 3, Contact Hours: 3
Division: Social Science
This course is an introduction to the study of politics and political institutions in America. Emphasis is given to the constitutional framework, federalism, political participation, the role of the media in the political process, the electoral system, American political parties, the presidency, Congress, the Supreme Court, and the bureaucracy. Civil rights and civil liberties are a theme throughout. This course includes an examination of the politics of race, ethnicity, and cultural diversity in America. Group 1 course.
Communications - Direct, Critical Thinking - Direct, Degree Req: Cultural Persp/Div, Infused: Writing Intensive.
Recommended Prerequisites: Placement into ENG 111/11

PLS 132 - Comparative Politics
Credit Hours: 3, Contact Hours: 3
Division: Social Science
This course provides a comparative analysis of political systems in developed and developing countries. Students learn about different forms of political organization as instituted and practiced in various countries. Students examine different methods of comparing political systems and learn to apply these methods in causal theories of political change. This course combines a focus on the basic structures of political systems with a thought-provoking analyses of the causal factors that influence the development of those systems and the impact these systems have on the people that live within them. Issues related to democracy, civil liberties, political rights, human rights, and economic development are analyzed throughout the course. Group 1 course.
Communications - Direct, Critical Thinking - Direct, Degree Req: Cultural Persp/Div, Infused: Writing Intensive.
Recommended Prerequisites: Placement into ENG 111/11

Plumbing (PLU)

PLU 101 - Introduction to Plumbing
Credit Hours: 3, Contact Hours: 4
This course provides an introduction to plumbing. Through structured classroom and hands-on skill building, the student will learn the tools of the trade, plumbing safety, how to solder and braze copper tubing, piping skills and trade mathematics. Group 2 course.
Recommended Prerequisites: Placement into MTH 23 and ENG 111/11 or co-enrollment in the recommended developmental Math and English course.
PLS 211 - International Relations
Credit Hours: 3, Contact Hours: 3
Division: Social Science
Students analyze the nature of international relations and global politics today. This course offers a broad overview of political and economic issues in the international arena. Students assess the dynamics of conflict and cooperation through various case studies and analyses. Topics include such things as conflict in the Middle East, ethnic conflict and nationalism the world over, the threat of global terrorism in the 21st century, the rise of China as an assertive world power, the increasing importance of organizations such as the United Nations and the World Trade Organization, cultural and economic globalization, and global ecological issues. Course includes an examination of the basic analytical approaches to the study of international relations. Group 1 course. Communications - Direct, Critical Thinking - Direct, Infused: Writing Intensive.
Recommended Prerequisites: Placement into ENG 111

PLS 222 - Intro to Political Theory
Credit Hours: 3, Contact Hours: 3
Division: Social Science
Introduction to Political Theory examines the foundational questions of normative political theory as developed by political philosophers of the ancient through contemporary periods. The course focuses on a wide array of political and ethical issues. Topics of consideration include: the rights of the individual v. the rights of the community; the nature of human equality and the reality of human inequalities; conceptions of justice put forth by various philosophers; and questions of what it means to achieve freedom in one's social and political life. Students can expect to read almost exclusively from primary sources. Examples of thinkers studied in this course include Plato, Aristotle, Machiavelli, Hobbes, Locke, Rousseau, Kant, Marx, Mill, Nietzsche, Arendt, and Rawls. Group 1 course. Communications - Direct, Critical Thinking - Direct, Infused: Writing Intensive.
Recommended Prerequisites: Placement into ENG 111

PLS 233 - U.S. Foreign Policy
Credit Hours: 3, Contact Hours: 3
Division: Social Science
This course examines U.S. foreign policy, with a focus on the challenges the United States has faced since WWII. Students analyze the goals of policy-makers and the obstacles encountered as they attempt to achieve those goals. Issues for in-depth analysis include: cold war foreign policy; terrorism and fundamentalism; foreign policy responses to recent trends of economic globalization; WMD, arms control and non-proliferation issues; the U.S. invasions and occupations of Afghanistan and Iraq; a rising China and the challenges this presents to U.S. hegemony; and many others. This course uses political science models to analyze real world events in U.S. foreign policy. Group 1 course. Communications - Direct, Critical Thinking - Direct.
Recommended Prerequisites: PLS 101 or PLS 211. Recommended competencies: Placement into MTH 23 and ENG 11/111.

PLS 290A - Academic Service/Internship
Credit Hours: 1-4, Contact Hours: 1-4
Division: Social Science

Professional Development (HPD)

HPD 110 - BLS for Health Care Providers
Credit Hours: 0.2, Contact Hours: 0.2
Division: Health Occupations
Provides basic life support training, certification, and re-certification for students in the healthcare field who will need these skills in clinical practice. Students will take an online class through the American Heart Association (AHA), complete the post test, and print the certificate. Once the post test is successfully completed, students will sign up for a lab time to complete a practical exam to demonstrate the skills they learned. The certificate will be required to take the practical exam. Group 2 course. Required Prerequisites: Admission to the ADN or PN programs or the Dental Assisting program, or by instructor permission.

Psychology (PSY)

PSY 100 - Career Exploration & Planning
Credit Hours: 1, Contact Hours: 1
Division: Social Science
Planning a career can be challenging because of the unknown. This course is designed to introduce the student to career and life planning theories and concepts and assist in applying these principles to their own lives. A variety of techniques will be used to accomplish this including self-assessment of skills, values, interests, personality type, and strengths. Development of goal setting and decision making skills will be included to assist students in taking charge of their career direction. Group 2 course. Communications - Direct, Critical Thinking - Direct.

PSY 101 - Introduction to Psychology
Credit Hours: 3, Contact Hours: 3
Division: Social Science
This course provides a broad, general introduction to psychology, its basic subject matter, and its approaches to gathering and evaluating evidence about the causes and correlates of behavior. It includes: a) awareness of major psychological approaches to the study of the behavior of organisms; b) knowledge of its important contributors; c) knowledge of research findings, and concepts; d) understanding of its methodology and limitations. Group 1 course. Critical Thinking - Direct.
Recommended Prerequisites: Placement into ENG 111/11

PSY 211 - Developmental Psychology
Credit Hours: 3, Contact Hours: 3
Division: Social Science
This course presents human development from conception to death including the historical and anthropological basis for studying development. The course includes hereditary factors as well as physical, social, linguistic, intellectual, and personality development. Group 1 course. Critical Thinking - Direct.
Required Prerequisites: PSY 101
Recommended Prerequisites: Placement into ENG 111/11

PSY 221 - Psychology of Personality
Credit Hours: 3, Contact Hours: 3
Division: Social Science
This course provides a presentation of the concepts, perspectives and terminology of major theorists in the field of personality psychology, as students explore the many psychological, physiological, social and cultural factors that affect personality development. Students are encouraged to evaluate personality theories in relation to current research and application. Group 1 course. Critical Thinking - Direct.
Required Prerequisites: PSY 101
Recommended Prerequisites: Placement into ENG 111/11
PSY 223 - Intro to Social Psychology
Credit Hours: 3, Contact Hours: 3
Division: Social Science
This course is an introduction to social psychology theory and research, covering the interactions of individuals and the relationships of individuals to groups. This course includes such topics as social influence, attitudes, socialization, aggression, prejudice, attraction, obedience, conformity, altruism, person perception, and personality. Group 1 course. Critical Thinking - Direct.
Required Prerequisites: PSY 101 or SOC 101
Recommended Prerequisites: Placement into ENG 111

PSY 225 - Human Sexuality
Credit Hours: 3, Contact Hours: 3
Division: Social Science
Human Sexuality offers an introduction to all facets of the field, and involves discussions of theory, research, and practical information. The purpose of the course will be to develop a critical awareness of the dominant issues in the field and to refine the student's sense of sexual responsibility and integrity. This will be accomplished by exploring the biological, social, cultural, psychological, and personal elements of sexuality. Group 1 course. Critical Thinking - Direct. Infused: Writing Intensive.
Recommended Prerequisites: PSY 101, placement into ENG 111.

PSY 231 - Psychology of Adjustment
Credit Hours: 3, Contact Hours: 3
Division: Social Science
First, this course will provide the student with a broad introduction to the psychology of adjustment that investigates the processes involved in the dynamic interactions of the individual with his or her environment. Second, this course is designed to present procedures by which the student can harness the principles of learning and rational self-counseling in order to achieve personal goals. Group 1 course. Critical Thinking - Direct.
Required Prerequisites: PSY 101
Recommended Prerequisites: Placement into ENG 111

PSY 250 - Abnormal Psychology
Credit Hours: 3, Contact Hours: 3
Division: Social Science
In this course students will create a working vocabulary of the basic concepts of psychopathology, critically analyze theories and therapies, develop empathy toward the mentally ill and their families, and uncover strategies for living emotionally healthy lives. They will communicate their understanding in a variety of ways and develop strategies for self-assessment of progress toward course outcomes. Group 1 course. Communications - Direct, Critical Thinking - Direct, Infused: Writing Intensive.
Required Prerequisites: PSY 101
Recommended Prerequisites: Placement into ENG 111

PSY 290A - Academic Service/Internship
Credit Hours: 1-4, Contact Hours: 1-4
Division: Social Science
Communications - Direct.

Renewable Energy (EGY)

EGY 101 - Principles of Renewable Energy
Credit Hours: 3, Contact Hours: 3
This course covers the basic principles and history of renewable energy sources. Industry and governmental perspectives on geothermal, wind, solar, biomass, fuel cells, and other energy sources are highlighted. This course is required to achieve a Level II Certificate in Renewable Energy Technology. Group 2 course.
Recommended Prerequisites: ENG 111, may be taken concurrently
Recommended Prerequisites: Placement in MTH 23 or co-enrollment in the recommended developmental Math course, placement into ENG 11/111 or co-enrollment in the recommended English course.

EGY 105 - Sustainable Building Design
Credit Hours: 3, Contact Hours: 3
This course provides a broad introduction to sustainable building practices. Through structured classroom activities, the student will learn about the structure of matter and the material world, whole system thinking, site and natural energy mapping, water resources, building orientation, materials and resources, indoor air quality, innovation and design. This course is required to achieve a Level II Certificate in Renewable Energy Technology. Group 2 course.
Recommended Prerequisites: Placement in MTH 23 or co-enrollment in the recommended developmental Math course, placement into ENG 11/111 or co-enrollment in the recommended English course.

EGY 115 - Residential Energy Efficiency
Credit Hours: 3, Contact Hours: 3
This course provides a broad spectrum of information regarding basic residential energy conservation. Through structured classroom and hands-on skill building, the student will learn about the principles of energy, building shell construction, air leakage, insulation, windows and doors, heating, lighting, cooling, water heating, health, and safety. This course, or its equivalency, is a required class for the Renewable Energy Certificate Program. Group 2 course.

EGY 141 - Solar Photovoltaic Tech I
Credit Hours: 3, Contact Hours: 3
Through structured lecture and practical skill building, students will become familiar with Solar Photovoltaic applications, solar radiation, basics of a site survey, system components, system sizing, and preparation of a solar installation. Group 2 course.
Required Prerequisites: ELE 105
Recommended Prerequisites: MTH 23 or placement into MTH 111, ENG 111

EGY 143 - Solar Thermal Technology I
Credit Hours: 3, Contact Hours: 4
This course provides an introduction to solar hot water heating systems. Through structured classroom and hands-on skill building, the student will learn the history of solar thermal heating systems, components, drainback systems, glycol systems, start up and maintenance procedures, savings and performance estimates, system control, monitoring and testing and solar space heating design. Group 2 course.
Required Prerequisites: PLU 101
Recommended Prerequisites: MTH 23 or placement into MTH 111, ENG 111
EGY 145 - Geothermal Technology  
Credit Hours: 3, Contact Hours: 4  
This course introduces the basic principles of geothermal energy production and technology. Essentials on how to utilize geothermal technology as an energy source will be analyzed and demonstrated. Examples of residential and commercial applications will be shown and reviewed. Group 2 course.  
Required Prerequisites: EET 103, RAM 155  
Recommended Prerequisites: MTH 23 or placement into MTH 111, ENG 111

Robotics and Automation (RAM)  
RAM 155 - Microcontroller Programming  
Credit Hours: 3, Contact Hours: 4  
Division: Technical  
This course introduces students to microcontroller systems and programming using Python language. Students construct a wheeled robot and learn to program the device. Standard coding structures including statements, loops, and functions are used to control the unit. Debugging and troubleshooting skills are developed as robot capabilities are implemented. The robot is used in subsequent Engineering Technology courses. Group 2 course. Critical Thinking - Direct.  
Required Prerequisites: MTH 111-may be taken concurrently  
Recommended Prerequisites: Basic keyboarding and computer skills.

RAM 205 - Microcontroller Systems  
Credit Hours: 3, Contact Hours: 4  
Division: Technical  
This course is a continuation of RAM 155 - Microcontroller Programming. Students implement additional abilities for their robot created during RAM 155, utilizing custom sensors, actuators, and interfaces. Activities require the application and extension of both hardware and software skills developed in prerequisite Engineering Technology courses. Students determine requirements, build hardware, code software, troubleshoot, evaluate, and iterate as they create solutions. Group 2 course. Critical Thinking - Direct.  
Required Prerequisites: EET 103, RAM 155

RAM 255 - Microcontroller Automation  
Credit Hours: 3, Contact Hours: 4  
Division: Technical  
This course is an introduction to the Internet of Things (IoT). Students will prototype sensors, actuators, and interfaces to create automated solutions that communicate via the Internet. Students will capture data, apply analytics, and present business value. Group 2 course. Critical Thinking - Direct, Quantitative Reasoning.  
Required Prerequisites: RAM 155

Russian (RUS)  
RUS 100 - Intro to Russian Lang/Culture  
Credit Hours: 4, Contact Hours: 4  
Division: Communications  
This class includes both classroom work in Russian language and culture as well as excursions and cultural experiences in Russia. The cultural component is designed to provide students with a context through which they will be able to understand and process new cultural information. Students will gain practical language skills that will be utilized during the time in Russia. The approach is interdisciplinary and will include units on economics, politics, history, music, architecture, and literature. Group 2 course. Communications - Direct, Critical Thinking - Direct.  
Recommended Prerequisites: Students will be required to read, write, listen, and speak in Russian. Students will need a minimal ability using technology to take advantage of outside-of-class requirements.

Social Work (SWK)  
SWK 121 - Introduction to Social Work  
Credit Hours: 2, Contact Hours: 2  
Division: Social Science  
In this class we will gain basic knowledge about the varying and diverse areas of social work including the health care systems, rural and urban settings, criminal justice systems, systems that work with the elderly, various private and public agencies and schools. We will explore and build an understanding of client populations who may be in need of social work services. In addition, we will assess our own experiences, interests and knowledge that may guide us in the field of social work. Group 2 course. Communications - Direct, Critical Thinking - Direct, Infused: Writing Intensive.  
Corequisites: SWK 170

SWK 170 - Service Internship Orientation  
Credit Hours: 1, Contact Hours: 1  
Division: Social Science  
Orientation and preparation for introductory internship experiences in social work areas. For example, introduction to use of supervision, supervisory evaluation, self-evaluation and varying agency structures and functions. Opportunities for internships will also be introduced. This class is done in class and seminar format. Group 2 course. Critical Thinking - Direct.  
Corequisites: SWK 121

SWK 211 - Social Interviewing Skills  
Credit Hours: 3, Contact Hours: 3  
Division: Social Science  
Introduction to types, purposes and stages of interviewing. Basis empathy skill development will be for observation, listening, non-verbal communications, rapport building, information giving and information gathering. Beginning training in recording and documentation. Emphasis will be on self-monitoring and working with culturally diverse, oppressed or psychologically maladaptive clients. In addition, we will explore building relationships with clients that is focused on the strengths of the client. Group 2 course. Communications - Direct, Critical Thinking - Direct, Infused: Writing Intensive.  
Recommended Prerequisites: SWK 121, SWK 170, completion of ENG 111/11 or placement into ENG 111.
SWK 211 - Introduction to Social Welfare  
Credit Hours: 3, Contact Hours: 3  
Division: Social Science  
This course explores the historical development of social welfare in the United States, how it has defined social services and implications of their needs. It also considers modern social welfare systems and their roles, as well as the influences of political and cultural conditions. Varying major theories of behavior are also explored as they relate to social work and the clients in need of services. The course also explores the importance of social workers in the practice of social work through understanding the different political perspectives influencing the formation of social policy. Group 2 course.  
Communications - Direct, Critical Thinking - Direct, Infused: Writing Intensive.  
Required Prerequisites: SWK 121, SWK 170  
Recommended Prerequisites: PLS 101, ENG 11/11 or higher  

SWK 290 - Social Work Internship  
Credit Hours: 3, Contact Hours: 3  
Division: Social Science  
This course helps to prepare students for the generalist practice in the field of social work. This is a field instruction course that students will engage in direct practice of social work education. Students will complete 120 hours in a human service agency. This placement will provide an opportunity to observe social workers while they work, as well as assisting in general service delivery under close supervision. Students must complete the 120 hours in one semester. Group 2 course. Critical Thinking - Direct.  
Required Prerequisites: SWK 121, SWK 170  
Recommended Prerequisites: SWK 211  

SWK 290A - Academic Service/Internship  
Credit Hours: 1-4, Contact Hours: 1-4  
Division: Social Science  
Recommended Prerequisites: SWK 121, SWK 170  

SOC 101 - Introduction to Sociology  
Credit Hours: 3, Contact Hours: 3  
Division: Social Science  
This course is an introduction to the study of human group behavior through social interaction with special emphasis on culture, the socialization process, social stratification, collective behavior, social institutions, and social change. Group 1 course. Communications - Direct, Critical Thinking - Direct, Degree Req:Cultural Persp/Div, Infused: Writing Intensive.  
Recommended Prerequisites: Placement into ENG 111/11  

SOC 201 - Modern Social Problems  
Credit Hours: 3, Contact Hours: 3  
Division: Social Science  
This course presents an introductory sociological analysis of causes, changes in, and attempts to effectively treat some of the major problems in contemporary American society. These include: hunger, environmental problems, poverty, crime and delinquency, family problems, and homelessness. Service Learning projects are encouraged. Group 1 course. Communications - Direct, Critical Thinking - Direct, Degree Req:Cultural Persp/Div, Infused: Writing Intensive.  
Recommended Prerequisites: Placement into ENG 111/11  

SOC 211 - Marriage and the Family  
Credit Hours: 3, Contact Hours: 3  
Division: Social Science  
This course covers topics such as diverse forms of families, ethnic diversity in family patterns, and contemporary issues families face. It includes attraction and partner selection, love, intimacy and sexuality, marriage, parenting and family problems. At the macro level, it emphasizes the structure of family as a social institution and its connections with other institutions in society including government and the economy. Issues of gender and inequality within families are also covered. Group 1 course. Communications - Direct, Critical Thinking - Direct, Infused: Writing Intensive.  
Recommended Prerequisites: SOC 101 strongly recommended; Students need college-ready study, reading and writing skills for this course. Students will analyze evidence and data sources, read and interpret charts and graphs and write extensively on these. Placement in MTH 23 and ENG 111. Honors projects are also available.  

SOC 220 - Gender and Society  
Credit Hours: 3, Contact Hours: 3  
Division: Social Science  
This course examines gender as a system of stratification. It approaches issues of gender in society from both a social, structural, and a social psychological perspective. Issues related to gender inequality in selected institutions such as economy, family, media, education, and politics are studied. Group 1 course. Communications - Direct, Critical Thinking - Direct, Infused: Writing Intensive.  
Recommended Prerequisites: PSY 101 or SOC 101, and placement into ENG 111/11.  

SOC 231 - Deviance and Criminal Behavior  
Credit Hours: 3, Contact Hours: 3  
Division: Social Science  
This course is an introduction to the study of deviance and deviant behavior. The sociological study of deviance refers to the analysis of any behavior that violates social norms. This course will examine and analyze instances of non-criminal and criminal deviance and social responses to deviant behavior. Theoretical approaches that seek to explain social deviance are also discussed and evaluated. Group 1 course. Communications - Direct, Critical Thinking - Direct, Degree Req:Cultural Persp/Div, Infused: Writing Intensive.  
Recommended Prerequisites: SOC 101, placement into ENG 111/11  

SOC 290A - Academic Service/Internship  
Credit Hours: 1-4, Contact Hours: 1-4  
Division: Social Science  

Spanish (SPN)  

SPN 101 - Elementary Spanish I  
Credit Hours: 4, Contact Hours: 4  
Division: Communications  
This course represents a comprehensive introduction to the Spanish language for the true beginner. Students will develop the ability to communicate in Spanish in everyday practical situations while acquiring some of the necessary skills for reading, writing, listening, and speaking. Cultural topics are integrated in each unit. Group 2 course. Communications - Direct, Critical Thinking - Direct, Degree Req:Cultural Persp/Div.  
Recommended Prerequisites: Students will be required to read, write, listen, and speak in Spanish. You will need a minimal ability using technology to take advantage of outside-of-class requirements.
SPN 102 - Elementary Spanish II
Credit Hours: 4, Contact Hours: 4
Division: Communications
SPN 102 is a continuation of SPN 101 and focuses on the expansion of the communications skills of reading, writing, listening, and speaking. Cultural topics are integrated in each unit. Group 2 course. Communications: Direct, Critical Thinking: Direct, Degree Req: Cultural Persp/Div.
Required Prerequisites: SPN 101 with a minimum grade of 2.0 or required score on the NMC placement test or instructor permission
Recommended Prerequisites: Students will be required to read, write, listen, and speak in Spanish. You will need a minimal ability using technology to take advantage of outside-of-class requirements.

SPN 201 - Intermediate Spanish I
Credit Hours: 4, Contact Hours: 4
Division: Communications
SPN 201 is designed to further develop language proficiency in reading, writing, listening, and speaking. A deeper exploration of Hispanic culture is presented in this course, allowing students to transform themselves into truly active and proficient language users. Group 1 course. Communications: Direct, Critical Thinking: Direct, Degree Req: Cultural Persp/Div.
Required Prerequisites: SPN 102 with a minimum grade of 2.0 or required score on the NMC language placement test or instructor permission
Recommended Prerequisites: Students will be required to read, write, listen, and speak in Spanish. You will need a minimal ability using technology to take advantage of outside-of-class requirements.

SPN 202 - Intermediate Spanish II
Credit Hours: 4, Contact Hours: 4
Division: Communications
SPN 202 is a continuation of SPN 201 and focuses on the application of the communication skills of reading, writing, listening, and speaking within cultural contexts. Group 1 course. Communications: Direct, Critical Thinking: Direct, Degree Req: Cultural Persp/Div.
Required Prerequisites: SPN 201 with a minimum grade of 2.0 or required score on the NMC language placement test or instructor permission
Recommended Prerequisites: Students will be required to read, write, listen, and speak in Spanish. You will need a minimal ability using technology to take advantage of outside-of-class requirements.

SPN 227A - Spanish for Environmental Mgmt
Credit Hours: 3, Contact Hours: 3
Division: Communications
This course focuses on global environmental issues as an entry point for further development of Spanish technical vocabulary, conversational skills and global competencies. Through an exploration of current freshwater issues in Spanish-speaking countries, and an experience studying overseas, students will address relevant issues concerning environmental resource management, and engage in community projects. Group 1 course. Communications: Direct, Critical Thinking: Direct, Degree Req: Cultural Persp/Div.
Required Prerequisites: 3-4 years of high school Spanish
Recommended Prerequisites: Listening Skills: understand sentence-length utterances; Reading Skills: able to understand main ideas and/or some facts from the simplest connected text; Speaking Skills: able to handle successfully a limited number of uncomplicated communicative tasks by creating with the language in straightforward social situations; Writing Skills: able to meet limited practical writing needs.
Corequisites: WSI 290

Surgical Technology (SRG)

SRG 101 - Intro to Surgical Technology
Credit Hours: 3, Contact Hours: 3
Division: Health Occupations
In this course students will learn the primary functions of the surgical technologist in multiple roles within the operating room environment. Points of focus will include effective communication, professional interactions with the patient and surgical team, proper personal protective equipment, introduction to asepsis, safety precautions, all-hazard preparation, instrumentation, equipment, supplies, stapling devices, suture, and infection control and wound healing. Group 2 course. Required Prerequisites: BIO 227, BIO 227L, HAH 101, HPD 110 or equivalent; SRG 102 and SRG 103 may be taken concurrently
Recommended Prerequisites: BIO 228
Corequisites: SRG 101L

SRG 101L - Intro to Surg Tech Lab
Credit Hours: 2, Contact Hours: 4
Division: Health Occupations
In this course students will learn and practice in the laboratory environment the skills required to perform in the surgical setting. Emphasis will be placed on introductory skills, instrumentation, equipment and procedures relevant to general, gynecological, and genitourinary procedures. Students will be evaluated on their sterile and aseptic technique as well as case management skills. Group 2 course.
Corequisites: SRG 101

SRG 102 - Surgical Microbiology
Credit Hours: 1.5, Contact Hours: 1.5
Division: Health Occupations
Students in this course will learn about the cell, cell organelles and processes, and transport. This course will also cover varying types of organisms that cause infection, the infection process, and microbe identification. The body's natural defense system as well as common bacteria, viruses, and fungi that cause disease will be covered including the response. Group 2 course. Critical Thinking: Direct.
Required Prerequisites: SRG 101, SRG 101L, and SRG 103 may be taken concurrently

SRG 103 - Surgical Pharmacology
Credit Hours: 1.5, Contact Hours: 1.5
Division: Health Occupations
In this course students will learn the pharmaceuticals used in surgical practice to include their actions, use, effects, contraindications and administration. The anesthesia process will be covered in defining the stages of general anesthesia as well as the different types of agents used. The course will cover the equipment, safe practices, sterile technique and terminology used in relation to pharmacology. Students will also cover practices relating to alternative therapies such as herbal medication, acupuncture, massage, and music therapy and their effect on the surgical patient. Group 2 course. Critical Thinking: Direct.
Required Prerequisites: SRG 101, SRG 101L, and SRG 102 may be taken concurrently
SRG 121 - Surgical Procedures I
Credit Hours: 4, Contact Hours: 4
Division: Health Occupations
Students in this course will study the relevant surgical anatomy and physiology, pathophysiology, supplies, equipment, and instrumentation needed for a variety of procedures in the areas of general, obstetrics and gynecological, genitourinary, and orthopedic surgery. Group 2 course.
Required Prerequisites: SRG 101, SRG 101L, SRG 102, SRG 103; SRG 122 and SRG 123 may be taken concurrently
Corequisites: SRG 121L

SRG 121L - Surgical Procedures I Lab
Credit Hours: 3.5, Contact Hours: 7
Division: Health Occupations
Students in this course will learn and practice in the laboratory environment the skills required to perform in the surgical setting. Emphasis will be placed on advanced skills concerning instrumentation, equipment and procedures relevant to orthopedic, ENT, plastic, reconstructive, minimally invasive, and vascular procedures. Students will also practice patient transport, transfer, urinary catheterization, skin prep, patient positioning and draping procedures. Students will be evaluated on their sterile technique and case management skills. This course will also include a clinical observation component of the relevant areas of the perioperative environment. Group 2 course.
Corequisites: SRG 121

SRG 122 - The Surgical Patient
Credit Hours: 0.5, Contact Hours: 0.5
Division: Health Occupations
In this course students will define patient-centered care to determine the differing needs of the various patient populations that visit the surgical department. Important areas that will be described include appropriate communication, cultural and spiritual competence, and grief advocacy. This course will cover the aspects of the death in the operating room along with the organ transplant process. Students will also cover patient transport, transfer, urinary catheterization, skin prep, patient positioning and draping procedures. Group 2 course. Critical Thinking - Direct.
Required Prerequisites: SRG 121, SRG 121L, SRG 123-may be taken concurrently

SRG 123 - Biomed Sciences and MIS
Credit Hours: 1.5, Contact Hours: 1.5
Division: Health Occupations
Students in this course are introduced to the basic concepts of physics to include the elements of motion, energy, light, sound and electricity and how they apply to surgical practice. Further study will include aspects of minimally invasive surgery including laparoscopy and robotic surgery. Students will also be introduced to the cases performed in interventional radiology and how they are integrated within surgical practice. The course will conclude with the study of diagnostic interventions integral in surgical practice as well as diagnosing pathologies preoperatively. Group 2 course.
Required Prerequisites: SRG 121, SRG 121L, SRG 122 may be taken concurrently

SRG 201 - Surgical Procedures II
Credit Hours: 3, Contact Hours: 3
Division: Health Occupations
Students will study the relevant surgical anatomy and physiology, pathophysiology, supplies, equipment, and instrumentation needed for a variety of procedures. Surgical procedures covered will include the areas of otorhinolaryngology, neurology, and ophthalmic surgery. Group 2 course.
Required Prerequisites: SRG 121, SRG 121L, SRG 122, SRG 123; SRG 202 and SRG 204 may be taken concurrently

SRG 202 - Surg Procedures II Clinical
Credit Hours: 5, Contact Hours: 15
Division: Health Occupations
In this course students will be in the clinical environment practicing to and performing essential skills required in the perioperative environment. While under the supervision of a surgical technologist or RN the student will observe, scrub, and assist on procedures as directed by the surgical team. Group 2 course. Critical Thinking - Direct.
Required Prerequisites: SRG 201 and SRG 204 may be taken concurrently

SRG 204 - Professional Career Prep I
Credit Hours: 0.5, Contact Hours: 0.5
Division: Health Occupations
In this course students will work with the Office of Career Services to complete a career portfolio and employment training. Major topics in this course include resume creation both written and online portfolios, interview preparation, job search strategies, and professional attire. Group 2 course. Communications - Direct.
Required Prerequisites: SRG 201 and SRG 202 may be taken concurrently

SRG 221 - Surgical Procedures III
Credit Hours: 3, Contact Hours: 3
Division: Health Occupations
Students in this course will study the relevant surgical anatomy and physiology, factors unique to surgical procedures, pathophysiology, supplies, equipment, and instrumentation needed for a variety of procedures. Surgical procedures covered include the disciplines of neurology, vascular and cardiothoracic surgical procedure categories. Group 2 course.
Required Prerequisites: SRG 201, SRG 202, SRG 204; SRG 222 and SRG 224 may be taken concurrently

SRG 222 - Surg Procedures III Clinical
Credit Hours: 6, Contact Hours: 18
Division: Health Occupations
In this course students will continue working in the surgical environment under the direction of a surgical technologist or RN. The student will observe, scrub, and assist on more complex surgical cases as directed by the surgical team. The progression from student to entry level surgical technologist is the goal for the completion of this course along with the successful completion of the 120 scrubbed case requirements. Group 2 course. Critical Thinking - Direct.
Required Prerequisites: SRG 221 and SRG 224 may be taken concurrently
SRG 224 - Professional Career Prep II  
**Credit Hours:** 1, **Contact Hours:** 1  
**Division:** Health Occupations  
In this course the students will focus on exam preparation for the certification exam given by the National Board of Surgical Technology and Surgical Assisting (NBSTSA) that will be taken electronically on campus the last week of the program. Testing strategies and studying techniques will be a large focus point as well as written and online practice exams. Group 2 course.  
Required Prerequisites: SRG 221 and SRG 222 may be taken concurrently  

Surveying (SVR)  

SVR 110 - Fundamentals of Surveying  
**Credit Hours:** 5, **Contact Hours:** 8  
**Division:** Technical  
Using a variety of surveying equipment and software, students will learn methods and techniques to observe, analyze and integrate field measurements in surveying applications. This includes the proper care and setup of instruments, units of measurement, horizontal and zenith angles, directions, distances, elevations, interpreting and generating contour lines, map reading, field notes and the presentation of data on a completed map. Students will directly apply this knowledge in field activities. Group 2 course Communications - Direct.  
Required Prerequisites: MTH 121 or higher, can be taken concurrently  

SVR 120 - CAD for Surveying  
**Credit Hours:** 4, **Contact Hours:** 5  
**Division:** Technical  
Using AutoCAD Civil 3D, this course provides students a single software environment to complete survey mapping projects. Students will learn the basics of how the field measurement data collected from surveyors’ instruments are processed into a dynamic Civil 3D model. Included are traverse plotting, site plans, contour mapping, legal descriptions, platted subdivisions, cross sections, and development of plan and profile drawings. Students will directly apply this knowledge in laboratory assignments. Group 2 course Quantitative Reasoning.  
Required Prerequisites: MTH 121 or higher, can be taken concurrently  

SVR 210 - Surveying Positioning  
**Credit Hours:** 5, **Contact Hours:** 8  
**Division:** Technical  
Students will explore and apply the theories and tools used to determine three-dimensional positioning on the surface of the earth. Topics include ellipsoid properties, reference datums, global coordinate systems, developable surfaces and map projections. Extensive use of hardware and software employing Global Navigation Survey Systems (GNSS) in both field and office environments are made. Group 2 course Quantitative Reasoning.  
Required Prerequisites: MTH 122, SVR 110, SVR 160  

SVR 220 - Boundary Surveying  
**Credit Hours:** 3, **Contact Hours:** 3  
**Division:** Technical  
Students in this course investigate and discover the historical, legal, mathematical and practical aspects of conducting a boundary survey. Topics include the quasi-judicial function of surveyors, land title conveyancing, original and retracement surveys, the Public Land Survey System, subdividing land, riparian issues and water law, writing and interpreting property descriptions, evidence and procedures for boundary location, research, major federal and state statutes regarding boundary location.  
Required Prerequisites: SVR 120, SVR 160  

Visual Communication Arts (VCA)  

VCA 100 - Materials and Techniques  
**Credit Hours:** 3, **Contact Hours:** 4  
**Division:** Humanities  
This course introduces students to commercial drawing techniques with an emphasis on perspective, pencil, pen & ink, marker, water color and gouache when illustrating a variety of different products and illustration formats. Creative media experimentation is encouraged through the assignments. Group 2 course. Critical Thinking - Direct.  

VCA 125 - Typography I  
**Credit Hours:** 3, **Contact Hours:** 4  
**Division:** Humanities  
This course serves as an introduction to typographic history, letterforms, mechanics, terminology and usage. Students will complete projects that lead them to an understanding of the fundamental and technical aspects of this abstract art including font selection and typesetting. As part of this course students will also learn the basics of Adobe InDesign. Desktop publishing software used to create single and multi-page files, format text using style sheets, manage color, import and create graphics and tables and prepare files for print production. The Adobe Certified Associate Exam for InDesign is included in the cost for this course. Group 2 course. Communications - Direct.  
Required Prerequisites: VCA 150  
Recommended Prerequisites: Intermediate keyboarding skills, intermediate to advanced understanding of vector drawing, desktop publishing software and the Macintosh system.
VCA 126 - Typography II  
Credit Hours: 3, Contact Hours: 4  
Division: Humanities  
This class serves as continuation to typography history, trends, display faces, and grids with an emphasis on book typography, binding, and structuring methods. Students will complete projects that lead them to an understanding of intermediate typography, current typographic trends and comparative analysis of typefaces that relate to the field of Visual Communications as well as printed and electronic media. Group 2 course. Communications - Direct.  
Required Prerequisites: VCA 125  
Recommended Prerequisites: Intermediate keyboarding skills, intermediate to advanced understanding of vector drawing, desktop publishing software and the Macintosh system.

VCA 127 - Digital Imaging  
Credit Hours: 3, Contact Hours: 4  
Division: Humanities  
Students will learn Adobe Photoshop, a bitmap manipulation tool used to create images for both print and the web. Students will learn how to incorporate color, use layers, create special effects, use filters, and use a variety of selection techniques for proper image editing. Students will also learn the basics of using a digital camera and scanner as well as color management, how to restore damaged images, automate tasks, and how to prepare files for print. The Adobe Certified Associate Exam for Photoshop is included in the cost for this course. Group 2 course. Critical Thinking - Direct.  
Recommended Prerequisites: CIT 100, Basic keyboarding skills highly recommended. Use of the Macintosh or Windows operating system highly recommended.

VCA 146 - Interactive Animation  
Credit Hours: 3, Contact Hours: 4  
Division: Humanities  
This course's focus will be on creation of animation using both traditional methods and Adobe Animate software. Students will learn the basics of animation and storytelling, file management and organization, as well as interactive navigation. Students will also learn how to incorporate sound and video in projects and learn how to prepare their files for use on the Web. Group 2 course. Communications - Direct, Critical Thinking - Direct.  
Required Prerequisites: VCA 127, VCA 150  
Recommended Prerequisites: VCA 125

VCA 147 - Web Design I  
Credit Hours: 3, Contact Hours: 4  
Division: Humanities  
This course will focus on creative website design including site planning, interactive navigation, web fonts, information design theory, file management, and user experience (UX). Students will learn industry best practices and develop a basic process by which any web design challenge should be approached. Group 2 course. Communications - Direct, Critical Thinking - Direct.  
Required Prerequisites: VCA 127, VCA 150  
Recommended Prerequisites: VCA 125

VCA 150 - Digital Graphics Design I  
Credit Hours: 3, Contact Hours: 4  
Division: Humanities  
This course covers the basics of using Adobe Illustrator to create vector objects and layouts for print and interactive environments. Students will learn how to create and manipulate shapes, work with type, color, gradients, fills and strokes. Students will learn how to work with spot and process colors, create die lines for packaging and other basic design principles. Students will also learn to prep files for print and choose the correct color space for various applications. The Adobe Certified Associate Exam for Illustrator is included in the cost for this course. Group 2 course. Communications - Direct.  
Recommended Prerequisites: CIT 100, Recommended competencies: Basic keyboarding skills highly recommended. Use of the Macintosh or Windows operating system highly recommended.

VCA 200 - Visual Communications II  
Credit Hours: 3, Contact Hours: 4  
Division: Humanities  
Through this course you will gain insight and an introduction to the theory of graphic design through practice in researching, brainstorming, creative problem solving, comping, design brief writing and production of print and digitally driven graphics projects like: logo marks, identity developments, posters, collateral and greeting cards. Students embrace print and digital pre-production techniques and receiving constructive criticism of work and practice. Group 2 course. Communications - Direct, Critical Thinking - Direct.  
Required Prerequisites: VCA 125  
Recommended Prerequisites: ENG 112  
Corequisites: VCA 220

VCA 220 - Visual Communications III  
Credit Hours: 3, Contact Hours: 4  
Division: Humanities  
Through this course, you will gain insight and introduction to the theory of advertising design and art direction through practice in researching, brainstorming, marketing, creative problem solving, copywriting and editorial planning of print and digital advertising, advertising campaigns, television storyboards and product branding. Traditional and digital best practices will be explored as students work on campaign voice and receiving/giving constructive criticism using industry terminology. Group 2 course. Communications - Direct, Critical Thinking - Direct.  
Required Prerequisites: VCA 125  
Recommended Prerequisites: ENG 112  
Corequisites: VCA 220

VCA 225 - Visual Communications Studio  
Credit Hours: 3, Contact Hours: 4  
Division: Humanities  
By the end of this course, students will have participated in two hands-on ‘real world’ design projects in which you will act as copywriter, art director, designer, filmmaker, photographer or illustrator. Service learning projects are for various regional not-for-profit clients. You will learn all aspects of pre-press work, digital workflow, production, and printing via field trips to area service providers and professionals while also learning to work with clients and the self-driven responsibilities of teamwork. Group 2 course. Communications - Direct, Critical Thinking - Direct, Degree Req:Cultural Persp/Div.  
Required Prerequisites: VCA 200 and VCA 220 or instructor permission.
VCA 230 - Visual Communications V  
Credit Hours: 3, Contact Hours: 4  
Division: Humanities  
In this course you will excel in setting occupational/educational aspirations and offering/receiving constructive criticism of your work. You will design and produce a body of work for your portfolio, tailored to your individual goals, be it in Illustration, Graphic Design, Motion Graphics or Art Direction. Progressive Visual Communications theory and practice will also be studied through projects in packaging design, point-of-purchase displays, info-graphics, mobile app development and more. Group 2 course. Communications - Direct, Critical Thinking - Direct.  
Required Prerequisites: VCA 200, VCA 220 or instructor permission.

VCA 235 - Visual Comm Portfolio  
Credit Hours: 3, Contact Hours: 4  
Division: Humanities  
Students explore various methods of preparing professional portfolios, as well as the packaging and marketing of their portfolio works in preparation for further education and/or job interviews related to their career goals in visual communications. Along with the portfolio, each student prepares a resume, digital portfolio, and considers other self-promotional pieces to complete his/her portfolio package. The emphasis of this course is that each student compiles a professional looking and complete portfolio package based on his/her occupational and educational goals. Group 2 course. Communications - Direct, Critical Thinking - Direct.  
Required Prerequisites: VCA 200, VCA 220

VCA 246 - Interactive Animation II  
Credit Hours: 3, Contact Hours: 4  
Division: Humanities  
This course will focus on the advanced exploration of interactive navigation, animation and storytelling that is created for and exists on the web. Advanced Design theory, greater interactivity, file architecture, web loading, hosting and uploading for Animate and more exposure to Motion software will emphasize creative and narrative language. Students should be self-motivated, this advanced section involves independent projects. Group 2 course. Communications - Direct, Critical Thinking - Direct.  
Required Prerequisites: VCA 146

VCA 247 - Web Design II  
Credit Hours: 3, Contact Hours: 4  
Division: Humanities  
This course will focus on advanced creative website development and design including site planning, interactive navigation, information design theory, file management, and user experience (UX). Students will explore app design and real-world web projects to deepen their understanding of interactive information design. Students should be self motivated since this advanced course involves independent projects. Group 2 course. Communications - Direct, Degree Req:Cultural Persp/Div.  
Required Prerequisites: VCA 147

VCA 250 - Time Based Media  
Credit Hours: 3, Contact Hours: 4  
Division: Humanities  
A multisensory, theory driven exposure and exploration of time-based visual communication environments. The role of typography, image, sound, space, luminosity and narrative are assessed and used to create sequences of film and moving image. Students are exposed to advanced tools, theories, aesthetics and techniques used in film editing with Final Cut Pro X, Motion and Digital HD film cameras like Blackmagic and GoPro. Course includes Apple Certification and the Apple FCPx End User Exam. Group 2 course. Communications - Direct, Critical Thinking - Direct, Degree Req:Cultural Persp/Div.

VCA 252 - Time Based Media II  
Credit Hours: 3, Contact Hours: 4  
Division: Humanities  
This course is the capstone for the AAS degree in Creative Management Art Direction. This internship provides on-the-job experience for the student who wishes to pursue a career in visual communications. Customized to meet the learning needs of the student and the job requirements of the sponsoring firms, students spend 180 hours in paid or non-paid, supervised on-the-job training experiences. In addition students participate in bi-weekly reports and weekly online methodology discussion boards with the instructor/peers. Students must apply one month prior to the semester they wish to complete class. Group 2 course. Communications - Direct, Critical Thinking - Direct, Degree Req:Cultural Persp/Div.

VCA 290 - Visual Comm Internship  
Credit Hours: 4, Contact Hours: 4  
Division: Humanities  
This course is the capstone for the AAS degree in Creative Management Art Direction. This internship provides on-the-job experience for the student who wishes to pursue a career in visual communications. Customized to meet the learning needs of the student and the job requirements of the sponsoring firms, students spend 180 hours in paid or non-paid, supervised on-the-job training experiences. In addition students participate in bi-weekly reports and weekly online methodology discussion boards with the instructor/peers. Students must apply one month prior to the semester they wish to complete class. Group 2 course. Communications - Direct, Critical Thinking - Direct, Degree Req:Cultural Persp/Div.

VCA 293 - Visual Comm Study Abroad  
Credit Hours: 1, Contact Hours: 1  
Division: Humanities  
In this class, students are provided the opportunity to travel to a specified destination affiliated with the corresponding visual communications non-trip course. This course will serve to integrate the student learning experience and provide a sense of cultural perspective, diversity and regional awareness. The course is an opportunity for students to explore other areas around the world while applying discipline-specific course content. For a more specific course description, please review the course description of the associated non-trip course. Group 2 course.  
Required Prerequisites: VCA 100, or VCA 230
Water Studies Institute (WSI)

WSI 105 - Intro to Freshwater Studies
Credit Hours: 3, Contact Hours: 3
This course is designed to provide an exploration to the field of water studies, with specific focus on freshwater. Students will discuss the impact of water-related challenges and opportunities in the context of the great lakes of the world. Focus will be given to the new and emerging career and educational pathways associated with water resources and their management. In addition to regular class lectures, invited experts from business, education, and community organizations will introduce relevant topics of local and global significance including policy, law, sustainable development, history, engineering, health, and commerce. Group 2 course Communications - Direct, Degree Req:Cultural Persp/Div, Infused: Writing Intensive.
Recommended Prerequisites: MTH 23, ENG 111 - may be taken concurrently.

WSI 200 - GL Research Technologies
Credit Hours: 3, Contact Hours: 4
Advancements in Great Lakes research and monitoring techniques allow for an increased ability to access and assess remote locations through the use of enabling technologies and platforms including: Research Vessels, Remotely Operated Vehicles (ROV), SONAR systems (single beam, multibeam, scanning) and oceanographic buoy systems. Focus will be directed at understanding the basics of how each component is used and gain firsthand experience operating systems and collecting information. Field activities will take place in local water bodies, Grand Traverse Bay and onboard the R/V Northwestern. Group 2 course.
Recommended Prerequisites: Recommended competencies: Ability to work/learn aboard R/V Northwestern and in the field. Completion of MTH 111 and ENG 111 or appropriate placement scores.

WSI 210 - Underwater Acoustics and Sonar
Credit Hours: 3, Contact Hours: 4
This course provides a foundation for the use of acoustics in the marine environment while focusing on best practices for underwater search, survey and visualization programs. Multiple sonar systems are presented and are representative of current industry equipment, operations and practices. Emphasis is placed on understanding field applications where sonar platform, water depth and temperature, target range and size, acoustic frequency and object reflectivity/absorption have an effect on target detection, resolution and data accuracy. Group 2 course.
Required Prerequisites: MTH 111 or higher
Recommended Prerequisites: PHY 105, Placement into ENG 111

WSI 211 - Sonar for Search & Recovery
Credit Hours: 1.5, Contact Hours: 2
This course provides training in the best use practices of multiple acoustic platforms for use in search and recovery operations typical to law enforcement, homeland security and first responders from multiple agencies. Group 2 course. Quantitative Reasoning.
Recommended Prerequisites: Prior use of sonar equipment in search and recovery applications.

WSI 212 - Sonar for Marine Engineering
Credit Hours: 2, Contact Hours: 3
This course provides both classroom theory and hands-on practicum/field operations performed individually and in groups. Emphasis areas include demonstrating techniques of sonar operations critical to sonar performance, sonar data collection and data interpretation for use in marine engineering, survey and underwater construction activities. Group 2 course. Quantitative Reasoning.
Recommended Prerequisites: Prior use of sonar equipment in marine engineering applications.

WSI 215 - Marine GIS & Data Processing
Credit Hours: 3, Contact Hours: 4
This course builds upon the basics of GIS taught in GEO 115 - Introduction to GIS, with a focus on basic spatial analysis techniques using standard and maritime/marine datasets. More advanced cartographic methods and spatial data management techniques are introduced using ArcGIS Desktop, Hypack, and other computer tools. Group 2 course. Critical Thinking - Direct.
Required Prerequisites: ENV 115 or GEO 115 with a 2.0 or higher
Recommended Prerequisites: Students must have intermediate computer and internet skills, typically acquired in ENVI115 or GEO115 or similar.

WSI 230 - Water Policy & Sustainability
Credit Hours: 3, Contact Hours: 3
This course is designed to provide a basic understanding of the fundamental principles of water law and policy and human relationships, use, threats, and conflicts over water and aquatic resources. The course emphasizes a new integrative approach to water issues based on the nexus of the water commons to health, food, quality of life, energy, climate change, ecosystem, and economy. Group 2 course.
Communications - Direct, Critical Thinking - Direct, Degree Req:Cultural Persp/Div, Infused: Writing Intensive.
Required Prerequisites: ENG 111 and MTH 23 or higher, both may be taken concurrently
Recommended Prerequisites: PLS 101, WSI 105

WSI 240 - ROV Systems and Operations
Credit Hours: 3, Contact Hours: 4
This course introduces the technology of remotely operated vehicles (ROV) as a system used for subsea activities including scientific study and research, subsea exploration and industrial applications. International Marine Contractors Association (IMCA) and Association for Diving Contractors International (ADI) guidelines will be used for training. Students will gain firsthand experience operating the ROV for the purpose of collecting information from docks, piers, and research vessels. Group 2 course. Communications - Direct.
Required Prerequisites: EET 103 and MTH 111 or higher
Recommended Prerequisites: ENG 111; Recommended competencies: Students should have basic computer skills and be comfortable working around water from either a boat or dock/pier.

WSI 290 - Freshwater Studies Internship
Credit Hours: 1-3, Contact Hours: 1-3
The internship in Freshwater Studies is a field experience for students interested in developing competencies to address significant water-related issues impacting our region and the world. Students engage in research activities with local and global partners to collaborate in the implementation of best water management practices. The program is customized according to students’ background and specific career goals. Activities include activities involving the monitoring of: water quality, invasive species, water distribution systems, and ecosystems. Group 2 course. Communications - Direct.
WSI 300 - Remote Sensing and Sensors
Credit Hours: 3, Contact Hours: 4
This course provides a foundation in the use of electronic sensors for remote observations. The focus will be on applications for marine and near-shore environments, though any sensor system/platform may be discussed. Basic sensor science will be applied to the study of remote sensing instruments, including marine acoustics, terrestrial acoustics, visible, laser/LIDAR, multispectral, and hyperspectral. Sensor development and evolution will be studied, as well as related current events including instruments used in deep-sea, commercial, military, and space science industries. Group 2 course. Recommended Prerequisites: Placement into ENG 111

WSI 310 - Sonar Systems and Operations
Credit Hours: 4, Contact Hours: 6
This course provides advanced training for the use of sonar systems in the subsea environment. Students will utilize multiple sonar systems for the purpose of profiling and imaging nearshore infrastructure; positioning and navigation of subsurface equipment; and interpreting collected sonar data for use in marine subsurface applications. Specific sonar systems utilized will include multibeam sonar, side scan sonar, scanning sonar and USBL systems. Group 2 course. Required Prerequisites: WSI 200, WSI 210

WSI 315 - Advanced Marine Survey & Data
Credit Hours: 3, Contact Hours: 4
This course provides a foundation in the coordination of maritime surveys from a pre-deployment standpoint. Students will be expected to have a strong understanding of the remote sensing science including capabilities and limitations of the sensor systems to be used. A major focus of the course will be to develop student skillsets for processing and merging marine and terrestrial datasets from a wide range of sources and systems. Significant time will be devoted to proper manipulation of data using commercial and freely-available tools. Group 2 course. Required Prerequisites: WSI 215 Recommended Prerequisites: WSI 300

WSI 390 - Marine Tech Internship
Credit Hours: 2-4, Contact Hours: 2-4
The purpose of the internship is to provide on-the-job training for the student who wishes to pursue a career in a technical field of study. The internship will be customized to meet the learning needs of the student and the job requirements of the sponsoring firm. Students spend 10-15 hours per week in this paid, supervised on-the-job training experience. In addition to the required 50 hours per credit in a work site, students participate in semi-monthly seminars. Students must apply one month prior to the semester in which they will complete the internship. Group 2 course. Communications - Direct. Recommended Prerequisites: 60 credits of program specific courses with a GPA of 2.0 or higher.

WSI 400 - Marine Technology Capstone
Credit Hours: 4, Contact Hours: 4
This course requires the synthesis and integration of knowledge and skills acquired across the Marine Technology curriculum for completion of a team oriented project and will require significant written, oral and visual deliverables including a final presentation. These field based projects will demonstrate a comprehensive approach to mission planning, technical equipment competency, budgeting, data collection/processing and dissemination to an audience. Group 2 course. Communications - Direct, Critical Thinking - Direct. Required Prerequisites: WSI 390, WSI 405, WSI 433, WSI 440 can be taken concurrently.

WSI 405 - Marine Industry
Credit Hours: 3, Contact Hours: 3
This course focuses on contemporary issues and current events in the marine industry. It is intended to explore the global marine technology market while providing industry perspective from the marine sector including consequences of pollution, safety regulations, policy development, technology advances, and economics. Students will evaluate trends and conditions expected to influence the industry over the next five years. Group 2 course. Critical Thinking - Direct. Required Prerequisites: Completion of 60 credit hours within major. Must include WSI 200, WSI 210, WSI 240

WSI 433 - Marine Project Management
Credit Hours: 3, Contact Hours: 3
This course covers the practice of project management, specific to underwater marine environment (ROV/AUV/Sonar Technologies). The course will emphasize the core principles of project management, including scope development, schedules, resource planning, budgets, risk management strategies and communication methods. The curriculum aligns with the Project Management Institute “Body of Knowledge” and meets the instructional criteria required to become a Certified Associate in Project Management (CAPM). Group 2 course. Communications - Direct, Critical Thinking - Direct. Required Prerequisites: WSI 300, WSI 310, WSI 440 Recommended Prerequisites: WSI 315, WSI 440

WSI 440 - Advanced Marine Platforms
Credit Hours: 3, Contact Hours: 4
This course focuses on the use of complex marine platforms in multiple marine environments including multiple sonar systems, unmanned underwater vehicles and remotely operated vehicles. Students will learn mission planning, platform mobilization, launch and recovery techniques, remote guidance, and advanced troubleshooting of autonomous and remote systems. Subsea applications will include scientific study and research, subsea exploration and industrial applications. Group 2 course. Quantitative Reasoning. Required Prerequisites: WSI 200, WSI 210, WSI 215, WSI 240 and instructor permission.

Welding Process Technology (WPT)

WPT 111 - Welding Theory I
Credit Hours: 3, Contact Hours: 3
Division: Technical
First level lecture for all students enrolled in a Welding Technology Degree or Certificate Program. Course will cover theory and technique for Shielded Metal Arc Welding, Gas Metal Arc Welding, and Oxy Fuel Processes for welding, brazing, and cutting. Group 2 course. Critical Thinking - Direct. Corequisites: WPT 112

WPT 112 - Welding Lab I
Credit Hours: 4, Contact Hours: 8
Division: Technical
First level lab for all students enrolled in a Welding Technology Degree or Certificate Program. Practical application of Shielded Metal Arc Welding, Gas Metal Arc Welding, and Oxy Fuel Processes for welding, brazing, and cutting. Welds will be performed in all positions and subjected to destructive quality testing. Group 2 course. Quantitative Reasoning. Corequisites: WPT 111
WPT 113 - Welding Theory II  
Credit Hours: 3, Contact Hours: 3  
Division: Technical  
Second level lecture for all students enrolled in a Welding Technology Degree or Certificate Program. Course will cover theory and technique for Pulsed Gas Metal Arc Welding, Flux Cored Arc Welding, Gas Tungsten Arc Welding, and Arc Cutting Processes. Group 2 course. Quantitative Reasoning.  
Required Prerequisites: WPT 111  
Corequisites: WPT 114

WPT 114 - Welding Lab II  
Credit Hours: 4, Contact Hours: 8  
Division: Technical  
Second level lab for all students enrolled in a Welding Technology Degree or Certificate Program. Practical application of Shielded Metal Arc Welding, Pulsed Gas Metal Arc Welding, Gas Tungsten Arc Welding, and Plasma Arc Cutting. Welds will be performed in all positions and subjected to destructive quality testing. Group 2 course.  
Required Prerequisites: WPT 111 and WPT 112  
Corequisites: WPT 113

WPT 160D - Weld. Qualification Prep-Other  
Credit Hours: 2, Contact Hours: 3  
Division: Technical  
This course provides experienced welders/students the opportunity to take the AWS welder qualification tests (other than GTAW, GMAW, SMAW, or FCAW) in specified processes on specified materials in specified positions. Group 2 course. Communications - Direct.

WPT 161 - Welding Qualification Prep  
Credit Hours: 3, Contact Hours: 4  
Division: Technical  
Students will learn performance qualification according to American Welding Society standards and have the opportunity to take AWS welder qualification tests in the process or processes of their choice. Group 2 course.  
WPT 210 - Welding Fabrication and Repair  
Credit Hours: 3, Contact Hours: 5  
Division: Technical  
This course provides students an opportunity to apply the process specific welding skills that they have previously mastered to complete fabrication and repairs projects. In addition to welding, students will learn shop metal identification, how to setup and operate shop metal prep and fabricating equipment as well as plan, sketch, order and prepare for a variety of projects. Group 2 course.  
WPT 211 - Welding Fabrication I  
Credit Hours: 3, Contact Hours: 5  
Division: Technical  
First level fabrication class for all students enrolled in the Welding Technology A.A.S. program. Students will learn to apply manufacturing principles and techniques in order to complete assemblies to print specifications. Proper use of common industrial tools and machinery, including CNC cutting table, will be stressed. Group 2 course.  
WPT 212 - Welding Fabrication II  
Credit Hours: 3, Contact Hours: 5  
Division: Technical  
Second level fabrication class for all students enrolled in the Welding Technology A.A.S. program. Students will take control of a fabrication project from the planning to finishing stages. Emphasis on design, project planning, and efficient execution. Group 2 course.  
Required Prerequisites: WPT 211 and WPT 260

WPT 213 - Weld Quality Testing  
Credit Hours: 3, Contact Hours: 5  
Division: Technical  
Class to cover theory and practical use of common methods of non-destructive examination. Processes include dye penetrant, ultrasonic, magnetic particle, and radiographic testing. Familiarity with prevalent codes and standards will be emphasized. Group 2 course.  
Required Prerequisites: WPT 211  
Recommended Prerequisites: DD 101, DD 110

WPT 260 - Intro to Welding Automation  
Credit Hours: 3, Contact Hours: 5  
Division: Technical  
This course provides students an opportunity to learn the theory behind common forms of automation utilized throughout the welding industry. Lab assignments will focus on equipment set-up and operations along with analysis of results. Group 2 course.  
Required Prerequisites: WPT 113, WPT 114

WPT 290 - Welding Internship  
Credit Hours: 2-4, Contact Hours: 2-4  
Division: Technical  
The purpose of the internship is to provide on-the-job training for the student who wishes to pursue a career in a technical field of study. The internship will be customized to meet the learning needs of the student and the job requirements of the sponsoring firm. Students spend 10-15 hours per week in this paid, supervised on-the-job training experience. In addition to the required 50 hours per credit at a work site, students participate in semi-monthly seminars. Students must apply one month prior to the semester in which they will complete the internship. Group 2 course.  
Required Prerequisites: 30 credits of program specific courses with a GPA of 3.0 or higher.

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**Student Handbook**

- Student Rights and Responsibilities (p. 286)
- Academic Policies (p. 287)
- Inclement Weather Policy (p. 289)
- Non-Discrimination Policy (p. 289)
- Harassment Policy (p. 289)
- Right to Know (p. 289)

**Student Rights and Responsibilities**

**Student Rights and Responsibilities (Policy D-602.01)**

The purpose of the Student Rights and Responsibilities statement is to define a student's basic rights within the college community, state what actions students may expect from the college to protect those rights,
and explain the college’s expectations of its student members, including the standards by which student behaviors are measured. This statement describes unacceptable student behavior and outlines the procedures by which students are disciplined if they engage in unacceptable conduct. www.nmc.edu/about/policies/board-staff/D-602.01.html (http://www.nmc.edu/about/policies/board-staff/D-602.01.html)

Academic Policies
Northwestern Michigan College is committed to open access to higher education and to your academic success. Our intent is to offer support and remediation for students who are considered at risk of academic failure.

Attendance
Attendance is critical to student academic progress. Even though attendance expectations may differ from course to course, you are expected to be present, prepared, and be active participants in your classes. Students will receive a written attendance policy from the instructor at the first class meeting. A student who is repeatedly absent from class without good reason may be withdrawn from the course by the instructor.

Credit for Prior Learning
Students who have achieved competency in certain skill or course work areas may receive credit for classes or waivers of prerequisite classes. This competency could be gained through life, work, or military experience; vocational training at an area vocational, career or skill center; or completion of high school advanced placement courses. Assessment of proficiencies may be demonstrated through the following options:

- AP (Advanced Placement) credit achieved through high school courses;
- CLEP (College Level Examination Program);
- ACE (American Council on Education) for veterans;
- DSST (Dantes Subject Standardized Test);
- Competency Assessment in some NMC courses;
- Course waiver;
- Articulation credit for work at the Traverse Bay Area Career Tech Center

Students who wish to pursue credit or waivers for competencies should go to www.nmc.edu/records (http://www.nmc.edu/records/) or contact the NMC Registrar in the Records and Registration Office in the Tanis Building. Students wanting information or to register for the CLEP exam should call (231) 995-1360.

Transfer Credit Equivalences
Quarter credits or other units of credit transferred in will be converted to semester credits. To convert quarter hours, multiply the quarter hours by 2/3 to equate to semester hour. The converted quarter hours must equal the required semester credits for the purpose of satisfying graduation requirements.

Adding Classes
Courses are set up in sessions which vary by the number of weeks they meet (15-week, 8-week, 5-week, etc.). Students may add available courses up through the day before the session begins. Once the session begins, permission to add may be required from the Academic Chair or Office Manager (not the instructor). Not all academic areas will allow registration after the session has started.

Dropping Classes
Students may officially drop classes during the designated Registration/Add/Drop/Refund dates for the semester.

These dates include a drop without record period which means the course will not be reflected on the official transcript, and a drop with record period which means a grade of “W” (Withdrawn) will be assigned to the course and noted on the official transcript. A grade of “W” will not affect the NMC grade point average. It is the student’s responsibility to drop their course(s), notify their instructor(s) of the drop, and be aware of any financial obligations.

Students dropping some or all of their classes may complete the process through NMC Self Service if there are no holds present on their record. This may also be done by completing an Enrollment/Drop/Add Form and submitting it to the Enrollment Services office. This may be done in person (Tanis Building) or by email to records@nmc.edu. The date the form is received in the Enrollment Services office will be considered the official date of the withdrawal. Questions about this process may be directed to Enrollment Services at (231) 995-1049.

Dropping a class is not permitted during the last 25 percent of the session in which the course is offered.

Students who wish to drop classes online and have a hold present on their record may call (231) 995-1049 for options. In most cases, the hold may be temporarily removed to allow the drop.

Grades
The following are standard grades at Northwestern Michigan College:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.0</td>
<td>outstanding</td>
</tr>
<tr>
<td>3.5</td>
<td>excellent</td>
</tr>
<tr>
<td>3.0</td>
<td>good</td>
</tr>
<tr>
<td>2.5</td>
<td>above average</td>
</tr>
<tr>
<td>2.0</td>
<td>average</td>
</tr>
<tr>
<td>1.5</td>
<td>below average</td>
</tr>
<tr>
<td>1.0</td>
<td>deficient</td>
</tr>
<tr>
<td>0.0</td>
<td>failed</td>
</tr>
<tr>
<td>S</td>
<td>satisfactory</td>
</tr>
<tr>
<td>U</td>
<td>unsatisfactory</td>
</tr>
<tr>
<td>I</td>
<td>incomplete</td>
</tr>
<tr>
<td>W</td>
<td>withdrawn</td>
</tr>
<tr>
<td>FA</td>
<td>failed to attend</td>
</tr>
<tr>
<td>AU</td>
<td>audit</td>
</tr>
<tr>
<td>S/U</td>
<td>(satisfactory/unsatisfactory) may be given to designate the level of performance in courses which evaluate completion of specified competencies. (For designated courses only.)</td>
</tr>
</tbody>
</table>
**Grade Point Re-evaluation**

Northwestern Michigan College offers you an opportunity to improve upon a cumulative grade point average by repeating a course or courses, or by petitioning for a grade point re-evaluation under special circumstances. These options provide you with the opportunity to achieve a cumulative grade point average that is truly representative of your capabilities. You may pursue this option by calling the Advising Center for petitions and further information: (231) 995-1040. Transfer institutions may or may not recognize GPA re-evaluation.

For more information on GPA re-evaluation, visit [www.nmc.edu/records](http://www.nmc.edu/records/) and click on “grades.”

**Academic Probation**

Any student whose cumulative grade point average is below a 2.0 is considered academically at risk and will be placed on academic probation. The purpose of academic probation is to assure careful academic planning and referral to support services while the student attempts to improve his or her academic record.

**Support & Intervention for Students on Academic Probation**

Any student who is on probation must meet with an academic advisor prior to registering for any semester or session until the status of probation is removed. This enables the student to build a realistic academic program and receive appropriate referrals to support services that afford the maximum possibility for success. Students who are on probation may not take more than 12 semester credits during fall/spring semester, or six credits during the summer session. The status of academic probation is removed when the student’s cumulative grade point average becomes 2.0 or higher.

**Academic Suspension**

When a student has been on academic probation for two semesters and is unable to maintain a current grade point average of 2.0 or higher the following semester, that student will be suspended from academic enrollment for a period of one semester (excluding summer.) This means the student will sit out for one full semester, either fall or spring. The official transcript will reflect this action.

**Reinstatement Following Academic Suspension**

A student who has been academically suspended is encouraged to petition the Registrar for reinstatement when the waiting period is over if he/she feels that sufficient changes have occurred to enable academic success. This petition must be made in writing at least two weeks prior to the start of the semester for which the student is seeking re-entry. Include in the petition:

1. Circumstances that you feel will lead to better academic performance
2. Your goals at NMC; for example, major filed of study and career plans
3. Your plans regarding employment if you are reinstated

**Grade Alert**

Learning is dependent upon regular feedback regarding student performance. Students and instructors are both responsible for this communication. Students achieving less than a 2.0 in any 15-week class may receive notification to their NMC email around the midpoint of the academic session encouraging them to contact their instructor.
Repeating Courses

Northwestern Michigan College offers you an opportunity to improve upon a cumulative GPA by repeating a course or courses. All courses and grades will appear on the transcript (official academic record); however, only the last grade will be counted in the cumulative grade point average. Most courses at NMC can be taken a maximum of three times. Exceptions are courses in applied music. Financial Aid may have further restrictions and should be consulted.

Transcripts

Official transcripts of a student’s academic record are released only at the request of the student. Northwestern Michigan College has partnered with Parchment to ensure security for all transactions, and allows current students and alumni to submit online orders for certified eTranscripts or paper transcripts.

Transcripts are issued only if all financial obligations have been settled with NMC and there are no active holds on the student record that prevent the release of transcripts. Refer to the Records and Registration webpage for more information, ordering instructions, and fees.

Inclement Weather Policy

It is the policy of Northwestern Michigan College to maintain normal operations on regularly scheduled days, except in very rare cases when severe weather conditions prevent this.

It is further the policy of NMC that each staff member and student will make his or her own determination concerning attendance on unfavorable travel days.

Given unfavorable weather conditions, NMC may delay or close, in which case the following actions will be taken:

- For daytime classes, a decision to delay the opening of the college or close entirely will be communicated before 5:30 a.m.
- For evening schedules, delays or closings will be announced by 3 p.m. There is a possibility that NMC would cancel all day classes and hold evening classes.
- If the college delays opening, students should report to class at the designated opening time. If a student’s class begins before the designated opening time, that class would be canceled unless one-hour of instruction remains after the designated opening time. Up-to-date information regarding class cancellations and college closures will be communicated on the NMC web page at www.nmc.edu/student-services/class-cancellations.html (https://www.nmc.edu/student-services/class-cancellations.html).
- College delays or closures will be reported to area radio and television stations (a list of stations is available in the Public Relations and Marketing office) campus video monitors, NMC’s general information number (231) 995-1000, and NMC website.
- College delays or closures will be reported via email to all faculty, staff and students via NMC email accounts, and via text message to those students who are subscribed to receive alerts on their cell phones.
- For weekend academic courses, the college closure/delay decision will first be enforced. If, on the other hand, a faculty member determines he/she cannot make it to campus for their particular class, the faculty member teaching the weekend course will update his/her voicemail greeting with the class cancellation information.

Weekend students should then call their instructor’s voicemail rather than the 24-hour phone line.

Non-Discrimination Policy

Northwestern Michigan College does not discriminate in admission, campus activities, education, employment, housing, public accommodation or public service on the basis of age, color, creed, disability, handicap, height, marital or familial status, national origin, political affiliation, race, religion, sex, sexual orientation, service in the military, veteran’s status, weight, or any other legally protected status under federal, state, or local law. No act of retaliation shall occur to any person making a charge, filing a complaint, testifying or participating in any discrimination investigation or proceeding. In addition, although not mandated by law, it is the policy of Northwestern Michigan College to prohibit discrimination in employment, educational programs and activities and admissions on the basis of sexual orientation, gender identity and gender expression. www.nmc.edu/nondiscrimination (http://www.nmc.edu/nondiscrimination/)

Harassment Policy

Northwestern Michigan College (NMC) prohibits sexual misconduct, which includes but is not limited to: rape, acquaintance rape, sexual assault, sexual harassment, stalking, dating violence, and domestic violence. Sexually violent acts, termed sexual misconduct by NMC are violations of NMC’s Student Rights & Responsibilities, and can be crimes as well.

The College shall promptly and thoroughly investigate complaints of discrimination and/or harassment. Complaints of discrimination and/or harassment will be treated as confidentially as possible. The College will conduct fair, thorough, impartial, and timely investigation of the allegation(s) presented in a complaint. Procedures detailing the investigation and resolution processes of NMC can be found online: www.nmc.edu/policies (http://www.nmc.edu/policies/) (D-702.01 - Discrimination and Harassment Complaint Procedure).

For additional information, contact the Vice President for Student Services and Technologies at (231) 995-1671. Employees may contact the Director of Human Resources at (231) 995-1342.

Right to Know

In 1990, Congress passed into law the Student Right-to-Know and Campus Security Act. The legislation is designed to provide better consumer information to students and their families by requiring institutions of higher education to compile and report completion or graduation rates, job placement statistics, crime statistics, as well as general information about the college. Job placement statistics, crime statistics, and general information about the college is available at www.nmc.edu (http://www.nmc.edu) and the student newspaper, or may be obtained in the Admissions Office, Tanis Building, (231) 995-1054. For completion or graduation rates contact the NMC Registrar at (231) 995-1058. All Board of Trustee and Student Government meetings are open to students.

Campus Security & Safety Policy

The safety of students, faculty, staff and visitors is of vital concern to Northwestern Michigan College. Everyone in the campus community is involved in creating a safe environment and is encouraged to report all safety concerns by calling campus security, (231) 883-9099. Emergency
outdoor phones are identified by a blue light; all incidents will be documented and investigated. NMC has a staff of campus security personnel who work closely with the Traverse City Police Department. On a regular basis, information and presentations are made available to students and employees on issues of importance to campus safety. The campus safety report is published online at www.nmc.edu/safety (http://www.nmc.edu/safety/) and is in compliance with the Student Right-to-Know and Campus Security Act. Visit www.nmc.edu/safety (http://www.nmc.edu/safety/) to view a daily crime log. Click on crime log.

**Campus Safety Report**

Mission: to establish a system of communication and response to provide for the safety of students and employees.

1. **Report Procedures**: To report criminal actions, emergencies, or suspicious situations, call:

   **Emergencies 911**
   **Campus Security (231) 995-1111**

   Emergency outdoor phones are identified by a blue light and can be used to make on-campus calls. To make an emergency call, press the red button, state your location and the situation. Police personnel will respond.

2. **Access to Campus Facilities**: All campus buildings are open from 7 a.m. to 10 p.m., Monday through Friday, and at other times on weekends depending on need. Residence halls are open from 7 a.m. to 12 midnight every day. Residents have keys and guests are required to register with the residence hall staff after midnight. All guests must be escorted by the resident they are visiting.

3. **Authority of Institutional Security Personnel**: The NMC Campus Security personnel have the authority to confront the individuals related to an incident, require identification, and when necessary, contact the Traverse City Police Department. Officers keep a daily record of activities and all incidents are promptly reported to the Campus Liaison Officer.

4. **Information Programs**: On a regular basis students and employees receive information on campus security and crime prevention and are invited to attend presentations on such subjects as sexual assault and rape; fire prevention; crime prevention; bomb threats; and alcohol and drug abuse prevention.

5. **Occurrence Statistics**: The NMC Campus Security and Safety Department has compiled these statistics for incidents on NMC’s four campuses from January 1, 2017 to December 31, 2017. Go to www.nmc.edu/security (http://www.nmc.edu/security/) to view statistics for the past three years.

### Offenses On Campus

<table>
<thead>
<tr>
<th>Offense</th>
<th>On Campus</th>
<th>On Campus Residential</th>
<th>Non-Campus Property</th>
</tr>
</thead>
<tbody>
<tr>
<td>Murder / Non Negligent</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Negligent Manslaughter</td>
<td>0</td>
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<td>0</td>
</tr>
<tr>
<td>Sex Offenses: Forcible</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Sex Offenses: Non forcible</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Robbery</td>
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</tr>
<tr>
<td>Aggravated Assault</td>
<td>0</td>
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<td>0</td>
</tr>
<tr>
<td>Burglary</td>
<td>0</td>
<td>0</td>
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<tr>
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The Michigan State Police make available the list of registered sex offenders at www.michigan.gov/msp (http://www.michigan.gov/msp/) select “Michigan Sex Offender Registry.”


**Drug-Free Learning Environment Policy**

It is the intent of Northwestern Michigan College to provide a drug-free workplace and learning environment for students, faculty and staff. Furthermore, NMC intends to comply with the provisions of the Drug-Free Schools and Communities Act of 1989. All students, employees, and visitors are expected to observe all federal, state and local laws and college regulations governing the use and possession of alcohol and illicit drugs. All students, employees and visitors are specifically forbidden to use or possess alcoholic beverages, or to be under the influence of any controlled substance while on college property (except as provided by policy for use of alcohol on campus) or violate conditions of Controlled Substance Act.

**Tobacco-Free Policy**

In the interest of providing a safe, clean and healthy environment for students, employees and visitors, NMC has prohibited smoking on all campuses.
Student Sexual Assault Policy

1. Legal and Behavioral Definition of Sexual Assault
Northwestern Michigan College (NMC) prohibits sexual misconduct, which includes but is not limited to: rape, acquaintance rape, sexual assault, sexual harassment, stalking, dating violence, and domestic violence. Sexually violent acts, termed sexual misconduct by NMC are violations of NMC's Student Rights & Responsibilities, and can be crimes as well. All reported incidents will be investigated and, if necessary, disciplinary sanctions will be imposed. Procedures detailing the investigation and resolution processes of NMC can be found online: www.nmc.edu/policies (http://www.nmc.edu/policies/) (D-602.05 - Student Sexual Assault).

2. Reporting Sexual Assault
The following campus offices may be contacted to report a sexual assault:

<table>
<thead>
<tr>
<th>Office</th>
<th>Phone Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vice President of Student</td>
<td>(231) 995-1671</td>
</tr>
<tr>
<td>Services and Technologies</td>
<td></td>
</tr>
<tr>
<td>Office of Residence Life</td>
<td>(231) 995-1400</td>
</tr>
<tr>
<td>Office of Student Life</td>
<td>(231) 995-1118</td>
</tr>
<tr>
<td>Student Health Services</td>
<td>(231) 995-1255</td>
</tr>
<tr>
<td>Local law enforcement</td>
<td>911</td>
</tr>
<tr>
<td>Campus Safety and Security</td>
<td>(231) 995-1111</td>
</tr>
</tbody>
</table>

The option of reporting to a supervisor in any discipline or department is also available.

Family Educational Rights & Privacy Act
The Family Educational Rights and Privacy Act (FERPA) helps protect the privacy of student records. The Act provides for the right to inspect and review educational records, the right to seek to amend those records and to limit disclosure of information from the records. Institutions may disclose information on a student without violating FERPA through what is known as “directory information.” Directory information includes the student’s name, address, telephone number, e-mail address, date and place of birth, major field of of study, participation in officially recognized activities, enrollment status, dates of attendance, degrees and awards received. Questions about student records may be directed to the Registrar. Go to www.nmc.edu/records (http://www.nmc.edu/records/) for more information.

Privacy Statement
In order to improve the instruction offered at Northwestern Michigan College and to meet the requirements of the Carl D. Perkins Vocational and Technical Education Act, Section 113 and the Workforce Investment Act of 1998, Section 122, we will be using your Social Security Number in order to compile summary reports. Section 113 of the Carl D. Perkins and Technical Education Act, 20 USC 2323, and section 122 of the Workforce Investment Act of 1998, 29 USC 2842, requires Northwestern Michigan College and the State of Michigan to assess the effectiveness of vocational and technical education programs aimed at training, placement, and retention of students in employment. Although these laws require that performance reports be compiled based on wage record information, neither law requires students to give their social security numbers (SSN) to the college. Northwestern Michigan College reports currently enrolled student status to the National Student Clearinghouse each semester. This information is provided to assist students to defer repayment of student loans during the time a student is enrolled. Information is also provided to verify degrees earned and may be used by potential employers who contact the National Student Clearinghouse. Students may access the Clearinghouse website through NMC’s secure website to obtain verification of their student status to be used for insurance purposes.

Faculty & Staff

PRESIDENT
Nissley, Nick
President
Ed.D., George Washington University
M.A., Antioch University
B.A., Ohio State University

PRESIDENT EMERITUS
Preston N. Tanis, 1951-1972
Timothy G. Quinn, 1989-1996
Ilse Burke, 1996-2001
Timothy J. Nelson, 2001-2019

EXECUTIVE STAFF

Achenbach, Gerard P
Superintendent of the Great Lakes Maritime Ac
U.S. Coast Guard Merchant Mariner’s Credential (USCG MMC)
Ed.D., Texas Tech University
M.B.A., Univ of Alaska Southeast
B.S., SUNY Maritime College

Cook, Victoria L
VP of Finance & Administration
M.B.A., Lawrence Tech University
B.S., Ferris State University
A.A.S., Northwestern Michigan College

Cotto, Marguerite C
VP for Lifelong & Professional Learning
M.S., M.S., Michigan State University
B.S., University of Puerto Rico

Fairbanks, Diana M
Executive Director of PR, Marketing, & Comm.
B.A., Univ Maryland College Park

Goodchild, Joy E
Executive Director of Rsrch, Planning, & Eff.
M.A., University of Pittsburgh
B.A., Baylor University
B.S., Bellevue University
A.A.S., McLennan Community College

Gorton, Holly J
Chief of Staff to the President & Board Trust
B.B.A., Davenport University

Hadley, Craig
Exec Dir & Chief Curator-Dennos Museum Cent
M.A., University of Missouri
B.A., Beloit College

Liebling, Mark D
AVP of Human Resources
M.L.I.R., B.S., Michigan State University
Neibauer, Todd C  
VP for Student Services & Technologies  
M.T.E., Ferris State University  
B.S.E., Ohio State University  
B.A., Michigan State University

Siciliano, Stephen N  
VP for Educational Services  
Ph.D., Col of William & Mary (The)  
M.A., University of Connecticut  
B.A., Adelphi University  
A.A., SUNY Nassau Community College

Teahen, Rebecca  
AVP of Resource Development - NMC Foundation  
B.S., Michigan State University

VICE PRESIDENT EMERITUS  
Lornie Kerr, 1970-1989

FACULTY

A

Anderson, Kimberly K  
Health Occupations Instructor  
D.C., National College of Chiropractic  
M.S.N., Walden University  
B.S.N., Grand Valley State University  
A.A.S., Kalamazoo Valley Comm College

Anderson, Michael W  
Communications Instructor  
M.A., University of Colorado  
B.A., Western Michigan University  
A.A., Northwestern Michigan College  
G.C.P., Indiana University

Bajema, David J  
Automotive Instructor  
Automobile Service Consultant (ASE)  
Master Auto Mechanic, State of Michigan

Balbach, Lisa J  
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M.A., B.S.B., University of Minnesota

Beeker, Norman J  
Health Occupations Instructor  
M.S.N., Gonzaga University  
M.S., Miami University  
B.A., Michigan State University  
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GLMA Instructor  
U.S. Coast Guard Merchant Mariner's Credential (USCG MMC)  
B.S., A.A.S., Northwestern Michigan College

Blackford, Lisa A  
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M.S.W., Michigan State University  
B.S., Lake Superior State University

Bloomquist, Cheryl M  
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M.A., Michigan State University  
B.S., Western Michigan University  
C.P., Wayne State University

Boris, Betsy J  
Health Occupations Instructor  
M.S.N., B.S.N., Spring Arbor University  
A.A.S., North Central Michigan College

Butler, Nathan  
Science & Math Instructor  
M.S., University of Vermont  
B.S., Ferris State University

C

Chu, Judy  
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M.A., University of Chicago  
B.A., University of California

Coleman, Tammy  
Science & Math Instructor  
Ph.D., Western Michigan University  
M.S., Michigan State University  
B.A., Calvin College

Dobek, Gerald O  
Science & Math Instructor  
M.A.A.S., Out of USA College 1  
B.S., Trinity College  
B.S., Ferris State University  
A.A., A.S., Northwestern Michigan College

Dohm, Lisa M  
Communications Instructor  
Ed.D., Central Michigan University  
M.A., Michigan State University  
M.A., Central Michigan University  
B.A., Michigan State University  
C.A., Central Michigan University

Drake, Stephen D  
Science & Math Instructor  
M.S., University of Wyoming  
M.A., Kansas State University  
B.S.E.D., Northwest Missouri State Univ

E

Elliott, Mary Jo  
Science & Math Instructor  
M.Ed., SUNY University of Buffalo  
B.S., Michigan Tech University  
C.P., Illinois Institute of Tech
Emerson, Michael P  
Communications & Humanities Instructor  
Ph.D., Purdue University  
M.A., B.A., B.A., University of Utah  

Everest, Brandon R  
Social Sciences Instructor  
M.A., B.S., Central Michigan University  

F  
Fewins, Nicole S  
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B.S., Michigan Tech University  
B.S., Ferris State University  

Franklin, Michael R  
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Ph.D., M.S., Michigan State University  
B.S., Murray State University  

G  
Gillett, Michael L  
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M.S., Capella University  
B.S.M.E., Kettering University (GMI)  

Goethals, Scott P  
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M.S., B.S., A.A.S., Ferris State University  
A.A.S., Northwestern Michigan College  

Gordon, Thomas A  
Humanities Instructor  
M.A., Fort Hays State University  
B.A., California State Polytech Univ  
A.A., Cuesta Community College  

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B.A., University of Michigan  
A.A., Northwestern Michigan College  

H  
Hosler, David C  
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B.S., Central Michigan University  

Howell, Mark D  
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M.A., M.A., B.A., Pennsylvania State University  

J  
Jack, Stewart L  
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G.C.P, Out of USA College 2  

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M.A., Western Illinois University  
B.S., Northern Michigan University  

Jaquish, Laura  
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M.S., B.S., Michigan State University  

Jenkins, Anthony L  
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M.S., Michigan State University  
B.S., Manchester College  

Johnson-Gray, Yolanda  
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Certified Dental Assistant (CDA)  
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Kelly, Keith E  
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Kesler, April N  
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Certified Surgical Technologist (CST)  
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Key, Blake D  
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Khan, Amjad A  
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M.S., New Mexico State University  

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Attorney, State Bar of Michigan  
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B.S., Northern Arizona University

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Parshall, Nancy J
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Richardson, Rebecca A
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Roster, Nicholas O
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Ruean, Sean E
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Apple Certified Trainer
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Smith, James D
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Smith, Marjory M
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M.A., Out of USA College 1
M.A., Out of USA College 2
M.A., Michigan State University
G.C.P., Indiana University
C.P., Out of USA College 1

Smith, Shilo L
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M.S., B.S., Idaho State University
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M.S., Wright State University
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Swan, Scott J
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Tate, Zachary
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M.F.A., Texas Tech University
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Traines, David P
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Certified Flight Instructor (CFI)
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Trouslot, Amy L
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M.S.N., Benedictine University
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Velas, John E
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B.S., Michigan Tech University

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M.A., Northern Michigan University
M.F.A., Oklahoma State University
B.A., Saginaw Valley State Univ

Wilczewski, Rachel A
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Wilson, Ryan M
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M.A., DePaul University
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Wooters, Rebecca L
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A.A.S., Northwestern Michigan College

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B.A., Michigan State University
Zlojutro, Jane M
Business Instructor
Certified Public Accountant (CPA)
M.S., Grand Valley State University
B.B.A., Western Michigan University

FACULTY EMERITUS
The following faculty members have retired with twenty or more years of service.

<table>
<thead>
<tr>
<th>Faculty Member</th>
<th>Service Years</th>
</tr>
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<tbody>
<tr>
<td>Glen Anderson</td>
<td>1959-1985</td>
</tr>
<tr>
<td>Norman E. Averill</td>
<td>1966-1996</td>
</tr>
<tr>
<td>Stephen J. Ballance</td>
<td>1975-2000</td>
</tr>
<tr>
<td>Pauline Baver</td>
<td>1951-1975</td>
</tr>
<tr>
<td>Elaine L. Beardslee</td>
<td>1964-1994</td>
</tr>
<tr>
<td>Walter Beardslee</td>
<td>1951-1985</td>
</tr>
<tr>
<td>Jay D. Beery</td>
<td>1981-2012</td>
</tr>
<tr>
<td>Joan A. Berg</td>
<td>1977-2000</td>
</tr>
<tr>
<td>Jack A. Berman</td>
<td>1975-2017</td>
</tr>
<tr>
<td>Lyle Bradford</td>
<td>1968-1988</td>
</tr>
<tr>
<td>Robert L. Buttleman</td>
<td>1970-2006</td>
</tr>
<tr>
<td>Larry M. Buys</td>
<td>1970-2001</td>
</tr>
<tr>
<td>Elizabeth A. Carden</td>
<td>1970-2000</td>
</tr>
<tr>
<td>Larry Carps</td>
<td>1971-2001</td>
</tr>
<tr>
<td>Alison B. Collins</td>
<td>1979-2018</td>
</tr>
<tr>
<td>Helen Core</td>
<td>1952-1974</td>
</tr>
<tr>
<td>James J. Coughlin</td>
<td>1987-2015</td>
</tr>
<tr>
<td>Sharon L. Dean</td>
<td>1965-1992</td>
</tr>
<tr>
<td>Joseph P. Dionne</td>
<td>1971-2006</td>
</tr>
<tr>
<td>Douglas E. Domine</td>
<td>1988-2016</td>
</tr>
<tr>
<td>Kathleen M. Donnelly</td>
<td>1961-1985</td>
</tr>
<tr>
<td>David K. Donovan</td>
<td>1971-2001</td>
</tr>
<tr>
<td>Sallie A. Donovan</td>
<td>1975-2006</td>
</tr>
<tr>
<td>Ernest L. East</td>
<td>1985-2018</td>
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<tr>
<td>Diane K. Emling</td>
<td>1987-2015</td>
</tr>
<tr>
<td>William E. Faulk</td>
<td>1965-2001</td>
</tr>
<tr>
<td>Adam J. Gahn</td>
<td>1963-2001</td>
</tr>
<tr>
<td>Ernest Gaunt</td>
<td>1952-1977</td>
</tr>
<tr>
<td>Richard Gertz</td>
<td>1968-1988</td>
</tr>
<tr>
<td>Michele J. Grooters</td>
<td>1977-2001</td>
</tr>
<tr>
<td>Robert B. Hamilton</td>
<td>1987-2017</td>
</tr>
<tr>
<td>Alan L. Hart</td>
<td>1987-2014</td>
</tr>
<tr>
<td>Jill L. Hinds</td>
<td>1979-2004</td>
</tr>
<tr>
<td>Michael W. Hochscheidt</td>
<td>1979-2018</td>
</tr>
<tr>
<td>Sherry L. Howard</td>
<td>1986-2016</td>
</tr>
<tr>
<td>Karen F. Howie</td>
<td>1987-2010</td>
</tr>
<tr>
<td>Constance A. Jason</td>
<td>1980-2012</td>
</tr>
<tr>
<td>Bronwyn R. Jones</td>
<td>1988-2019</td>
</tr>
<tr>
<td>Dianne W. Keelan</td>
<td>1974-2001</td>
</tr>
<tr>
<td>Francis Kullman</td>
<td>1968-1996</td>
</tr>
<tr>
<td>John R. Leishman</td>
<td>1969-1994</td>
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<tr>
<td>Mary A. Linsell</td>
<td>1979-2014</td>
</tr>
<tr>
<td>Loretta Lockman</td>
<td>1964-1984</td>
</tr>
<tr>
<td>William Long</td>
<td>1965-1988</td>
</tr>
<tr>
<td>David B. Loveland</td>
<td>1974-1994</td>
</tr>
<tr>
<td>Keith D. MacPhee</td>
<td>1962-1996</td>
</tr>
<tr>
<td>Kenneth L. Marek</td>
<td>1968-2001</td>
</tr>
<tr>
<td>Kenneth W. Masck</td>
<td>1975-2002</td>
</tr>
<tr>
<td>Robert D. Mason</td>
<td>1979-2018</td>
</tr>
<tr>
<td>Regis R. McCord</td>
<td>1986-2015</td>
</tr>
<tr>
<td>Michael A. McIntosh</td>
<td>1970-2004</td>
</tr>
<tr>
<td>Richard L. Minor</td>
<td>1972-2000</td>
</tr>
<tr>
<td>Hettie A. Molvang</td>
<td>1974-1994</td>
</tr>
<tr>
<td>Henry Morgenstein</td>
<td>1971-2000</td>
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<tr>
<td>Árlo Moss</td>
<td>1962-1988</td>
</tr>
<tr>
<td>Mark D. Nelson</td>
<td>1987-2017</td>
</tr>
<tr>
<td>Peter Nelson</td>
<td>1964-1988</td>
</tr>
<tr>
<td>Raymond D. Niergarth</td>
<td>1979-2010</td>
</tr>
<tr>
<td>Mary E. Norris</td>
<td>1982-2012</td>
</tr>
<tr>
<td>Harry E. Oliver</td>
<td>1958-1989</td>
</tr>
<tr>
<td>Sonja Olshove</td>
<td>1991-2016</td>
</tr>
<tr>
<td>Keith E. Overbaugh</td>
<td>1987-2017</td>
</tr>
<tr>
<td>Jack A. Ozegovic</td>
<td>1968-1989</td>
</tr>
<tr>
<td>John C. Pahl</td>
<td>1966-2013</td>
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<td>Richard Pascoe</td>
<td>1966-1988</td>
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<td>Anne L. Patrick</td>
<td>1984-2007</td>
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<td>James Press</td>
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<td>Mark R. Puchala</td>
<td>1986-2012</td>
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<td>Joseph H. Rogers</td>
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<td>Jean M. Rokos</td>
<td>1981-2016</td>
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<td>Kenneth A. Rose</td>
<td>1968-2000</td>
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<td>Mark G. Ross</td>
<td>1984-2019</td>
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<td>Robert F. Rudd</td>
<td>1963-1998</td>
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<td>Maureen C. Schneider</td>
<td>1985-2006</td>
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<td>William Shaw</td>
<td>1964-1994</td>
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<td>Jacqueline C. Shinners</td>
<td>1989-2010</td>
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<td>Allison Shumsky</td>
<td>1957-1995</td>
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<td>Terry L. Sievert</td>
<td>1982-2012</td>
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<td>Frank S. Snyder</td>
<td>1973-2015</td>
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<td>James Spenceley</td>
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<td>Marvin D. Studinger</td>
<td>1980-2013</td>
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<td>Frederick H. Tank</td>
<td>1966-2007</td>
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<td>John G. Tanner</td>
<td>1974-1995</td>
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<td>Roberta Teahen</td>
<td>1975-2001</td>
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<td>Roy A. Terdal</td>
<td>1964-1994</td>
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<td>David J. Terrell</td>
<td>1970-2007</td>
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<td>Jacqueline Tompkins</td>
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</table>
Michael D. Torre  1997-2019  
Mary D. VanderKolk  1985-2017  
David M. Vermetten  1962-1996  
Linda A. Walter  1990-2017  
Paul W. Welch  1964-1987  
Lila Wilkinson  1951-1974  
Jerry J. Williams  1970-2005  

ADJUNCT FACULTY

A

Acosta, Melinda L  
Adjunct - Nursing  
B.S.N., Ferris State University

Alberts, Alysha  
Adjunct - English/Communications  
M.A., B.A., Southern New Hampshire University  
A.A., Pasadena City College

Albrecht, Walter R  
Adjunct - Welding Process

Alner, James I  
Adjunct - Aviation Single Flight

Annis, Joedy M  
Adjunct - Physical Education  
A.D.N., A.A.S., Northwestern Michigan College

Assendelft, Barbara A  
Adjunct - Criminal Justice  
J.D., Detroit College of Law  
B.A., Michigan State University

Avery, Kevin C  
Adjunct - English/Communications  
M.A., Northern Michigan University  
B.A., Plymouth State University  
A.A., Colorado Mountain College

B

Baker, Cyril C  
Adjunct - Automotive  
Master Auto Mechanic, State of Michigan

Baker, Mike D  
Adjunct - Allied Health  
IC-Paramedic License  
Licensed Paramedic  
B.S., A.A.S., Baker College

Baker, Nadine  
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M.S.W., Grand Valley State University  
M.B.A., Lake Superior State University  
B.B.E., Eastern Michigan University

Baker, Renee M  
Adjunct - Construction - Renewable Energy  
M.B.A., Eastern Michigan University  
B.S., Lawrence Tech University

Bartle, Mary S  
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Bassett, Matthew C  
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Berg, Jason  
Adjunct - Biology  
M.S., Univ of Wisconsin - Milwaukee  
B.S., Univ of Wisconsin - Whitewater

Berg, Joan A  
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M.A., Central Michigan University  
B.A., Michigan State University

Besaw, Matthew L  
Adjunct - Aviation Flight Course  
Certified Flight Instructor (CFI)  
Certified Flight Instrument Instructor (CFII)  
Commercial Pilot  
Multiengine Instructor (MEI)  
A.A.S., Ferris State University

Bishop, Brian T  
Adjunct - Aviation Single Flight  
Airline Transport Pilot (ATP)  
Certified Flight Instructor (CFI)  
Certified Flight Instrument Instructor (CFII)  
M.B.A., Oklahoma City University  
B.S., Military Transcript

Boase-Miller, Samuel  
Adjunct - Music/Fine Arts

Bolton, Diane M  
Adjunct - English/Communications

Brumbaugh, Patricia J  
Adjunct - Music/Fine Arts  
M.M., University of Michigan  
B.A., Olivet College

Bussell, James A  
Adjunct - Criminal Justice  
M.L.I.B., Eastern Michigan University  
B.S., Ferris State University

C

Campbell, Jennifer L  
Adjunct - World Languages  
M.A., Univ of Northern Colorado  
M.S.W., University of Michigan  
B.A., Michigan State University  
A.A.A., C.A., Lansing Community College
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<tr>
<th>Name</th>
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<td>Cannon, Nelson J</td>
<td>Adjunct - Criminal Justice</td>
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<td>Adjunct - Nursing</td>
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<td>Clark, Diane M</td>
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<td>Collings, Jessica L</td>
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<td>Cook, Gary A</td>
<td>Adjunct - Construction - Renewable Energy</td>
<td>Licensed Architect, State of Michigan</td>
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<td>Cooney, Robert</td>
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<td>Cornish, Ian</td>
<td>Adjunct - Aviation Flight Course</td>
<td>Certified Flight Instructor (CFI)</td>
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<td>Adjunct - English Study Methods</td>
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<td>Adjunct - Aviation Single Flight</td>
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<td>Dybas, Dorian</td>
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<td>Dykstra, Jennifer R</td>
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<td>Ph.D., University of Michigan</td>
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Edyevean, Christopher J
Adjunct - Maritime AB/QMED
U.S. Coast Guard Merchant Mariner’s Credential (USCG MMC)
A.A.S., Columbia Southern University

Eisenhard, Stephen R
Adjunct - Music/Fine Arts
B.A., University of Cincinnati

Eisenstein, Dorothy B
Adjunct - Dance
M.A., Wesleyan University
B.F.A., University of Illinois

Elston, Lee A
Adjunct - Nursing
M.S., Nova University
B.S.N., Barry University

Emling, Diane K
Adjunct - Sociology
Ph.D., B.A., Michigan State University

Esckilsen, Kate E
Adjunct - Criminal Justice
M.S., University of Cincinnati
B.S., A.A., Ferris State University

Ewing, Jennifer A
Adjunct - Management
SHRM Senior Certified Professional, Human Resources
Senior Professional in Human Resources (SPHR)
M.B.A., Michigan State University
B.B.S.A., Central Michigan University

Feinman, Merritt B
Adjunct - Maritime AB
U.S. Coast Guard Merchant Mariner's Credential (USCG MMC)
A.A.S., Northwestern Michigan College

Fewless, Randy
Adjunct - Law Enforcement
B.S., Ferris State University

Fleis, Charles P
Adjunct - World Languages
Ph.D., Middlebury College
M.A., B.A., Western Michigan University
A.A., Northwestern Michigan College

Flitton, Thomas R
Adjunct - Law Enforcement
B.S., Grand Valley State University

George, Robert P
Adjunct - Culinary Arts
M.S., B.E.D., University of Michigan
A.A.S., Northwestern Michigan College

Gerring, Andrea M
Adjunct - Arts - Fine & Performing
M.A., B.A., Wayne State University

Gleason, Karen R
Adjunct - Allied Health
A.S., Northwestern Michigan College

Glotzhober, Paul
Adjunct - Maritime Diesel Engine
A.A.S., Northwestern Michigan College

Grenkowicz, Judith A
Adjunct - Economics
Ed.D., Northern Illinois University
M.B.A., University of Detroit Mercy
M.F.A., Bay Path University
B.S., Ferris State University

Hadfield, Jason S
Adjunct - Visual Communications
B.F.A., Kendall College
A.A.S., Northwestern Michigan College

Hallman, Christopher
Adjunct - Aviation Flight Course
B.S., University of North Dakota

Hardesty, Karl G
Adjunct - Maritime AB/QMED
U.S. Coast Guard Merchant Mariner's Credential (USCG MMC)
B.S., Northwestern Michigan College
A.S., Alpena Community College
A.A.S., Northwestern Michigan College

Hawkins, Stephanie M
Adjunct - Physical Education

Hill, Devin L
Adjunct - Construction - Carpentry
Licensed Residential Builder, State of Michigan

Hoehn, Jamie
Adjunct - Surgical Technology
Certified Surgical Technologist (CST)
B.S., A.A.S., Northern Michigan University

Hoenicke, Christie L
Adjunct - Law Enforcement
A.A.S., Northwestern Michigan College

Holley, Mark W
Adjunct - Anthropology
B.G.S., University of Michigan

Hopper, Chantal L
Adjunct - Nursing
B.S., Michigan State University
B.S.N., Saginaw Valley State Univ
A.A.S., Kirtland Community College
Horn, Michael J  
Adjunct - Maritime Deck Instructor  
U.S. Coast Guard Merchant Mariner’s Credential (USCG MMC)  
B.S., US Merchant Marine Academy

House, Erin H  
Adjunct - Criminal Justice  
J.D., University of North Carolina  
B.A., University of Michigan

Hunt, Charles K  
Adjunct - Welding  
M.A., Western Michigan University  
B.S., Ferris State University

Hunter, Michael F  
Adjunct - Music/Fine Arts  
B.Mus., Central Michigan University

Husser, David A  
Adjunct - Music/Fine Arts  
M.M., University of Oklahoma  
B.Mus., University of Illinois

Irish, Travis S  
Adjunct - Construction - Plumbing  
Licensed Mechanical Contractor  
Licensed Plumber  
Licensed Plumbing Contractor  
Licensed Residential Builder, State of Michigan

Jackson, William M  
Adjunct - Manufacturing & Design Technology  
B.S., A.A.S., Ferris State University  
A.S.A., Northwestern Michigan College

James, Rufus S  
Adjunct - Arts - Fine & Performing  
M.A., B.A., California State University

Janowicz, Thomas  
Adjunct - Biology  
M.S., M.S., University of Toledo  
B.S., B.S., John Carroll University

Johnson, Margaret L  
Adjunct - Music/Fine Arts  
B.S.E., Ball State University

Johnson, Nicole J  
Adjunct - English/Communications  
M.A., Out of USA College  
B.S., Central Michigan University

Jones, Geoffrey C  
Adjunct - Culinary Arts  
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K

Keefe, Christine L  
Adjunct - Biology  
Ph.D., University of Nebraska  
B.A., Rice University

Kelly, Bryan T  
Adjunct - Construction - Carpentry  
C.C., Northwestern Michigan College

Kendall, Thomas C  
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Certified Flight Instructor (CFI)  
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Kerr, Cameron D  
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Airline Transport Pilot (ATP)  
Certified Flight Instructor (CFI)  
Certified Flight Instrument Instructor (CFII)  
Commercial Pilot  
Multiengine Instructor (MEI)  
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Larimer-Kelly, Ashley C  
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Laursen, Alan P  
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B.S., Military Transcript

Leaman, Callie P  
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Lieblein, Susan L
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B.S.E., Central Michigan University

Lincoln, Patricia R
Adjunct - English (Fine Arts)
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B.A., Salem College

Lingaur, Alissia J
Adjunct - English/Communications
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B.A., Grand Valley State University

Linsell, Mary Ann S
Adjunct - Business Administration
M.L.I.R., B.A., Michigan State University

Loew, Philip J
Adjunct - Environmental Science
B.S., Michigan State University
A.A., Grand Rapids Community College

Loomis, Zoe
Adjunct - Biology
M.S., B.S., University of Colorado

Luyk, Heather A
Adjunct - Nursing
B.S., Elmhurst College

Lynch, Bryn A
Adjunct - World Languages
Ed.D., Central Michigan University
M.Ed., Aquinas College
M.A., Saint Louis University
B.A., Kalamazoo College
C.P., Out of USA College 1

LYON, Mark E
Adjunct - Law Enforcement
A.A.S., Northwestern Michigan College

M

Macdonald, Arran C
Adjunct - Aviation Single Flight

Mackie, Allen J
Adjunct - Aviation Flight Course
Certified Flight Instructor (CFI)
Commercial Pilot

Madion, Jody
Adjunct - Nursing
B.S.N., University of Michigan Nursing

Majerczyk, Brian D
Adjunct - Psychology
M.A., B.S., Western Michigan University

Marino Sears, Laurie
Adjunct - Music/Fine Arts
M.M., B.Mus., Indiana University

Markl, Jonathan B
Adjunct - Engineering

Martin, Jessica R
Adjunct - Aviation Flight Course
Certified Flight Instructor (CFI)
Commercial Pilot
B.S., Western Michigan University

Mathis, Richard A
Adjunct - Welding Process
M.Ed., Grand Valley State University
B.S., Ferris State University
C.P., Grand Valley State University
C.A., Ferris State University

Mayo, Claffee E
Adjunct - Allied Health

McCall, Brian D
Adjunct - History
B.S., Central Michigan University

McCord, Regis R
Adjunct - Psychology
M.S., B.A., California State University

McGowan, Jeremiah J
Adjunct - Aviation Single Flight

McHugh, Hollianne
Adjunct - Drafting & Design Technology
M.Ed., Grand Valley State University
B.S., University of Michigan

McKay, Grant E
Adjunct - Nursing
B.A., Central Michigan University
B.S.N., Spring Arbor University
A.D.N., A.A., Northwestern Michigan College

McKeon-Jacob, Mary
Adjunct - World Languages
M.Ed., National Louis University
B.S., Illinois State University

Mehl, Douglas K
Adjunct - Physical Education
Mikesell, Phillip  
Adjunct - Extended Educational Services  
Ph.D., M.A., Vanderbilt University  
B.A., Wabash College  

Mokdad, Ariel  
Adjunct - English/Communications  
M.A., Wayne State University  
B.A., Grand Valley State University  

Monteith, Mary K  
Adjunct - English (Fine Arts)  
M.Ed., B.A., University of Illinois  

Montgomery-Richards, Sarah E  
Adjunct - Philosophy  
M.A., Claremont Graduate University  
B.A., Western Michigan University  

Moore, Scott A  
Adjunct - Math  
M.Ed., Grand Valley State University  
B.S., Michigan State University  

Morrison, Doris A  
Adjunct - CPR Class  
C.P., Northwestern Michigan College  
C.P., Polk Community College  

Morse, Jeffrey W  
Adjunct - Construction - Electric  
A.A.A.S., West Shore Community College  

Mortensen-Chown, David K  
Adjunct - Music - Audio Technology  
Audio Tech Certificate  
B.Mus., Western Michigan University  
B.Mus., Michigan State University  

Morton, Mindy A  
Adjunct - History  
M.S., Portland State University  
B.S., Michigan State University  
A.A., Northwestern Michigan College  

Murray, Diane L  
Adjunct - Computer Information Technology  
B.A., DePaul University  

Myers, Cheryl L  
Adjunct - Visual Communications  
M.A., Michigan State University  
B.B.A., Davenport University  

N  

Nadj, Taoufik  
Adjunct - Physics  

Nelson, Karen R  
Adjunct - Extended Educational Services  
M.A., Michigan State University  
B.A., Hope College  

Nemec, Nathan  
Adjunct - Aviation Flight Course  
Certified Flight Instrument Instructor (CFII)  
Commercial Pilot  

Nichols, David C  
Adjunct - Aviation Flight Course  
Certified Flight Instructor (CFI)  
Certified Flight Instrument Instructor (CFII)  

Niemi, Sam P  
Adjunct - Accounting  
M.B.A., Lawrence Tech University  
B.S., Lake Superior State University  

Niemisto, Patrick T  
Adjunct - Audio Technology  
B.M.E., Northern Michigan College  

Nothstine, Kari J  
Adjunct - Nursing  
B.S.N., Chamberlain College of Nursing  
A.S.A., A.D.N., Northwestern Michigan College  

Novak, Brad H  
Adjunct - Music/Fine Arts  

O  

O’Brien, Kristen M  
Adjunct - Nursing  
B.S.N., Ferris State University  
A.A., Southwestern Oregon CC  
A.D.N., Northwestern Michigan College  
C.A., College of Southern Maryland  

Odgers, Susan L  
Adjunct - Psychology  
Ph.D., M.A., Wayne State University  
B.A., Oakland University  

Ollis, Edward  
Adjunct - Aviation Flight Course  
Certified Flight Instructor (CFI)  
Commercial Pilot  

Olson, James M  
Adjunct - Water Studies & Resource Management  
J.D., Detroit College of Law  
L.L.M., University of Michigan, Law  
B.A., Michigan State University  

Owens, Dianne H  
Adjunct - English/Communications  
M.Ed., B.A., Central Washington University  

P  

Pappas, Janice A  
Adjunct - Nursing  
B.S., A.A.S., Ferris State University
Parks, April M
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<table>
<thead>
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<th>Name</th>
<th>Title</th>
<th>Education</th>
</tr>
</thead>
<tbody>
<tr>
<td>Klei, Amy L</td>
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<td>B.B.A., Western Michigan University</td>
</tr>
<tr>
<td>Kolak, Paul A</td>
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<td>B.A., Calvin College</td>
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<tr>
<td>Kurowski, Gail A</td>
<td>Director of Police Academy</td>
<td>B.A., Michigan State University-Law</td>
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<td>A.A., Northwestern Michigan College</td>
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<tr>
<td>Linsell, Jeffrey S</td>
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<td>Lipke, Lindsey</td>
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<td>A.S.A., Northwestern Michigan College</td>
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<td>Loeffler, Donald G</td>
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<td>Lutchko, John R</td>
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<tr>
<td>Maison, Deborah L</td>
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<td>Malone, Kathryn M</td>
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<tr>
<td>Martin, Paul A</td>
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<tr>
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<td>McCall, Cathy J</td>
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<td>A.A.S., Rose State College</td>
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<td>McCauley, Zebulon W</td>
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<td>McCreary, Shayrl A</td>
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<td>McGee, Amari</td>
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<td>Mills, Joshua R</td>
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<td>Molmen, Lisa C</td>
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<td>Moody, Wayne A</td>
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<td>Morgan, Cynthia</td>
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<td>Moritz, Lynne M</td>
<td>Administrative Coordinator - President's Off</td>
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<td>Morrison, Kyle R</td>
<td>Coordinator - Media &amp; Instructional Technol.</td>
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<td>Nash, Taylor M</td>
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<td>Newman, Susan L</td>
<td>CRM/Admissions Specialist</td>
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<td>Niemi, Chelsie</td>
<td>Audience Engagement Manager</td>
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</tbody>
</table>
Noga, Cari
Writer - Public Relations Specialist
B.A., Marquette University

Norconk, Beth A
Client Systems Administrator
B.A., Ferris State University

O'Keefe, John M
Chief Flight Instructor
Airline Transport Pilot (ATP)
Certified Flight Instructor (CFI)
Certified Flight Instrument Instructor (CFII)
Multiengine Instructor (MEI)
B.B.A., Davenport University
A.A.S., Northwestern Michigan College

Plough, John
Program Coordinator - Extended Educational Svcs
M.A., Emerson College
B.A., Assumption College

Podolan, Patrick J
STCW Clerk & Sea Projects Specialist
B.B.A., Western Michigan University

Poertner, Michelle L
Program Manager - Tutorial Services
M.A., Michigan State University
B.S., Ferris State University
A.A.S., Northwestern Michigan College

Post, Benjamin
Senior Instructional Technology Specialist
M.A., Michigan State University
B.A., Kalamazoo College

Prior, Jill
Annual Giving Specialist
M.P.A., B.S., Central Michigan University

R
Rizzo, Suzanne
Specialist - Records
B.A., University of Michigan

Robinson, Heather J
Aviation Recruiter & Advisor
B.A.S., Davenport University

Rocheleau, Carl L
Chief UAS
Certified Flight Instructor (CFI)
Certified Flight Instrument Instructor (CFII)
Commercial Pilot
B.B.A., Davenport University
A.A.S., Northwestern Michigan College

Root, Janice M
Office Manager - Communications Academic Area

S
Sansonetti, Paige E
Enrollment Services Office Assistant
A.S.A., Northwestern Michigan College

Sauerbrey, Anthony G
UAS Program Manager
Certified Flight Instructor (CFI)
Certified Flight Instrument Instructor (CFII)
Commercial Pilot
Multiengine Instructor (MEI)
B.S., Williston State College

Schenk, Jackie B
Office Assistant - Extended Educational Svcs

Schenkelberger, Chad M
Director of the Hagerty Center
B.B.A., Western Michigan University

Schneider, Charles J
Residence Hall Manager
B.A., University of Michigan
A.S.A., Northwestern Michigan College

Schoppe, Paul M
Foundation Financial Assistant

Schultz, Dennis W
Technician - Video & Instr. Support Systems

Schultz, Kim E
Advisor - Academic & Career
M.L.S., Wayne State University
M.A., Oakland University
B.A., Wayne State University

Schultz, Shannon L
Student Financial Services Coordinator
B.S.B., Ferris State University
A.A., Northwestern Michigan College
Sedlacek, Stephen P
Assistant Engineer - T/S State of MI - GLMA
U.S. Coast Guard Merchant Mariner's Credential (USCG MMC)
A.A.S., Northwestern Michigan College

Shinn, Peggy A
Bookkeeper II

Shumaker, Bonnie J
Office Manager - Business Academic Area
B.A., Ohio State University

Slade, Jason S
Director of Technical Academic Area
M.S., B.S., Michigan State University

Slaus, Alice M
Office Manager - Humanities Academic Area

Smarsty, Sally R
Student Success Coordinator
B.S., Grand Valley State University

Smith, Jason M
International/Domestic Recruiter & Advisor
M.A., Marygrove College
B.A., Spring Arbor University

Sommer, Katelyn A
Office Manager - Department of Learning Svcs
M.P.A., University of Colorado
B.A., Keene State College

Sonnabend, Elizabeth A
Program Coordinator - Extended Educational Sv
M.B.A., Lawrence Tech University
B.S., Ferris State University

Steinebach, Kristina A
Bookkeeper - Accounts Payable

Strahan, Trisha J
Event Supervisor

Streeter, Neil
Database Administrator
B.A.S., Davenport University

Surgalski, Michael
Master - T/S State of Michigan
Master's License, Great Lakes
Master's License, Ocean
U.S. Coast Guard Merchant Mariner's Credential (USCG MMC)
B.S., Wayne State University
A.A.S., A.A.S., Northwestern Michigan College

Thornton, Alison B
Coordinator - Technology Support Services
B.A., American University
C.C., Other College

Trier, Sherry D
Instructional Technology Support Specialist
A.B., Delta College

Turner, Bryce E
Analyst - Network Systems & Data Comm.
B.S., Ferris State University

VanSumeren, Hans W
Director of Great Lakes Water Studies Inst.
M.S., B.S., University of Michigan

Vaughn, Eileen
Programmer/Analyst
B.S., Baker College

Wasson, Daniel P
Director of Systems & LAN Management
B.S., DeVry Institute of Technology

Waterstripe, Kirk E
Laboratory Manager
M.S., Rutgers State University
B.S., Edinboro University of Pennsyl

Weaver, David H
Client Systems Administrator
B.S., Western Michigan University

West, Mark A
Lead Accounting Assistant
B.S.B., B.S.B., Ferris State University
A.A., Northwestern Michigan College

Williams, Scott A
Executive Chef - Hagerty Center
B.S., A.A.S., Ferris State University
A.A.S., Northwestern Michigan College

Wiseman, Alex D
Course Materials Clerk

Woodruff, Amanda
Nursing Office Assistant
B.A., Grand Valley State University

Woughter, Kerrey B
Director of Library Services
M.A., Spring Arbor University
M.L.S., Wayne State University
B.S., Central Michigan University

Thomas, Lisa J
Dean of Students
Licensed Master Social Worker (LMSW)
M.S.W., Western Michigan University
B.A., Calvin College
### STAFF EMERITUS

The following staff members have retired with twenty or more years of service.

<table>
<thead>
<tr>
<th>Staff Member</th>
<th>Service Years</th>
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<td>Kenneth Berry</td>
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<td>Joyce Weisberg</td>
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<td>Stephen A. Westphal</td>
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<td>Avace E. Wildie</td>
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<td>Richard R. Wolin</td>
<td>1986-2019</td>
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<tr>
<td>Barbara A. Zupin</td>
<td>1989-2010</td>
<td></td>
</tr>
</tbody>
</table>

**MAINTENANCE AND CUSTODIAL STAFF**

<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
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<tbody>
<tr>
<td>Angel, Sharon M</td>
<td>Custodian</td>
</tr>
<tr>
<td>Asher, Brandon P</td>
<td>Groundskeeper</td>
</tr>
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<td>Bugai, Robert D</td>
<td>Groundskeeper</td>
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<td>Christopher, Dennis P</td>
<td>Custodian</td>
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<td>Cook, Frederick P</td>
<td>Custodian</td>
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<td>Coy, Patricia A</td>
<td>Custodian</td>
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<tr>
<td>Dalley, John</td>
<td>Warehouse Clerk</td>
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<tr>
<td>Egeler, Steven D</td>
<td>Custodian</td>
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<tr>
<td>Fewins, Stephen M</td>
<td>Custodian</td>
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<tr>
<td>Garvon, Brenda M</td>
<td>Custodian</td>
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<tr>
<td>Haines, Todd A</td>
<td>Maintenance Mechanic</td>
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<tr>
<td>Harrand, Sandra M</td>
<td>Custodian</td>
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<td>Jenkins, Deborah R</td>
<td>Custodian</td>
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<td>Kimball, Lindsey J</td>
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<td>MacGirr, Anthony J</td>
<td>Custodian</td>
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<td>Maloney, Robin R</td>
<td>Custodian</td>
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<td>Mashburn, Laura A</td>
<td>Custodian</td>
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<td>McPherson, Kerry L</td>
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<td>Murphy, Daniel C</td>
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<td>Rider, Robert M</td>
<td>Maintenance Mechanic I</td>
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<td>Sabins, Jeffrey J</td>
<td>Custodian</td>
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<td>Schettek, Gary J</td>
<td>Painter</td>
</tr>
<tr>
<td>Send, Jeffery M</td>
<td>Boiler Maintenance</td>
</tr>
<tr>
<td>Sexton, David A</td>
<td>Maintenance Mechanic</td>
</tr>
</tbody>
</table>
Addendum

Transfer Options

Accounting

_NMC Code 733_

The Accounting Program contains a blend of specialized classes and liberal arts studies to prepare students for today's competitive, complex, and changing business world. Students who plan to pursue a bachelor's degree should refer to NMC's degree requirements for the Associate in Science and Arts (ASA) degree. Also, transfer students should familiarize themselves with the requirements of the school where they plan to complete their bachelor's degree. Students interested in a bachelor's degree may also elect to stay in Traverse City and transfer to the University Center.

Anthropology

Anthropology is the study of humanity. Archaeology is the study of the material humans leave behind. Students planning to pursue degrees in anthropology or archaeology at four-year colleges or universities should take these courses. Introduction to Cultural Anthropology (ANT 113 Intro to Cultural Anthropology) is a required course for many areas of study.

NMC offers specialty courses in Nautical and Underwater Archaeology that may not be found at larger institutions. The Nautical Archaeology Society courses that are taught at NMC offer an internationally recognized certificate in nautical archaeology. This area of study can include field-work and research activities in northwestern Michigan, as well as application of advanced technologies. Students planning careers in the following field may find these courses useful: offshore oil and gas industry, underwater search and recovery (such as police divers), maritime and naval, university research, homeland security, commercial surveying, remote sensing (applied water-related technologies), cultural heritage development and management. Contact Mark Holley for more information at mholley@nmc.edu. See course descriptions (p. 190) beginning with ANT.

Art/Fine Arts

_NMC Code 711_

The Fine Arts and Visual Communications courses are designed for students who plan to transfer to a four-year college or university for a Bachelor's or Master's degree in Fine Arts (BFA or MFA). Careers for students specializing in Fine Arts include education, museum/gallery management, commercial illustration, animation and character development, film and graphic arts.

Students specializing in Fine Arts while completing an Associate in Science and Arts degree at NMC will pursue a program of study which includes Drawing, 2-D Design and 3-D Design while offering tracks in Fine Studio Arts and Ceramics, Illustration, Photo, Animation/Character Design, Photography, Visual Communications, Painting and Art History. Students are urged to discuss course selection early with transfer schools since portfolio requirements for admission vary.

Astronomy

_NMC Code 717_

NMC offers courses that focus on Observational, Planetary, and Stellar Astronomy. Students planning on transferring to pursue a bachelor's degree in this area should also take coursework in Mathematics and Physics. See course descriptions (p. 190).

Biology

_NMC Code 702_

Individuals planning to pursue a bachelor's degree in Biology should select from courses beginning with BIO. In addition, students should select courses in Math, Chemistry and Physics. See course descriptions (p. 190).

Business Administration

_NMC Code 734_

Students planning to pursue a four-year degree in Business Administration should follow NMC's degree requirements for the ASA and familiarize themselves with the requirements of the school of choice for their bachelor's degree.

Chemistry

_NMC Code 727_

Students planning to pursue a bachelor's degree in Chemistry will choose coursework that includes credits selected from courses beginning with CHM. See course descriptions (p. 190). In addition to taking Chemistry courses, students with an emphasis in Chemistry gain a solid background in Math and Physics.

Communications

_NMC Code 704_

Communications as a separate field of study may include a variety of careers and specialties, ranging from media and public relations to technical writing. It is also an important component of other programs of study or careers, including computer science, human services, health occupations and art therapy.

Criminal Justice

_NMC Code 706_

Students can complete an Associate in Science and Arts degree from Northwestern Michigan College (NMC) with a focus in Criminal Justice. Students will take 24 credits in criminal justice related courses and gain career opportunities at the local, state and national level in criminal
Study will select courses beginning with ECO.

NMC and Ferris State University (FSU) have partnered to offer the Bachelor of Science degree in Criminal Justice where students complete 85 credits at NMC and 35 credits at FSU, which can be completed at the University Center in Traverse City.

NMC also offers a Criminal Justice program in collaboration with other colleges through the Michigan Colleges Online. Visit www.nmc.edu/online (http://www.nmc.edu/online/) for current information on the status of this program, the courses, program requirements, or articulation agreements.

Dance
NMC Code 707

Students wishing to pursue an interest in the field of dance should take courses beginning with DNC and consult with an advisor and the dance faculty member before their first semester at NMC. See course descriptions (p. 190).

Early Childhood Education
NMC Code 722

Early Childhood Education courses are designed to prepare students to work with children and their families in early care and education settings. Students may seek a career as the director of a child care program, a paraprofessional/teacher’s aide in the school system, a lead teacher in a daycare/preschool setting, a daycare teacher’s aide, or preparing for a bachelor’s degree in Early Childhood Education. If you are pursuing elementary education, please consult the Elementary Education transfer guide from the transfer school or see an advisor.

Economics
NMC Code 732

The most basic and enduring strength of economics is that it provides a logical and orderly way of analyzing contemporary economic issues. It draws upon geography, history, philosophy, and mathematics to address topics ranging from how an individual, household or firm, can make rational decisions regarding spending, saving, investment and profits to how a society can make optimal decisions regarding economic growth, inflation, unemployment, trade, and environment. As a result, economics is widely recognized as a solid background for many jobs and professions in the private and public sectors. Students interested in this field of study will select courses beginning with ECO. See course descriptions (p. 190).

Education
NMC Code 708

NMC offers two introductory courses related to the field of elementary and secondary education. The Introduction to Teaching course serves as a primer to teaching as a career, and the Educating the Exceptional Child course is designed to address the complexity of understanding and teaching the exceptional child (one with special needs, disabilities and differing abilities including the gifted and talented). Both courses prepare students for further study in education at transfer institutions.

Transfer requirements may vary. Go to www.nmc.edu/advising (http://www.nmc.edu/advising/) to view NMC transfer guides.

Engineering

The NMC engineering curriculum parallels engineering programs offered during the first two years at other colleges and universities. Traditionally, these first two years emphasize the tools and theories that provide background for all engineering fields.

Engineering Certificate
NMC Code 079

Completion of the certificate program requirements will prepare most students for transfer to a four-year engineering program. Students are required to meet with an advisor for completion of this certificate.

Engineering ASA
NMC Code 709

General Education Credits as required for ASA 30-32
Plus completion of Engineering certificate requirements

English
NMC Code 710

Students wishing to concentrate their studies in the field of English may be preparing for careers in writing or teaching. English is also crucial to many other careers since writing and reading are high-demand skills in most professions. Students planning to transfer to complete a bachelor’s degree in English should pursue an Associate in Science and Arts degree program that includes credits selected from among the courses beginning with ENG. See course descriptions (p. 190).

Environmental Science
NMC Code 717

The study of Environmental Science includes courses in Geology, Biology, Meteorology, Chemistry, Soils, Oceanography and Watershed Science. Students planning on transferring to pursue a bachelor’s degree in any of these areas will choose a program of study which includes courses selected from those beginning with ENV. See course descriptions (p. 190). Students are encouraged to contact a faculty member in the Science department to learn more about employment opportunities and for assistance with class scheduling.

Freshwater Studies
NMC Code 590

Students planning to transfer to complete a bachelor’s degree in Freshwater Studies should follow NMC’s ASA degree requirements. Students are strongly encouraged to consult a Freshwater Studies advisor for scheduling guidelines and degree selection.

Geography
NMC Code 726

NMC offers coursework in Physical Geography and Introduction to Geography. Regional courses are also offered that focus on the United States and Canada and the world. In addition, a tools course concentrating on Geographic Information Systems (GIS) is offered.
Students planning on pursuing a rewarding career in Geography are encouraged to meet with the Geography Department Head for help in course selection. See course descriptions (p. 190) for GEO courses.

**Geology**  
*NMC Code 717*

Students interested in pursuing a career as a Geologist will take Environmental Studies courses, including Physical and Historical Geology. In addition, students will complete coursework in Chemistry, Physics, and Math.

**History**  
*NMC Code 730*

As a separate field of study within the humanities, history will prepare students to enter secondary education, journalism, the archival and museum professions, and a variety of public history positions upon completion of at least a bachelor’s degree. It will also prepare students for entering professional and graduate schools in law and in fields that will enable graduates to teach and do research in institutions of higher learning.

**Liberal Arts/Science**  
*NMC Code 712*

Students interested in transferring to pursue a bachelor’s degree should enroll in the General Liberal Arts/Science area of study if they are undecided. Students planning on pursuing this avenue will select at least 30 credits of Group 1 courses.

**Mathematics**  
*NMC Code 715*

Students planning on transferring to complete a bachelor’s degree in Mathematics will pursue coursework that includes Calculus I, Calculus II, Calculus III, and Differential Equations. Other suggested courses could include Problems & Princ. of Physics I and Problems & Princ. of Physics II.

**Music**  
*NMC Code 716*

Professional opportunities for a skilled musician are endless in that music, in some way, touches our lives every day in many ways. The study of music offers a vast variety of career options including: music education, instrumental music, vocal performance, conducting, composing, music for worship, music business, instrument making and repair, music publishing, music communications, recording industry, an in the TV and radio industry.

NMC offers students the opportunity to complete the first two years of music-major coursework in a creative and supportive environment. Students receive individualized instruction from our dynamic faculty in classes designed for students’ success. Standard music-major coursework includes: Music Theory, Sight Singing and Ear Training, Group Piano Instruction, Applied Instruction (private lessons), and participation in NMC Music Ensembles. Upon successful completion of the two-year program, students will have earned an Associate in Science and the Arts degree that is transferable to most four-year institutions of higher learning.

NMC also offers many opportunities for those students pursuing non-music degree paths, but interested in continuing their participation in a music program. Any NMC student (music-major or not) may enroll for Applied Instruction and may participate in any of our NMC Music Ensembles: NMC Chamber Singers, NMC Grand Traverse Chorale, NMC Concert Band, NMC Jazz Ensemble, and the NMC Vocal Jazz Ensemble. Other opportunities (chamber groups, percussion ensembles, jazz combos, etc.) are also available for interested NMC students.

**Philosophy and Religion**  
*NMC Code 729*

Careers in the fields of philosophy and religion include college teaching and research, secondary education, as well as positions as ministers, priests, or rabbis. Other potential careers for those who specialize in religion are pastoral administration, religious education, church office management, and church mission work. The fields of clinical medicine and medical research as well as commercial business fields like accounting are employing ethicists, a specialized branch of philosophy.

Students planning to transfer to a four-year college or university to major in philosophy or religion may complete basic coursework while at NMC. That coursework will include credits selected from those courses that begin with PHL. See course descriptions (p. 190).

**Physics**  
*NMC Code 717*

Students planning to transfer to complete a bachelor’s degree in physics will pursue coursework, which includes PHY 221 Problems & Princ. of Physics I & PHY 222 Prob. & Princ. of Physics II, with Calculus I, II, & III, Differential Equations, and General Chemistry I & II.

**Plant Science, Applied**

Fruit and Vegetable Crop Management  
*NMC Code 581*

Landscape Management  
*NMC Code 582*

Viticulture  
*NMC Code 580*

Students planning to transfer to complete a four-year degree in Horticulture should follow a general education curriculum with courses in science, including Chemistry and Biology. In addition, students may take technical courses in soils, plants and plant diseases from Michigan State University, and can do so here at NMC.

**Political Science**  
*NMC Code 725*

Political science as a field includes the study of American politics, comparative politics, international relations, political theory, and political economy. Undergraduate courses in political science are an important component of any liberal arts education as students gain important knowledge concerning the political structures that shape our world.

Courses in political science are especially useful for students pursing careers or advanced degrees in public policy, law, business, economics, social work, education, history, and, of course, politics. Bachelor’s and graduate degrees in political science and public policy offer career opportunities in a variety of areas such as education, policy research, law, and international business. Students interested in political science
courses select courses that begin with PLS. See course descriptions (p. 190).

**Pre-Law**  
*NMC Code 718*

Pre-Law is a major often selected by students interested in pursuing careers in government or law.

**Pre-Med, Pre-Dental, Pre-Vet**  
*NMC Code 713*

The Pre-Professional program prepares the student for continuing study in a number of medical professional fields, including Pre-PA, Pre-Vet, Pre-Dental, and Pre-Med. While there is no Pre-Professional degree, students interested in the medical profession will typically major in Biology. Chemistry or Psychology.

**Psychology**  
*NMC Code 724*

Students interested in the following fields of psychology, such as counseling, social work, research or teaching, may select from courses such as Introduction to Psychology, Introduction to Social Psychology, Developmental Psychology, Human Sexuality, Abnormal Psychology, Psychology of Personality and Psychology of Adjustment.

**Social Work**  
*NMC Code 723*

The social work courses are designed to transfer to other four-year schools with certified social work programs. It is specifically designed to fit into the Ferris State University Social Work Program at the University Center in Traverse City and on the Ferris main campus in Big Rapids. When choosing this program of study, it is highly recommended to meet with the social work coordinator; call (231) 995-1294. This will assist you in building a program that will transfer smoothly. Social work is a rapidly growing field that employs people in many different areas of work and requires very specific training and coursework. Students interested in this field of study will select courses from among those beginning with SWK. See course descriptions (p. 190).

**Sociology**  
*NMC Code 720*

Sociology is the study of the social context of human behavior. It includes the study of social change; socialization of group attributes such as social class, race, gender and age; and the workings of our social institutions. Courses in sociology are an important component of any liberal arts education, especially involving critical thinking and an understanding of diversity. It is also a major study for those interested in a wide variety of careers including teaching, social work, public policy, criminal justice, law, non-profit organizations, and social research. Students interested in sociology courses select courses that begin with SOC. See course descriptions (p. 190).

**World Languages**  
*NMC Code 731*

World Languages as a field of study at NMC includes specialization in American Sign Language, French, German, and Spanish. In a world of international telecommunications and interdependent economies, language specialization is an important component for those planning careers in business, communication, or teaching.

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