## ACADEMIC CALENDAR

### 2021-2022 Academic Calendar

#### Fall Semester 2021

<table>
<thead>
<tr>
<th>Event</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Registration Begins</td>
<td>Wednesday, March 10, 2021</td>
</tr>
<tr>
<td>Tuition Payment Due</td>
<td>Tuesday, July 27</td>
</tr>
<tr>
<td>NMC Opening Conference (Faculty and Staff)</td>
<td>Monday, August 23</td>
</tr>
<tr>
<td>Classes Begin</td>
<td>Saturday, August 28</td>
</tr>
<tr>
<td>Drop Dates</td>
<td>Saturday, August 28 - Tuesday, September 7</td>
</tr>
<tr>
<td>Labor Day Holiday - No Classes</td>
<td>Saturday, September 4 - Monday, September 6</td>
</tr>
<tr>
<td>Enrollment Report Day</td>
<td>Wednesday, September 8</td>
</tr>
<tr>
<td>NMC October Conference - No Classes Day or Evening</td>
<td>Tuesday, October 12</td>
</tr>
<tr>
<td>Registration for Spring &amp; Summer 2021 Semesters Begins</td>
<td>Wednesday, October 20</td>
</tr>
<tr>
<td>Thanksgiving Holiday - No Classes</td>
<td>Wednesday, November 24 (5 p.m.) - Sunday, November 28</td>
</tr>
<tr>
<td>Classes End</td>
<td>Saturday, December 18</td>
</tr>
<tr>
<td>Grades Entered by 11 a.m.</td>
<td>Wednesday, December 22</td>
</tr>
<tr>
<td>Christmas Holiday</td>
<td>Friday, December 24 - Monday, December 27</td>
</tr>
<tr>
<td>New Year’s Holiday</td>
<td>Friday, December 31 (noon) - Monday, January 3, 2022</td>
</tr>
</tbody>
</table>

#### Spring Semester 2022

<table>
<thead>
<tr>
<th>Event</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Registration Begins</td>
<td>Wednesday, October 20, 2021</td>
</tr>
<tr>
<td>Tuition Payment Due</td>
<td>Thursday, December 2, 2021</td>
</tr>
<tr>
<td>NMC January Conference (Faculty and Staff)</td>
<td>Monday, January 10, 2022</td>
</tr>
<tr>
<td>Classes Begin</td>
<td>Friday, January 14</td>
</tr>
<tr>
<td>Drop Dates</td>
<td>Friday, January 14 - Monday, January 24</td>
</tr>
<tr>
<td>Enrollment Report Day</td>
<td>Tuesday, January 25</td>
</tr>
<tr>
<td>Registration for Fall 2022 Semester Begins</td>
<td>Wednesday, March 9</td>
</tr>
<tr>
<td>Spring Break - No Classes</td>
<td>Monday, March 28 - Sunday, April 3</td>
</tr>
<tr>
<td>Spring Holiday</td>
<td>Friday, April 15 - Sunday, April 17</td>
</tr>
<tr>
<td>Honors Convocation</td>
<td>Friday, May 6</td>
</tr>
<tr>
<td>Commencement</td>
<td>Saturday, May 7</td>
</tr>
<tr>
<td>Classes End</td>
<td>Saturday, May 7</td>
</tr>
<tr>
<td>Grades Entered by 11 a.m.</td>
<td>Wednesday, May 11</td>
</tr>
</tbody>
</table>

#### Summer Session 2022

<table>
<thead>
<tr>
<th>Event</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Registration Begins</td>
<td>Wednesday, October 20, 2021</td>
</tr>
<tr>
<td>Tuition Payment Due</td>
<td>Tuesday, April 19, 2022</td>
</tr>
<tr>
<td>Classes Begin</td>
<td>Monday, May 9</td>
</tr>
<tr>
<td>Drop Dates for 12-Week Session</td>
<td>Monday, May 9 - Monday, May 16</td>
</tr>
</tbody>
</table>
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
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. 21)
• Accounting, Associate in Applied Science Degree - General (p. 22)
• Accounting, Certificate of Achievement (Level II) (p. 23)
• Audio Technology, Associate in Applied Science Degree (p. 99)
• Audio Technology, Certificate of Achievement (Level I) (p. 101)
• Audio Technology, Certificate of Achievement (Level II) (p. 101)
• Automotive - Automotive Service Technology, Associate in Applied Science Degree (p. 155)
• Automotive - Electrical & Drivability Specialist, Certificate of Achievement (Level II) (p. 156)
• Automotive - Hybrid Technology Specialist, Certificate of Achievement (Level II) (p. 156)
• Automotive - Master Automotive Technician, Certificate of Achievement (Level III) (p. 157)
• Automotive - Under Car Specialist, Certificate of Achievement (Level II) (p. 158)
• Aviation - Unmanned Aircraft Systems, Certificate of Achievement (Level I) (p. 7)
• Aviation, Associate in Applied Science Degree (p. 8)

B
• Business Administration - Online, Associate in Applied Science Degree (p. 24)
• Business Administration, Associate in Applied Science Degree (p. 25)

C
• Computer Information Technology - Assistant Developer, Certificate of Achievement (Level I) (p. 27)
• Computer Information Technology - Assistant Web Developer, Certificate of Achievement (Level I) (p. 27)
• Computer Information Technology - Associate Developer, Certificate of Achievement (Level II) (p. 27)
• Computer Information Technology - Associate Web Developer, Certificate of Achievement (Level II) (p. 28)
• Computer Information Technology - Computer Support Specialist, Certificate of Achievement (Level III) (p. 28)
• Computer Information Technology - Developer, Associate in Applied Science Degree (p. 29)
• Computer Information Technology - Industry Certifications (p. 31)
• Computer Information Technology - Infrastructure and Security, Associate in Applied Science Degree (p. 34)
• Computer Information Technology - Infrastructure Specialist I, Certificate of Achievement (Level I) (p. 32)
• Computer Information Technology - Infrastructure Specialist II, Certificate of Achievement (Level II) (p. 33)
• Computer Information Technology - Infrastructure Specialist III, Certificate of Achievement (Level III) (p. 33)
• Computer Information Technology - Microsoft Office™ Applications Specialist, Certificate of Achievement (Level I) (p. 35)
• Computer Information Technology - Web Developer, Certificate of Achievement (Level III) (p. 36)
• Construction Technology - Carpentry Technology, Certificate of Achievement (Level I) (p. 158)
• Construction Technology - Carpentry Technology, Certificate of Achievement (Level II) (p. 159)
• Construction Technology - Construction Management, Associate in Applied Science Degree (p. 159)
• Construction Technology - Electrical Technology, Certificate of Achievement (Level II) (p. 160)
• Construction Technology - Electrical, Associate in Applied Science Degree (p. 161)
• Construction Technology - Facilities Maintenance, Certificate of Achievement (Level II) (p. 163)
• Construction Technology - HVAC/R Technology, Certificate of Achievement (Level I) (p. 164)
• Construction Technology - HVAC/R, Associate in Applied Science Degree (p. 165)
• Construction Technology - Renewable Energy Technology - Electrical, Certificate of Achievement (Level II) (p. 166)
• Construction Technology - Renewable Energy Technology - HVAC/R, Certificate of Achievement (Level II) (p. 167)
• Culinary Arts - Baking - Great Lakes Culinary Institute, Certificate of Achievement (Level I) (p. 37)
• Culinary Arts - Culinary Sales and Marketing, Associate in Applied Science Degree (p. 37)
• Culinary Arts - Great Lakes Culinary Institute, Associate in Applied Science Degree (p. 38)
• Culinary Arts - Great Lakes Culinary Institute, Certificate of Achievement (Level III) (p. 39)

D
• Dental Assistant, Associate in Applied Science Degree (p. 54)
• Dental Assistant, Certificate of Achievement (Level II) (p. 56)
• Digital Administration and Marketing, Certificate of Achievement (Level I) (p. 40)

E
• Early Childhood Education and Care, Certificate of Achievement (Level II) and CDA Cohort (p. 141)
• Early Childhood Education, Associate in Applied Science Degree (p. 143)
• Engineering Technology - Biomedical Technician, Associate of Applied Science (p. 168)
• Engineering Technology - Computer Technology, Associate of Applied Science (p. 169)
• Engineering Technology - Electronics Technology, Associate of Applied Science (p. 170)
• Engineering Technology - General, Associate in Applied Science Degree (p. 171)
• Engineering Technology - Marine Technology, Associate of Applied Science (p. 173)
• Engineering Technology - Programmable Logic Controllers (PLC), Certificate of Achievement (Level I) (p. 174)
• Engineering Technology - Robotics & Automation Technology, Associate of Applied Science (p. 174)
• Engineering Technology - Unmanned Aerial Systems Technology, Associate of Applied Science (p. 175)
• Engineering, Associate of Science in Engineering (p. 130)

F
• Freshwater Studies, Associate in Applied Science Degree (p. 177)

L
• Law Enforcement, Associate in Applied Science Degree (p. 143)
• Law Enforcement, Certificate of Achievement (Level II) (p. 144)

M
• Manufacturing Technology, Associate in Applied Science Degree (p. 178)
• Marine Technology, Bachelor of Science (p. 112)
• Maritime - Bachelor of Science Degrees (p. 118)
• Maritime - Deck Officer, Bachelor of Science (p. 113)
• Maritime - Engineering Officer, Bachelor of Science (p. 116)
• Maritime - Power Systems, Bachelor of Science (p. 119)

N
• Nursing - ADN Completion Option (p. 56)
• Nursing - Practical, Certificate of Achievement (p. 58)
• Nursing, Associate Degree in Nursing (p. 60)

O
• Office Administration, Certificate of Achievement (Level II) (p. 41)

P
• Paramedic, Associate in Applied Science Degree (p. 62)
• Plant Science - Fruit and Vegetable Crop Management, Associate in Applied Science Degree (p. 131)
• Plant Science - Landscape Management, Associate in Applied Science Degree (p. 132)
• Plant Science - Viticulture, Associate in Applied Science Degree (p. 132)

R
• Respiratory Therapy - RT, Associate in Applied Science Degree (p. 63)

S
• Surgical Technology, Associate in Applied Science Degree (p. 63)
• Surveying, Associate in Applied Science Degree (p. 179)

T
• Technical Management Administration, Associate in Applied Science Degree (p. 41)

V
• Visual Communications - Creative Management in Art Direction, Associate in Applied Science Degree (p. 102)
• Visual Communications, Associate in Applied Science Degree (p. 102)

W
• Welding Technology, Associate in Applied Science Degree (p. 180)
• Welding Technology, Certificate of Achievement (Level I) (p. 181)
• Welding Technology, Certificate of Achievement (Level II) (p. 182)

Aviation

Programs
• Aviation - Unmanned Aircraft Systems, Certificate of Achievement (Level I) (p. 7)
• Aviation, Associate in Applied Science Degree (p. 8)

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 Prerequisite(s): 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 Prerequisite(s): Private Pilot Rating; AVF 111 and 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 Prerequisite(s): 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 Prerequisite(s): AVF 230 - 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 Prerequisite(s): AVF 232 with a 2.0 or better

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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): AVG 234 with a 2.0 or better and instructor permission

**Aviation Ground**

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 Prerequisite(s): AVG 202 with a 2.0 or higher

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 Prerequisite(s): AVF 111

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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): AVF 111 and AVG 101 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 Prerequisite(s): 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 Prerequisite(s): 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>UAS 107</td>
<td>Remote Pilot Ground</td>
<td>3</td>
</tr>
<tr>
<td>UAS 141</td>
<td>Remote Pilot Flight</td>
<td>3</td>
</tr>
<tr>
<td>UAS 211</td>
<td>Commercial Drone Operations</td>
<td>3</td>
</tr>
<tr>
<td>UAS 241</td>
<td>Advanced Drone Operations</td>
<td>3</td>
</tr>
</tbody>
</table>

Directed Electives
Select any 3 or 4 credit course from the list below
Total Credits 15-16

<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>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>UAS 220</td>
<td>UAS Projects and Maintenance</td>
<td>3</td>
</tr>
<tr>
<td>UAS 255</td>
<td>UAS Safety Management</td>
<td>2</td>
</tr>
<tr>
<td>UAS 260</td>
<td>Aerosonde UAS Ground Training</td>
<td>4</td>
</tr>
<tr>
<td>UAS 261</td>
<td>Aerosonde UAS Flight Training</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
UAS 141 Remote Pilot Flight 3
UAS 107 Remote Pilot Ground 3
Credits 6

Spring
Approved Course Elective 3-4
UAS 211 Commercial Drone Operations 3
Credits 6-7

Summer
UAS 241 Advanced Drone Operations 3
Credits 3
Total Credits 15-16

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>
</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>
</tbody>
</table>
Aviation, Associate in Applied Science Degree

NMC Code: 920 (Pre Aviation) / 562 (Aviation)

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 for details.

Complete the admission process for Aviation:

- Review Competitive Points Rubric (p. 9)
- 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. 187)
- Any Group One Science course with a lab (p. 187)
- Any Group One Social Science course (p. 187)

Before beginning flight training, students must obtain a medical certificate from an FAA-approved medical examiner. Visit www.flightphysical.com or 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>
<tr>
<td>Select one of the following:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ENG 112</td>
<td>English Composition</td>
<td>3-4</td>
</tr>
<tr>
<td>ENG 220</td>
<td>Technical Writing</td>
<td></td>
</tr>
<tr>
<td>BUS 231</td>
<td>Professional Communications</td>
<td></td>
</tr>
<tr>
<td>Any Group 1 Humanities course</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Math Competency</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Any Group 1 Science course with a lab</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Any Group 1 Social Science course</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

#### Occupational Specialty Requirements

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AVF 111</td>
<td>Private Flight</td>
<td>5</td>
</tr>
<tr>
<td>AVF 132</td>
<td>Instrument Flight</td>
<td>4</td>
</tr>
<tr>
<td>AVG 101</td>
<td>Private Ground School</td>
<td>5</td>
</tr>
<tr>
<td>AVG 161</td>
<td>Mechanics for Pilots</td>
<td>3</td>
</tr>
<tr>
<td>or AVG 190</td>
<td>Aviation Weather</td>
<td></td>
</tr>
<tr>
<td>AVG 202</td>
<td>Advanced Aircraft Systems</td>
<td>3</td>
</tr>
<tr>
<td>AVG 252</td>
<td>Instrument Ground School</td>
<td>4</td>
</tr>
</tbody>
</table>

#### Directed Electives

Select 23 credits from the list below

| Total Credits | 64-65 |

1 Placement into MTH 111 Intermediate Algebra or higher, or completion of MTH 23 Beginning Algebra with a 2.0 or higher. (MTH 23 credits do not toward the total degree requirement credits)

#### Directed Electives

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AVF 230</td>
<td>Commercial Flight I</td>
<td>2</td>
</tr>
<tr>
<td>AVF 232</td>
<td>Commercial Flight II</td>
<td>3</td>
</tr>
<tr>
<td>AVF 234</td>
<td>Commercial Flight III</td>
<td>2</td>
</tr>
<tr>
<td>AVF 271</td>
<td>Multi-Engine Flight</td>
<td>1</td>
</tr>
<tr>
<td>AVF 274</td>
<td>Tailwheel Flight</td>
<td>1</td>
</tr>
<tr>
<td>AVF 275</td>
<td>Seaplane Flight</td>
<td>2</td>
</tr>
<tr>
<td>AVF 283</td>
<td>Upset Maneuver Training</td>
<td>1</td>
</tr>
<tr>
<td>AVF 284</td>
<td>Instrument Flight Instructor</td>
<td>2</td>
</tr>
<tr>
<td>AVF 382</td>
<td>Flight Instructor Rating</td>
<td>4</td>
</tr>
</tbody>
</table>
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;
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, AVF 382 Flight Instructor Rating and AVG 381 Instrument 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 www.flightphysical.com (http://www.flightphysical.com) or www.faa.gov (http://www.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

#### Course Title

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AVG 102</td>
<td>Leadership in Aviation</td>
<td>2</td>
</tr>
<tr>
<td>AVG 161</td>
<td>Mechanics for Pilots</td>
<td>3</td>
</tr>
<tr>
<td>AVG 190</td>
<td>Aviation Weather</td>
<td>3</td>
</tr>
<tr>
<td>AVG 201</td>
<td>International Aviation</td>
<td>3</td>
</tr>
<tr>
<td>AVG 204</td>
<td>Airline Aircraft Ground School</td>
<td>3</td>
</tr>
<tr>
<td>AVG 231</td>
<td>Aviation Law</td>
<td>3</td>
</tr>
<tr>
<td>AVG 240</td>
<td>Corporate Aviation Ground</td>
<td>3</td>
</tr>
<tr>
<td>AVG 251</td>
<td>Commercial Ground School</td>
<td>4</td>
</tr>
<tr>
<td>AVG 285</td>
<td>Crew Resource Management</td>
<td>3</td>
</tr>
<tr>
<td>AVG 381</td>
<td>Instructor Ground School</td>
<td>5</td>
</tr>
<tr>
<td>UAS 141</td>
<td>Remote Pilot Flight *</td>
<td>3</td>
</tr>
<tr>
<td>UAS 211</td>
<td>Commercial Drone Operations *</td>
<td>3</td>
</tr>
<tr>
<td>UAS 220</td>
<td>UAS Projects and Maintenance *</td>
<td>3</td>
</tr>
<tr>
<td>UAS 241</td>
<td>Advanced Drone Operations *</td>
<td>3</td>
</tr>
<tr>
<td>UAS 255</td>
<td>UAS Safety Management *</td>
<td>2</td>
</tr>
</tbody>
</table>

*Does not count toward requirements of 14 CFR §61.160(c)(1-3). See advisor for details.

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>
</tr>
</thead>
<tbody>
<tr>
<td>Previous Academic Degree</td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bachelor Degree</td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Associate Degree</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Private Pilot License and/or Ground Completed</td>
<td>5</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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Full PDF

9
### Programs

**Business Programs**

- Accounting - Fraud Investigation, Associate in Applied Science Degree (p. 21)
- Accounting, Associate in Applied Science Degree - General (p. 22)
- Accounting, Certificate of Achievement (Level II) (p. 23)
- Business Administration - Online, Associate in Applied Science Degree (p. 24)
- Business Administration, Associate in Applied Science Degree (p. 25)
- Computer Information Technology - Assistant Developer, Certificate of Achievement (Level I) (p. 27)
- Computer Information Technology - Assistant Web Developer, Certificate of Achievement (Level I) (p. 27)
- Computer Information Technology - Associate Developer, Certificate of Achievement (Level II) (p. 28)
- Computer Information Technology - Associate Web Developer, Certificate of Achievement (Level II) (p. 28)
- Computer Information Technology - Computer Support Specialist, Certificate of Achievement (Level III) (p. 28)
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- Computer Information Technology - Infrastructure and Security, Associate in Applied Science Degree (p. 34)
- Computer Information Technology - Infrastructure Specialist I, Certificate of Achievement (Level I) (p. 32)
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- Culinary Arts - Culinary Sales and Marketing, Associate in Applied Science Degree (p. 37)
- Culinary Arts - Great Lakes Culinary Institute, Certificate of Achievement (Level III) (p. 37)
- Culinary Arts - Great Lakes Culinary Institute, Associate in Applied Science Degree (p. 38)
- Culinary Arts - Great Lakes Culinary Institute, Certificate of Achievement (Level I) (p. 39)
- Digital Administration and Marketing, Certificate of Achievement (Level III) (p. 40)
- Office Administration, Certificate of Achievement (Level II) (p. 41)
- Technical Management Administration, Associate in Applied Science Degree (p. 41)

### 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 Prerequisite(s): Placement into MTH 23 or completion of MTH 08 with a 2.0 or higher

Recommended Prerequisite(s): BUS 105

**ACC 123 - Accounting Principles II**

- **Credit Hours:** 4, **Contact Hours:** 4
- **Division:** Business
- Continuation of ACC 121. Introduction of the role of accounting information in the planning and decision-making of business organizations. Includes managerial accounting, costing of products, planning and budgeting, performance measurement, control of organizational activities, decision making, profitability analysis, statement of cash flows, and financial statement analysis. Group 2 course. Quantitative Reasoning. Required Prerequisite(s): ACC 121

Recommended Prerequisite(s): MTH 111
ACC 199 - Accounting Practicum
Credit Hours: 3, Contact Hours: 3
Division: Business
This course is a hands-on, immersive accounting experience. It is taught in a seminar format which extends and draws upon knowledge gained in previous courses. Students will utilize spreadsheet software and perform all accounting functions in Quickbooks, beginning with company set-up, processing all monthly transactions, preparing monthly financial reports, analyzing financial position and performance, developing flexible budgets and performing pro forma financial modeling. 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 Prerequisite(s): ACC 123 (or ACC 122), CIT 210 and 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. Students should also have competency in algebra at the intermediate level. Quantitative Reasoning.
Required Prerequisite(s): ACC 122 or ACC 123

Recommended Prerequisite(s): Students should possess the ability to write business communications, such as research memos and reports to management

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. Students should also have competency in algebra at the intermediate level. Quantitative Reasoning.
Required Prerequisite(s): ACC 221

Recommended Prerequisite(s): Students should possess the ability to write business communications, such as research memos and reports to management

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 Prerequisite(s): ACC 122 or ACC 123

Recommended Prerequisite(s): 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 Prerequisite(s): ACC 123

ACC 241 - Principles of Auditing
Credit Hours: 3, Contact Hours: 3
Division: Business
This course is an introduction to the field of auditing. Topics include types of fraud, the fraud triangle theory, fraud prevention and detection, investigation techniques, and the resolution of fraud. Students will analyze real-world cases and perform research. Group 2 course. Critical Thinking - Direct.
Required Prerequisite(s): ACC 123 with a 2.0 or higher

Recommended Prerequisite(s): 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. 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.
Required Prerequisite(s): 12 semester credits in accounting in addition to a spreadsheet course

Recommended Prerequisite(s): ACC 221, ACC 222, MTH 111

Business Administration

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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): ENG 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—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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 workflow optimization, planning deployment, and culture change. Group 2 course. Communications - Direct, Critical Thinking - Direct. Recommended Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): BUS 251E

BUS 251G - Lean Office Advanced 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 Prerequisite(s): BUS 251F

BUS 251H - Lean Office Change Mgmt
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 Prerequisite(s): BUS 251G

BUS 251I - Lean Office Value Stream Mgmt
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 Prerequisite(s): BUS 251H

BUS 251J - Lean Office Advanced Value Stream Mgmt
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 Prerequisite(s): BUS 251I

BUS 251K - Lean Office Advanced Value Stream Mgmt
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 Prerequisite(s): BUS 251J

BUS 251L - Lean Office Advanced Value Stream Mgmt
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 Prerequisite(s): BUS 251K

BUS 251M - Lean Office Advanced Value Stream Mgmt
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 Prerequisite(s): BUS 251L

BUS 251N - Lean Office Advanced Value Stream Mgmt
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 Prerequisite(s): BUS 251M

BUS 251O - Lean Office Advanced Value Stream Mgmt
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 Prerequisite(s): BUS 251N

BUS 251P - Lean Office Advanced Value Stream Mgmt
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 Prerequisite(s): BUS 251O

BUS 251Q - Lean Office Advanced Value Stream Mgmt
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 Prerequisite(s): BUS 251P

BUS 251R - Lean Office Advanced Value Stream Mgmt
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 Prerequisite(s): BUS 251Q

BUS 251S - Lean Office Advanced Value Stream Mgmt
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 Prerequisite(s): BUS 251R

BUS 251T - Lean Office Advanced Value Stream Mgmt
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 Prerequisite(s): BUS 251S

BUS 251U - Lean Office Advanced Value Stream Mgmt
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 Prerequisite(s): BUS 251T

BUS 251V - Lean Office Advanced Value Stream Mgmt
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 Prerequisite(s): BUS 251U

BUS 251W - Lean Office Advanced Value Stream Mgmt
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 Prerequisite(s): BUS 251V

BUS 251X - Lean Office Advanced Value Stream Mgmt
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 Prerequisite(s): BUS 251W

BUS 251Y - Lean Office Advanced Value Stream Mgmt
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 Prerequisite(s): BUS 251X

BUS 251Z - Lean Office Advanced Value Stream Mgmt
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 Prerequisite(s): BUS 251Y

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 Prerequisite(s): 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.  
Required Prerequisite(s): 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 Prerequisite(s): 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 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 scripts that will be reusable, scalable, and efficient for interfacing with systems using user input and system information. The course focuses primarily on using Python as a scripting language. Group 2 Course.  
Required Prerequisite(s): 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 122A - 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 135 - Introduction to Programming Using Python
Credit Hours: 3, Contact Hours: 4
Division: Business
This course is an introduction to programming using the Python language and intended for students without prior programming experience. Python is an interpreted language with a rich programming environment, and while easy for beginners to learn, is widely used in many areas including the web, data analysis and application development. Through online coding exercises and engaging projects students will explore good coding practices, simple design pattern, data types, control structures, decisions and conditionals, collections, methods, functions, classes and File I/O. Group 2 course. Recommended Prerequisite(s): Basic file management skills

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 areas include PC hardware, networking, laptops, printers, operational procedures, operating systems, security, mobile devices, troubleshooting, safety and professionalism. Group 2 course. Critical Thinking - Direct. Recommended Prerequisite(s): 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 topic areas include PC hardware, networking, laptops, printers, operational procedures, operating systems, security, mobile devices, troubleshooting, safety and professionalism. Group 2 course. Critical Thinking - Direct. Recommended Prerequisite(s): 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: basic switch and router configurations, OSI and TCP/IP models, IPv4 and IPv6 routing, and network security fundamentals. 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 Prerequisite(s): 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 Prerequisite(s): 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 Certiport Information Technology Specialist - Database 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 Certiport Information Technology Specialist - HTML and CSS learning objectives, and students enrolled in this course will take the certification exam. Group 2 course. Critical Thinking - Direct.
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 Prerequisite(s): 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.
Required Prerequisite(s): CIT 213 or instructor permission

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. Group 2 course. Critical Thinking - Direct.
Required Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): CIT 190, CIT 195 with a grade of 2.0 or higher
Recommended Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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. Group 2 course. Critical Thinking - Direct.
Required Prerequisite(s): 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. Group 2 course. Critical Thinking - Direct.
Required Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): CIT 240, or instructor permission
Recommended Prerequisite(s): 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 Prerequisite(s): CIT 240, or instructor permission

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 Prerequisite(s): CIT 263, CIT 264
Recommended Prerequisite(s): 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 Prerequisite(s): CIT 255 with a grade of 2.0 or higher
Recommended Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 27-30 hours in the Administrative Support Specialist Certificate and instructor permission

Culinary Arts
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 different career tracks within each one. The course will acquaint the student with the rigors 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 Prerequisite(s): Placement into MTH 08 or higher and 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 will have the opportunity to earn an American Red Cross certificate in adult CPR. 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 Prerequisite(s): Placement into ENG 111/11 or higher and MTH 23 or higher; CUL 110 may be taken concurrently

CUL 112 - Introduction to Food Studies
Credit Hours: 3, Contact Hours: 3
Division: Business
This multidisciplinary survey course offers students an introduction to fundamental concepts in food studies. Through lecture, discussion and case studies, local, national and global examples are employed to study the social, political, economic and environmental aspects of traditional and alternative food systems and their integrated components, including agriculture, sustainability theory and practice, community resiliency, foodways and food and agriculture policies. Throughout the course, career pathways in the food sector and academic areas of study related to food studies are identified. Group 2 course. Communications - Direct. Required Prerequisite(s): Placement into English 111/11 or higher and Math 23 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 Prerequisite(s): Placement into ENG 111/11 or higher and MTH 23 or higher; CUL 110 may be taken concurrently

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 Prerequisite(s): CUL 110, CUL 111 Recommended Prerequisite(s): Placement into ENG 111/11

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. Communications - Direct, Quantitative Reasoning. Required Prerequisite(s): CUL 110 and CUL 111, Placement into ENG 111/11 or higher and MTH 23 or higher

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 Prerequisite(s): 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 Prerequisite(s): CUL 110, 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): CUL 110, CUL 118, CUL 218 may be taken concurrently

CUL 222 - Cafe Ops, Bakery Prod & Mgmt  
Credit Hours: 4, Contact Hours: 8  
Division: Business  
This course focuses on practical bakery production and management training. Students rotate through bakery stations producing an assortment of baked goods while applying production and managerial skill. 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 timing, and the effective handling and use of supplies. Group 2 course. Quantitative Reasoning.  
Required Prerequisite(s): CUL 211, CUL 218 and CUL 221

CUL 223 - Cafe Ops Dining Room Mgmt  
Credit Hours: 4, Contact Hours: 8  
Division: Business  
This course focuses on the concepts, principles and applications of cafe dining room management, supervision and service. Practical service experience and principles of supervision are applied in a live environment. This includes applications of barista and cafe service, timing of service, menu development, pricing, merchandising, point of sale software usage, customer service, management techniques, team building, motivational techniques, and stress and production management. Other areas covered include beverage recipe construction and costing, use and care of equipment and effective handling and use of supplies. Group 2 course. Communications - Direct, Quantitative Reasoning.  
Required Prerequisite(s): CUL 211, CUL 218 and 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 Prerequisite(s): CUL 118, or CUL 101, CUL 102, and CUL 111, may be taken concurrently
CUL 295 - Contemp Cuisine Kitchen Mngmt  
**Credit Hours: 6, Contact Hours: 12**  
Division: Business  
This course focuses on practical hands-on training in kitchen production and management in a restaurant setting. Students rotate through restaurant kitchen stations in this intensive semester-long course. 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 Prerequisite(s): CUL 110, CUL 111, CUL 211 and CUL 213  
Recommended Prerequisite(s): Basic keyboarding and computer skills in word processing and spreadsheets  
Corequisites: CUL 296

CUL 296 - Contemp Svc Dining Room Mngmt  
**Credit Hours: 6, Contact Hours: 12**  
Division: Business  
This course focuses on practical hands-on training in dining room service and management in a live contemporary restaurant setting. Students rotate through dining room stations and management positions in this intensive semester-long course. 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. Other areas covered include beverage recipe construction and costing, the use and care of equipment, the pressure of a la carte service, and the effective handling and use of supplies. Group 2 course. Communications - Direct, Quantitative Reasoning.  
Required Prerequisite(s): CUL 110, CUL 111, CUL 211 and CUL 213  
Recommended Prerequisite(s): Basic keyboarding and computer skills in word processing and spreadsheets  
Corequisites: CUL 295

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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): MGT 245 or instructor permission  
Recommended Prerequisite(s): 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 Prerequisite(s): 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.  
Required Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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.  
Required Prerequisite(s): 30 credits of program specific courses with a GPA of 2.0 or higher

### 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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<tbody>
<tr>
<td>ENG 111</td>
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<tr>
<td>BUS 231</td>
<td>Professional Communications</td>
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<tr>
<td>or ENG 112</td>
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<td>PHL 201</td>
<td>Ethics</td>
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<td>PHL 202</td>
<td>Contemporary Ethical Dilemmas</td>
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<tr>
<td>Math Competency</td>
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<td>Any Group 1 Science course with a lab</td>
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<td>ECO 201</td>
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#### Occupational Specialty Requirements

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<tr>
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<td>ACC 222</td>
<td>Intermediate Accounting II</td>
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<td>ACC 223</td>
<td>Cost Accounting</td>
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<td>BUS 101</td>
<td>Introduction to Business</td>
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<td>BUS 261</td>
<td>Business Law I</td>
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<td>CIT 210</td>
<td>Microsoft Office - Excel</td>
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<td>CIT 216</td>
<td>Computerized Accg Systems</td>
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#### Concentration Requirements

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<thead>
<tr>
<th>Course</th>
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<tbody>
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<td>ACC 231</td>
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<tr>
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<td>Criminal Law</td>
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<td>ECO 202</td>
<td>Principles of Microeconomics</td>
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<td>SOC 231</td>
<td>Deviance and Criminal Behavior</td>
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</table>

**Total Credits** 64-65

1. Transfer students will want to take ENG 112 English Composition to complete the ENG 111 English Composition/ENG 112 English Composition sequence.
Transfer students will want to take PHL 201 Ethics or PHL 202 Contemporary Ethical Dilemmas to complete this requirement.

Placement into MTH 111 Intermediate Algebra or higher, or completion of MTH 23 Beginning Algebra with a 2.0 or higher. These credits do not count toward the degree requirements.

Course Sequence Guide

<table>
<thead>
<tr>
<th>Course</th>
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<td>PHL 105</td>
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Program Note
- In order to complete the program requirements in two years, students must average 16 credits per semester.

Requirements

Major Requirements

<table>
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<tr>
<th>Course</th>
<th>Title</th>
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<tr>
<td>General Education Requirements</td>
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<td>ENG 111</td>
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<td>ENG 112</td>
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<tr>
<td>or BUS 231</td>
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<td>Math Competency</td>
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<tr>
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<td>ECO 201</td>
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<tr>
<td>ACC 121</td>
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<td>Accounting Principles II</td>
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<td>ACC 222</td>
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<td>Cost Accounting</td>
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Concentration Requirements

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<tr>
<td>BUS 105</td>
<td>Business Math</td>
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<td>BUS 155</td>
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Transfer students will want to take ENG 112 English Composition to complete the ENG 111 English Composition/ENG 112 English Composition sequence.

Transfer students will want to meet with an advisor to discuss selection.
Placement into MTH 111 Intermediate Algebra or higher, or completion of MTH 23 Beginning Algebra with a 2.0 or higher (credits do not count toward the degree requirements).

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

### Directed Electives

<table>
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<tr>
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<td>ACC 231</td>
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<td>ACC 241</td>
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<td>ACC 290</td>
<td>Accounting Internship</td>
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<td>ECO 202</td>
<td>Principles of Microeconomics</td>
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<td>MGT 241</td>
<td>Principles of Management</td>
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<td>MKT 201</td>
<td>Principles of Marketing</td>
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<tr>
<td>MTH 131</td>
<td>Intro to Prob &amp; Stats</td>
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### Course Sequence Guide

**Year 1**

**Fall**

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<thead>
<tr>
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<td>BUS 105</td>
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<td>CIT 210</td>
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<td>ECO 201</td>
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Math Competency

**Credits** 16

**Spring**

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<td>PHL 201</td>
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<tr>
<td>PHL 202</td>
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**Directed Elective**

**Credits** 3

**Year 2**

**Fall**

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<th>Course</th>
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<tr>
<td>ACC 199</td>
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<td>ACC 223</td>
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**Credits** 15

**Spring**

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<th>Credits</th>
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Select one of the following:

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</thead>
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<td>Professional Communications</td>
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<tr>
<td>ENG 112</td>
<td>English Composition</td>
<td>4</td>
</tr>
<tr>
<td>BUS 261</td>
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</table>

**Any Group 1 Science course with a lab** 4

**Credits** 14-15

**Total Credits** 61-62

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

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

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<tr>
<td>MGT 241</td>
<td>Principles of Management</td>
<td>3</td>
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<tr>
<td>MKT 201</td>
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</tr>
<tr>
<td>MTH 131</td>
<td>Intro to Prob &amp; Stats</td>
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</tbody>
</table>

### 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

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tr>
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<tr>
<td>BUS 231</td>
<td>Professional Communications</td>
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</tr>
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<td>CIT 210</td>
<td>Microsoft Office - Excel</td>
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Select one of the following:

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</thead>
<tbody>
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</table>
**Directed Electives**

<table>
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<td>ACC 290</td>
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<td>3</td>
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<td>ECO 201</td>
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<td>MKT 201</td>
<td>Principles of Marketing</td>
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It is recommended that BUS 105 Business Math be taken before or concurrently with ACC 121 Accounting Principles I.

**Course Sequence Guide**

<table>
<thead>
<tr>
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<th>Title</th>
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<tr>
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| Credits | 13 |

**Spring**

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<td>Interpersonal Communications</td>
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<tr>
<td>or BUS 231</td>
<td>Professional Communications</td>
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<tr>
<td>CIT 216</td>
<td>Computerized Acctg Systems</td>
<td>3</td>
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</tbody>
</table>

Select one of the following:

| PHL 105  | Critical Thinking            | 3       |
| PHL 201  | Ethics                       |         |
| PHL 202  | Contemporary Ethical Dilemmas|         |

| Credits | 13 |

**Second Year**

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| Credits | 6-7 |

| 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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</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**

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<td>BUS 231</td>
<td>Professional Communications</td>
<td>3</td>
</tr>
<tr>
<td>PHL 201</td>
<td>Ethics</td>
<td>3</td>
</tr>
<tr>
<td>PHL 202</td>
<td>Contemporary Ethical Dilemmas</td>
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</tr>
<tr>
<td>Math competency</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Any Group 1 Science course with a lab</td>
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<td>ECO 201</td>
<td>Principles of Macroeconomics</td>
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**General Education Requirements**

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<td>CIT 100</td>
<td>Computers in Business-An Intro</td>
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</tr>
<tr>
<td>CIT 210</td>
<td>Microsoft Office - Excel</td>
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<td>MGT 241</td>
<td>Principles of Management</td>
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<tr>
<td>MGT 251</td>
<td>Human Resources Management</td>
<td>3</td>
</tr>
<tr>
<td>MKT 201</td>
<td>Principles of Marketing</td>
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</tr>
</tbody>
</table>

| 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

<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>ACC 223</td>
<td>Cost Accounting</td>
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<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>
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<td>CIT 124</td>
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<td>2</td>
</tr>
<tr>
<td>CIT 211</td>
<td>Intro to Data Analytics</td>
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</tr>
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</tr>
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<td>Digital Marketing</td>
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<td>MTH 111</td>
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<tr>
<td>MTH 131</td>
<td>Intro to Prob &amp; Stats</td>
<td>3</td>
</tr>
</tbody>
</table>

### Course Sequence Guide

#### 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
- CIT 210 Microsoft Office - Excel 3
- ECO 201 Principles of Microeconomics 3
- MGT 241 Principles of Management 3
- Directed Electives

**Credits**
- 15

#### 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
  or PHL 202 Ethics or Contemporary Ethical Dilemmas 3

**Credits**
- 16

**Spring**
- ACC 123 Accounting Principles II 4
- BUS 290 Business Admin Internship 3
- Directed Electives
- MGT 251 Human Resources Management 3
- Any Group 1 Science course with lab 4

**Credits**
- 16

**Total Credits**
- 60

---

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.

### Business Administration, Associate in Applied Science Degree

**NMC Code 105**

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>
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<tbody>
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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.
**Occupational Specialty Requirements**

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<td>MKT 201</td>
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</table>

**Directed Electives**

Select any combination of at least 5 credits from the list

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<td>COM 111</td>
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**Total Credits**

**60**

---

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.

---

**Directed Electives**

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**Total Credits**

**60**

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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.

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**Course Sequence Guide**

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<th>Course</th>
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**Credits**

**13**

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**Year 2**

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<td>Principles of Macroeconomics</td>
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<tr>
<td>MGT 241</td>
<td>Principles of Management</td>
<td>3</td>
</tr>
<tr>
<td>Directed Elective (see list)</td>
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**Credits**

**15**

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**Spring**

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<thead>
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<tr>
<td>ACC 123</td>
<td>Accounting Principles II</td>
<td>4</td>
</tr>
<tr>
<td>BUS 290</td>
<td>Business Admin Internship</td>
<td>3</td>
</tr>
<tr>
<td>Directed Elective (select a minimum of two credits, see list)</td>
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<tr>
<td>MGT 251</td>
<td>Human Resources Management</td>
<td>3</td>
</tr>
<tr>
<td>Any Group 1 Science course with lab</td>
<td></td>
<td>4</td>
</tr>
</tbody>
</table>

**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.

---

**Directed Electives**

Select any combination for 5 credits:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>ACC 223</td>
<td>Cost Accounting</td>
<td>4</td>
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<tr>
<td>ACC 231</td>
<td>Federal Income Tax Problems</td>
<td>3</td>
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<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 211</td>
<td>Intro to Data Analytics</td>
<td>3</td>
</tr>
<tr>
<td>CIT 213</td>
<td>Networking Technologies</td>
<td>4</td>
</tr>
<tr>
<td>CIT 216</td>
<td>Computerized Acctg 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>
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**Credits**

**16**

---

**Course Sequence Guide**

**Year 1**

<table>
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<tr>
<td>Fall</td>
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<tr>
<td>BUS 101</td>
<td>Introduction to Business</td>
<td>3</td>
</tr>
<tr>
<td>BUS 105</td>
<td>Business Math</td>
<td>3</td>
</tr>
<tr>
<td>CIT 100</td>
<td>Computers in Business-An Intro</td>
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</tr>
<tr>
<td>ENG 111</td>
<td>English Composition</td>
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</table>

**Credits**

**13**
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></td>
<td></td>
</tr>
<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>
<td>3</td>
</tr>
<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>
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</table>

1 Certiport Information Technology Specialist Certification Exam included.

Course Sequence Guide

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year 1</td>
<td></td>
<td></td>
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<tr>
<td>Fall</td>
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<tr>
<td>CIT 110</td>
<td>Programming Logic and Design</td>
<td>3</td>
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<td>CIT 178</td>
<td>Relational Databases</td>
<td>3</td>
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<td>CIT 180</td>
<td>Web Development</td>
<td>3</td>
</tr>
<tr>
<td>Credits</td>
<td></td>
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<tr>
<td>Spring</td>
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<tr>
<td>CIT 190</td>
<td>JavaScript Programming</td>
<td>3</td>
</tr>
<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>Credits</td>
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<tr>
<td>Total Credits</td>
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</table>

1 Certiport Information Technology Specialist Certification Exam included.

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

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<th>Course</th>
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<th>Credits</th>
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<tbody>
<tr>
<td>Level II Certificate Requirements</td>
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<tr>
<td>CIT 110</td>
<td>Programming Logic and Design</td>
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</tr>
<tr>
<td>CIT 180</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>
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<table>
<thead>
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</thead>
<tbody>
<tr>
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<tr>
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<tr>
<td>CIT 110</td>
<td>Programming Logic and Design</td>
<td>3</td>
</tr>
<tr>
<td>CIT 180</td>
<td>Web Development</td>
<td>3</td>
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<tr>
<td>VCA 127</td>
<td>Digital Imaging</td>
<td>3</td>
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<td>Digital Graphics Design I</td>
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<td>CIT 190</td>
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<tr>
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<td>Credits</td>
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</table>
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

<table>
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<tr>
<th>Course</th>
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<td>Level II Certification Requirements</td>
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</tr>
<tr>
<td>CIT 218</td>
<td>Web Application Development</td>
<td>3</td>
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<tr>
<td>CIT 228</td>
<td>Advanced Database Systems</td>
<td>3</td>
</tr>
<tr>
<td>CIT 255</td>
<td>Object-Oriented Programming</td>
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</tr>
<tr>
<td>Specialty Electives</td>
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## Course Sequence Guide

### Year 1

#### Fall

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<tbody>
<tr>
<td>CIT 110</td>
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<tr>
<td>Credits</td>
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#### Spring

<table>
<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
<td>CIT 190</td>
<td>JavaScript Programming</td>
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<td>Application Development</td>
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### Year 2

#### Fall

Select one of the following Specialty Electives: 2-3

<table>
<thead>
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<tbody>
<tr>
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<tr>
<td>VCA 125</td>
<td>Typography I</td>
<td></td>
</tr>
<tr>
<td>VCA 127</td>
<td>Digital Imaging</td>
<td></td>
</tr>
<tr>
<td>VCA 150</td>
<td>Digital Graphics Design I</td>
<td></td>
</tr>
<tr>
<td>CIT 218</td>
<td>Web Application Development</td>
<td></td>
</tr>
<tr>
<td>CIT 255</td>
<td>Object-Oriented Programming</td>
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</tr>
</tbody>
</table>

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

**NMC Code 006**

The Computer Support Specialist Certificate is designed for students seeking entry level employment, and includes advanced computer and networking skills such as data connectivity, network design, interactive graphics and animation.

### Requirements

### Certificate Requirements

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
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<td>Level II Certificate Requirements</td>
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<tr>
<td>ART 131</td>
<td>2-D Design</td>
<td>3</td>
</tr>
<tr>
<td>CIT 218</td>
<td>Advanced Database Systems</td>
<td>3</td>
</tr>
<tr>
<td>CIT 255</td>
<td>Object-Oriented Programming</td>
<td>3</td>
</tr>
<tr>
<td>Specialty Electives</td>
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## Course Sequence Guide

### Year 1

#### Fall

<table>
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</thead>
<tbody>
<tr>
<td>ART 131</td>
<td>2-D Design</td>
<td>3</td>
</tr>
<tr>
<td>CIT 110</td>
<td>Programming Logic and Design</td>
<td>3</td>
</tr>
<tr>
<td>CIT 180</td>
<td>Web Development</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>
<tr>
<td>Credits</td>
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#### Spring

<table>
<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
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<tr>
<td>CIT 195</td>
<td>Application Development</td>
<td>3</td>
</tr>
<tr>
<td>VCA 125</td>
<td>Typography I</td>
<td>3</td>
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<td>VCA 146</td>
<td>Interactive Animation</td>
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<tr>
<td>VCA 147</td>
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</tr>
<tr>
<td>Credits</td>
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</tbody>
</table>

## 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

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Complete Level I Certificate Requirements</td>
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<tr>
<td></td>
<td>Level II Certification Requirements</td>
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<tr>
<td>CIT 218</td>
<td>Web Application Development</td>
<td>3</td>
</tr>
<tr>
<td>CIT 228</td>
<td>Advanced Database Systems</td>
<td>3</td>
</tr>
<tr>
<td>CIT 255</td>
<td>Object-Oriented Programming</td>
<td>3</td>
</tr>
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## Course Sequence Guide

### Year 1

#### Fall

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</thead>
<tbody>
<tr>
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<td>2-D Design</td>
<td>3</td>
</tr>
<tr>
<td>CIT 110</td>
<td>Programming Logic and Design</td>
<td>3</td>
</tr>
<tr>
<td>CIT 180</td>
<td>Web Development</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>
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</tr>
<tr>
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#### Spring

<table>
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<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>CIT 190</td>
<td>JavaScript Programming</td>
<td>3</td>
</tr>
<tr>
<td>CIT 195</td>
<td>Application Development</td>
<td>3</td>
</tr>
<tr>
<td>VCA 125</td>
<td>Typography I</td>
<td>3</td>
</tr>
<tr>
<td>VCA 146</td>
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<td>Web Design I</td>
<td>3</td>
</tr>
<tr>
<td>Credits</td>
<td></td>
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</tr>
</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™ 2019 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>
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**Level III Certificate Requirements**

<table>
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<td>BUS 105</td>
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</tr>
<tr>
<td>BUS 231</td>
<td>Professional Communications</td>
<td>3</td>
</tr>
<tr>
<td>CIT 156</td>
<td>CompTIA A+ Certification I</td>
<td>3</td>
</tr>
<tr>
<td>CIT 157</td>
<td>CompTIA A+ Certification II</td>
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</tr>
<tr>
<td>CIT 213</td>
<td>Networking Technologies</td>
<td>4</td>
</tr>
<tr>
<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 292</td>
<td>Support Specialist Internship</td>
<td>3</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>
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<tr>
<td>Any 3 credit CIT Elective course</td>
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</tbody>
</table>

| Total Credits | 51 |

1. Certiport Information Technology Specialist 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.

**Course Sequence Guide**

**Year 1**

**Fall**

<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>
</tr>
<tr>
<td>CIT 124</td>
<td>Microsoft Office - PowerPoint</td>
<td>2</td>
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</tbody>
</table>

**Spring**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIT 213</td>
<td>Networking Technologies</td>
<td>4</td>
</tr>
<tr>
<td>CIT 156</td>
<td>CompTIA A+ Certification I</td>
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</tr>
<tr>
<td>CIT 157</td>
<td>CompTIA A+ Certification II</td>
<td>3</td>
</tr>
<tr>
<td>MGT 251</td>
<td>Human Resources Management</td>
<td>3</td>
</tr>
</tbody>
</table>

| Total Credits | 12 |

**Year 2**

**Fall**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUS 231</td>
<td>Professional Communications</td>
<td>3</td>
</tr>
<tr>
<td>BUS 105</td>
<td>Business Math</td>
<td>3</td>
</tr>
<tr>
<td>Any 3 credit CIT Elective course</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>PHL 105</td>
<td>Critical Thinking</td>
<td>3</td>
</tr>
<tr>
<td>MKT 208</td>
<td>Digital Marketing</td>
<td>2</td>
</tr>
</tbody>
</table>

| Total Credits | 14 |

**Spring**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<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 292</td>
<td>Support Specialist Internship</td>
<td>3</td>
</tr>
<tr>
<td>ENG 220</td>
<td>Technical Writing</td>
<td>3</td>
</tr>
</tbody>
</table>

| Total Credits | 12 |

**Total Credits**

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>
</tr>
<tr>
<td>ENG 112</td>
<td>English Composition</td>
<td>3-4</td>
</tr>
<tr>
<td>PHL 105</td>
<td>Critical Thinking</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>or PHL 202 Contemporary Ethical Dilemmas</td>
<td>3</td>
</tr>
</tbody>
</table>

**Math Competency**

- Any Group 1 Science course with lab
- Any Group 1 Social Sciences course

**Occupational Specialty Courses**

<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>
<tr>
<td>CIT 180</td>
<td>Web Development</td>
<td>3</td>
</tr>
<tr>
<td>CIT 190</td>
<td>JavaScript Programming</td>
<td>3</td>
</tr>
<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 218</td>
<td>Web Application Development</td>
<td>3</td>
</tr>
<tr>
<td>CIT 228</td>
<td>Advanced Database Systems</td>
<td>3</td>
</tr>
<tr>
<td>CIT 255</td>
<td>Object-Oriented Programming</td>
<td>3</td>
</tr>
<tr>
<td>CIT 280</td>
<td>Systems Analysis and Design</td>
<td>4</td>
</tr>
<tr>
<td>CIT 290</td>
<td>CIT Internship</td>
<td>3</td>
</tr>
</tbody>
</table>

**Specialty Electives**

Select a combination of courses from the list 5-6

**Directed Elective**

Select one course from the list 3-4

**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 Certiport Information Technology Specialist Certification Exam 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.

---

**Directed electives**

<table>
<thead>
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<th>Course</th>
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<td>Accounting Principles I</td>
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</tr>
<tr>
<td>BUS 155</td>
<td>Interpersonal Communications</td>
<td>3</td>
</tr>
<tr>
<td>BUS 231</td>
<td>Professional Communications</td>
<td>3</td>
</tr>
<tr>
<td>COM 111</td>
<td>Public Speaking</td>
<td>4</td>
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</table>

**Specialty electives**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>MKT 208</td>
<td>Digital Marketing</td>
<td>2</td>
</tr>
<tr>
<td>VCA 125</td>
<td>Typography I</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>

**Course Sequence Guide**

**Year 1**

**Fall**

- CIT 110 Programming Logic and Design 3
- CIT 178 Relational Databases 3
- CIT 180 Web Development 3
- ENG 111 English Composition 4

**Spring**

- CIT 190 JavaScript Programming 3
- CIT 195 Application Development 3
- CIT 218 Web Application Development 3
- CIT 255 Object-Oriented Programming 3
- CIT 280 Systems Analysis and Design 4

**Year 2**

**Fall**

Select two of the following 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

**Spring**

- CIT 280 Systems Analysis and Design 4
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 security. Network Security Management (CIT 240) is an NMC course that 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.

Certiport Information Technology Specialist – The Certiport Information Technology Specialist certification is an entry-level credential from Certiport 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. Certiport certifications are embedded into the CIT Developer and CIT Infrastructure and Security degree programs and certificates.

Students are able to earn the following Certiport Information Technology Specialist Exams:

- Software Development Fundamentals
- Python
- JavaScript

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

*NMC Code 033*

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:

- Certiport Information Technology Specialist
- 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**

<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 112</td>
<td>Scripting and Automation</td>
<td>3</td>
</tr>
</tbody>
</table>

For CompTIA Network+® Certification

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIT 213</td>
<td>Networking Technologies</td>
<td>4</td>
</tr>
</tbody>
</table>

For Cisco CCNA Certification

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIT 160</td>
<td>Cisco Internetworking I</td>
<td>3</td>
</tr>
<tr>
<td>CIT 161</td>
<td>Cisco Internetworking II</td>
<td>3</td>
</tr>
<tr>
<td>CIT 260</td>
<td>Cisco Internetworking III</td>
<td>3</td>
</tr>
</tbody>
</table>

**Total Credits** 19

1 Certiport Information Technology Specialist certification exam included.

**Course Sequence Guide**

**Year 1**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CIT 110</td>
<td>Programming Logic and Design</td>
<td>3</td>
</tr>
<tr>
<td>CIT 112</td>
<td>Scripting and Automation</td>
<td>3</td>
</tr>
<tr>
<td>CIT 160</td>
<td>Cisco Internetworking I</td>
<td>3</td>
</tr>
<tr>
<td>CIT 161</td>
<td>Cisco Internetworking II</td>
<td>3</td>
</tr>
<tr>
<td>CIT 213</td>
<td>Networking Technologies</td>
<td>4</td>
</tr>
</tbody>
</table>

**Credits** 16
### 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.

- 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>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Complete Level I Certificate Requirements</strong></td>
<td>19</td>
</tr>
<tr>
<td>CIT 215</td>
<td>Windows Server Environment</td>
<td>3</td>
</tr>
<tr>
<td>CIT 247</td>
<td>Enterprise Solutions</td>
<td>3</td>
</tr>
<tr>
<td>CIT 246</td>
<td>Windows Server Infrastructure</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td><strong>For CompTIA Linux+® certification</strong></td>
<td></td>
</tr>
<tr>
<td>CIT 256</td>
<td>Linux Administration</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td><strong>For CompTIA Cloud+® certification</strong></td>
<td></td>
</tr>
<tr>
<td>CIT 243</td>
<td>Cloud Technologies</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td><strong>Total Credits</strong></td>
<td>34</td>
</tr>
</tbody>
</table>

1. Certiport Information Technology Specialist certification exam included.

#### Course Sequence Guide

**Year 1**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Fall</strong></td>
<td></td>
</tr>
<tr>
<td>CIT 110</td>
<td>Programming Logic and Design</td>
<td>3</td>
</tr>
<tr>
<td>CIT 112</td>
<td>Scripting and Automation</td>
<td>3</td>
</tr>
<tr>
<td>CIT 160</td>
<td>Cisco Internetworking I</td>
<td>3</td>
</tr>
<tr>
<td>CIT 161</td>
<td>Cisco Internetworking II</td>
<td>3</td>
</tr>
</tbody>
</table>

#### 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>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Complete Level II Certificate Requirements</strong></td>
<td>34</td>
</tr>
<tr>
<td></td>
<td><strong>For CompTIA Security+®</strong></td>
<td></td>
</tr>
<tr>
<td>CIT 240</td>
<td>Network Security Management</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td><strong>For CompTIA PenTest+® Certification</strong></td>
<td></td>
</tr>
<tr>
<td>CIT 263</td>
<td>Security ASMT. and Compliance</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td><strong>For CompTIA CySA+® Certification</strong></td>
<td></td>
</tr>
<tr>
<td>CIT 264</td>
<td>Security Analytics &amp; Assurance</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td><strong>For CompTIA CASP+® Certification</strong></td>
<td></td>
</tr>
<tr>
<td>CIT 266</td>
<td>Advanced Enterprise Security</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td><strong>Occupational Requirements</strong></td>
<td></td>
</tr>
</tbody>
</table>
As more organizations become globally connected, the need for individuals with knowledge in infrastructure and specifically cybersecurity is at an all time high. This program provides students with comprehensive knowledge and technical skills in Local Area Networking, internetwork routing and switching, operating systems, cloud computing, and cybersecurity.

Successful associate degree graduates are qualified for positions as network administrators, system administrators, infrastructure support specialists, and cybersecurity specialists. Students considering transfer should see an advisor.

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

**Foundation:**
- Certiport Information Technology Specialist

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

**Operating Systems:**
- CompTIA Linux+® Certification

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

**Cybersecurity:**
- CompTIA Security+® Certification
- CompTIA PentTest+® 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>
</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>3-4</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>
<tr>
<td>or PHL 202</td>
<td>Contemporary Ethical Dilemmas</td>
<td></td>
</tr>
<tr>
<td>Math Competency</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Any Group 1 Science course with a lab</td>
<td>4</td>
<td></td>
</tr>
</tbody>
</table>

1. Certiport Information Technology Specialist 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.
Any Group 1 Social Sciences course 5

### Occupational Specialty Courses

<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 112</td>
<td>Scripting and Automation 1</td>
<td>3</td>
</tr>
<tr>
<td>CIT 160</td>
<td>Cisco Internetworking I</td>
<td>3</td>
</tr>
<tr>
<td>CIT 161</td>
<td>Cisco Internetworking II</td>
<td>3</td>
</tr>
<tr>
<td>CIT 213</td>
<td>Networking Technologies 1</td>
<td>4</td>
</tr>
<tr>
<td>CIT 215</td>
<td>Windows Server Environment</td>
<td>3</td>
</tr>
<tr>
<td>CIT 240</td>
<td>Network Security Management 1</td>
<td>3</td>
</tr>
<tr>
<td>CIT 243</td>
<td>Cloud Technologies</td>
<td>3</td>
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<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>
<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>
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<td>CIT 266</td>
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<tr>
<td>CIT 290</td>
<td>CIT Internship 4</td>
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</table>

**Total Credits** 66-67

1. Certiport Information Technology Specialist certification exam included.
2. 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.
3. Students should take ENG 112 and PHL 202 if they plan to pursue the Ferris State University (FSU) CIT degree.
4. 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.
5. ECO 201 Principles of Macroeconomics recommended.

### 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>
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</tr>
<tr>
<td>CIT 112</td>
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</tr>
<tr>
<td>CIT 160</td>
<td>Cisco Internetworking I</td>
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</tr>
<tr>
<td>CIT 161</td>
<td>Cisco Internetworking II</td>
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<tr>
<td>CIT 213</td>
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</tr>
<tr>
<td>Math Competency 2</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Credits** 16

**Spring**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIT 215</td>
<td>Windows Server Environment</td>
<td>3</td>
</tr>
<tr>
<td>CIT 256</td>
<td>Linux Administration</td>
<td>3</td>
</tr>
<tr>
<td>CIT 240</td>
<td>Network Security Management 1</td>
<td>3</td>
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<tr>
<td>CIT 260</td>
<td>Cisco Internetworking III</td>
<td>3</td>
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<tr>
<td>ENG 111</td>
<td>English Composition</td>
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**Credits** 16

#### Year 2

**Fall**

<table>
<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
<td>CIT 246</td>
<td>Windows Server Infrastructure</td>
<td>3</td>
</tr>
<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>
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</tr>
<tr>
<td>ENG 112</td>
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**Credits** 16

**Summer**

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<tbody>
<tr>
<td>PHL 105</td>
<td>Critical Thinking</td>
<td>3</td>
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<tr>
<td>or PHL 202</td>
<td>or Contemporary Ethical Dilemmas</td>
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**Credits** 3

#### Year 3

**Fall**

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<td>Cloud Technologies</td>
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<tr>
<td>CIT 247</td>
<td>Enterprise Solutions</td>
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<td>CIT 266</td>
<td>Advanced Enterprise Security</td>
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**Credits** 13

**Summer**

<table>
<thead>
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<tr>
<td>CIT 290</td>
<td>CIT Internship 4</td>
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**Credits** 3

**Total Credits** 67

1. Certiport Information Technology Specialist certification exam included.
2. 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.
3. Students should take ENG 112 and PHL 202 if they plan to pursue the Ferris State University (FSU) CIT degree.
4. 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.
5. ECO 201 Principles of Macroeconomics recommended.

### 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™ 2019 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>
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<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>BUS 155</td>
<td>Interpersonal Communications</td>
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<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 210</td>
<td>Microsoft Office - Excel</td>
<td>3</td>
</tr>
<tr>
<td>CIT 211</td>
<td>Intro to Data Analytics</td>
<td>3</td>
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<tr>
<td>MKT 208</td>
<td>Digital Marketing</td>
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Course Sequence Guide

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<td>Computer &amp; Internet Basics I</td>
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<td>CIT 211</td>
<td>Intro to Data Analytics</td>
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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>
</tr>
</thead>
<tbody>
<tr>
<td>ACC 121</td>
<td>Accounting Principles I</td>
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<tr>
<td>BUS 155</td>
<td>Interpersonal Communications</td>
<td>3</td>
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<td>BUS 231</td>
<td>Professional Communications</td>
<td>3</td>
</tr>
<tr>
<td>COM 111</td>
<td>Public Speaking</td>
<td>3</td>
</tr>
<tr>
<td>CIT 178</td>
<td>Relational Databases</td>
<td>3</td>
</tr>
<tr>
<td>CIT 218</td>
<td>Web Application Development</td>
<td>3</td>
</tr>
<tr>
<td>CIT 255</td>
<td>Object-Oriented Programming</td>
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<tr>
<td>CIT 291</td>
<td>Web Developer Internship</td>
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Course Sequence Guide

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<tr>
<td>ART 131</td>
<td>2-D Design</td>
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<td>Programming Logic and Design</td>
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<td>CIT 178</td>
<td>Relational Databases</td>
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<tr>
<td>CIT 180</td>
<td>Web Development</td>
<td>3</td>
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<tr>
<td>CIT 218</td>
<td>Web Application Development</td>
<td>3</td>
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<tr>
<td>CIT 255</td>
<td>Object-Oriented Programming</td>
<td>3</td>
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<tr>
<td>VCA 127</td>
<td>Digital Imaging</td>
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<td>VCA 150</td>
<td>Digital Graphics Design I</td>
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Spring

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<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 291</td>
<td>Web Developer Internship</td>
<td>3</td>
</tr>
<tr>
<td>VCA 125</td>
<td>Typography I</td>
<td>3</td>
</tr>
<tr>
<td>VCA 146</td>
<td>Interactive Animation</td>
<td>3</td>
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<tr>
<td>VCA 147</td>
<td>Web Design I</td>
<td>3</td>
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<tr>
<td>Total Credits</td>
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</table>

Computer Information Technology - Web Developer, Certificate of Achievement (Level III)
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.

**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 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>
<th>Title</th>
<th>Credits</th>
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<tr>
<td>CUL 110</td>
<td>Safety and Sanitation</td>
<td>2</td>
</tr>
<tr>
<td>CUL 118</td>
<td>Introduction to Baking</td>
<td>4</td>
</tr>
<tr>
<td>CUL 211</td>
<td>Menu Planning and Purchasing</td>
<td>3</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 221</td>
<td>Chocolate and Cake Design</td>
<td>4</td>
</tr>
<tr>
<td>CUL 222</td>
<td>Cafe Ops, Bakery Prod &amp; Mgmt</td>
<td>4</td>
</tr>
<tr>
<td>CUL 223</td>
<td>Cafe Ops Dining Room Mgmt</td>
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</table>

**Total Credits** 28

All courses lead to the Culinary Arts Associate in Applied Science (AAS) Degree.

**Course Sequence Guide**

<table>
<thead>
<tr>
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<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
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<tr>
<td>CUL 110</td>
<td>Safety and Sanitation</td>
<td>2</td>
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<tr>
<td>CUL 118</td>
<td>Introduction to Baking</td>
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<tr>
<td>CUL 217</td>
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**Credits** 9

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<td>CUL 211</td>
<td>Menu Planning and Purchasing</td>
<td>3</td>
</tr>
<tr>
<td>CUL 218</td>
<td>Advanced Baking</td>
<td>4</td>
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</tbody>
</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.

**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.

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

**Requirements**

**Major Requirements**

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<tr>
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<td>CUL 110</td>
<td>Safety and Sanitation</td>
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<tr>
<td>CUL 118</td>
<td>Introduction to Baking</td>
<td>4</td>
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**General Education Requirements**

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<tr>
<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>
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<tr>
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<td>English Composition</td>
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<tr>
<td>Any Group 1 Humanities course</td>
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<td>Math Competency 1</td>
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<td>Any Group 1 Science course with a lab</td>
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<td>ECO 202</td>
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**Occupational Specialty Requirements**

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<tr>
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<td>Business Math</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>
<td>4</td>
</tr>
<tr>
<td>CUL 190</td>
<td>Culinary Internship</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>MKT 201</td>
<td>Principles of Marketing</td>
<td>3</td>
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<tr>
<td>CUL 295</td>
<td>Contemp Cuisine Kitchen Mgmt</td>
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Course Sequence Guide

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<tr>
<td>CUL 111</td>
<td>Professional Cookery</td>
<td>5</td>
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<td>CUL 118</td>
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<tr>
<td>ENG 111</td>
<td>English Composition</td>
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<td>CUL 213</td>
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<td>5</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>or English Composition</td>
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<tr>
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<td>Business Math</td>
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<td>CUL 295</td>
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<td>CUL 296</td>
<td>Contemp Svc Dining Room Mngmt</td>
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<td>Humanities Elective</td>
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<td>Science w/lab</td>
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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*
### Any Group 1 Social Sciences course 3

<table>
<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
<td>CUL 101</td>
<td>Today's Hospitality Industry</td>
<td>3</td>
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<td>CUL 110</td>
<td>Safety and Sanitation</td>
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</tr>
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<td>CUL 111</td>
<td>Professional Cookery</td>
<td>5</td>
</tr>
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<td>CUL 118</td>
<td>Introduction to Baking</td>
<td>4</td>
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<tr>
<td>CUL 190</td>
<td>Culinary Internship</td>
<td>2</td>
</tr>
<tr>
<td>CUL 210</td>
<td>Nutrition for Culinary Arts</td>
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<td>CUL 211</td>
<td>Menu Planning and Purchasing</td>
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<tr>
<td>CUL 296</td>
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</table>

**Total Credits** 66-67

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

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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>
</tr>
</thead>
<tbody>
<tr>
<td>CUL 101</td>
<td>Today’s Hospitality Industry</td>
<td>3</td>
</tr>
<tr>
<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>
</tr>
<tr>
<td>CUL 118</td>
<td>Introduction to Baking</td>
<td>4</td>
</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>Contemp Cuisine Kitchen Mgmt</td>
<td>6</td>
</tr>
<tr>
<td>CUL 296</td>
<td>Contemp Svc Dining Room Mgmt</td>
<td>6</td>
</tr>
</tbody>
</table>

**Total Credits** 49

#### Course Sequence Guide

**Year 1**

**Fall**

- **CUL 101** Today's Hospitality Industry [3 credits]
- **CUL 110** Safety and Sanitation [2 credits]
- **CUL 111** Professional Cookery [5 credits]
- **CUL 118** Introduction to Baking [4 credits]

**Credits** 14

**Spring**

- **CUL 211** Menu Planning and Purchasing [3 credits]
- **CUL 213** World Cuisine [5 credits]
- **CUL 217** Kitchen and Dining Room Mgmt [3 credits]

**Credits** 11

**Summer**

- **CUL 190** Culinary Internship [2 credits]

**Total Credits** 49

**Year 2**

**Fall**

- **CUL 210** Nutrition for Culinary Arts [2 credits]
- **CUL 215** Garde Manger [4 credits]
- **CUL 218** Advanced Baking [4 credits]

**Credits** 10

**Spring**

- **CUL 295** Contemp Cuisine Kitchen Mgmt [6 credits]
- **CUL 296** Contemp Svc Dining Room Mgmt [6 credits]

**Credits** 12

### Program Notes

Placement into college level English & MTH 23 Beginning Algebra are 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 1&lt;sup&gt;1&lt;/sup&gt;</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 Acctg Systems&lt;sup&gt;1&lt;/sup&gt;</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>

<sup>1</sup> ACC 121 Accounting Principles I is a required prerequisite

#### Course Sequence Guide

**Year 1**

**Fall**

- **CIT 100** Computers in Business-An Intro [3 credits]
- **MKT 201** Principles of Marketing [3 credits]
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</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>
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<tr>
<td>CIT 216</td>
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<td>MKT 241</td>
<td>Principles of Advertising</td>
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<tr>
<td>VCA 127</td>
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</tr>
<tr>
<td>VCA 150</td>
<td>Digital Graphics Design I</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</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
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<tr>
<td>ACC 121</td>
<td>Accounting Principles I</td>
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<tr>
<td>BUS 101</td>
<td>Introduction to Business</td>
<td>3</td>
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<tr>
<td>BUS 155</td>
<td>Interpersonal Communications</td>
<td>3</td>
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<td>BUS 231</td>
<td>Professional Communications</td>
<td>3</td>
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<tr>
<td>CIT 119</td>
<td>Microsoft Office - Word</td>
<td>3</td>
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<tr>
<td>CIT 122A</td>
<td>Computer &amp; Internet Basics I</td>
<td>1</td>
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<tr>
<td>CIT 124</td>
<td>Microsoft Office - PowerPoint</td>
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<tr>
<td>CIT 210</td>
<td>Microsoft Office - Excel</td>
<td>3</td>
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<tr>
<td>MGT 251</td>
<td>Human Resources Management</td>
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<tr>
<td>MKT 208</td>
<td>Digital Marketing</td>
<td>2</td>
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Select one of the following:

<table>
<thead>
<tr>
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<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>PHL 105</td>
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<td>3</td>
</tr>
<tr>
<td>PHL 201</td>
<td>Ethics</td>
<td></td>
</tr>
<tr>
<td>PHL 202</td>
<td>Contemporary Ethical Dilemmas</td>
<td></td>
</tr>
</tbody>
</table>

**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**

**Year 1**

**Fall**

B 101 Introduction to Business 3
B 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

<table>
<thead>
<tr>
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<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHL 105</td>
<td>Critical Thinking</td>
<td>3</td>
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<tr>
<td>PHL 201</td>
<td>Ethics</td>
<td></td>
</tr>
<tr>
<td>PHL 202</td>
<td>Contemporary Ethical Dilemmas</td>
<td></td>
</tr>
</tbody>
</table>

**Spring**

ACC 121 Accounting Principles I 4
BUS 231 Professional Communications 3
CIT 210 Microsoft Office - Excel 3
MKT 208 Digital Marketing 2

**Credits** 15

**Total Credits** 30

1 Placement into MTH 23 Beginning Algebra or completion of MTH 08 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.

**Requirements**

**Major Requirements**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACC 121</td>
<td>Accounting Principles I</td>
<td>4</td>
</tr>
<tr>
<td>ACC 123</td>
<td>Accounting Principles II</td>
<td>4</td>
</tr>
<tr>
<td>BUS 101</td>
<td>Introduction to Business</td>
<td>3</td>
</tr>
<tr>
<td>BUS 231</td>
<td>Professional Communications</td>
<td>3</td>
</tr>
<tr>
<td>BUS 261</td>
<td>Business Law I</td>
<td>3</td>
</tr>
<tr>
<td>CIT 100</td>
<td>Computers in Business-An Intro</td>
<td>3</td>
</tr>
<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>
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</tr>
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</table>

**Total Credits** 92-96

### Course Sequence Guide

**Year 1**

**Fall**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACC 121</td>
<td>Accounting Principles I</td>
<td>4</td>
</tr>
<tr>
<td>BUS 101</td>
<td>Introduction to Business</td>
<td>3</td>
</tr>
<tr>
<td>BUS 231</td>
<td>Professional Communications</td>
<td>3</td>
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<tr>
<td>CIT 100</td>
<td>Computers in Business-An Intro</td>
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<tr>
<td>MKT 201</td>
<td>Principles of Marketing</td>
<td>3</td>
</tr>
<tr>
<td><strong>Credits</strong></td>
<td></td>
<td><strong>16</strong></td>
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**Spring**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACC 123</td>
<td>Accounting Principles II</td>
<td>4</td>
</tr>
<tr>
<td>BUS 261</td>
<td>Business Law I</td>
<td>3</td>
</tr>
<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>Business Area Elective (BUS, MGT, MKT)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td><strong>Credits</strong></td>
<td></td>
<td><strong>16</strong></td>
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</tbody>
</table>

| **Total Credits** | **32** |

### 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 nonmanual 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.

**Recommended Prerequisite(s):** 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. Students will participate in interactive classroom activities using a "voices off" policy to ensure ASL immersion. Group 2 course.

**Required Prerequisite(s):** ASL 101 or instructor permission

**Recommended Prerequisite(s):** 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

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 Prerequisite(s): ASL 102 or instructor permission

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 throughout the course. Meaningful conversational topic development is emphasized. Group 2 course. Communications - Direct, Critical Thinking - Direct, Degree Req:Cultural Persp/Div.
Required Prerequisite(s): ASL 103 or instructor permission

Recommended Prerequisite(s): 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

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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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. Based on placement testing. See advisor.
Required Prerequisite(s): Placement into ENG 11/111 or successful completion of ENG 99 and ENG 108
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 Prerequisite(s): Successful completion of ENG 111 or ENG 11 and ENG 111

Recommended Prerequisite(s): 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 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 Prerequisite(s): Students are placed in this course according to placement guidelines set by NMC
Corequisites: ENG 108

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 Prerequisite(s): 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. See an advisor.
Communications - Direct, Critical Thinking - Direct, Infused: Writing Intensive.
Required Prerequisite(s): Students are placed in this course according to placement guidelines set by NMC

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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): ENG 112 or permission of instructor
Recommended Prerequisite(s): 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 Prerequisite(s): ENG 221 or instructor permission
Recommended Prerequisite(s): 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 Prerequisite(s): ENG 112 or permission of instructor
Recommended Prerequisite(s): Students should have language skills at least equivalent to ENG 112

ENG 224 - Writing for the Media
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 ethics 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 Prerequisite(s): Placement into ENG 111
Recommended Prerequisite(s): 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 Prerequisite(s): 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 archetypal 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 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 Prerequisite(s): Placement into ENG 111

ENG 266 - Popular Culture
Credit Hours: 3, Contact Hours: 3
Division: Communications
The primary emphasis of this course center 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): Placement into ENG 111
French

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. You will need a minimal ability using technology to take advantage of outside-of-class requirements. Communications - Direct, Critical Thinking - Direct, Degree Req:Cultural Persp/Div.

Recommended Prerequisite(s): Students will be required to read, write, listen, and speak in French

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 Prerequisite(s): FRN 101 with a minimum grade of 2.0 or required score on the NMC language placement test or instructor permission You will need a minimal ability using technology to take advantage of outside-of-class requirements

Recommended Prerequisite(s): Students will be required to read, write, listen, and speak in French

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 Prerequisite(s): FRN 102 with a minimum grade of 2.0 or required score on the NMC language placement test or instructor permission You will need a minimal ability using technology to take advantage of outside-of-class requirements

Recommended Prerequisite(s): You will be required to read, write, listen, and speak in French

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 Prerequisite(s): FRN 201 with a minimum grade of 2.0 or required score on the NMC placement test or instructor permission You will need a minimal ability using technology to take advantage of outside-of-class requirements

Recommended Prerequisite(s): Students will be required to read, write, listen, and speak in French

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. You will need a minimal ability using technology to take advantage of outside-of-class requirements. Communications - Direct, Critical Thinking - Direct, Degree Req:Cultural Persp/Div.

Recommended Prerequisite(s): Students will be required to read, write, listen and speak in German

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. You will need a minimal ability using technology to take advantage of outside-of-class requirements. Communications - Direct, Critical Thinking - Direct, Degree Req:Cultural Persp/Div.

Required Prerequisite(s): GRM 101 with a minimum grade of 2.0, required score on the NMC language placement test or instructor permission

Recommended Prerequisite(s): Students will be required to read, write, listen and speak in German

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. You will need a minimal ability using technology to take advantage of outside-of-class requirements. Communications - Direct, Critical Thinking - Direct, Degree Req:Cultural Persp/Div.

Required Prerequisite(s): GRM 201 with a minimum grade of 2.0, required score on the NMC language placement test or instructor permission

Recommended Prerequisite(s): You will be required to read, write, listen, and speak in German

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. You will need a minimal ability using technology to take advantage of outside-of-class requirements. Communications - Direct, Critical Thinking - Direct, Degree Req:Cultural Persp/Div.

Required Prerequisite(s): GRM 201 with a minimum grade of 2.0 or required score on the NMC language placement test or instructor permission

Recommended Prerequisite(s): Students will be required to read, write, listen, and speak in German
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 in each unit. Group 2 course. You will need a minimal ability using technology to take advantage of outside-of-class requirements. Communications - Direct, Critical Thinking - Direct, Degree Req; Cultural Persp/Div.
Recommended Prerequisite(s): Students will be required to read, write, listen, and speak in Spanish

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 Prerequisite(s): SPN 101 with a minimum grade of 2.0 or required score on the NMC placement test or instructor permission. You will need a minimal ability using technology to take advantage of outside-of-class requirements

Recommended Prerequisite(s): Students will be required to read, write, listen, and speak in Spanish

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 Prerequisite(s): SPN 102 with a minimum grade of 2.0 or required score on the NMC language placement test or instructor permission. You will need a minimal ability using technology to take advantage of outside-of-class requirements

Recommended Prerequisite(s): Students will be required to read, write, listen, and speak in Spanish

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 Prerequisite(s): SPN 201 with a minimum grade of 2.0 or required score on the NMC language placement test or instructor permission. You will need a minimal ability using technology to take advantage of outside-of-class requirements

Required Prerequisite(s): Students will be required to read, write, listen, and speak in Spanish

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 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 Prerequisite(s): 3–4 years of high school Spanish

Recommended Prerequisite(s): 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

Theater

THR 151 - Basic Acting
Credit Hours: 4, Contact Hours: 4
Division: Communications
An introduction to acting technique and craftsmanship, this course emphasizes theory and practice in modern realistic theater. Group 2 course. Communications - Direct.

THR 152 - Acting II
Credit Hours: 4, Contact Hours: 4
Division: Communications
This course allows students to learn a variety of performance styles. Period style acting is a primary focus, beginning with Greek tragedy and comedy and working up through Shakespearian acting and ending with Restoration comedy. Group 2 course. Communications - Direct.
Recommended Prerequisite(s): THR 151

Health Occupations

Programs
- Dental Assistant, Associate in Applied Science Degree (p. 54)
- Dental Assistant, Certificate of Achievement (Level II) (p. 56)
- Nursing - ADN Completion Option (p. 56)
- Nursing - Practical, Certificate of Achievement (p. 58)
- Nursing, Associate Degree in Nursing (p. 60)
- Paramedic, Associate in Applied Science Degree (p. 62)
- Respiratory Therapy - RT, Associate in Applied Science Degree (p. 63)
- Surgical Technology, Associate in Applied Science Degree (p. 63)

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 Prerequisite(s): Admission to ADN, PN, or LPN Completion nursing programs

**Recommended Prerequisite(s): 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.& Interventio**  
**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 and a certificate of completion for the Emergency Medical Responder course will be obtained by students following successful completion of the course. This is a standalone course and students that successfully complete the course will not be eligible to test with the State of Michigan or NREMT for certification at this time.

**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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): HAH 120, HDA 120, HDA 160, HDA 242, HDA 243

Corequisites: HDA 241

HDA 241 - Chairside Procedures Lab
Credit Hours: 2, Contact Hours: 5
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 Prerequisite(s): 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 Prerequisite(s): HAH 120, 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 Prerequisite(s): 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 Prerequisite(s): HDA 240, HDA 241
Corequisites: HDA 286

Nursing

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 Prerequisite(s): 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 Prerequisite(s): 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

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 Prerequisite(s): Admission to the nursing program, BIO 228 with a grade of 2.5 or higher, 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 Prerequisite(s): HAH 100C, HNR 101, and HNR 106 with a grade of 2.5 or higher; 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 Prerequisite(s): 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 Prerequisite(s): 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 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): HNR 221, HNR 241 with a grade of 2.5 or higher, and HNR 242 with an S
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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): BIO 227, BIO 227L, HAH 101, HPD 110 or
equivalent; SRG 102 and SRG 103 may be taken concurrently
Recommended Prerequisite(s): 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 121 - 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 Prerequisite(s): 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 Prerequisite(s): SRG 121, SRG 121L, SRG 122 may be taken concurrently

SRG 202 - Surg Procedures II Clinical
Credit Hours: 3, Contact Hours: 18
Division: Health Occupations
In this course students will continue working in the surgical environment 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 Prerequisite(s): SRG 201, SRG 202, SRG 204; SRG 222 and SRG 224 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 Prerequisite(s): SRG 201, SRG 202, SRG 204; SRG 222 and SRG 224 may be taken concurrently

SRG 122 - 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 Prerequisite(s): SRG 201 and SRG 222 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 Prerequisite(s): 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.

### 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 or higher

### 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>
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</thead>
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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>ENG 112</td>
<td>English Composition</td>
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<tr>
<td>BIO 106</td>
<td>Human Biology</td>
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<tr>
<td>COM 111</td>
<td>Interpersonal Communications</td>
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<td>Group I Elective</td>
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### Total Credits
28-29

### Model Schedule

#### Fall

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<thead>
<tr>
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<th>Title</th>
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<tbody>
<tr>
<td>HPD 110</td>
<td>BLS for Health Care Providers (or equivalent)</td>
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<tr>
<td>HAH 120</td>
<td>Infection Control</td>
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</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>
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<td>HDA 120</td>
<td>Dental Anatomy</td>
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<td>HDA 140</td>
<td>Oral Pathology/Pharmacology</td>
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<td>HDA 150</td>
<td>Dental Office Management</td>
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<tr>
<td>HDA 160</td>
<td>Dental Emergencies</td>
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<td>HDA 170</td>
<td>Preventive Dentistry</td>
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<tr>
<td>HDA 240</td>
<td>Chairside Procedures</td>
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<td>HDA 241</td>
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<td>HDA 242</td>
<td>Dental Radiography</td>
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<td>HDA 243</td>
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<td>HDA 286</td>
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<td>HDA 290</td>
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<td>HPD 110</td>
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Total Credits 59.7-61.7

#### Spring

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<td>Dental Materials Lab</td>
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<td>HDA 140</td>
<td>Oral Pathology/Pharmacology</td>
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<tr>
<td>HDA 170</td>
<td>Preventive Dentistry</td>
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<td>HDA 240</td>
<td>Chairside Procedures (Lecture)</td>
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<td>HDA 241</td>
<td>Chairside Procedures Lab</td>
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<tr>
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Total Credits 16

#### Summer

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<tr>
<td>HDA 286</td>
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</tr>
</tbody>
</table>

Total Credits 6

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

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

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

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<td>BUS 155</td>
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<tr>
<td>or COM 111</td>
<td>Public Speaking</td>
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<tr>
<td>HAH 120</td>
<td>Infection Control</td>
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<td>HDA 101</td>
<td>Introduction to Dentistry</td>
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<td>Dental Materials</td>
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<td>HDA 150</td>
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<td>HPD 110</td>
<td>BLS for Health Care Providers (or equivalent)</td>
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Total Credits: 38.7-39.7

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

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>Fall</td>
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<tr>
<td>HPD 110</td>
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<tr>
<td>HAH 120</td>
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<td>HDA 242</td>
<td>Dental Radiography (Lecture)</td>
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<td>HDA 243</td>
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<td>BUS 155</td>
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Credits: 13.5

Spring

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<td>HDA 112</td>
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<td>HDA 170</td>
<td>Preventive Dentistry</td>
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<td>HDA 240</td>
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<td>CDA/RDA Written Exam Prep</td>
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<tr>
<td>BUS 155</td>
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Credits: 19-20

Summer

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<tr>
<td>HDA 290</td>
<td>Dental Assistant Internship</td>
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</tr>
<tr>
<td>HDA 286</td>
<td>RDA Clinical Exam Prep</td>
<td>1</td>
</tr>
</tbody>
</table>

Credits: 6

Total Credits: 38.5-39.5

1 Recommended to be taken prior to entering the program, or fall or spring semester while in the program.

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.
• Completion of admission assessment.

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

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

Major Requirements
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<thead>
<tr>
<th>Course</th>
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<th>Credits</th>
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<tbody>
<tr>
<td>ENG 111</td>
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**Course Sequence Guide**

### Prerequisites

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<tr>
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<td>ENG 111</td>
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### Nurse Competency Requirements

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### Nursing Specialty Requirements

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<td>Fund of Nursing-Clinical</td>
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<td>HNR 106</td>
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<td>1</td>
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<td>Pharmacology II</td>
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<tr>
<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>HNR 242</td>
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<td>HNR 221</td>
<td>Acute Care Nursing I</td>
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<td>HNR 222</td>
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### Model Schedule

#### Fall

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<td>HNR 241</td>
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<td>HNR 242</td>
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<td>HNR 221</td>
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#### Spring

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<tr>
<td>HNR 248</td>
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</tr>
<tr>
<td>HNR 261</td>
<td>Nursing Management</td>
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</tr>
<tr>
<td>HNR 262</td>
<td>Nursing Management Clinical</td>
<td>4</td>
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</table>

### Program Total 70

**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.
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 work force 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.
- Completion of admission assessment.

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).

Certificate Requirements

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<td>Human Anatomy &amp; Physiology II</td>
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<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>
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<tr>
<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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</tr>
<tr>
<td>HNR 145</td>
<td>Practical Nursing Roles &amp; Issu</td>
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<tr>
<td>HAH 100C</td>
<td>Informatics Essentials</td>
<td>1</td>
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</table>
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.
- Completion of admission assessment.

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.)

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>
<td>ENG 112</td>
<td>English Composition</td>
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<td>Any Group 1 Humanities Course</td>
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<td>Math Competency</td>
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<tr>
<td>BIO 227</td>
<td>Human Anatomy &amp; Physiology I</td>
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<td>PSY 101</td>
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Nursing Specialty Requirements

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<tr>
<th>Course</th>
<th>Title</th>
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<tr>
<td>HAH 100C</td>
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<td>HNR 101</td>
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<td>HNR 102</td>
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<td>HPP 110</td>
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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

Prerequisites

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
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Model Schedule

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<td>HNR 101 Fundamentals of Nursing-Lect</td>
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<td>HNR 241 Adv Maternal Child Nursing-Lec</td>
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The following courses may be added to Fall Semester if not taken prior to admission:

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<table>
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<tr>
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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.)

Program Total 70
### Course Sequence Guide

<table>
<thead>
<tr>
<th>Course</th>
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<th>Credits</th>
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<tr>
<td></td>
<td><strong>Prerequisites:</strong> Mathematics Requirement: Students must place into MTH 111 Intermediate Algebra or higher on the placement test, or take MTH 23 Beginning Algebra.</td>
<td></td>
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<tr>
<td></td>
<td>EN 111 English Composition</td>
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</tr>
<tr>
<td></td>
<td>Any Social Science Group 1 course</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Any Group 1 Science course with lab</td>
<td>4</td>
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<tr>
<td></td>
<td><strong>Credits</strong></td>
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<tr>
<td></td>
<td>EN 112 English Composition</td>
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</tr>
<tr>
<td></td>
<td>Any Humanities Group 1 course</td>
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<td>Paramedic Course Work from Munson Medical Center’s Regional EMS Education Paramedic (EMT-P) Program</td>
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<td></td>
<td><strong>Credits</strong></td>
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<td></td>
<td><strong>Total Credits</strong></td>
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</tr>
</tbody>
</table>

1. For students planning to continue in the medical field or planning to pursue a bachelor’s degree, MTH 111 Intermediate Algebra is recommended.
2. For students planning to continue in nursing at NMC, PSY 101 Introduction to Psychology is recommended.
3. For students planning to continue in the medical field or planning to pursue a bachelor’s degree, BIO 227 Human Anatomy & Physiology I and BIO 228 Human Anatomy & Physiology II are recommended.
4. In order for the paramedic courses to transfer, the student must present a copy of a current Paramedic National Registry Certification.

### Respiratory Therapy - RT, Associate in Applied Science Degree

**Through Muskegon Community College**

*NMC Code 712*

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.

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 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 (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

1 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>
</tr>
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<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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<td>or ENG 112</td>
<td>English Composition</td>
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<td>Any Group 1 Humanities course</td>
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<tr>
<td>BIO 227</td>
<td>Human Anatomy &amp; Physiology I 2</td>
<td>4</td>
</tr>
<tr>
<td>BIO 228</td>
<td>Human Anatomy &amp; Physiology II 2</td>
<td>4</td>
</tr>
<tr>
<td>PSY 101</td>
<td>Introduction to Psychology</td>
<td>3</td>
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<tr>
<td>or SOC 101</td>
<td>Introduction to Sociology</td>
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<td>HAH 101</td>
<td>Medical Terminology</td>
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<td>SRG 101</td>
<td>Intro to Surgical Technology</td>
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<td>SRG 101L</td>
<td>Intro to Surg Tech Lab</td>
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<td>SRG 102</td>
<td>Surgical Microbiology</td>
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<td>SRG 103</td>
<td>Surgical Pharmacology</td>
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<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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<td>SRG 122</td>
<td>The Surgical Patient</td>
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<td>SRG 123</td>
<td>Biomed Sciences and MIS</td>
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<td>SRG 201</td>
<td>Surgical Procedures II</td>
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<td>SRG 202</td>
<td>Surg Procedures II Clinical</td>
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<td>SRG 204</td>
<td>Professional Career Prep I</td>
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<td>SRG 221</td>
<td>Surgical Procedures III</td>
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Program Requirements 60

Course Sequence Guide

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tr>
<td>ENG 111</td>
<td>English Composition</td>
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<tr>
<td>HAH 101</td>
<td>Medical Terminology</td>
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</tr>
<tr>
<td>BIO 227</td>
<td>Human Anatomy &amp; Physiology I</td>
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Course     | Title                                      | Credits |
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<td>SRG 222</td>
<td>Surg Procedures III Clinical</td>
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<tr>
<td>SRG 224</td>
<td>Professional Career Prep II</td>
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<tr>
<td>Total Credits</td>
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</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUS 231</td>
<td>Professional Communications</td>
<td>3</td>
</tr>
<tr>
<td>or ENG 112</td>
<td>English Composition</td>
<td>3</td>
</tr>
<tr>
<td>PSY 101</td>
<td>Introduction to Psychology</td>
<td>3</td>
</tr>
<tr>
<td>or SOC 101</td>
<td>Introduction to Sociology</td>
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</tr>
<tr>
<td>Any Group 1 Humanities Course</td>
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</table>

Total Program Credits 60

Humanities

Programs

- Audio Technology, Associate in Applied Science Degree (p. 99)
- Audio Technology, Certificate of Achievement (Level I) (p. 101)
- Audio Technology, Certificate of Achievement (Level II) (p. 101)
- Visual Communications - Creative Management in Art Direction, Associate in Applied Science Degree (p. 102)
- Visual Communications, Associate in Applied Science Degree (p. 102)

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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): ART 121

Recommended Prerequisite(s): 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. Required Prerequisite(s): ART 121

Recommended Prerequisite(s): 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. Required Prerequisite(s): 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.

Required Prerequisite(s): ART 151

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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): ART 161

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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): ART 181

ART 191 - Sculpture I  
Credit Hours: 3, Contact Hours: 4  
Division: Humanities  
This course is an exploration in sculpture. Students will be exposed to a variety of materials and processes through which they will learn how to speak about and render objects in 3-D. Group 2 course.

Required Prerequisite(s): ART 132 or ART 151

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 Prerequisite(s): 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 Prerequisite(s): ART 121  
Recommended Prerequisite(s): 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 Prerequisite(s): ART 221  
Recommended Prerequisite(s): 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 Prerequisite(s): ART 174

ART 290A - Academic/Service Internship  
Credit Hours: 1-4, Contact Hours: 1-4  
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 Prerequisite(s): AUD 100

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. Required Prerequisite(s): AUD 100

AUD 100B - 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 Prerequisite(s): 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 Prerequisite(s): AUD 100C

AUD 100D - 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 Prerequisite(s): AUD 100D

AUD 100E - 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 Prerequisite(s): 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 Prerequisite(s): 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  
Digital Audio II is a 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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.0 or higher; or instructor approval  
Required Prerequisite(s): AUD 210, AUD 230, AUD 250 all with a grade of 2

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 Prerequisite(s): AUD 210, AUD 230, AUD 250 all with a grade of 2.0 or higher

Dance  
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.
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.

Recommended Prerequisite(s): DNC 101 or previous experience

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.
Required Prerequisite(s): DNC 101, DNC 110 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 Prerequisite(s): 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 Prerequisite(s): 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 130 - 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 Prerequisite(s): DNC 131

DNC 132 - 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.

Recommended Prerequisite(s): Placement into ENG 111

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 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 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): Placement into ENG 111

HST 214 - 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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-Classical, Romantic, 19th Century, and Modern periods. Group 1 course. Communications - Direct, Critical Thinking - Direct, Degree Req:Cultural Persp/Div, Infused: Writing Intensive.  
Recommended Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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.

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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 technique of harmonization. Students are required to complete and analyze music using practices listed above. Group 2 course.
Required Prerequisite(s): 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 Prerequisite(s): 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.  
Required Prerequisite(s): 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 Prerequisite(s): MUS 100A, MUS 105A, MUS 106  

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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 114. 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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.
<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>MUS 140B</td>
<td>Applied Music - Violin</td>
<td>1-2</td>
<td>1-2</td>
<td>Humanities</td>
<td>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 (<a href="mailto:jecobb@nmc.edu">jecobb@nmc.edu</a>, 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.</td>
</tr>
<tr>
<td>MUS 141</td>
<td>Applied Music - Viola</td>
<td>1-2</td>
<td>1-2</td>
<td>Humanities</td>
<td>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 (<a href="mailto:jecobb@nmc.edu">jecobb@nmc.edu</a>, 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.</td>
</tr>
<tr>
<td>MUS 141B</td>
<td>Applied Music - Viola</td>
<td>1-2</td>
<td>1-2</td>
<td>Humanities</td>
<td>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 (<a href="mailto:jecobb@nmc.edu">jecobb@nmc.edu</a>, 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.</td>
</tr>
<tr>
<td>MUS 142</td>
<td>Applied Music - Cello</td>
<td>1-2</td>
<td>1-2</td>
<td>Humanities</td>
<td>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 (<a href="mailto:jecobb@nmc.edu">jecobb@nmc.edu</a>, 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.</td>
</tr>
<tr>
<td>MUS 142B</td>
<td>Applied Music - Cello</td>
<td>1-2</td>
<td>1-2</td>
<td>Humanities</td>
<td>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 (<a href="mailto:jecobb@nmc.edu">jecobb@nmc.edu</a>, 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.</td>
</tr>
<tr>
<td>MUS 143</td>
<td>Applied Music - Double Bass</td>
<td>1-2</td>
<td>1-2</td>
<td>Humanities</td>
<td>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 (<a href="mailto:jecobb@nmc.edu">jecobb@nmc.edu</a>, 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.</td>
</tr>
<tr>
<td>MUS 143B</td>
<td>Applied Music - Double Bass</td>
<td>1-2</td>
<td>1-2</td>
<td>Humanities</td>
<td>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 (<a href="mailto:jecobb@nmc.edu">jecobb@nmc.edu</a>, 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.</td>
</tr>
<tr>
<td>MUS 144</td>
<td>Applied Music - Flute</td>
<td>1-2</td>
<td>1-2</td>
<td>Humanities</td>
<td>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 (<a href="mailto:jecobb@nmc.edu">jecobb@nmc.edu</a>, 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.</td>
</tr>
</tbody>
</table>
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 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 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 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 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 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 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 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 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 154C - 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 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 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 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 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 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 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 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 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 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 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-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 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 - 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 Prerequisite(s): MUS 102, MUS 104, MUS 107; or equivalent competency
Corequisites: MUS 203, 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 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 Prerequisite(s): MUS 201, MUS 203, MUS 206; or equivalent competency
Corequisites: MUS 204, MUS 207

MUS 204 - 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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.  
Recommended 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 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 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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, 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 (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 Prerequisite(s): 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. Recommended Prerequisite(s): MUS 142

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 Prerequisite(s): 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. Recommended Prerequisite(s): MUS 144

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 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 Prerequisite(s): 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.

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 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.  

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.  

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 256C - 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. Recommended Prerequisite(s): MUS 159

MUS 258C - 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 Prerequisite(s): 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.

MUS 258B - 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 259C - 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 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.  
Recommended Prerequisite(s): 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.

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.

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.

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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): VCA 150
Recommended Prerequisite(s): 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 Prerequisite(s): VCA 125
Recommended Prerequisite(s): 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. Use of the Macintosh or Windows operating system highly recommended. Critical Thinking - Direct.
Recommended Prerequisite(s): CIT 100, Basic keyboarding skills 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 Prerequisite(s): VCA 127, VCA 150  
Recommended Prerequisite(s): 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 Prerequisite(s): VCA 127, VCA 150  
Recommended Prerequisite(s): 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. Use of the Macintosh or Windows operating system highly recommended. Communications - Direct.  
Recommended Prerequisite(s): CIT 100, Recommended competencies: Basic keyboarding skills 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 Prerequisite(s): VCA 125  
Recommended Prerequisite(s): VCA 200

**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 Prerequisite(s): VCA 125  
Recommended Prerequisite(s): ENG 112

Corequisites: VCA 200

**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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 emphasis creative and narrative language. Students should be self-motivated, this advanced section involves independent projects. Group 2 course. Communications - Direct, Critical Thinking - Direct.  
Required Prerequisite(s): VCA 146  
Recommended Prerequisite(s): 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 Prerequisite(s): 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 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 Prerequisite(s): VCA 127  
Recommended Prerequisite(s): 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 Prerequisite(s): 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 to participating 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 Prerequisite(s): Students must have completed all VCA courses with a minimum 2.5 GPA and departmental approval  
Recommended Prerequisite(s): 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 Prerequisite(s): 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 earn in a variety of environments and 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

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tr>
<td><strong>General Education Requirements</strong></td>
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<tr>
<td>ENG 111</td>
<td>English Composition</td>
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<tr>
<td>BUS 231</td>
<td>Professional Communications</td>
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<tr>
<td>or ENG 112</td>
<td>English Composition</td>
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<tr>
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<tr>
<td>MUS 110</td>
<td>Music Appreciation Stand Lit</td>
<td>3</td>
</tr>
<tr>
<td>MUS 111</td>
<td>Music Appreciation Jazz</td>
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<tr>
<td>MUS 129</td>
<td>History of Rock and Roll</td>
<td>3</td>
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</table>

**Math Competency**

Any Group 1 Science course with lab

Any Group 1 Social Science course

### Occupational Specialty Requirements

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<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tr>
<td>AUD 100</td>
<td>Applied Music - Audio Tech</td>
<td>2</td>
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<tr>
<td>AUD 101</td>
<td>Theory for Studio Engineers</td>
<td>2</td>
</tr>
<tr>
<td>AUD 110</td>
<td>Studio Recording I</td>
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<td>AUD 111</td>
<td>Studio Recording II</td>
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<td>AUD 120</td>
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<td>AUD 130</td>
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<td>AUD 131</td>
<td>Live Sound II</td>
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<tr>
<td>AUD 210</td>
<td>Studio Recording III</td>
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<tr>
<td>AUD 220</td>
<td>Digital Audio III</td>
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<td>AUD 230</td>
<td>Live Sound III</td>
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<tr>
<td>AUD 250</td>
<td>Audio Tech Practicum</td>
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</tr>
<tr>
<td>AUD 260</td>
<td>Audio Tech Internship</td>
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<td>AUD 270</td>
<td>Audio Tech Final Project</td>
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<tr>
<td>MUS 101</td>
<td>Theory of Music 2</td>
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<td>MUS 106</td>
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<td>MUS 107</td>
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<tr>
<td>MUS 112</td>
<td>Class Guitar I</td>
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</table>

**Total Credits** 61-62

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

2 Students will take a Music Theory Placement Test at the start of the semester.

### Course Sequence Guide

#### Year 1

**Fall**

<table>
<thead>
<tr>
<th>Course</th>
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<tr>
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<td>MUS 106</td>
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<td>MUS 107</td>
<td>Class Piano II</td>
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</tr>
<tr>
<td>MUS 112</td>
<td>Class Guitar I</td>
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**Total Credits** 16

#### Spring

<table>
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<tr>
<th>Course</th>
<th>Title</th>
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<tbody>
<tr>
<td>MUS 102</td>
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<td>or MUS 100B</td>
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<td>Music Appreciation Jazz</td>
<td>3</td>
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<tr>
<td>MUS 129</td>
<td>History of Rock and Roll</td>
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<td>ENG 111</td>
<td>English Composition</td>
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**Total Credits** 16

#### Year 2

**Fall**

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<td>AUD 250</td>
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<td>AUD 210</td>
<td>Studio Recording III</td>
<td>2</td>
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<td>AUD 230</td>
<td>Live Sound III</td>
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<tr>
<td>MUS 110</td>
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<td>MUS 129</td>
<td>History of Rock and Roll</td>
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**Total Credits** 15-16

#### Spring

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<td>English Composition</td>
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| Any Group 1 Science course with lab | 4     |

**Total Credits** 15-16

### 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 I)

NMC Code 045

The Audio Technology field is a dynamic industry offering a variety of career opportunities. Upon successful completion of the core Audio Technology coursework, students may earn the Audio Technology Level I Certificate of Achievement.

Requirements

Certificate Requirements

<table>
<thead>
<tr>
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<td>AUD 120</td>
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<tr>
<td>AUD 131</td>
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Total Credits 16

Course Sequence Guide

Year 1

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Total Credits 8

Spring

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<td>Digital Audio II</td>
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Total Credits 8

Year 2

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<tr>
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<tr>
<td>AUD 250</td>
<td>Audio Tech Practicum</td>
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<td>AUD 230</td>
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<td>MUS 106</td>
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Total Credits 8

Spring

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<tr>
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<tr>
<td>AUD 220</td>
<td>Digital Audio III</td>
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Total Credits 8

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

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<td>Complete Level 1 Certificate Requirements</td>
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<td>Level II Certificate Requirements</td>
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<td>AUD 210</td>
<td>Studio Recording III</td>
<td>2</td>
</tr>
<tr>
<td>AUD 220</td>
<td>Digital Audio III</td>
<td>2</td>
</tr>
<tr>
<td>AUD 230</td>
<td>Live Sound III</td>
<td>2</td>
</tr>
<tr>
<td>AUD 250</td>
<td>Audio Tech Practicum</td>
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<tr>
<td>AUD 260</td>
<td>Audio Tech Internship</td>
<td>3</td>
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<tr>
<td>AUD 270</td>
<td>Audio Tech Final Project</td>
<td>3</td>
</tr>
<tr>
<td>MUS 106</td>
<td>Class Piano I or MUS 112 Guitar I</td>
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</tbody>
</table>

Total Credits 32

Course Sequence Guide

Year 1

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall</td>
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</tr>
<tr>
<td>AUD 100</td>
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<tr>
<td>AUD 110</td>
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<td>AUD 120</td>
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<td>AUD 130</td>
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Total Credits 8

Spring

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
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</tr>
</thead>
<tbody>
<tr>
<td>AUD 250</td>
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<td>Studio Recording III</td>
<td>2</td>
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<td>AUD 230</td>
<td>Live Sound III</td>
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<tr>
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<td>Class Piano I or MUS 112 Guitar I</td>
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Total Credits 8

Year 2

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<td>AUD 270</td>
<td>Audio Tech Final Project</td>
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<tr>
<td>AUD 220</td>
<td>Digital Audio III</td>
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</tbody>
</table>

Total Credits 8

Audio Technology, Certificate of Achievement (Level II)

NMC Code 046

The Audio Technology field is a dynamic industry offering a variety of career opportunities. Upon successful completion of the core Audio Technology coursework, students may earn the Audio Technology Level I Certificate of Achievement.

Requirements

Certificate Requirements

<table>
<thead>
<tr>
<th>Course</th>
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<td>Level II Certificate Requirements</td>
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<tr>
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<td>AUD 220</td>
<td>Digital Audio III</td>
<td>2</td>
</tr>
<tr>
<td>AUD 230</td>
<td>Live Sound III</td>
<td>2</td>
</tr>
<tr>
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</tr>
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</tr>
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</table>

Total Credits 32

Course Sequence Guide

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<table>
<thead>
<tr>
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<td>2</td>
</tr>
</tbody>
</table>

Total Credits 8

Spring

<table>
<thead>
<tr>
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<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
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<td>Class Piano I or MUS 112 Guitar I</td>
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</tbody>
</table>

Total Credits 8

Year 2

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AUD 260</td>
<td>Audio Tech Internship</td>
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</tr>
<tr>
<td>AUD 270</td>
<td>Audio Tech Final Project</td>
<td>3</td>
</tr>
<tr>
<td>AUD 220</td>
<td>Digital Audio III</td>
<td>2</td>
</tr>
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</table>

Total Credits 8

Audio Technology, Certificate of Achievement (Level II)

NMC Code 046

The Audio Technology field is a dynamic industry offering a variety of career opportunities. Upon successful completion of the core Audio Technology coursework, students may earn the Audio Technology Level I Certificate of Achievement.
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**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>Previous Visual Communications AAS Degree</td>
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<tr>
<td>Creative Management in Art Direction Requirements</td>
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<tr>
<td>ART 174</td>
<td>Digital Photography I</td>
<td>3</td>
</tr>
<tr>
<td>or VCA 146</td>
<td>Interactive Animation</td>
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<tr>
<td>ART 181</td>
<td>Printmaking I</td>
<td>3</td>
</tr>
<tr>
<td>ART 213</td>
<td>Modern Art History</td>
<td>3</td>
</tr>
<tr>
<td>ART 274</td>
<td>Digital Photography II</td>
<td>3</td>
</tr>
<tr>
<td>BUS 155</td>
<td>Interpersonal Communications</td>
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<tr>
<td>or BUS 231</td>
<td>Professional Communications</td>
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<tr>
<td>CIT 180</td>
<td>Web Development</td>
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<tr>
<td>ENG 220</td>
<td>Technical Writing</td>
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<tr>
<td>ENG 266</td>
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<tr>
<td>or COM 201</td>
<td>Mass Communication and Culture</td>
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<tr>
<td>MKT 201</td>
<td>Principles of Marketing</td>
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<tr>
<td>or MKT 241</td>
<td>Principles of Advertising</td>
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<td>VCA 290</td>
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1 Placement into MTH 111 Intermediate Algebra or higher, or completion of MTH 23 Beginning Algebra with 2.0 or higher

**Course Sequence Guide**

**Year 1**

**Fall**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENG 221</td>
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<tr>
<td>or ENG 220</td>
<td>Technical Writing</td>
<td></td>
</tr>
<tr>
<td>MKT 201</td>
<td>Principles of Marketing</td>
<td>3</td>
</tr>
<tr>
<td>or MKT 241</td>
<td>Principles of Advertising</td>
<td></td>
</tr>
<tr>
<td>ART 174</td>
<td>Digital Photography I</td>
<td>3</td>
</tr>
<tr>
<td>or VCA 146</td>
<td>Interactive Animation</td>
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<td>CIT 180</td>
<td>Web Development</td>
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**Spring**

<table>
<thead>
<tr>
<th>Course</th>
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</thead>
<tbody>
<tr>
<td>ENG 266</td>
<td>Popular Culture</td>
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<tr>
<td>or COM 201</td>
<td>Mass Communication and Culture</td>
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<tr>
<td>BUS 155</td>
<td>Interpersonal Communications</td>
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<tr>
<td>or BUS 231</td>
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<tr>
<td>ART 132</td>
<td>3-D Design</td>
<td>3</td>
</tr>
<tr>
<td>or ART 181</td>
<td>Printmaking I</td>
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</tr>
<tr>
<td>ART 213</td>
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**Summer**

<table>
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<tr>
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<tbody>
<tr>
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<tr>
<td>Total Credits</td>
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<td>4</td>
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</tbody>
</table>

* 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.

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**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
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<tr>
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<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>ART 111</td>
<td>History of Western Art I</td>
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<tr>
<td>ART 112</td>
<td>History of Western Art II (preferred)</td>
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<tr>
<td>ART 213</td>
<td>Modern Art History</td>
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<tr>
<td>Math Competency 1</td>
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<tr>
<td>Any Group 1 Science lecture course with a lab</td>
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<td></td>
</tr>
<tr>
<td>Any Group 1 Social Science course</td>
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1 Placement into MTH 111 Intermediate Algebra or higher, or completion of MTH 23 Beginning Algebra with 2.0 or higher
<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>ART 121</td>
<td>Drawing I</td>
<td>3</td>
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<tr>
<td>ART 131</td>
<td>2-D Design</td>
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</tr>
<tr>
<td>VCA 100</td>
<td>Materials and Techniques</td>
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</tr>
<tr>
<td>VCA 125</td>
<td>Typography I</td>
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<tr>
<td>VCA 126</td>
<td>Typography II</td>
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</tr>
<tr>
<td>VCA 127</td>
<td>Digital Imaging</td>
<td>3</td>
</tr>
<tr>
<td>VCA 146</td>
<td>Interactive Animation or ART 174</td>
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<td>VCA 147</td>
<td>Web Design I</td>
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<td>VCA 150</td>
<td>Digital Graphics Design I</td>
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<tr>
<td>VCA 220</td>
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<td>VCA 225</td>
<td>Visual Communications Studio</td>
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<td>VCA 230</td>
<td>Visual Communications V</td>
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<td>VCA 235</td>
<td>Visual Comm Portfolio</td>
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<tr>
<td>VCA 250</td>
<td>Time Based Media</td>
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**Total Credits**  
63-64

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

### Course Sequence Guide

#### Year 1

**Fall**
- ART 121: Drawing I [3 credits]
- ART 131: 2-D Design [3 credits]
- VCA 127: Typography I [3 credits]
- VCA 146: Digital Imaging [3 credits]
- VCA 147: Web Design I [3 credits]
- VCA 150: Digital Graphics Design I [3 credits]
- ENG 111: English Composition [4 credits]

**Spring**
- VCA 100: Materials and Techniques [3 credits]
- ART 174: Digital Photography I [3 credits]
- VCA 147: Web Design I [3 credits]
- VCA 125: Typography II [3 credits]
- ART 112: History of Western Art II [1 credit]

**Total Credits**  
16

#### Year 2

**Fall**
- VCA 250: Time Based Media (Apple Certified) [3 credits]
- VCA 126: Typography II [3 credits]
- VCA 200: Visual Communications II [3 credits]
- VCA 220: Visual Communications III [3 credits]
- ENG 112: English Composition [4 credits]

**Spring**
- VCA 225: Visual Communications Studio [3 credits]
- VCA 230: Visual Communications V [3 credits]
- VCA 235: Visual Comm Portfolio [3 credits]
- Social Science [3 credits]

**Total Credits**  
16

1. ART 213 Modern Art History may be taken in place of ART 112 History of Western Art II.

### Program Learning Outcomes
1. Mastery of software skills in Digital Technical Classes. (Photoshop, Indesign, Illustrator, Animate, Final Cut Pro)
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 Programs

- Maritime - Bachelor of Science Degrees (p. 118)
- Maritime - Deck Officer, Bachelor of Science (p. 113)
- Maritime - Engineering Officer, Bachelor of Science (p. 116)
- Maritime - Power Systems, Bachelor of Science (p. 119)

### Courses

#### 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 (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 Prerequisite(s):** 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 Prerequisite(s):** 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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. 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.
Required Prerequisite(s): Must complete first academic year with a 2.0 or higher in all required courses.

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 Prerequisite(s): 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 Prerequisite(s): 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 metacenter height; inclining experiment; stability computers and tables; practical stability and trim considerations. STCW.
Required Prerequisite(s): 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 Prerequisite(s): 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. 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.
Required Prerequisite(s): Completion to second academic year with a 2.0 or higher in all required courses.

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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): ENG 111 and MTH 111.
Corequisites: MDK 332.

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.
Recommended Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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. Cargo stowage plans will be developed and reviewed. Students will critique loads they were involved with during their time aboard ship. STCW.  
Required Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): ENG 111; MTH 111 or higher

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 Prerequisite(s): 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
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Recommended Prerequisite(s): 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.

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 Prerequisite(s): 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 Prerequisite(s): 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 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 their GLMA program of study. STCW.

Required Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 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. 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 Prerequisite(s): 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 Prerequisite(s): 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. 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. Critical Thinking - Direct.
Required Prerequisite(s): Completion of first academic year.

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 Prerequisite(s): 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. Quantitative Reasoning.

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. 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. Critical Thinking - Direct.
Required Prerequisite(s): Completion of first academic year.
Recommended Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 refrigerants (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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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.
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satisfied by following the approved Course Sequence Guide and any
Required Prerequisite(s): All prerequisites for all GLMA courses are
discussed. STCW.

Drive trains, reduction gear, stern tubes shafting and propellers are also
discussed. Special emphasis is placed on USCG regulations and
automated combustion systems and water regulation systems are
covered in detail. Special emphasis is placed on USCG regulations and
STCW competencies. STCW.

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 Prerequisite(s): 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 Prerequisite(s): 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

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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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.
Completion of MTH 111 and ENG 111 or appropriate placement scores.
Recommended Prerequisite(s): Recommended competencies: Ability to work/learn aboard R/V Northwestern and in the field

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 Prerequisite(s): MTH 111 or higher
Recommended Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): ENV 115 or GEO 115 with a 2.0 or higher. Recommended Prerequisite(s): Students must have intermediate computer and internet skills, typically acquired in ENVI15 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 Prerequisite(s): ENG 111 and MTH 23 or higher, both may be taken concurrently. Recommended Prerequisite(s): 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 Prerequisite(s): EET 103 and MTH 111 or higher. Recommended Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): WSI 215 - may be taken concurrently. Recommended Prerequisite(s): 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. Recommended Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 the 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 students can earn a Certified Associate in Project Management (CAPM) certification. Group 2 course. Communications - Direct, Critical Thinking - Direct.  
Required Prerequisite(s): WSI 300, WSI 310, WSI 440

Recommended Prerequisite(s): 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 Prerequisite(s): WSI 200, WSI 210, WSI 215, WSI 240 and instructor permission

**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.  
Within this degree students will have the opportunity to earn the following: CSWA Certified Solidworks Associate, ISPS Connector and Conductor, PCEP- Certified Entry-Level Python Programmer, IFPS Hydraulic Specialist, and Certified Associate in Project Management (CAPM).

### Requirements

#### Major Requirements

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WSI 405  Marine Industry  3
WSI 433  Marine Project Management  3
WSI 440  Advanced Marine Platforms  3
Approved Elective (see advisor)  3

Total Credits  121

Course Sequence Guide

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**Total Credits**  120-122

1. WSI 390 Marine Tech Internship or WSI 297A Independent Study - Water Studies option to take Summer year 3 OR Spring year 4

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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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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<td>MDK 200</td>
<td>Ship Business &amp; Labor Relation</td>
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<td>MDK 221</td>
<td>Lakes Piloting (Nav II)</td>
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<td>MDK 242</td>
<td>Ship Stability</td>
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<td>MDK 404</td>
<td>Marine Supervisory Lab</td>
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<td>PHY 105</td>
<td>Physics of the World Around Us</td>
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<td>MDK 210</td>
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<td>MDK 312</td>
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<td>MDK 341</td>
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<td>MDK 324</td>
<td>Navigation III</td>
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<td>ENV 117</td>
<td>Meteorology &amp; Climatology</td>
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<td>ECO 201</td>
<td>Principles of Macroeconomics</td>
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<td><strong>Summer</strong></td>
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</tbody>
</table>

### Requirements/Certifications

- First Aid/CPR/AED
- Firefighting
- Personal Safety & Social Responsibility Training
- Completed Sea Days
- In Port Sea Days (24 required)
- MDK 100 Survival at Sea completion date

**Total Credits**: 120

---

### 1 General education classes
### 2 Sailing projects on training or commercial ships
Fourth Year

Fall

MDK 411  Marine Communications  2
MDK 431  ECDIS  3
MDK 446  Bridge Resource Management  3
MDK 448  Pilot/Mate License Prep  4

Credits  12

Spring

MDK 454  GMDSS  3
MDK 450  Vessel & Port Security Officer  2
ECO 202  Principles of Microeconomics  1  3
PHL 202  Contemporary Ethical Dilemmas  1  3
MGT 241  Principles of Management  1  3

Credits  14

Total Credits  120

1  General education classes
2  Sailing projects on training of commercial ships

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

<table>
<thead>
<tr>
<th>Course</th>
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<th>Credits</th>
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<tbody>
<tr>
<td>ENG 111</td>
<td>English Composition</td>
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<td>ENG 112</td>
<td>English Composition or ENG 220 Technical Writing</td>
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<tr>
<td>PHL 202</td>
<td>Contemporary Ethical Dilemmas</td>
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<td>Math Competency 1</td>
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<tr>
<td>CHM 101</td>
<td>Introductory Chemistry</td>
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<tr>
<td>PLS 101</td>
<td>Intro to American Politics</td>
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<td>MNG 100</td>
<td>Intro to Vessel Operations</td>
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<td>MNG 104</td>
<td>Engine Systems Graphics</td>
<td>3</td>
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<tr>
<td>MNG 105</td>
<td>Shipboard Information Systems</td>
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<tr>
<td>MNG 110</td>
<td>Engineering Mechanics</td>
<td>3</td>
</tr>
<tr>
<td>MNG 234</td>
<td>Electronic Fundamentals</td>
<td>4</td>
</tr>
<tr>
<td>MNG 250</td>
<td>Fluid Systems</td>
<td>3</td>
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<tr>
<td>MNG 260</td>
<td>Maritime Machining</td>
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<tr>
<td>MNG 271</td>
<td>Maritime Welding &amp; 271L and Maritime Welding Lab</td>
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<tr>
<td>MNG 275</td>
<td>Refrigeration</td>
<td>3</td>
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<tr>
<td>MNG 314</td>
<td>Diesel Engineering</td>
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<tr>
<td>MNG 317</td>
<td>Engineering Sea Project I</td>
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<td>MNG 319</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 466</td>
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<td>MNG 496</td>
<td>License Preparation - Engine</td>
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<tr>
<td>MNS 100</td>
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<tr>
<td>GLMA Program Electives</td>
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</table>

Total Credits  117-118

1  Placement into MTH 141 Calculus I or higher, or completion of MTH 121 College Algebra and MTH 122 Trigonometry

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.
# Course Sequence Guide

## Course Sequence Guide

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td><strong>First Year</strong></td>
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<td>MDK 100</td>
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<td>MNG 234</td>
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<td>MTH 122</td>
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### Additional Requirements/Certifications

- VPDSD
- Firefighting
- First Aid/CPR/AED
- In Port Sea Days (30 required)
- Completed Sea Days
- Personal Safety & Social Responsibility Training

### Approved Program Electives

(NMC course transfer or equivalent)

21 credit hours required

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<td>BUS 231</td>
<td>Professional Communications</td>
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<td>BUS 261</td>
<td>Business Law I</td>
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<td>CIT 210</td>
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<tr>
<td>CIT 213</td>
<td>Networking Technologies</td>
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1 General education classes
2 Sailing projects/internships

Cadets must earn a minimum of 2.0 grade in all Maritime, NMC and transfer classes (BSMT is 120 credit hours).
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 - Power Systems, Bachelor of Science

Great Lakes Maritime Academy

NMC Code 860

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

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EN 111</td>
<td>English Composition</td>
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<tr>
<td>EN 220</td>
<td>Technical Writing</td>
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<td>Any Group 1 Humanities Course</td>
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<td>CHM 101</td>
<td>Introductory Chemistry</td>
<td>4</td>
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<td>Any Group 1 Social Science Course</td>
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Occupational Specialty Requirements

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<td>DD 110</td>
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<td>EET 221</td>
<td>Industrial Controls</td>
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</tr>
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<td>EET 232</td>
<td>Programmable Logic Controllers</td>
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<tr>
<td>MGT 241</td>
<td>Principles of Management</td>
<td>3</td>
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<td>MNG 104</td>
<td>Engine Systems Graphics</td>
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<td>MNG 105</td>
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<td>Engineering Mechanics</td>
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<td>MNG 234</td>
<td>Electronic Fundamentals</td>
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<td>Course</td>
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<tr>
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<td>MNG 270</td>
<td>Issues in Power Production</td>
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<td>Refrigeration</td>
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<tr>
<td>MNG 322</td>
<td>Marine Turbines</td>
<td>2.5</td>
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<tr>
<td>MNG 323</td>
<td>Marine Steam Lab</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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<tr>
<td>Internship I</td>
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<tr>
<td>Internship II</td>
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<tr>
<td>Internship III</td>
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<tr>
<td>GLMA Program Electives</td>
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<td>30</td>
</tr>
<tr>
<td>Total Credits</td>
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<td>120</td>
</tr>
</tbody>
</table>

1 Placement into MTH 141 Calculus I or higher, or completion of MTH 121 College Algebra and MTH 122 Trigonometry.

## Course Sequence Guide

### Year 1

#### Pre-Fall

- MDK 100 Survival at Sea ¹  
- MNG 100 Intro to Vessel Operations ¹  

#### Fall

- MNG 104 Engine Systems Graphics  
- MNG 105 Shipboard Information Systems  
- ENG 111 English Composition  
- MTH 121 College Algebra  

#### Spring

- MTH 122 Trigonometry  
- MNG 234 Electronic Fundamentals  
- MNG 314 Diesel Engineering  
- ENG 220 Technical Writing ²  

### Summer

- MNG 318 Engineering Sea Project II (Internship)  

#### Credits

- 1
- 2
- 14

### Year 2

#### Fall

- MNG 250 Fluid Systems  
- MNG 260 Maritime Machining  
- MNG 335 Electric Machines and Controls  
- MNG 336 Electric Mach. & Controls Lab  
- CHM 101 Introductory Chemistry  

#### Spring

- MNG 105 Shipboard Information Systems  
- EET 221 Industrial Controls  

#### Credits

- 15

### Year 3

#### Fall

- MNG 271 Maritime Welding  
- MNG 321 Marine Boilers  
- MNG 322 Marine Turbines  
- MNG 323 Marine Steam Lab  

#### Summer

- No Classes  

#### Credits

- 0

### Year 4

#### Fall

- NMC Humanities Elec (GRP 1)  
- NMC Social Science Elec (GRP 1)  
- MGT 241 Principles of Management  
- NMC Program Elective  
- NMC Program Elective  

#### Spring

- NMC Program Elective  
- NMC Program Elective  
- NMC Program Elective  
- NMC Program Elective  

#### Credits

- 15

#### Summer

- MNG 317 Engineering Sea Project I (Internship)  

#### Credits

- 3

### Total Credits

- 122

¹ Mandatory orientation also done at this time
² ENG 112 English Composition may be substituted for ENG 220 Technical Writing.

## Additional Requirements/Certifications

- First Aid/CPR/AED
- Personal Safety & Social Responsibility Training
- MDK 100 Survival at Sea completion date
- Orientation Completion Date

¹ Mandatory orientation also done at this time
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

- Engineering - Associate of Science in Engineering (p. 130)
- Plant Science - Fruit and Vegetable Crop Management, Associate in Applied Science Degree (p. 131)
- Plant Science - Landscape Management, Associate in Applied Science Degree (p. 132)
- Plant Science - Viticulture, Associate in Applied Science Degree (p. 132)

Courses

Astronomy

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, spectrophotograph, photometer and CCD camera to observe and report findings. Each session includes training in the operation of astronomical equipment. Group 2 course. Recommended Prerequisite(s): 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 Prerequisite(s): MTH 111; ENG 111/111 or ENG 111 may be taken concurrently

Corequisites: AST 109

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 Prerequisite(s): MTH 111; ENG 111/111 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 110 Essential 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 115 Cell, Plant & Ecosystem Biology
- BIO 116 Genetic, Evolution, Animal Bio

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 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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, a diversity smorgasbord, a group project on a group of microbes, and a write-up on how microbes are used in food. Laboratory work culminates with the identification of an unknown bacterial solution. Group 1 lab course. Quantitative Reasoning.  
Required Prerequisite(s): Completion of any 100-level BIO course  
Recommended Prerequisite(s): ENG 111, MTH 111

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 Prerequisite(s): Completion of any 100-level BIO course  
Recommended Prerequisite(s): 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 Prerequisite(s): 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. 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. Quantitative Reasoning.  
Required Prerequisite(s): MTH 111 and ENG 11/111 or ENG 111 both may be taken concurrently  
Recommended Prerequisite(s): CHM 101, HAH 101, and completion of any 100-level Biology course

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 Prerequisite(s): 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.  
Recommended Prerequisite(s): MTH 23  
Recommended Prerequisite(s): 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 Prerequisite(s): BIO 228, BIO 228L with grade of 2.0 or better  
Recommended Prerequisite(s): 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 Prerequisite(s): CHM 101 or CHM 150  
Recommended Prerequisite(s): 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 Prerequisite(s): 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. Students enrolling in CHM 101 who have not completed these requirements should plan on additional study time. Quantitative Reasoning.  
Required Prerequisite(s): MTH 111 with a grade of 2.0 or better  
Recommended Prerequisite(s): ENG 111; the ability to work algebraic problems involving unknown variables, fractions, percents and proportions  
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 Prerequisite(s): MTH 111 with a grade of 2.0 or better  
Recommended Prerequisite(s): 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 Prerequisite(s): MTH 111 with a grade of 2.0 or better
Recommended Prerequisite(s): 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.
Recommended Prerequisite(s): CHM 150, CHM 150L, CHM 150R; MTH 111, all with a grade of 2.0 or better

Recommended Prerequisite(s): ENG 111 with a grade of 2.0 or better
Corequisites: CHM 151L, 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 Prerequisite(s): CHM 150, CHM 150L, CHM 150R; MTH 111, all with a grade of 2.0 or better

Recommended Prerequisite(s): 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 Prerequisite(s): CHM 101 or CHM 150 and MTH 111, all with a grade of 2.0 or better

Recommended Prerequisite(s): 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, amines, alkenes, alkanes and alcohols. The laboratory portion will cover fundamental organic laboratory techniques of synthesis, separation and analysis. Group 1 lab course. Quantitative Reasoning.
Required Prerequisite(s): CHM 151, CHM 151L, CHM 151R, MTH 111, all with a grade of 2.0 or better

Recommended Prerequisite(s): 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.
Recommended Prerequisite(s): CHM 250, CHM 250L, MTH 111, all with a grade of 2.0 or better

Recommended Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): MTH 122
Recommended Prerequisite(s): 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 Prerequisite(s): MTH 141
Recommended Prerequisite(s): 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 Prerequisite(s): EGR 201

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 Prerequisite(s): EGR 201

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 Prerequisite(s): MTH 142, may be taken concurrently
Recommended Prerequisite(s): EGR 201

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 Prerequisite(s): 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 Prerequisite(s): MTH 141, ENG 111; CHM 150 may be taken concurrently
Recommended Prerequisite(s): ENG 111, MTH 142
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 Prerequisite(s): 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 Prerequisite(s): MTH 08 or equivalent
Recommended Prerequisite(s): ENG 111
Corequisites: ENV 103L

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 Prepalcozoic 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 Prerequisite(s): MTH 08 or equivalent
Recommended Prerequisite(s): ENG 111
Corequisites: ENV 104L

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 Prerequisite(s): MTH 23 or equivalent
Recommended Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): MTH 23
Recommended Prerequisite(s): 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. Co-req = ENV 117.
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.
Recommended Prerequisite(s): ENG 111
Corequisites: ENV 131L

ENV 131L - Oceanography Lab
Credit Hours: 0, Contact Hours: 0
Division: Science Math
See ENV 131 for course description.

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 Prerequisite(s): 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.

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 Prerequisite(s): Completion of any science course with laboratory and instructor permission
Recommended Prerequisite(s): 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 Prerequisite(s): MTH 23, instructor permission required
Recommended Prerequisite(s): 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 Prerequisite(s): Completion of any science course with laboratory and instructor permission
Recommended Prerequisite(s): ENG 111, MTH 23

Mathematics
Students are REQUIRED to have and learn to use a TI-84 graphing calculator for ALL math classes.

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 Prerequisite(s): 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 Prerequisite(s): A grade of 2.0 or better in MTH 23 or appropriate placement
Recommended Prerequisite(s): 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 Prerequisite(s): A grade of 2.0 or better in MTH 23 or appropriate placement  
Recommended Prerequisite(s): 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 Prerequisite(s): A grade of 2.0 or better in MTH 111 or higher (excluding MTH 120 and MTH 131) or appropriate placement  
Recommended Prerequisite(s): 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 Prerequisite(s): A grade of 2.0 or better in MTH 121 or higher (excluding MTH 131) or appropriate placement  
Recommended Prerequisite(s): 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 Prerequisite(s): A grade of 2.0 or better in MTH 111 or MTH 120 or higher or appropriate placement  
Recommended Prerequisite(s): 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 Prerequisite(s): A grade of 2.0 or better in MTH 122 or higher (excluding MTH 131) or appropriate placement  
Recommended Prerequisite(s): 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'Hopital's Rule, improper integrals, parametric equations, polar coordinates, and infinite sequences and series are also investigated. Group 1 course. Quantitative Reasoning.  
Required Prerequisite(s): A grade of 2.0 or better in MTH 141 or equivalent  
Recommended Prerequisite(s): Placement into ENG 111

MTH 241 - Calculus III  
**Credit Hours:** 5, **Contact Hours:** 5  
**Division:** Science Math  
This course is a continuation of Calculus II. The topics include differentiation and integration involving exponential, logarithmic, and inverse trigonometric functions. There is an introduction of various integration methods. L'Hopital's Rule, improper integrals, parametric equations, polar coordinates, and infinite sequences and series are also investigated. Group 1 course. Quantitative Reasoning.  
Required Prerequisite(s): A grade of 2.0 or better in MTH 142 or equivalent  
Recommended Prerequisite(s): 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 Prerequisite(s): A grade of 2.0 or better in MTH 142 or equivalent  
Recommended Prerequisite(s): 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 Prerequisite(s): MTH 23
Recommended Prerequisite(s): 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 Prerequisite(s): MTH 122
Recommended Prerequisite(s): 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 Prerequisite(s): PHY 121, PHY 121L, MTH 122
Recommended Prerequisite(s): 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 Prerequisite(s): MTH 141, may be taken concurrently
Recommended Prerequisite(s): 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 221R - Prob.& Princ. of Physics I Rec
Credit Hours: 1, Contact Hours: 2
Division: Science Math
This course is a recitation to accompany lecture 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 Prerequisite(s): PHY 221, PHY 221L, PHY 221R, MTH 141
Recommended Prerequisite(s): 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

Engineering, Associate of Science in Engineering

NMC Code 736

NMC offers an intensive Associate of Science in Engineering transfer
degree that is intended to prepare students for transfer to a four-
year engineering program. 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. Students are required to meet with an advisor for completion of this degree.

## Requirements
### MAJOR REQUIREMENTS

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Core General Education Requirements</strong></td>
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<tr>
<td><strong>Communications</strong></td>
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<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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<td><strong>Humanities</strong></td>
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<tr>
<td>Any Group 1 class from: art, history, humanities, literature, music, philosophy or second year foreign language</td>
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<tr>
<td><strong>Mathematics</strong></td>
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<tr>
<td>MTH 141</td>
<td>Calculus I</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>MTH 251</td>
<td>Differential Equations</td>
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<td><strong>Science</strong></td>
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<td>CHM 150</td>
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<td>CHM 150L</td>
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<td>CHM 150R</td>
<td>General Chemistry I, Recitatn</td>
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<td>PHY 221</td>
<td>Problems &amp; Princ.of Physics I</td>
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<td>PHY 221L</td>
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<td>PHY 222</td>
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<td>Prob./ Prin. of Physics II Lab</td>
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<tr>
<td>PHY 222R</td>
<td>Prob. &amp; Princ. of Physics II R</td>
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<tr>
<td><strong>Social Science</strong></td>
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<td>One Group 1 class from: anthropology, economics, geography, political science, psychology or sociology</td>
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<td><strong>Directed Electives</strong></td>
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<td>BIO 227</td>
<td>Human Anatomy &amp; Physiology I</td>
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<td>BIO 228</td>
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<td>CHM 151R</td>
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<td>CHM 250</td>
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<td>CHM 251</td>
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<td>CHM 251L</td>
<td>Organic Chemistry II Lab</td>
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<td>CIT 110</td>
<td>Programming Logic and Design</td>
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<td>EGR 101</td>
<td>Introduction To Engineering</td>
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<td>EGR 113</td>
<td>Engineering Graphics I</td>
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<td>EGR 131</td>
<td>Elementary Surveying</td>
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<td>EGR 201</td>
<td>Statics</td>
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<td>EGR 202</td>
<td>Mechanics of Materials</td>
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<td>EGR 203</td>
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<td>EGR 211</td>
<td>Electrical Circuits I</td>
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<td>EGR 220</td>
<td>Engineering Practice I</td>
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<td>EGR 221</td>
<td>Material Science</td>
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<td>EGR 232</td>
<td>Introductory Thermodynamics</td>
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<td>ENV 111</td>
<td>Physical Geology</td>
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<tr>
<td>ENV 111L</td>
<td>Physical Geology Lab</td>
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</tbody>
</table>

Direct Electives will be determined by the type of engineering program the student is pursuing and the university for which they are transferring. See Program advisor for Institution / Program course information.

### 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>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td><strong>General Education Requirements</strong></td>
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<td>ENG 111</td>
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<td>BUS 231</td>
<td>Professional Communications</td>
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<td>ENG 112</td>
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<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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<td>BIO 108</td>
<td>Plant Biology</td>
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<td>ECO 201</td>
<td>Principles of Macroeconomics</td>
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<td>or ECO 202</td>
<td>Principles of Microeconomics</td>
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<td><strong>NMC Occupational Specialty Requirements</strong></td>
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<td>CIT 100</td>
<td>Computers in Business-An Intro (or equivalent)</td>
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<tr>
<td>NMC directed electives</td>
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<td><strong>MSU Fruit and Vegetable Crop Management Requirements</strong></td>
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<tr>
<td>ABM 130</td>
<td>Farm Management</td>
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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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Office: LB 33J
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<td>Technical Writing</td>
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<td>Any Group 1 Humanities course</td>
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<tr>
<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>
<td>Principles of Macroeconomics</td>
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MSU Landscape Management Requirements

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<th>Course</th>
<th>Title</th>
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</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>
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</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>
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</tr>
<tr>
<td>ENT 110</td>
<td>Applied Entomology of Economic Plants</td>
<td>3</td>
</tr>
<tr>
<td>HRT 207</td>
<td>Horticulture Career Development</td>
<td>1</td>
</tr>
<tr>
<td>HRT 211</td>
<td>Landscape Plants I</td>
<td>3</td>
</tr>
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<td>HRT 212</td>
<td>Landscape Plants II</td>
<td>3</td>
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<tr>
<td>HRT 213</td>
<td>Landscape Maintenance</td>
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</tr>
<tr>
<td>HRT 218</td>
<td>Irrigation Systems for Horticulture</td>
<td>2</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 3</td>
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</table>

Total Credits 60-62

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

MSU Institute of Agricultural Technology
1701 E Front Street

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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<td>Select one of the following:</td>
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<td>BUS 231</td>
<td>Professional Communications</td>
<td>3-4</td>
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</table>
Programs

- Early Childhood Education and Care, Certificate of Achievement (Level II) and CDA Cohort (p. 141)
- Law Enforcement, Associate in Applied Science Degree (p. 143)
- Law Enforcement, Certificate of Achievement (Level II) (p. 144)

Social Science

Programs

- Early Childhood Education, Associate in Applied Science Degree (p. 143)
- Law Enforcement, Associate in Applied Science Degree (p. 143)
- Law Enforcement, Certificate of Achievement (Level II) (p. 144)
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. 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. Communications - Direct.  
Recommended Prerequisite(s): SOC 101, placement into ENG 11/110

CJ 230 - 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 Prerequisite(s): 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 Prerequisite(s): Placement into ENG 111

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 Prerequisite(s): ECE 101 or PSY 101; placement into ENG 11/110
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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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.
Recommended Prerequisite(s): 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. It is recommended that students take ECO 201 before ECO 202. Critical Thinking - Direct.
Recommended Prerequisite(s): MTH 23, placement into ENG 111

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. It is recommended that students take ECO 201 before ECO 202. Critical Thinking - Direct.
Recommended Prerequisite(s): MTH 23, placement into ENG 111

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 Prerequisite(s): 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.
Recommended Prerequisite(s): Placement into ENG 111/112

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 Prerequisite(s): 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 Prerequisite(s): MTH 23, students scoring below ENG 111 on the placement test should plan on additional study time

Corequisites: GEO 105L
GEO 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 Prerequisite(s): 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: 4, 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 Prerequisite(s): MTH 23
Recommended Prerequisite(s): 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 Prerequisite(s): 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 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.

LWE 200 - 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 Prerequisite(s): Must be approved by MCOLES and registered with the Director of the Police Academy prior to enrollment

LWE 210 - 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 Prerequisite(s): Must be approved by MCOLES and registered with the Director of the Police Academy prior to enrollment

LWE 212 - 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 Prerequisite(s): Must be approved by MCOLES and registered with the Director of the Police Academy prior to enrollment

LWE 214 - 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 constitute 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 Prerequisite(s): 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 Prerequisite(s): Must be approved by MCOLES and registered with the Director of the Police Academy prior to enrollment

Recommended Prerequisite(s): LWE 226

LWE 228 - Speed Measurement
Credit Hours: 3, Contact Hours: 3
Division: Social Science
This course will teach the legal and practical aspects of radar and basic traffic crash investigations. Class discussions will include the relationship between excessive speed and motor vehicle traffic crashes. The course will also explore policies and procedures regarding radar use. Students will understand and demonstrate basic accident investigation knowledge and related evidence collection skills. Must register with the LWE coordinator prior to course enrollment. Group 2 course. Critical Thinking - Direct.
Required Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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. Recommended Prerequisite(s): PLS 101 or PLS 211.

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 vs. 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 Prerequisite(s): Placement into ENG 111.

PLS 223 - 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. Recommended competencies: Placement into MTH 23 and ENG 111/111, Communications - Direct, Critical Thinking - Direct. Recommended Prerequisite(s): PLS 101 or PLS 211.

PLS 290A - Academic Service/Internship  
Credit Hours: 1-4, Contact Hours: 1-4  
Division: Social Science  

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 Prerequisite(s): 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 Prerequisite(s): PSY 101.

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. Recommended Prerequisite(s): 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 Prerequisite(s): PSY 101 or SOC 101.

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 Prerequisite(s): Placement into ENG 111/11.

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 Prerequisite(s): 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 Prerequisite(s): PSY 101.

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 Prerequisite(s): Placement into ENG 111/11.

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Recommended Prerequisite(s): Placement into ENG 111.
Recommended Prerequisite(s): Placement into ENG 111

**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 Prerequisite(s): 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. 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. Communications - Direct, Critical Thinking - Direct, Degree Req:Cultural Persp/Div, Infused: Writing Intensive.
Recommended Prerequisite(s): SOC 101 strongly recommended, Students need college-ready study, reading and writing skills for this course

**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, Degree Req:Cultural Persp/Div, Infused: Writing Intensive.
Recommended Prerequisite(s): 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 Prerequisite(s): SOC 101, placement into ENG 111/11

**SOC 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 Prerequisite(s): Placement into ENG 111/11

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Credit Hours: 3, Contact Hours: 3
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Recommended Prerequisite(s): 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 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 Prerequisite(s): SWK 121, SWK 170, completion of ENG 111/11 or placement into ENG 111

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 Prerequisite(s): SWK 121, SWK 170

Recommended Prerequisite(s): 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 Prerequisite(s): SWK 121, SWK 170

Recommended Prerequisite(s): SWK 211

SWK 290A - Academic Service/Internship
Credit Hours: 1-4, Contact Hours: 1-4
Division: Social Science

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 TEACH 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>
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<tbody>
<tr>
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<td>ECE 203</td>
<td>Curriculum for Child Guidance</td>
<td>4</td>
</tr>
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<td>ECE 204</td>
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<td>4</td>
</tr>
<tr>
<td>ECE 206</td>
<td>Infant Toddler Care Curriculum</td>
<td>4</td>
</tr>
<tr>
<td>ECE 220</td>
<td>Early Education Administration</td>
<td>3</td>
</tr>
<tr>
<td>ECE 230</td>
<td>Early Literacy and Learning</td>
<td>3</td>
</tr>
<tr>
<td>ECE 240</td>
<td>Integrated Arts in Curriculum</td>
<td>3</td>
</tr>
<tr>
<td>EDU 212</td>
<td>Educating Exceptional Children</td>
<td>3</td>
</tr>
<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>Math competency</td>
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<td></td>
</tr>
</tbody>
</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.

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

Course Sequence Guide

CDA Cohort

<table>
<thead>
<tr>
<th>Year 1</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fall</strong></td>
<td></td>
<td></td>
</tr>
<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>
<tr>
<td><strong>Total Credits</strong></td>
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<td>9</td>
</tr>
</tbody>
</table>

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>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fall</strong></td>
<td></td>
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</tr>
<tr>
<td>ECE 101</td>
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<td>3</td>
</tr>
<tr>
<td>EDU 212</td>
<td>Educating Exceptional Children</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total Credits</strong></td>
<td></td>
<td>18</td>
</tr>
</tbody>
</table>

| **Spring**   |                                     |         |
| ECE 203      | Curriculum for Child Guidance        | 4       |
| ECE 206      | Infant Toddler Care Curriculum       | 4       |
| ECE 230      | Early Literacy and Learning          | 3       |
| ECE 240      | Integrated Arts in Curriculum        | 3       |
| **Total Credits** |                                 | 14      |

| **Summer**  |                                     |         |
| PSY 101     | Introduction to Psychology           | 3       |
| ENG 111     | English Composition                  | 4       |
| MTH 23      | Beginning Algebra (or placement into MTH 111) | 4 |
| **Total Credits** |                                 | 7       |

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>
</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 210</td>
<td>Children's Literature</td>
<td>3</td>
</tr>
<tr>
<td>Math Competency 1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Any Group 1 Science course with a lab</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>PSY 101</td>
<td>Introduction to Psychology</td>
<td>3</td>
</tr>
</tbody>
</table>

Occupational Specialty Requirements

<table>
<thead>
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</tr>
<tr>
<td>SOC 211</td>
<td>Marriage and the Family</td>
<td>3</td>
</tr>
<tr>
<td>SOC 101</td>
<td>Introduction to Sociology</td>
<td>3</td>
</tr>
<tr>
<td>General Elective 3</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>MTH 23 or placement in MTH 111 or higher</td>
<td>4</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 60

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

2 Meets Cultural Diversity requirement.

3 COM 111 Public Speaking is suggested course for transfer to Ferris BS ECE. Students may also take ECE 290 A, B, or C at any time for more practicum hours, and earn 1-3 credits.

Course Sequence Guide

Year 1

Fall

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<td>SOC 101</td>
<td>Introduction to Sociology</td>
<td>3</td>
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Credits 15

Spring

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<td>Introduction to Psychology</td>
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</tr>
<tr>
<td>ENG 112</td>
<td>English Composition</td>
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</tbody>
</table>

Credits 15

Year 2

Fall

<table>
<thead>
<tr>
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<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECE 204</td>
<td>Early Childhood Curriculum</td>
<td>4</td>
</tr>
<tr>
<td>ECE 220</td>
<td>Early Education Administration</td>
<td>3</td>
</tr>
<tr>
<td>ENG 210</td>
<td>Children's Literature</td>
<td>3</td>
</tr>
<tr>
<td>Group 1 Science w/ lab</td>
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Credits 14

Spring

<table>
<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
<td>ECE 230</td>
<td>Early Literacy and Learning</td>
<td>3</td>
</tr>
<tr>
<td>EDU 212</td>
<td>Educating Exceptional Children</td>
<td>3</td>
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<td>ECE 240</td>
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<td>Marriage and the Family</td>
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</tr>
<tr>
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<td>3</td>
</tr>
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<td>MTH 23 or placement in MTH 111 or higher</td>
<td>4</td>
<td></td>
</tr>
</tbody>
</table>

Credits 16

Total Credits 60

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 Director 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</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 201</td>
<td>Ethics</td>
<td>3</td>
</tr>
<tr>
<td>or PHL 202</td>
<td>Contemporary Ethical Dilemmas</td>
<td></td>
</tr>
<tr>
<td>Math Competency</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PLS 101</td>
<td>Intro to American Politics</td>
<td>3</td>
</tr>
<tr>
<td>or PLS 132</td>
<td>Comparative Politics</td>
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</table>

### General Education Requirements

<table>
<thead>
<tr>
<th>Course</th>
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<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENG 220</td>
<td>Technical Writing</td>
<td>3</td>
</tr>
<tr>
<td>or PHL 202</td>
<td>Contemporary Ethical Dilemmas</td>
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</table>

### Core Requirements

<table>
<thead>
<tr>
<th>Course</th>
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<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CJ 101</td>
<td>Intro to Criminal Justice</td>
<td>4</td>
</tr>
<tr>
<td>PSY 101</td>
<td>Introduction to Psychology</td>
<td>3</td>
</tr>
<tr>
<td>PSY 250</td>
<td>Abnormal Psychology</td>
<td>3</td>
</tr>
<tr>
<td>or SOC 231</td>
<td>Deviance and Criminal Behavior</td>
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</tr>
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</table>

### Occupational Specialty Requirements

<table>
<thead>
<tr>
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<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HAH 200</td>
<td>Emergency Assess.&amp; Interventio</td>
<td>3</td>
</tr>
<tr>
<td>LWE 102</td>
<td>Police Operations</td>
<td>4</td>
</tr>
<tr>
<td>LWE 210</td>
<td>Cultural Awareness/Diversity</td>
<td>2</td>
</tr>
<tr>
<td>LWE 212</td>
<td>Criminal Investigation</td>
<td>3</td>
</tr>
<tr>
<td>LWE 214</td>
<td>Firearms</td>
<td>4</td>
</tr>
<tr>
<td>LWE 215</td>
<td>Defensive Driving</td>
<td>3</td>
</tr>
<tr>
<td>LWE 216</td>
<td>Traffic Enforcement &amp; Invest</td>
<td>3</td>
</tr>
<tr>
<td>LWE 218</td>
<td>Physical Training/Wellness</td>
<td>4</td>
</tr>
<tr>
<td>LWE 225</td>
<td>Defensive Tactics</td>
<td>4</td>
</tr>
<tr>
<td>LWE 226</td>
<td>Michigan Criminal Law</td>
<td>3</td>
</tr>
<tr>
<td>LWE 227</td>
<td>Criminal Procedures</td>
<td>3</td>
</tr>
<tr>
<td>LWE 228</td>
<td>Speed Measurement</td>
<td>3</td>
</tr>
<tr>
<td>UAS 131</td>
<td>UAS in Law Enforcement</td>
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</tr>
<tr>
<td>LWE 195</td>
<td>Police Practicum</td>
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</table>

### Recommended Course

- LWE 195 Police Practicum

### Total Credits

<table>
<thead>
<tr>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>70</td>
</tr>
</tbody>
</table>

1. Placement into MTH 111 Intermediate Algebra or higher, or completion of MTH 23 Beginning Algebra with a 2.0 or better.
2. Recommended for students with no police field experience.

## Course Sequence Guide

### Year 1

#### Fall

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MTH 23</td>
<td>Beginning Algebra</td>
<td>4</td>
</tr>
<tr>
<td>ENG 111</td>
<td>English Composition</td>
<td>4</td>
</tr>
<tr>
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</tr>
<tr>
<td>CJ 101</td>
<td>Intro to Criminal Justice</td>
<td>4</td>
</tr>
</tbody>
</table>

### Year 2

#### Fall

- Students must take MCOLES Physical Fitness and Reading/Writing tests before 2nd year classes.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>LWE 102</td>
<td>Police Operations</td>
<td>4</td>
</tr>
<tr>
<td>LWE 210</td>
<td>Cultural Awareness/Diversity</td>
<td>2</td>
</tr>
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<td>HAH 200</td>
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</table>

#### Spring

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>LWE 212</td>
<td>Criminal Investigation</td>
<td>3</td>
</tr>
<tr>
<td>LWE 215</td>
<td>Defensive Driving</td>
<td>3</td>
</tr>
<tr>
<td>LWE 216</td>
<td>Traffic Enforcement &amp; Invest</td>
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</table>

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<tr>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>70</td>
</tr>
</tbody>
</table>

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 g(bheffner@nmc.edu)kurowski@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 an 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.

Requirements

Certificate of Achievement

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</tr>
<tr>
<td></td>
<td><strong>Total Credits</strong></td>
<td>40</td>
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</table>

Note: A 2.0 grade or higher is required in LWE Courses.

Course Sequence Guide

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<tr>
<td></td>
<td><strong>Credits</strong></td>
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<td>Spring</td>
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<tr>
<td>LWE 212</td>
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<td><strong>Total Credits</strong></td>
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</table>

Total Credits: 40

Technical Programs

- Automotive - Automotive Service Technology, Associate in Applied Science Degree (p. 155)
- Automotive - Electrical & Drivability Specialist, Certificate of Achievement (Level II) (p. 156)
- Automotive - Hybrid Technology Specialist, Certificate of Achievement (Level II) (p. 156)
- Automotive - Master Automotive Technician, Certificate of Achievement (Level III) (p. 157)
- Automotive - Under Car Specialist, Certificate of Achievement (Level II) (p. 158)
- Construction Technology - Carpentry Technology, Certificate of Achievement (Level I) (p. 158)
- Construction Technology - Carpentry Technology, Certificate of Achievement (Level II) (p. 159)
- Construction Technology - Construction Management, Associate in Applied Science Degree (p. 159)
- Construction Technology - Electrical Technology, Certificate of Achievement (Level II) (p. 160)
- Construction Technology - Electrical, Associate in Applied Science Degree (p. 161)
- Construction Technology - Facilities Maintenance, Certificate of Achievement (Level II) (p. 163)
Courses

Automotive Technology

AT 100 - Automotive Service Basics
Credit Hours: 3, Contact Hours: 4
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. 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. Recommended Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): AT 130

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 Prerequisite(s): AT 120

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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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.  
Required Prerequisite(s): 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 be introduced to the construction industry, building materials, safety, hand and power tools, print reading, construction math, communication and employability skills. Group 2 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, and placement into ENG 11/111 or higher, or co-enrollment in the recommended English course.  
Required Prerequisite(s): CAR 100, may be taken concurrently

Recommended Prerequisite(s): Placement into MTH 23 or higher, or co-enrollment in the recommended developmental math 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 Prerequisite(s): Students will greatly benefit from having competency up to MTH 111

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 Prerequisite(s): 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 Prerequisite(s): CAR 102
Recommended Prerequisite(s): 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 Prerequisite(s): 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. Placement into ENG 11/111 or higher, or co-enrollment in the recommended English course.
Recommended Prerequisite(s): Placement into MTH 23 or co-enrollment in the recommended developmental math 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. Placement into ENG 11/111 or Co-enrollment in the recommended English Course.
Recommended Prerequisite(s): Placement in MTH 23 or co-enrollment in the recommended developmental Math 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 2D CAD software. 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 Prerequisite(s): 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 Prerequisite(s): 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. As part of this course, students will earn a CSWA Certified Solidworks Associate certification. Group 2 course. Critical Thinking - Direct.
Recommended Prerequisite(s): Placement into MTH 23 and ENG 99/108
**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.  
Required Prerequisite(s): 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. As part of this course, students will earn pre-licensure for the Residential Builders/ Maintenance & Alteration Contractors Examination. Group 2 course.  
Critical Thinking - Direct.  
Recommended Prerequisite(s): Students have completed or are 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 Prerequisite(s): CAR 103, CMT 107, MTH 111 or higher, CIT 100

**Recommended Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): MTH 23 or higher

**EET 180 - 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 Prerequisite(s): MTH 23 or higher

**EET 190 - Biomedical Equipment I**  
**Credit Hours: 3, Contact Hours: 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 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 Prerequisite(s): EET 190, HAH 101

**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 Prerequisite(s): 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. Required Prerequisite(s): 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 Prerequisite(s): EET 103 or ELE 105 or MNG 234 or MNG 235

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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): EET 102, EET 103, RAM 155

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 Prerequisite(s): EET 180

EET 290 - Biomedical Equipment Technology
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 Prerequisite(s): EET 180

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 Prerequisite(s): 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 Prerequisite(s): 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 will be 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.  
Required Prerequisite(s): CAR 100, may be taken concurrently

Recommended Prerequisite(s): 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 Prerequisite(s): HVA 101, may be taken concurrently

Recommended Prerequisite(s): 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 Prerequisite(s): HVA 101

Recommended Prerequisite(s): 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 Prerequisite(s): HVA 122 - may be taken concurrently

Recommended Prerequisite(s): 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 Prerequisite(s): HVA 126 with a grade of 2.5 or higher

Recommended Prerequisite(s): 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 their 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 Prerequisite(s): HVA 126 - may be taken concurrently

Recommended Prerequisite(s): Placement in ENG 111 and MTH 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. As part of this course, students will earn an IFPS Connector and Conductor certification. Group 2 course. Critical Thinking - Direct, Quantitative Reasoning.  
Recommended Prerequisite(s): 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. Students will greatly benefit from having competency up to MTH 111. Critical Thinking - Direct.  
Recommended Prerequisite(s): Print reading, precision measurement, basic machining knowledge and skills, competencies in Communications equal to ENG99 and math equal to MTH23.

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 Prerequisite(s): MFG 113 or MNG 260 Students will greatly benefit from having competency up to MTH 111.

Recommended Prerequisite(s): Print reading, precision measurement, basic machining knowledge and skills, competencies in Communications equal to ENG 99/108 and Math equal to MTH 23.

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 Prerequisite(s): 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 Prerequisite(s): MFG 113.

Recommended Prerequisite(s): 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 Prerequisite(s): 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.  
Required Prerequisite(s): 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. As part of this course, students will earn an IFPS Hydraulic Specialist certification. Group 2 course. Critical Thinking - Direct.  
Required Prerequisite(s): MFG 104, MTH 111 or higher, PHY 121.

**Plumbing**

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 Prerequisite(s): Placement into MTH 23 and ENG 11/111 or co-enrollment in the recommended developmental Math and English course.

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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): EGY 115, may be taken concurrently
Recommended Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): ELE 105
Recommended Prerequisite(s): 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 Prerequisite(s): PLU 121
Recommended Prerequisite(s): 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.
Recommended Prerequisite(s): HVA 105

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.
Recommended Prerequisite(s): 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. As part of this course, students will earn the PCEP - Certified Entry-Level Python Programmer certificate. Group 2 course. Critical Thinking - Direct.
Required Prerequisite(s): EET 103, 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 Prerequisite(s): 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 Prerequisite(s): WPT 111 and WPT 112  
Corequisites: WPT 113  

**WPT 161 - Welding Qualification Prep**  
Credit Hours: 3, Contact Hours: 4  
Division: Technical  
Students will learn performance qualification according to American Welding Society (AWS) standards. As part of this course, students may earn various qualifications according to AWS standards adhering to D1.1 (steel) and D1.2 (aluminium) covering multiple processes. Group 2 course. Prerequisites: None. 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): WPT 211  

**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 Prerequisite(s): WPT 211  
Recommended Prerequisite(s): 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. Critical Thinking - Direct.  
Required Prerequisite(s): 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. Communications - Direct.

Required Prerequisite(s): 30 credits of program specific courses with a GPA of 3.0 or higher

Automotive - Automotive Service Technology, Associate in Applied Science Degree
NMC Code 560
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 certificates: 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

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<tr>
<td>AT 120</td>
<td>Automotive Electrical I (Fall only)</td>
<td>5</td>
</tr>
<tr>
<td>AT 180</td>
<td>Manual Drivetrain and Axles (Fall only)</td>
<td>6</td>
</tr>
<tr>
<td>AT 110</td>
<td>Automotive Brake Systems (Spring only)</td>
<td>5</td>
</tr>
<tr>
<td>AT 170</td>
<td>Heating and Air Conditioning (Spring only)</td>
<td>4</td>
</tr>
<tr>
<td>AT 220</td>
<td>Automotive Electrical II (Spring only)</td>
<td>5</td>
</tr>
</tbody>
</table>

Total Credits 75-76

1. Placement into MTH 111 Intermediate Algebra or higher, or completion of MTH 23 Beginning Algebra with a 2.0 or higher.
2. May be waived with appropriate work experience or education.

All eight state or ASE certifications must be passed to be awarded the AAS degree or Master Technician Certificate.

Course Sequence Guide

Year 1
Fall
ENG 111    English Composition       4
AT 100     Automotive Service Basics 1 | 3
AT 120     Automotive Electrical I (Fall only) | 5
AT 180     Manual Drivetrain and Axles (Fall only) | 6

Credits 18

Spring
Select one of the following: 3-4
ENG 112    English Composition
ENG 220    Technical Writing
BUS 231    Professional Communications
AT 110     Automotive Brake Systems (Spring only) | 5
AT 170     Heating and Air Conditioning (Spring only) | 4
AT 220     Automotive Electrical II (Spring only) | 5

Credits 17-18

Summer
Any Group 1 Humanities course | 3
Any Group 1 Social Sciences course | 3

Credits 6

Year 2
Fall
Any Group 1 Science course with a lab | 4
AT 130     Engine Performance I (Fall only) | 5
AT 140     Suspension and Steering (Fall only) | 4
AT 160     Engine Repair (Fall only) | 6

Credits 19

Spring
AT 150     Automatic Transmissions (Spring only) | 6
AT 210     Hybrid Technology (Spring only) | 5
Automotive - Electrical & Drivability Specialist, Certificate of Achievement (Level II)

NMC Code 031

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>3</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 160</td>
<td>Engine Repair</td>
<td>6</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>
</tr>
<tr>
<td>Elective course(s)</td>
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</table>

Total Credits 33

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>Year 1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fall</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AT 100</td>
<td>Automotive Service Basics 1</td>
<td>3</td>
</tr>
<tr>
<td>AT 120</td>
<td>Automotive Electrical I (Fall only)</td>
<td>5</td>
</tr>
<tr>
<td>Credits</td>
<td></td>
<td>8</td>
</tr>
<tr>
<td>Spring</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>
</tr>
<tr>
<td>Credits</td>
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<tr>
<td>Year 2</td>
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<tr>
<td>Fall</td>
<td></td>
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</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>Credits</td>
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<td>11</td>
</tr>
<tr>
<td>Spring</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AT 230</td>
<td>Engine Performance II (Spring only)</td>
<td>4</td>
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<tr>
<td>Approved Automotive Elective</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>Credits</td>
<td></td>
<td>6</td>
</tr>
</tbody>
</table>

Total Credits 33

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</td>
<td>3</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 4-6</td>
<td>4-6</td>
</tr>
<tr>
<td>or AT 230</td>
<td>Engine Performance II</td>
<td>4-6</td>
</tr>
<tr>
<td>AT 160</td>
<td>Engine Repair</td>
<td>6</td>
</tr>
</tbody>
</table>
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>Year 1</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall</td>
<td>AT 100 Automotive Service Basics</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>AT 120 Automotive Electrical I (Fall only)</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td><strong>Credits</strong></td>
<td><strong>8</strong></td>
</tr>
<tr>
<td>Spring</td>
<td>AT 220 Automotive Electrical II (Spring only)</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td><strong>Credits</strong></td>
<td><strong>5</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Year 2</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall</td>
<td>AT 130 Engine Performance I (Fall only)</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>AT 160 Engine Repair (Fall only)</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td><strong>Credits</strong></td>
<td><strong>11</strong></td>
</tr>
<tr>
<td>Spring</td>
<td>AT 230 Engine Performance II (Spring only) or AT 150 Automatic Transmissions</td>
<td>4-6</td>
</tr>
<tr>
<td></td>
<td>AT 210 Hybrid Technology (Spring only)</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td><strong>Credits</strong></td>
<td><strong>9-11</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Total Credits</strong></td>
<td><strong>33-35</strong></td>
</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 - 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>3</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>6</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 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></td>
<td><strong>Total Credits</strong></td>
<td><strong>58</strong></td>
</tr>
</tbody>
</table>

1 May be waived with appropriate work experience or education.

Must pass all eight (8) State or ASE certification tests to be awarded this certificate.

Course Sequence Guide

<table>
<thead>
<tr>
<th>Year 1</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall</td>
<td>AT 100 Automotive Service Basics</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>AT 120 Automotive Electrical I (Fall only)</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>AT 180 Manual Drivetrain and Axles (Fall only)</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td><strong>Credits</strong></td>
<td><strong>14</strong></td>
</tr>
<tr>
<td>Spring</td>
<td>AT 110 Automotive Brake Systems (Spring only)</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>AT 170 Heating and Air Conditioning (Spring only)</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>AT 220 Automotive Electrical II (Spring only)</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td><strong>Credits</strong></td>
<td><strong>14</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Year 2</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall</td>
<td>AT 130 Engine Performance I (Fall only)</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>AT 140 Suspension and Steering (Fall only)</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>AT 160 Engine Repair (Fall only)</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td><strong>Credits</strong></td>
<td><strong>15</strong></td>
</tr>
<tr>
<td>Spring</td>
<td>AT 150 Automatic Transmissions (Spring only)</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>AT 210 Hybrid Technology (Spring only)</td>
<td>5</td>
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</tbody>
</table>
Automotive - Under Car Specialist, Certificate of Achievement (Level II)

NMC Code 032

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>
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<td>Automotive Brake Systems</td>
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<td>AT 120</td>
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</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 180</td>
<td>Manual Drivetrain and Axles</td>
<td>6</td>
</tr>
<tr>
<td>Elective course</td>
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<td>4</td>
</tr>
<tr>
<td>Total Credits</td>
<td></td>
<td>33</td>
</tr>
</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

Year 1
Fall
<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>3</td>
</tr>
<tr>
<td>AT 120</td>
<td>Automotive Electrical I</td>
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</tr>
<tr>
<td>AT 180</td>
<td>Manual Drivetrain and Axles</td>
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<tr>
<td>Total Credits</td>
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<td>14</td>
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Spring
<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AT 110</td>
<td>Automotive Brake Systems</td>
<td>5</td>
</tr>
<tr>
<td>AT 150</td>
<td>Automatic Transmissions</td>
<td>6</td>
</tr>
<tr>
<td>Total Credits</td>
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<td>11</td>
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</table>

Year 2
Fall
<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AT 140</td>
<td>Suspension and Steering</td>
<td>4</td>
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<td>Approved Automotive Elective</td>
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<td>4</td>
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<tr>
<td>Total Credits</td>
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<td>8</td>
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</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.

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.

Within this degree students will have the opportunity to earn the following: Residential Builder and Remodelers License.

Requirements

Certificate Requirements

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAR 100</td>
<td>Introductory Craft Skills</td>
<td>2</td>
</tr>
<tr>
<td>CAR 101</td>
<td>Introduction to Carpentry</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>
<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>
<td></td>
</tr>
<tr>
<td>EGY 105</td>
<td>Sustainable Building Design</td>
<td>3</td>
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<tr>
<td>Total Credits</td>
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<td>27-28</td>
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</tbody>
</table>
Course Sequence Guide

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year 1</td>
<td></td>
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</tr>
<tr>
<td>Fall</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CAR 100</td>
<td>Introductory Craft Skills</td>
<td>2</td>
</tr>
<tr>
<td>CAR 101</td>
<td>Introduction to Carpentry (Fall only)</td>
<td>3</td>
</tr>
<tr>
<td>CAR 103</td>
<td>Construction Blueprint Reading (Fall only)</td>
<td>3</td>
</tr>
<tr>
<td>CAR 105</td>
<td>Foundations and Framing (Fall only)</td>
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</tr>
<tr>
<td>EGY 105</td>
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<td>3</td>
</tr>
<tr>
<td>Credits</td>
<td></td>
<td>14</td>
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<tr>
<td>Spring</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MTH 111</td>
<td>Intermediate Algebra</td>
<td>3-4</td>
</tr>
<tr>
<td>or MTH 120</td>
<td>or Mathematical Explorations</td>
<td></td>
</tr>
<tr>
<td>CAR 121</td>
<td>Exterior Construction (Spring only)</td>
<td>3</td>
</tr>
<tr>
<td>CAR 125</td>
<td>Interior Construction (Spring only)</td>
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<tr>
<td>CMT 107</td>
<td>Construction Supervision (Spring only)</td>
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<td>Credits</td>
<td></td>
<td>13-14</td>
</tr>
<tr>
<td>Total Credits</td>
<td></td>
<td>27-28</td>
</tr>
</tbody>
</table>

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.

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 knowledgeabley 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.

Within this degree students will have the opportunity to earn the following: Residential Builder and Remodelers License.

Requirements

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<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level I Certificate Requirements</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Complete the Level I Certificate Requirements</td>
<td></td>
<td>27-28</td>
</tr>
<tr>
<td>Level II Certificate Requirements</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CAR 102</td>
<td>Intro to Woodworking</td>
<td>3</td>
</tr>
<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>
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<tr>
<td>EGY 115</td>
<td>Residential Energy Efficiency</td>
<td>3</td>
</tr>
<tr>
<td>Total Credits</td>
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<td>42-43</td>
</tr>
</tbody>
</table>

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.

Within this degree students will have the opportunity to earn the following: Residential Builder and Remodelers License.
Requirements

Construction Technology - Electrical Technology, Certificate of Achievement (Level II)

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>BUS 231</td>
<td>Professional Communications</td>
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<tr>
<td>Any Group 1 Humanities course</td>
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<tr>
<td>PHY 105</td>
<td>Physics of the World Around Us</td>
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<td>ECO 201</td>
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<tr>
<td>CIT 100</td>
<td>Computers in Business-An Intro</td>
<td>3</td>
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<tr>
<td>CMT 107</td>
<td>Construction Supervision</td>
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<tr>
<td>COM 111</td>
<td>Public Speaking</td>
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<td>MGT 241</td>
<td>Principles of Management</td>
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<td>MKT 201</td>
<td>Principles of Marketing</td>
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Construction Technology Certificate

Completion of any Construction Technology Certificate 18-24 credits

Total Credits 55-61

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.

Course Sequence Guide

<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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Spring

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<tr>
<td>BUS 231</td>
<td>Professional Communications</td>
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<tr>
<td>CMT 107</td>
<td>Construction Supervision (Spring only)</td>
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<tr>
<td>Credits Towards Completion of: Construction Technology Certificate</td>
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Year 2

Fall

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<td>Physics of the World Around Us</td>
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<tr>
<td>ECO 201</td>
<td>Principles of Macroeconomics</td>
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<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 (Fall only)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Credits</td>
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</tr>
</tbody>
</table>

Notes:

- 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.

Within this degree you will have the opportunity to earn the following: Electrical Journeyman's License.
## Requirements

### Certificate Requirements

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>MTH 111</td>
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<tr>
<td>or MTH 120</td>
<td>Mathematical Explorations</td>
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<tr>
<td>CAR 100</td>
<td>Introductory Craft Skills</td>
<td>2</td>
</tr>
<tr>
<td>ELE 101</td>
<td>Introduction to Electrical</td>
<td>3</td>
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<tr>
<td>ELE 105</td>
<td>Beg Residential Electrical</td>
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<tr>
<td>ELE 110</td>
<td>Electrical Code Studies I</td>
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<tr>
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<td>ELE 121</td>
<td>Adv Residential Electrical</td>
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<td>ELE 125</td>
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<td>ELE 131</td>
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<td>ELE 135</td>
<td>Adv Commercial Electrical</td>
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<td>ELE 142</td>
<td>Industrial Electrical</td>
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<td>ELE 146</td>
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### Course Sequence Guide

**Year 1**

**Fall**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
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<tr>
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**Spring**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
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<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>
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</tr>
<tr>
<td>ELE 121</td>
<td>Adv Residential Electrical</td>
<td>3</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.

Within this degree students will have the opportunity to earn the following: Electrical Journeyman's License.
## Requirements
### Major Requirements

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<td><strong>General Education Requirements</strong></td>
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<tr>
<td>BUS 231</td>
<td>Professional Communications</td>
<td>3-4</td>
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<tr>
<td>ENG 112</td>
<td>English Composition</td>
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<td>ENG 220</td>
<td>Technical Writing</td>
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<td>Any Group 1 Humanities course</td>
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<td>ENV 103</td>
<td>Earth Science</td>
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<td>ENV 117</td>
<td>Meteorology &amp; Climatology</td>
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<td>PHY 121</td>
<td>General Physics I</td>
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<td>Any Group 1 Social Sciences course</td>
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<td><strong>Occupational Specialty Requirements</strong></td>
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<td>Beg Residential Electrical</td>
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<tr>
<td>ELE 110</td>
<td>Electrical Code Studies I</td>
<td>3</td>
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<td>ELE 111</td>
<td>Electrical Code Studies II</td>
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<tr>
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<td>Adv Residential Electrical</td>
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<tr>
<td>ELE 125</td>
<td>Pre-Commercial Electrical</td>
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<tr>
<td>ELE 135</td>
<td>Adv Commercial Electrical</td>
<td>3</td>
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<td>ELE 142</td>
<td>Industrial Electrical</td>
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<td>ELE 146</td>
<td>Adv. Industrial Electrical</td>
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<td>EGY 115</td>
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1 Placement into MTH 122 Trigonometry or higher, or completion of MTH 121 College Algebra

### Approved Electives

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>CAR 101</td>
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<tr>
<td>CAR 102</td>
<td>Intro to Woodworking</td>
<td>3</td>
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<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 ¹</td>
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<tr>
<td>CMT 107</td>
<td>Construction Supervision</td>
<td>4</td>
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<tr>
<td>CMT 207</td>
<td>Construction Cost Estimating ¹</td>
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<tr>
<td>EET 103</td>
<td>Electrical Studies I ¹</td>
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<td>EET 204</td>
<td>Electrical Studies II ¹</td>
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<td>EET 221</td>
<td>Industrial Controls ¹</td>
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<td>EET 232</td>
<td>Programmable Logic Controllers ¹</td>
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<tr>
<td>EET 233</td>
<td>PLC Applications I ¹</td>
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<tr>
<td>EET 234</td>
<td>PLC Applications II ¹</td>
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<td>EGY 101</td>
<td>Principles of Renewable Energy ¹</td>
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<td>EGY 105</td>
<td>Sustainable Building Design</td>
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<tr>
<td>EGY 115</td>
<td>Residential Energy Efficiency</td>
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<tr>
<td>EGY 141</td>
<td>Solar Photovoltaic Tech ¹</td>
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</tr>
<tr>
<td>EGY 143</td>
<td>Solar Thermal Technology ¹</td>
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<tr>
<td>EGY 145</td>
<td>Geothermal Technology ¹</td>
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<td>Introduction to Electrical</td>
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</tr>
<tr>
<td>ELE 105</td>
<td>Beg Residential Electrical</td>
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</tr>
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<td>ELE 110</td>
<td>Electrical Code Studies I</td>
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<td>Adv Commercial Electrical</td>
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<tr>
<td>HVA 101</td>
<td>Introduction to HVAC/R</td>
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<td>HVA 106</td>
<td>Fundamentals of Heating</td>
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</tr>
<tr>
<td>HVA 122</td>
<td>Refrigeration Fundamentals</td>
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</tr>
<tr>
<td>HVA 126</td>
<td>Residential and Commercial A/C ³</td>
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<td>Commercial A/C &amp; Refrigeration</td>
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<td>EPA Certification</td>
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<td>PLU 105</td>
<td>Plumbing Components</td>
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<tr>
<td>PLU 121</td>
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<td>PLU 125</td>
<td>Plumbing Installation</td>
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<td>UAS 141</td>
<td>Remote Pilot Flight</td>
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<td>UAS 211</td>
<td>Commercial Drone Operations ¹</td>
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<td>UAS 241</td>
<td>Advanced Drone Operations ¹</td>
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¹ Denotes courses with required prerequisites.
### Course Sequence Guide

<table>
<thead>
<tr>
<th>Year 1</th>
<th>Fall</th>
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</thead>
<tbody>
<tr>
<td>ENG 111</td>
<td>English Composition</td>
</tr>
<tr>
<td>Social Sciences: Any Group 1 course</td>
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</tr>
<tr>
<td>ELE 101</td>
<td>Introduction to Electrical</td>
</tr>
<tr>
<td>ELE 105</td>
<td>Beg Residential Electrical</td>
</tr>
<tr>
<td>CAR 100</td>
<td>Introductory Craft Skills</td>
</tr>
<tr>
<td><strong>Credits</strong></td>
<td><strong>15</strong></td>
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<tr>
<td>Spring</td>
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<td>English Composition</td>
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<tr>
<td>ENG 220</td>
<td>Technical Writing</td>
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<tr>
<td>BUS 231</td>
<td>Professional Communications</td>
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<tr>
<td>ELE 121</td>
<td>Adv Residential Electrical</td>
</tr>
<tr>
<td>ELE 131</td>
<td>Commercial Electrical (Spring only)</td>
</tr>
<tr>
<td>EGY 115</td>
<td>Residential Energy Efficiency</td>
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<tr>
<td>PHY 121</td>
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<td>ELE 110</td>
<td>Electrical Code Studies I</td>
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<td>ELE 125</td>
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<table>
<thead>
<tr>
<th>Spring</th>
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<tbody>
<tr>
<td>ELE 111</td>
</tr>
<tr>
<td>ELE 142</td>
</tr>
<tr>
<td>ELE 146</td>
</tr>
<tr>
<td>Humanities: Any Group 1 course</td>
</tr>
<tr>
<td>Approved Construction Technology Elective</td>
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<tr>
<td><strong>Credits</strong></td>
</tr>
</tbody>
</table>

| **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.

### Construction Technology - Facilities Maintenance, Certificate of Achievement (Level II)

**NMC Code 063**

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

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
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</tr>
</thead>
<tbody>
<tr>
<td>CAR 100</td>
<td>Introductory Craft Skills</td>
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<tr>
<td>CAR 101</td>
<td>Introduction to Carpentry</td>
<td>3</td>
</tr>
<tr>
<td>CAR 105</td>
<td>Foundations and Framing</td>
<td>3</td>
</tr>
<tr>
<td>ELE 101</td>
<td>Introduction to Electrical</td>
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<td>Intermediate Algebra</td>
<td>3-4</td>
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<tr>
<td>or MTH 120</td>
<td>Mathematical Explorations</td>
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</tr>
<tr>
<td>PLU 101</td>
<td>Introduction to Plumbing</td>
<td>3</td>
</tr>
<tr>
<td>PLU 105</td>
<td>Plumbing Components</td>
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| **Total Credits** | **35-36** |

#### Approved Electives

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Construction Technology - HVAC/R Technology, Certificate of Achievement (Level I)

**Course Title**

- **ELE 142**: Industrial Electrical
- **ELE 146**: Adv. Industrial Electrical
- **HVA 101**: Introduction to HVAC/R
- **HVA 106**: Fundamentals of Heating
- **HVA 122**: Refrigeration Fundamentals
- **HVA 126**: Residential and Commercial A/C
- **HVA 132**: Commercial A/C & Refrigeration
- **HVA 136**: EPA Certification
- **PLU 101**: Introduction to Plumbing
- **PLU 105**: Plumbing Components
- **PLU 121**: Commercial Plumbing
- **PLU 125**: Plumbing Installation
- **UAS 141**: Remote Pilot Flight
- **UAS 211**: Commercial Drone Operations
- **UAS 241**: Advanced Drone Operations

1 Denotes courses with required prerequisites.

**Course Sequence Guide**

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<thead>
<tr>
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<td><strong>Fall</strong></td>
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<td>HVA 106</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.

**Requirements**

**Certificate Requirements**

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**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.

Within this degree students will have the opportunity to earn the following: Mechanical Contractor License and EPA Certification.
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.

Within this degree students will have the opportunity to earn the following: Mechanical Contractor License and EPA Certification.

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<td>ENG 220</td>
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<td>Meteorology &amp; Climatology</td>
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<td>PHY 121</td>
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<td>ENV 103</td>
<td>Earth Science</td>
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<tr>
<td>Any Group 1 Social Sciences course</td>
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| **Occupational Specialty Requirements** | | |
| CAR 100 | Introductory Craft Skills | 2 |
| ELE 105 | Beg Residential Electrical | 3 |
| ELE 142 | Industrial Electrical | 3 |
| ELE 146 | Adv. Industrial Electrical | 3 |
| EGY 145 | Geothermal Technology | 3 |
| HVA 101 | Introduction to HVAC/R | 3 |
| HVA 106 | Fundamentals of Heating | 3 |
| HVA 122 | Refrigeration Fundamentals | 3 |
| HVA 126 | Residential and Commercial A/C | 3 |
| HVA 132 | Commercial A/C & Refrigeration | 3 |
| HVA 136 | EPA Certification | 3 |
| PLU 101 | Introduction to Plumbing | 3 |
| PLU 105 | Plumbing Components | 3 |
Construction Technology - Renewable Energy Technology - Electrical, Certificate of Achievement (Level II)

PLU 121 Commercial Plumbing 3

Total Credits 62-63

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

Course Title Credits

Year 1

Fall

ENG 111 English Composition 4
Social Science: Any Group 1 course 3
PLU 101 Introduction to Plumbing 3
HVA 101 Introduction to HVAC/R 3
CAR 100 Introductory Craft Skills 2

Credits 15

Spring

Select one of the following: 3-4

ENG 112 English Composition
ENG 220 Technical Writing
BUS 231 Professional Communications
ELE 105 Beg Residential Electrical 3
PLU 105 Plumbing Components (Spring only) 3
HVA 106 Fundamentals of Heating 3
HVA 122 Refrigeration Fundamentals 3

Credits 15-16

Year 2

Fall

EGY 145 Geothermal Technology (Fall only) 3
PLU 121 Commercial Plumbing 3
ELE 142 Industrial Electrical 3
ELE 146 Adv. Industrial Electrical 3
HVA 126 Residential and Commercial A/C 3

Credits 15

Spring

MTH 111 Intermediate Algebra 3-4

Total Credits 29-30

Note: CAR 110 and CAR 140 are additional courses offered for those seeking National Electrical Code references to daily work or those who would like structured study preparation for the Journeyman or Master Electrician License Exam.

Approved Electives

Course Title Credits

CAR 101 Introduction to Carpentry 3
CAR 102 Intro to Woodworking 3
CAR 103 Construction Blueprint Reading 3
CAR 105 Foundations and Framing 3
CAR 121 Exterior Construction 3
CAR 125 Interior Construction 3
CMT 107 Construction Supervision 4
CMT 207 Construction Cost Estimating 3
EET 103 Electrical Studies I 3
EET 204 Electrical Studies II 3
EET 221 Industrial Controls 3
EET 232 Programmable Logic Controllers 3
EET 233 PLC Applications I 3
EET 234 PLC Applications II 3

The responsibility for determining the transferability of this degree and courses to another institution is the sole responsibility of the student.
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| **Spring** |                                     |         |
| ELE 121   | Adv Residential Electrical          | 3       |
| ELE 131   | Commercial Electrical               | 3       |
|          | **Approved Construction Technology Elective** | 3       |
|          | **Credits**                         | **9**   |

| **Year 2** |                                     |         |
| **Fall**   |                                     |         |
| EGY 101   | Principles of Renewable Energy      | 3       |
| (OR) Approved Construction Technology Elective |         |
| EGY 105   | Sustainable Building Design         | 3       |

### Credits

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### Construction Technology - Renewable Energy Technology - HVAC/R, Certificate of Achievement (Level II)

**NMC Code 066**

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.

Within this degree students will have the opportunity to earn the following: Mechanical Contractor License.

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<td>UAS 241</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.

**Course Sequence Guide**

### Year 1

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<th>Course</th>
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<tr>
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<tr>
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<td>HVA 101</td>
<td>Introduction to HVAC/R</td>
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<tr>
<td>EGY 115</td>
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<td>Spring</td>
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<td>MTH 111</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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### Year 2

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| Total Credits: 35-36

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.

NMC has created a unique training center that specializes Biomedical Technology. This specialty offers an in-depth knowledge of the high technology equipment used in hospitals, clinics, and medical facilities. Biomedical technicians work on a variety of equipment, from manual blood pressure units to computer networking to radiology modalities. Technicians go almost everywhere in the hospital environment and are involved in patient care, both directly and indirectly.

### Areas of Emphasis:

- Electronics
- Medical Terminology
- Networking Technologies
- Biomedical Equipment

Within this degree students will have the opportunity to earn the following: CSWA Certified Solidworks Associate, ISPS Connector and Conductor, and PCEP- Certified Entry-Level Python Programmer.

### Requirements

#### Major Requirements

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<thead>
<tr>
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<td>EET 103</td>
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</table>

**Course Sequence Guide**

**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

**Credits**  17

- PHL 105  Critical Thinking  3
- CIT 213  Networking Technologies  4
- EET 190  Biomedical Internship  1
- EET 281  Biomedical Equipment II (Spring only)  3
- EET 260  System Engineering in Practice (Spring only)  3

**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 computer technology specialization offers a hybrid curriculum consisting of the engineering technology core (electronics, fluid power, and CADD) and a broad computer technologies experience in programming and applications. This approach provides students with the technical core to be successful in diverse environments that require IT skills integrated around a manufacturing process or product development.

**Areas of Emphasis:**

- Programming Logic & Design
- Application Development
- HTML5 & CSS Programming
- Relational Databases
- JavaScript Programming
- Object-Oriented Programming

Within this degree students will have the opportunity to earn the following: CSWA Certified Solidworks Associate, ISPS Connector and Conductor, and PCEP- Certified Entry-Level Python Programmer.
Requirements

Major Requirements

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<td>System Engineering in Practice</td>
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<td>CIT 110</td>
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<td>Relational Databases</td>
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<td>CIT 213</td>
<td>Networking Technologies</td>
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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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<thead>
<tr>
<th>Year 1</th>
<th>Course</th>
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<th>Credits</th>
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<tr>
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<td>RAM 155</td>
<td>Microcontroller Programming</td>
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<td>CIT 110</td>
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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       |
|        | CIT 213| Networking Technologies        | 4       |
|        |        | Credits                        | 15-16   |

| Spring | PHL 105| Critical Thinking              | 3       |
|        | EET 260| System Engineering in Practice | 3       |
|        | DD 170 | CADD/Computer Modeling         | 4       |
|        | CIT 240| Network Security Management    | 3       |
|        | Approved Technical elective (see advisor) | 3 |
|        |        | Credits                        | 16      |

| 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.

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 electronics technology specializations provides students with a customizable pathway consisting of a strong electronics, lasers, and controls foundation. Additional courses are then selected in programmable logic controllers (PLCs), advanced photonics, or other technical content. This prepares the learner for a career in electrical systems, mechatronics, photonics, and more.

Areas of Emphasis:
Within this degree students will have the opportunity to earn the following: CSWA Certified Solidworks Associate, ISPS Connector and Conductor, and PCEP Certified Entry-Level Python Programmer.

Requirements
Major Requirements

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
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Technical Specialty Requirements

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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

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Year 2

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Credit: 13-14

Spring

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Approved Technical Elective: 3

Credit: 16

Total Credits: 61-62

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Engineering Technology - General, Associate in Applied Science Degree

NMC Code 556

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 Engineering Technology General degree is designed to allow students to choose courses of interest from the below specializations:

- Biomedical Technician
- Computer Technology
- Electronics Technology
- Robotics & Automation Technology
- Unmanned Aerial Systems (UAS) Technology
- Marine (ROV) Technology

Within this degree students will have the opportunity to earn the following: CSWA Certified Solidworks Associate, ISPS Connector and Conductor, and PCEP- Certified Entry-Level Python Programmer.

**Requirements**

**Major Requirements**

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**General Technology**

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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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**Course Sequence Guide**

**Year 1**

**Fall**

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<td>EET 102</td>
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<td>EET 103</td>
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<td>MFG 104</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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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.*

**Year 2**

**Fall**

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Select at least 8 credits from any of the specializations listed 8

**Total Credits** 13-14
Engineering Technology - Marine Technology, Associate of Applied Science

NMC Code 541

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.

Marine Technology provides a background in applied fundamentals including engineering technology, GIS, data processing, and underwater acoustics. Includes practical laboratory experiences in onshore, nearshore, and offshore areas of the Great Lakes.

Within this degree students will have the opportunity to earn the following: CSWA Certified Solidworks Associate, ISPS Connector and Conductor, and PCEP-Certified Entry-Level Python Programmer.

Requirements

Major Requirements

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<tr>
<th>Course</th>
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<tr>
<td>BUS 231</td>
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<tr>
<td>PHL 105</td>
<td>Critical Thinking</td>
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<td>or PHL 203</td>
<td>Environmental Ethics</td>
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<td>Math Competency</td>
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<td>PHY 105</td>
<td>Physics of the World Around Us</td>
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Technical Specialty Requirements

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Marine Technology

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<td>ENV 131</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 16

Spring

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Select one of the following: 4

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<td>PHY 105</td>
<td>Physics of the World Around Us</td>
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<tr>
<td>PHY 121</td>
<td>General Physics I</td>
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Credits 13-14
Summer
WSI 200  GL Research Technologies (Summer only)  3

Year 2
Fall
MTH 121  College Algebra  4
MFG 104  Fluid Power  3
GEO 115  Introduction to GIS  3
WSI 210  Underwater Acoustics and Sonar (Fall only)  3
WSI 240  ROV Systems and Operations (Fall only)  3

Spring
PHL 105  Critical Thinking  3
or PHL 203  or Environmental Ethics  3
EET 260  System Engineering in Practice (Spring only)  3
ENV 131  Oceanography  4
WSI 215  Marine GIS & Data Processing (Spring only)  3

Course Sequence Guide

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Total Credits 61-62

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)

NMC Code 076

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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Course Title Credits

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.

NMC has created a unique training center that specializes in robotics and automation. This specialization prepares student for careers in the fast-paced world of manufacturing, automation, and control systems. These control systems are present in everything from high-tech manufacturing and robotic processes to amusement park rides.

Areas of Emphasis:

- Microcontroller Programming
- Microcontroller Systems
- Programmable Logic Controllers
- Manufacturing Engineering Process
Within this degree students will have the opportunity to earn the following: CSWA Certified Solidworks Associate, ISPS Connector and Conductor, and PCEP- Certified Entry-Level Python Programmer.

Requirements

Major Requirements

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Within this degree students will have the opportunity to earn the following: CSWA Certified Solidworks Associate, ISPS Connector and Conductor, and PCEP- Certified Entry-Level Python Programmer.

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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.

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<td>Electrical Studies I</td>
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Requirements

Major Requirements

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<thead>
<tr>
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<tr>
<td>ENG 111</td>
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<td>English Composition</td>
<td>3-4</td>
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<td>ENG 220</td>
<td>Technical Writing</td>
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<td>BUS 231</td>
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<tr>
<td>BIO 106</td>
<td>Human Biology</td>
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<tr>
<td>ENV 117</td>
<td>Meteorology &amp; Climatology</td>
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<tr>
<td>PHY 105</td>
<td>Physics of the World Around Us</td>
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<tr>
<td>PHY 121</td>
<td>General Physics I</td>
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<tr>
<td>GEO 115</td>
<td>Introduction to GIS</td>
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<tr>
<td>DD 170</td>
<td>CADD/Computer Modeling</td>
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<td>EET 204</td>
<td>Electrical Studies II</td>
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<tr>
<td>EET 221</td>
<td>Industrial Controls</td>
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<tr>
<td>EET 232</td>
<td>Programmable Logic Controllers</td>
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<td>EET 233</td>
<td>PLC Applications I</td>
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<td>System Engineering in Practice</td>
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<td>Manuf/Engineering Processes</td>
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<td>Total Credits</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.

Engineering Technology - Unmanned Aerial Systems Technology, Associate of Applied Science

NMC Code 542

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.

NMC has created a unique training center that specializes in Unmanned Aerial System (UAS) operations. More commonly called drones, unmanned aircraft represent a sector of aviation that is experiencing
exponential growth. NMC is here to provide college students, enthusiasts, and professionals the training they need to begin operating in the UAS industry. The Federal Aviation Administration (FAA) has selected NMC’s UAS training program for the Unmanned Aircraft Systems-Collegiate Training Program, or the UAS-CTI.

Areas of Emphasis:

• Earn an FAA Commercial Drone Pilot certification
• Hands-on flight training from entry level to advanced commercial-grade aircraft systems
• Learn about the aircraft systems and different camera/sensor technology
• Train for a variety of UAS of specializations, such as aerial photography, agriculture, inspections and land survey
• Learning how to be marketable to the UAS industry

Within this degree students will have the opportunity to earn the following: Part 107 Remote Pilot Certification, CSWA Certified Solidworks Associate, ISPS Connector and Conductor, and PCEP- Certified Entry-Level Python Programmer.

**Requirements**

**Major Requirements**

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<thead>
<tr>
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<th>Title</th>
<th>Credits</th>
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<td>ENV 117</td>
<td>Meteorology &amp; Climatology</td>
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<tr>
<td>PHY 105</td>
<td>Physics of the World Around Us</td>
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</tr>
<tr>
<td>PHY 121</td>
<td>General Physics I</td>
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**Technical Specialty Requirements**

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<tr>
<td>DD 170</td>
<td>CADD/Computer Modeling</td>
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<td>EET 102</td>
<td>Intro to Engineering Tech</td>
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<td>EET 103</td>
<td>Electrical Studies I</td>
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<tr>
<td>MFG 104</td>
<td>Fluid Power</td>
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</tr>
<tr>
<td>RAM 155</td>
<td>Microcontroller Programming</td>
<td>3</td>
</tr>
<tr>
<td>RAM 205</td>
<td>Microcontroller Systems</td>
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**Unmanned Aerial Systems (UAS) Technology**

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<td>UAS 107</td>
<td>Remote Pilot Ground</td>
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<td>UAS 141</td>
<td>Remote Pilot Flight</td>
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<tr>
<td>UAS 211</td>
<td>Commercial Drone Operations</td>
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<td>UAS 241</td>
<td>Advanced Drone Operations</td>
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<tr>
<td>WSI 300</td>
<td>Remote Sensing and Sensors</td>
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<td>Select one of the following:</td>
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<tr>
<td>UAS 220</td>
<td>UAS Projects and Maintenance</td>
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<td>EET 260</td>
<td>System Engineering in Practice</td>
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Select one of the following Electives: 3-5

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<td>EET 290</td>
<td>Engineering Tech Internship</td>
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<td>SVR 110</td>
<td>Fundamentals of Surveying</td>
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<td>UAS 255</td>
<td>UAS Safety Management</td>
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<td>UAS 260</td>
<td>Aerosonde UAS Ground Training</td>
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<tr>
<td>UAS 261</td>
<td>Aerosonde UAS Flight Training</td>
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**Total Credits** 60-63

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**

<table>
<thead>
<tr>
<th>Year 1</th>
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<tr>
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<td></td>
<td>EET 102 Intro to Engineering Tech</td>
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<td>EET 103 Electrical Studies I</td>
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<tr>
<td></td>
<td>RAM 155 Microcontroller Programming</td>
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<td>UAS 141 Remote Pilot Flight</td>
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<td>Spring</td>
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<td>ENG 112 English Composition</td>
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<td>ENG 220 Technical Writing</td>
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<td></td>
<td>BUS 231 Professional Communications</td>
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<td>RAM 205 Microcontroller Systems</td>
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<td></td>
<td>DD 170 CADD/Computer Modeling</td>
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<td>UAS 107 Remote Pilot Ground</td>
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<td>Summer</td>
<td>UAS 211 Commercial Drone Operations</td>
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<td>GEO 115 Introduction to GIS</td>
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<td>Fall</td>
<td>MTH 121 College Algebra</td>
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<td>MFG 104 Fluid Power</td>
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<td>UAS 241 Advanced Drone Operations</td>
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<td>WSI 300 Remote Sensing and Sensors (Fall only)</td>
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<td></td>
<td><strong>Credits</strong></td>
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<tr>
<td>Spring</td>
<td>PHL 105 Critical Thinking</td>
<td>3</td>
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<td>Select one of the following: 4</td>
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<tr>
<td></td>
<td>BIO 106 Human Biology</td>
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<td>ENV 117 Meteorology &amp; Climatology</td>
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<tr>
<td>EET 260</td>
<td>System Engineering in Practice (Spring only)</td>
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<tr>
<td>UAS 220</td>
<td>UAS Projects and Maintenance</td>
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Approved Technical Elective  

<table>
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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.

**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.

**Requirements**

**Major Requirements**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
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<tbody>
<tr>
<td>ENG 111</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>
<td></td>
</tr>
<tr>
<td>ENG 220</td>
<td>Technical Writing</td>
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<tr>
<td>PHL 105</td>
<td>Critical Thinking</td>
<td>3</td>
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<tr>
<td>PHL 202</td>
<td>Contemporary Ethical Dilemmas</td>
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<tr>
<td>PHL 203</td>
<td>Environmental Ethics</td>
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<tr>
<td>MTH 111 Intermediate Algebra or MTH 23 Beginning Algebra with a 2.0 minimum GPA</td>
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**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**

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<td>BUS 101</td>
<td>Introduction to Business</td>
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<tr>
<td>BUS 261</td>
<td>Business Law I</td>
<td>3</td>
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<tr>
<td>or MGT 241 Principles of Management</td>
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<tr>
<td>ECO 201</td>
<td>Principles of Macroeconomics</td>
<td>3</td>
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<tr>
<td>or ECO 202 Principles of Microeconomics</td>
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<tr>
<td>MGT 245</td>
<td>Principles of Entrepreneurship</td>
<td>3</td>
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<tr>
<td>MTH 131</td>
<td>Intro to Prob &amp; Stats</td>
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**Global Freshwater Policy and Sustainability - NMC Code 491**

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<td>GEO 109</td>
<td>World Regional Geography</td>
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<td>MTH 131</td>
<td>Intro to Prob &amp; Stats</td>
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<tr>
<td>SPN 202</td>
<td>Intermediate Spanish II</td>
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**Science and Technology - NMC Code 493**

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<td>Cell, Plant &amp; Ecosystem Biology</td>
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<td>BIO 116</td>
<td>Genetic, Evolution, Animal Bio</td>
<td>4</td>
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<tr>
<td>CHM 150</td>
<td>General Chemistry I</td>
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<td>PHY 121</td>
<td>General Physics I</td>
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**General - NMC Code 490**

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<tr>
<td>ANT 113</td>
<td>Intro to Cultural Anthropology</td>
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<td>Cell, Plant &amp; Ecosystem Biology</td>
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<td>BIO 116</td>
<td>Genetic, Evolution, Animal Bio</td>
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<td>CHM 150</td>
<td>General Chemistry I</td>
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<td>ECO 202</td>
<td>Principles of Microeconomics</td>
<td>3</td>
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<tr>
<td>MTH 121</td>
<td>College Algebra</td>
<td>4</td>
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<tr>
<td>MTH 131</td>
<td>Intro to Prob &amp; Stats</td>
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### Additional Elective Options

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<td>ASL 102</td>
<td>American Sign Language II</td>
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<td>ASL 103</td>
<td>American Sign Language III</td>
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<td>FRN 101</td>
<td>Elementary French I</td>
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<td>FRN 102</td>
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<td>FRN 201</td>
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<td>World Cultures</td>
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<td>MTH 122</td>
<td>Trigonometry</td>
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<td>PLS 211</td>
<td>International Relations</td>
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<td>SPN 101</td>
<td>Elementary Spanish I</td>
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<tr>
<td>SPN 102</td>
<td>Elementary Spanish II</td>
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</tr>
<tr>
<td>SPN 201</td>
<td>Intermediate Spanish I</td>
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<td>WSI 200</td>
<td>GL Research Technologies</td>
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<td>WSI 210</td>
<td>Underwater Acoustics and Sonar</td>
<td>3</td>
</tr>
<tr>
<td>WSI 215</td>
<td>Marine GIS &amp; Data Processing</td>
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</tr>
<tr>
<td>WSI 240</td>
<td>ROV Systems and Operations</td>
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</table>

Please consult an NMC Freshwater Studies program advisor for scheduling guidelines.

### Minimum Program Requirements 60

### Course Sequence Guide

#### Year 1

**Fall**
- ENG 111 English Composition 4
- WSI 105 Intro to Freshwater Studies 3
- ENV 140 Watershed Science 4

**Approved Elective**
- Math Competency 1

**Spring**
- Select one of the following: 3-4
  - BUS 231 Professional Communications
  - ENG 112 English Composition
  - ENV 220 Technical Writing
  - ENV 131 Oceanography 4
  - GEO 115 Introduction to GIS 3

**Approved Elective**
- Credits 3

**Fall**
- ENV 117 Meteorology & Climatology 4
- WSI 230 Water Policy & Sustainability 3

**Approved Elective**
- Credits 9

**Spring**
- Select one of the following: 3
  - PHL 105 Critical Thinking
  - PHL 202 Contemporary Ethical Dilemmas

### Requirements

#### Major Requirements

**General Education Requirements**

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Select one of the following: 3-4

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<td>ENG 112</td>
<td>English Composition</td>
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<th>Credits</th>
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<tbody>
<tr>
<td>ENV 131</td>
<td>Oceanography</td>
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</tr>
</tbody>
</table>

**Any Group 1 Humanities course** 3

**Math Competency 2**

**Any Group 1 Science lecture/lab course** 4

**Any Group 1 Social Science course** 3

#### Occupational Specialty Requirements

Complete any combination of the Occupational Specialty Requirements to equal 39 credits

**Electives**

Select any courses from Group 1 and/or Group 2 4-9

**Total Credits** 60-66

1 Students intending to transfer to another college or university should take ENG 112 English Composition.
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>
<th>Credits</th>
</tr>
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<tbody>
<tr>
<td>DD 101</td>
<td>Print Reading and Sketching</td>
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<tr>
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<td>DD 160</td>
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<tr>
<td>DD 170</td>
<td>CADD/Computer Modeling</td>
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<td>MFG 104</td>
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<tr>
<td>MFG 111</td>
<td>Math for Manufacturing</td>
<td>3</td>
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<td>MFG 113</td>
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<tr>
<td>MFG 114</td>
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<td>MFG 203</td>
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<td>MFG 217</td>
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<tr>
<td>MFG 219</td>
<td>CNC Mill Operations</td>
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<tr>
<td>MFG 290</td>
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<tr>
<td>ELE 101</td>
<td>Introduction to Electrical</td>
<td>3</td>
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<tr>
<td>ELE 105</td>
<td>Beg Residential Electrical</td>
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<tr>
<td>EET 102</td>
<td>Intro to Engineering Tech</td>
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<tr>
<td>EET 161</td>
<td>Fundamentals of Light &amp; Lasers</td>
<td>4</td>
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<tr>
<td>EET 204</td>
<td>Electrical Studies II</td>
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<tr>
<td>EET 221</td>
<td>Industrial Controls</td>
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<td>WPT 213</td>
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<tr>
<td>WPT 260</td>
<td>Intro to Welding Automation</td>
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</tbody>
</table>

Total Credits: 98

## Course Sequence Guide

### Year 1

#### Fall

Occupational Specialty Requirements: 18 Credits

#### Spring

Occupational Specialty Requirements: 18 Credits

### Year 2

#### Fall

ENG 111 English Composition: 4 Credits

MTH 23 Beginning Algebra: 4 Credits

Humanities: Any Group 1 course: 3 Credits

### Social Sciences: Any Group 1 course: 3 Credits

### Spring

Select one of the following: 3-4 Credits

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

Science: Any Group 1 course with a lab: 4 Credits

Electives: Any Group 1 and/or Group 2: 4 Credits

### Occupational Specialty Requirements: 3 Credits

Total Credits: 14-15

### Total Credits: 64-65

**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>
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<tr>
<td>WPT 260</td>
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</tbody>
</table>

Total Credits: 39

### 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>
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<th>Credits</th>
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<td><strong>General Education Requirements</strong></td>
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<tr>
<td>PHL 105</td>
<td>Critical Thinking</td>
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<td>Environmental Ethics</td>
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<td>Physics of the World Around Us</td>
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<td>GEO 115</td>
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<td><strong>Occupational Specialty Requirements</strong></td>
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<td>MTH 121</td>
<td>Intro to Prob &amp; Stats</td>
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<td>UAS 211</td>
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<td>SVR 110</td>
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<td>SVR 120</td>
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<tr>
<td>SVR 150</td>
<td>Construction Survey App</td>
<td>5</td>
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<td>SVR 160</td>
<td>Surveying Calculations</td>
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<td>SVR 210</td>
<td>Surveying Positioning</td>
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<td>WSI 200</td>
<td>GL Research Technologies</td>
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<td>WSI 300</td>
<td>Remote Sensing and Sensors</td>
<td>3</td>
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<td>Approved Elective</td>
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<td>3-4</td>
</tr>
<tr>
<td><strong>Total Credits</strong></td>
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</table>

1 Completion of MTH 121 College Algebra, or place higher into MTH 122 Trigonometry

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

### Course Sequence Guide

#### Year 1

**Fall**

<table>
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<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<td>SVR 120</td>
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#### Spring

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<tr>
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<td>MTH 121</td>
<td>College Algebra</td>
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<td>SVR 150</td>
<td>Construction Survey App (Spring only)</td>
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<tr>
<td>SVR 160</td>
<td>Surveying Calculations (Spring only)</td>
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#### Summer

<table>
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<tbody>
<tr>
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#### Year 2

**Fall**

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<td>SVR 220</td>
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#### Spring

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<tr>
<th>Course</th>
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<tr>
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#### Total Credits

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<td></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

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
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</tr>
</thead>
<tbody>
<tr>
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<tr>
<td>ENG 112</td>
<td>English Composition</td>
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<tr>
<td>or ENG 220</td>
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<td>Any Group 1 Social Sciences course</td>
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Occupational Specialty Requirements

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Total Credits 61-62

Placement into MTH 141 Calculus I or higher, or completion of MTH 122 Trigonometry with a 2.0 or higher

Course Sequence Guide

Year 1

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<td>WPT 111</td>
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| Spring   |                                            |         |
| ENG 112  | English Composition                        | 3-4     |
| or ENG 220 | Technical Writing                      |         |
| MTH 122  | Trigonometry                               | 3       |
| WPT 113  | Welding Theory II (Spring only)            | 3       |
| WPT 114  | Welding Lab II (Spring only)               | 4       |
| DD 101   | Print Reading and Sketching                | 3       |
| Credits  |                                            | 16-17   |

Summer

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Year 2

Fall

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<td>Credits</td>
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Spring

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<tr>
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</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>WPT 111</td>
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<td>WPT 112</td>
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<tr>
<td>WPT 113</td>
<td>Welding Theory II</td>
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<td>WPT 114</td>
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Course Sequence Guide

Year 1

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<tr>
<td>WPT 111</td>
<td>Welding Theory I (Fall only)</td>
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<tr>
<td>WPT 112</td>
<td>Welding Lab I (Fall only)</td>
<td>4</td>
</tr>
<tr>
<td>DD 101</td>
<td>Print Reading and Sketching</td>
<td>3</td>
</tr>
<tr>
<td>Credits</td>
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<td>16-17</td>
</tr>
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</table>
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>
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<th>Credits</th>
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<tr>
<td>DD 110</td>
<td>Basic Metallurgy</td>
<td>3</td>
</tr>
<tr>
<td>EET 103</td>
<td>Electrical Studies I</td>
<td>3</td>
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<tr>
<td>MFG 111</td>
<td>Math for Manufacturing</td>
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<td>MFG 113</td>
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**Total Credits**: 17

### Course Sequence Guide

#### Year 1

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<tr>
<td>MFG 113</td>
<td>Machining I (Fall only)</td>
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<tr>
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<td>WPT 112</td>
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**Credits**: 13

**Spring**

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<tr>
<td>EET 103</td>
<td>Electrical Studies I</td>
<td>3</td>
</tr>
<tr>
<td>DD 110</td>
<td>Basic Metallurgy (Spring only)</td>
<td>3</td>
</tr>
<tr>
<td>WPT 113</td>
<td>Welding Theory II (Spring only)</td>
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</tr>
</tbody>
</table>

The responsibility for determining the transferability of this degree and courses to another institution is the sole responsibility of the student.

### 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. 194) 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. 194).

**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. 194).

**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. 194). 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. 194).

**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. 194).

**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 - ASA**  
*NMC Code 709*

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.
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. Students are required to meet with an Advisor for completion of this degree.

**ENGINEERING - ASE**

*NMC Code 736*

NMC offers an intensive Associate of Science in Engineering transfer degree that is intended to prepare students for transfer to a four-year engineering program. 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. Students are required to meet with an advisor for completion of this degree.

**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. 194).

**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. 194). 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. 194) 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. 194).

**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 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. 194).

**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 especially 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. 194).

**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. 194).

**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.
PROGRAM INFORMATION

- General Education (p. 186)
- Degrees & Certificates (p. 186)
- Group 1 & 2 Courses (p. 187)
- Degree Requirements (p. 189)
- Course Learning Options (p. 192)
- Transfer Options (p. 182)

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:

- Each year faculty members assess student achievement of the General Education Outcomes their courses support.
- 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)
- Associate of Science in Engineering (ASE)
- 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

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
Communications

Excess credits may be applied toward Group 2 requirements.

Group 1 Courses

Excess credits may be applied toward Group 2 requirements.

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<td>ENG 112</td>
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Humanities

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<td>ART 111</td>
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<td>ART 112</td>
<td>History of Western Art II 1</td>
<td>4</td>
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<td>ART 213</td>
<td>Modern Art History</td>
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History Dept.

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<tr>
<td>HST 102</td>
<td>Western Civilization from 1500 1</td>
<td>4</td>
</tr>
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<td>HST 111</td>
<td>U.S. History to 1865 1</td>
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<td>Native American History 1</td>
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<td>African-American History 1</td>
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<td>A History of Michigan</td>
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Humanities Dept.

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<tr>
<td>HUM 101</td>
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<td>HUM 102</td>
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<td>HUM 116</td>
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Literature Dept.

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<td>ENG 240</td>
<td>Introduction to Literature</td>
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<td>ENG 241</td>
<td>World Mythology 1</td>
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Music Dept.

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Philosophy/Religion Dept.

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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 & 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 Courses

Excess credits may be applied toward Group 2 requirements.

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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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### Social Science

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<tr>
<td>ECO 201</td>
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**Psychology Dept.**

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**Sociology Dept.**

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<td>SOC 211</td>
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<td>SOC 220</td>
<td>Gender and Society 1</td>
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</tr>
<tr>
<td>SOC 231</td>
<td>Deviance and Criminal Behavior 1</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 Degree in Nursing (ADN) (p. 190)
- Associate in Applied Science Degree (AAS) (p. 190)
- Associate in General Studies Degree (AGS) (p. 189)
- Associate in Science & Arts Degree (ASA) (p. 189)
- Associate of Science in Engineering (ASE) (p. 191)
- Bachelor of Science (BS) (p. 192)

**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.

**Mathematics**

One Group 1 mathematics class 1

**Science**

Two Group 1 classes from different departments: astronomy, biology, chemistry, environmental science, physics. One class must include a lecture/lab

**Social Science**

Two Group 1 classes from different departments: anthropology, economics, geography, political science, psychology, sociology

**Electives**

A combination of credits from Group 1 or Group 2 to equal the minimum earned credits for the degree.

**Total Credits**

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

**Communications**

Two Group 1 classes from different departments: art, history, humanities, literature, music, philosophy, second-year foreign language

**Total Degree Credits: Minimum of 60 earned semester credits**

Group 1 and 2 courses (p. 187)

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.

**Communications**

<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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<th>Course</th>
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</table>
Associate in Applied Science Degree (AAS)

<table>
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</tr>
<tr>
<td>ENG 112</td>
<td>English Composition</td>
<td>3</td>
</tr>
<tr>
<td>ENG 220</td>
<td>Technical Writing</td>
<td>3</td>
</tr>
</tbody>
</table>

Humanities

Group 1 Humanities course. 3

Science

Group 1 Science lecture/lab course. 3-4

Social Science

Group 1 Social Science course. 3

Electives

Additional credit courses in the college curriculum for a combined total of no less than 60 earned semester hours. 44

Math Competency Required 1

Total Credits 60-62

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. 187)

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>
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Select one of the following: 1

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<th>Credits</th>
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<tr>
<td>BUS 231</td>
<td>Professional Communications</td>
<td>3-4</td>
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<tr>
<td>ENG 112</td>
<td>English Composition</td>
<td>3</td>
</tr>
<tr>
<td>ENG 220</td>
<td>Technical Writing</td>
<td>3</td>
</tr>
</tbody>
</table>

Humanities

Group 1 Humanities course. 1

Science

Group 1 Science lecture/lab course. 1

Social Science

Group 1 Social Science course. 1

Major Area Requirements

44 or more earned occupational specialty semester credits. 1

Math Competency Required 2

Total Credits 60-62

1 Program of Study may specify.
2 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.

Program of Study may specify a higher level of math.

Total Degree 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>
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<tbody>
<tr>
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### Communications

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<th>Title</th>
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</thead>
<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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</table>

### Humanities

<table>
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<th>Course</th>
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<th>Credits</th>
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<tr>
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### Science

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<thead>
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<th>Course</th>
<th>Title</th>
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<tbody>
<tr>
<td>BIO 227</td>
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<tr>
<td>BIO 228</td>
<td>Human Anatomy &amp; Physiology II</td>
<td>4</td>
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</tbody>
</table>

### Social Science

<table>
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<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>
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</table>

### Major Area Requirements

Semester credit hours in HNR and HAH courses 1 44
Math Competency Required 2

Total Credits 66

1 As listed in the Associate Degree in Nursing Program requirements.
2 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. 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).

### Associate of Science in Engineering (ASE)

NMC offers an intensive Associate of Science in Engineering transfer degree that is intended to prepare students for transfer to a four-year engineering program. 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. Students are required to meet with an advisor for completion of this degree.

<table>
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<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
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<tr>
<td>ENG 112</td>
<td>English Composition</td>
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### Core General Education Requirements

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### Communications

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<tr>
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<td>4</td>
</tr>
<tr>
<td>ENG 112</td>
<td>English Composition</td>
<td>4</td>
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</tbody>
</table>

### Humanities

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Humanities</td>
<td>3</td>
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</table>

Any Group 1 class from: art, history, humanities, literature, music, philosophy or second year foreign language

### Mathematics

<table>
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<td>MTH 142</td>
<td>Calculus II</td>
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<tr>
<td>MTH 241</td>
<td>Calculus III</td>
<td>5</td>
</tr>
<tr>
<td>MTH 251</td>
<td>Differential Equations</td>
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### Science

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<td>CHM 150R</td>
<td>General Chemistry I, Recitation</td>
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<td>PHY 222</td>
<td>Prob. &amp; Princ. of Physics II</td>
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<tr>
<td>PHY 222R</td>
<td>Prob. &amp; Princ. of Physics II R</td>
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### Social Science

<table>
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<th>Course</th>
<th>Title</th>
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</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Social Science</td>
<td>3</td>
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</tbody>
</table>

One Group 1 class from: anthropology, economics, geography, political science, psychology or sociology

### Directed Electives

25

Directed Electives will be determined by the type of engineering program the student is pursuing and the university to which they are transferring. See Program Advisor for course information.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>BIO 227</td>
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<td>CHM 250</td>
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<tr>
<td>EGR 211</td>
<td>Electrical Circuits I</td>
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</tbody>
</table>
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.

### Course Learning Options

#### Work-Based Learning

**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.
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- Anishinaabemowin (ANI) (p. 198)
- Anthropology (ANT) (p. 198)
- Art (ART) (p. 199)
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Aviation

<table>
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<th>Prefix</th>
<th>Academic Area</th>
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<td>Aviation Flight</td>
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<tr>
<td>AVG</td>
<td>Aviation Ground</td>
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<tr>
<td>UAS</td>
<td>Unmanned Aerial Systems</td>
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Business

<table>
<thead>
<tr>
<th>Prefix</th>
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<tbody>
<tr>
<td>ACC</td>
<td>Accounting</td>
</tr>
<tr>
<td>BUS</td>
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<tr>
<td>CIT</td>
<td>Computer Information Technology</td>
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<td>CUL</td>
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<td>MGT</td>
<td>Management</td>
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<td>MKT</td>
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Communications

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<tr>
<td>ASL</td>
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<tr>
<td>COM</td>
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<td>ENG</td>
<td>English</td>
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<td>FRN</td>
<td>World Language - French</td>
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<td>GRM</td>
<td>World Language - German</td>
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<td>SPN</td>
<td>World Language - Spanish</td>
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Construction Technology

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<td>CMT</td>
<td>Construction Management</td>
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<td>EGY</td>
<td>Renewable Energy</td>
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<td>ELE</td>
<td>Electrical Technology</td>
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<tr>
<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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<td>HAH</td>
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<tr>
<td>HDA</td>
<td>Dental Assistant</td>
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<td>HNR</td>
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<td>HPD</td>
<td>Health Professional Development</td>
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<td>SRG</td>
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Humanities

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<td>DNC</td>
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<td>VCA</td>
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<td>MNG</td>
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<td>MNS</td>
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Science and Mathematics

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<td>EGR</td>
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Social Sciences

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<tr>
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<td>CJ</td>
<td>Criminal Justice</td>
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<td>ECE</td>
<td>Early Childhood Education</td>
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<td>ECO</td>
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Technical

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<tr>
<td>DD</td>
<td>Drafting and Design</td>
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<tr>
<td>EET</td>
<td>Electronic/Electronics Technology</td>
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<td>MFG</td>
<td>Manufacturing Technology</td>
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<tr>
<td>RAM</td>
<td>Robotics and Automation</td>
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<tr>
<td>SVR</td>
<td>Surveying</td>
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<td>WPT</td>
<td>Welding Process Technology</td>
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W

- Water Studies Institute (WSI) (p. 291)
- Welding Process Technology (WPT) (p. 293)
**Water Studies**

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<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 those 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 Prerequisite(s): Placement into MTH 23 or completion of MTH 08 with a 2.0 or higher

Recommended Prerequisite(s): BUS 105

**ACC 122 - Accounting Principles II**

Credit Hours: 4, Contact Hours: 4

Division: Business


Required Prerequisite(s): ACC 121

Recommended Prerequisite(s): MTH 111

**ACC 199 - Accounting Practicum**

Credit Hours: 3, Contact Hours: 3

Division: Business

This course is a hands-on, immersive accounting experience. It is taught in a seminar format which extends and draws upon knowledge gained in previous courses. Students will utilize spreadsheet software and perform all accounting functions in Quickbooks, beginning with company set-up, processing all monthly transactions, preparing monthly financial reports, analyzing financial position and performance, developing flexible budgets and performing pro forma financial modeling. 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 Prerequisite(s): ACC 123 (or ACC 122), CIT 210 and 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. Students should also have competency in algebra at the intermediate level. Quantitative Reasoning.

Required Prerequisite(s): ACC 122 or ACC 123

Recommended Prerequisite(s): Students should possess the ability to write business communications, such as research memos and reports to management

**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. Students should also have competency in algebra at the intermediate level. Quantitative Reasoning.

Required Prerequisite(s): ACC 221

Recommended Prerequisite(s): Students should possess the ability to write business communications, such as research memos and reports to management
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 Prerequisite(s): ACC 122 or ACC 123  
Recommended Prerequisite(s): 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 Prerequisite(s): ACC 123  

ACC 241 - Principles Fraud Examination  
Credit Hours: 3, Contact Hours: 3  
Division: Business  
This course is an introduction to the field of fraud examination. Topics include types of fraud, the fraud triangle theory, fraud prevention and detection, investigation techniques, and the resolution of fraud. Students will analyze real-world cases and perform research. Group 2 course. Critical Thinking - Direct.  
Required Prerequisite(s): ACC 123 with a 2.0 or higher  
Recommended Prerequisite(s): 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. 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.  
Required Prerequisite(s): ACC 221, ACC 222, MTH 111  

Recommended Prerequisite(s): ACC 221, ACC 222

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 Prerequisite(s): Admission to ADN, PN, or LPN Completion nursing programs  
Recommended Prerequisite(s): 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. & Interventio  
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 and a certificate of completion for the Emergency Medical Responder course will be obtained by students following successful completion of the course. This is a standalone course and students that successfully complete the course will not be eligible to test with the State of Michigan or NREMT for certification at this time.
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 Prerequisite(s): 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 Prerequisite(s): ASL 101 or instructor permission

Recommended Prerequisite(s): 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 Prerequisite(s): ASL 102 or instructor permission

Recommended Prerequisite(s): 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 Prerequisite(s): ASL 103 or instructor permission

Recommended Prerequisite(s): 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. You will need a minimal ability using technology to take advantage of outside-of-class requirements. Communications - Direct, Critical Thinking - Direct, Degree Req:Cultural Persp/Div.

Recommended Prerequisite(s): You will be required to read, write, listen, and speak in Anishinaabemowin.

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. You will need a minimal ability using technology to take advantage of outside-of-class requirements. Communications - Direct, Critical Thinking - Direct, Degree Req:Cultural Persp/Div.

Required Prerequisite(s): ANI 101 with a minimum grade of 2.0 or instructor permission

Recommended Prerequisite(s): You will be required to read, write, listen, and speak in Anishinaabemowin.

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 Prerequisite(s): ENG 99 or placement into ENG 11/111
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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): ART 121
Recommended Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): ART 161

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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): ART 181

ART 191 - Sculpture I
Credit Hours: 3, Contact Hours: 4
Division: Humanities
This course is an exploration in sculpture. Students will be exposed to a variety of materials and processes through which they will learn how to speak about and render objects in 3-D. Group 2 course.
Required Prerequisite(s): ART 132 or ART 151

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 Prerequisite(s): 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 Prerequisite(s): ART 121  
Recommended Prerequisite(s): 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 Prerequisite(s): ART 221  
Recommended Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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

Astronomy (AST)

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 Prerequisite(s): 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 Prerequisite(s): MTH 111; ENG 111/111 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 Prerequisite(s): MTH 111; ENG 111/111 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
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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): AUD 100E

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 Prerequisite(s): 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 Prerequisite(s): 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.

Required Prerequisite(s): 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 a 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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.0 or higher; or instructor approval
Required Prerequisite(s): AT 220

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 Prerequisite(s): 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: 3, Contact Hours: 4
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. 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.
Recommended Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): AT 100-may be taken concurrently

AT 200 - 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 Prerequisite(s): AT 130 or Certification in Electrical and Engine Tune Up

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. Required Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): Private Pilot Rating; AVF 111 and 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 Prerequisite(s): 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 Prerequisite(s): AVF 230 - 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 Prerequisite(s): AVF 232 with a 2.0 or better

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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): AVF 234 with a 2.0 or better and instructor permission
Aviation Ground (AVG)

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 Prerequisite(s): 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 Prerequisite(s): AVF 111, may be taken concurrently

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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 current 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): AVF 111 and AVG 101 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 Prerequisite(s): 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 Prerequisite(s): AVF 230 and AVG 251, both with a 2.0 or higher GPA  

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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 117 - 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 Prerequisite(s): ENG 111, MTH 23  
Corequisites: BIO 117L  

BIO 117L - Essential Biology Lab  
Credit Hours: 0, Contact Hours: 0  
Division: Science Math  
See BIO 117 for course description.  
Corequisites: BIO 117  

BIO 118 - 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 Prerequisite(s): ENG 111, MTH 23  
Corequisites: BIO 118L  

BIO 118L - Human Biology Lab  
Credit Hours: 0, Contact Hours: 0  
Division: Science Math  
See BIO 118 for course description.  
Corequisites: BIO 118  

BIO 119 - Genetics, Evolution, Plant 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 Prerequisite(s): BIO 115, ENG 111, MTH 111  
Corequisites: BIO 119L  

BIO 119L - Genetics, Evolu, Plant Bio Lab  
Credit Hours: 0, Contact Hours: 0  
Division: Science Math  
See BIO 119 for course description.  
Corequisites: BIO 119  

BIO 120 - 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 Prerequisite(s): ENG 111, MTH 23  
Corequisites: BIO 120L  

BIO 120L - Human Biology Lab  
Credit Hours: 0, Contact Hours: 0  
Division: Science Math  
See BIO 120 for course description.  
Corequisites: BIO 120
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, a diversity smorgasbord, a group project on a group of microbes, and a write-up on how microbes are used in food. Laboratory work culminates with the identification of an unknown bacterial solution. Group 1 lab course. Quantitative Reasoning.

Required Prerequisite(s): Completion of any 100-level BIO course  
Recommended Prerequisite(s): ENG 111, MTH 111

Corequisites: BIO 208L

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 Prerequisite(s): ENG 111, MTH 111, and completion of any 100-level BIO course

Corequisites: BIO 227L

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. 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. Quantitative Reasoning.

Required Prerequisite(s): MTH 111 and ENG 111/111 or ENG 111 both may be taken concurrently

Recommended Prerequisite(s): CHM 101, HAH 101, and completion of any 100-level Biology course

Corequisites: BIO 227L

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 Prerequisite(s): 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 Prerequisite(s):** MTH 23  
**Recommended Prerequisite(s):** 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 Prerequisite(s):** BIO 228, BIO 228L with grade of 2.0 or better  
**Recommended Prerequisite(s):** BIO 227, BIO 227L, ENG 111, MTH 23

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 Prerequisite(s):** CHM 101 or CHM 150  
**Recommended Prerequisite(s):** 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.  
**Critical Thinking - Direct.**  
**Required Prerequisite(s):** BIO 110 and BIO 110L, or BIO 115 and BIO 115L, or BIO 116 and BIO 116L

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**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 Prerequisite(s):** 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 Prerequisite(s):** 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 Prerequisite(s):** 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. 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 Prerequisite(s):** 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 Prerequisite(s):** 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): BUS 251E

BUS 251 - 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 Prerequisite(s): ENG 111 minimum placement

BUS 261 - Business Law II
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 Prerequisite(s): 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 Experential Learning Coordinator as needed throughout the semester for internship support, feedback, review of professional employment documents and an internship exit interview. Group 2 course.
Required Prerequisite(s): 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 Prerequisite(s): ACC 121, or ACC 122, or ACC 123, or BUS 231, or MGT 241, or MGT 251, or MKT 201

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.

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., and placement into ENG 11/111 or higher, or co-enrollment in the recommended English course.
Required Prerequisite(s): CAR 100, may be taken concurrently

Recommended Prerequisite(s): Placement into MTH 23 or higher, or co-enrollment in the recommended developmental math 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): CAR 102
Recommended Prerequisite(s): 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 Prerequisite(s): Placement in MTH 23 or co-enrollment in the recommended developmental Math course, placement into ENG 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. Placement into ENG 111/111 or co-enrollment in the recommended English course.
Recommended Prerequisite(s): Placement into MTH 23 or higher, or co-enrollment in the recommended developmental math 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. Placement into ENG 111 or Co-enrollment in the recommended English course.
Recommended Prerequisite(s): Placement in MTH 23 or co-enrollment in the recommended developmental Math 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. Students enrolling in CHM 101 who have not completed these requirements should plan on additional study time. Quantitative Reasoning.
Required Prerequisite(s): MTH 111 with a grade of 2.0 or better
Recommended Prerequisite(s): ENG 111; the ability to work algebraic problems involving unknown variables, fractions, percents and proportions
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 Prerequisite(s): MTH 111 with a grade of 2.0 or better
Recommended Prerequisite(s): 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 Prerequisite(s): MTH 111 with a grade of 2.0 or better
Recommended Prerequisite(s): ENG 111 with a grade of 2.0 or better, MTH 121
Corequisites: CHM 150L, CHM 150R

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 Prerequisite(s): CHM 150, CHM 150L, CHM 150R; MTH 111, all with a grade of 2.0 or better
Recommended Prerequisite(s): 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 Prerequisite(s): CHM 150, CHM 150L, CHM 150R; MTH 111, all with a grade of 2.0 or better
Recommended Prerequisite(s): 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 Prerequisite(s): CHM 101 or CHM 150 and MTH 111, all with a grade of 2.0 or better
Recommended Prerequisite(s): 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 Prerequisite(s): CHM 151, CHM 151L, CHM 151R, MTH 111, all with a grade of 2.0 or better
Recommended Prerequisite(s): 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, 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 Prerequisite(s): CHM 250, CHM 250L, MTH 111, all with a grade of 2.0 or better  
Recommended Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): College level reading and writing skills  

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 Conditional, 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 scripts that will be reusable, scalable, and efficient for interfacing with systems using user input and system information. The course focuses primarily on using Python as a scripting language. Group 2 Course.  
Required Prerequisite(s): 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 122A - 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 135 - Introduction to Programming Using Python
Credit Hours: 3, Contact Hours: 4
Division: Business
This course is an introduction to programming using the Python language and intended for students without prior programming experience. Python is an interpreted language with a rich programming environment, and while easy for beginners to learn, is widely used in many areas including the web, data analysis and application development. Through online coding exercises and engaging projects students will explore good coding practices, simple design pattern, data types, control structures, decisions and conditionals, collections, methods, functions, classes and File I/O. Group 2 course.
Recommended Prerequisite(s): Basic file management skills

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 Prerequisite(s): 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 Prerequisite(s): 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: basic switch and router configurations, OSI and TCP/IP models, IPv4 and IPv6 routing, and network security fundamentals. 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 Prerequisite(s): 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, VLAN 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 Prerequisite(s): 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 Certiport Information Technology Specialist - Database 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 Certiport Information Technology Specialist - 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 Certiport Information Technology Specialist - JavaScript learning objectives, and students enrolled in this course will take the certification exam. Group 2 course. Critical Thinking - Direct.  
Required Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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.  
Required Prerequisite(s): CIT 213 or instructor permission

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. Group 2 course. Critical Thinking - Direct.  
Required Prerequisite(s): 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.  
Recommended Prerequisite(s): 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 Prerequisite(s): CIT 190 with a grade of 2.0 or higher, CIT 195 with a grade of 2.0 or higher

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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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. Group 2 course. Critical Thinking - Direct.  
Required Prerequisite(s): 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. Group 2 course. Critical Thinking - Direct.  
Required Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): CIT 240, or instructor permission  
Recommended Prerequisite(s): 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 Prerequisite(s): CIT 240, or instructor permission

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 Prerequisite(s): CIT 263, CIT 264

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 Prerequisite(s): CIT 255 with a grade of 2.0 or higher  
Recommended Prerequisite(s): CIT 228
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. As part of this course, students will earn pre-licensure for the Residential Builders/Maintenance & Alteration Contractors Examination. Group 2 course. Critical Thinking - Direct.
Recommended Prerequisite(s): Students have completed 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 Prerequisite(s): CAR 103, CMT 107, MTH 111 or higher, CIT 100
Recommended Prerequisite(s): 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 Prerequisite(s): 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.
Recommended Prerequisite(s): Placement into ENG 111

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. 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. Communications - Direct.
Recommended Prerequisite(s): SOC 101, placement into ENG 11/111

Construction Management (CMT)

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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 27-30 hours in the Administrative Support Specialist Certificate and instructor permission
**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 Prerequisite(s): 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 Prerequisite(s): Placement into ENG 111

**CJ 290A - Academic Service/Internship**  
**Credit Hours:** 1-4, **Contact Hours:** 1-4  
**Division:** Social Science  
Students may use this internship experience to gain exposure to 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. **Contact Hours:** 2

**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 rigors 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 Prerequisite(s): Placement into MTH 08 or higher and 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 will have the opportunity to earn an American Red Cross certificate in adult CPR. 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 Prerequisite(s): Placement into ENG 111/11 or higher and MTH 23 or higher; CUL 110 may be taken concurrently

**CUL 112 - Introduction to Food Studies**  
**Credit Hours:** 3, **Contact Hours:** 3  
**Division:** Business  
This multidisciplinary survey course offers students an introduction to fundamental concepts in food studies. Through lecture, discussion and case studies, local, national and global examples are employed to study the social, political, economic and environmental aspects of traditional and alternative food systems and their integrated components, including agriculture, sustainability theory and practice, community resiliency, foodways and food and agriculture policies. Throughout the course, career pathways in the food sector and academic areas of study related to food studies are identified. **Group 2 course. Communications - Direct.**  
Required Prerequisite(s): Placement into English 111/11 or higher and Math 23 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 Prerequisite(s): Placement into ENG 111/11 or higher and MTH 23 or higher; CUL 110 may be taken concurrently

**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 Prerequisite(s): CUL 110, CUL 111  
Recommended Prerequisite(s): Placement into ENG 111/11
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 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. Communications - Direct, Quantitative Reasoning.  
Required Prerequisite(s): CUL 110 and CUL 111, Placement into ENG 111/11 or higher and MTH 23 or higher

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 multi-national 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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, centerpiecees, 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 Prerequisite(s): CUL 110, CUL 118, CUL 218 may be taken concurrently

CUL 222 - Cafe Ops, Bakery Prod & Mgmt  
Credit Hours: 4, Contact Hours: 8  
Division: Business  
This course focuses on practical bakery production and management training. Students rotate through bakery stations producing an assortment of baked goods while applying production and managerial skill. 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 timing, and the effective handling and use of supplies. Group 2 course. Quantitative Reasoning.  
Required Prerequisite(s): CUL 211, CUL 218 and CUL 221  
Corequisites: CUL 223
CUL 223 - Cafe Ops Dining Room Mgmt
Credit Hours: 4, Contact Hours: 8
Division: Business
This course focuses on the concepts, principles and applications of cafe dining room management, supervision and service. Practical service experience and principles of supervision are applied in a live environment. This includes applications of barista and cafe service, timing of service, menu development, pricing, merchandising, point of sale software usage, customer service, management techniques, team building, motivational techniques, and stress and production management. Other areas covered include beverage recipe construction and costing, use and care of equipment and effective handling and use of supplies. Group 2 course. Communications - Direct, Quantitative Reasoning.
Required Prerequisite(s): CUL 211, CUL 218 and CUL 221
Corequisites: CUL 222

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 Prerequisite(s): CUL 118, or CUL 101, CUL 102, and CUL 111, may be taken concurrently

CUL 295 - Contemp Cuisine Kitchen Mgmt
Credit Hours: 6, Contact Hours: 12
Division: Business
This course focuses on practical hands-on training in kitchen production and management in a restaurant setting. Students rotate through restaurant kitchen stations in this intensive semester-long course. 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. Other areas covered include beverage recipe construction and costing, the use and care of equipment, the pressure of a la carte service, and the effective handling and use of supplies. Group 2 course. Communications - Direct, Quantitative Reasoning.
Recommended Prerequisite(s): CUL 110, CUL 111, CUL 211 and CUL 213
Corequisites: CUL 296

DNC 101 - Beg. Dance: An Exploration
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 Prerequisite(s): DNC 101 or previous experience

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 Prerequisite(s): 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 Prerequisite(s): 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 be examined. The culmination of the class work will be a dance performance for the public. Group 2 course.
Required Prerequisite(s): 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 (asans), 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 Prerequisite(s): DNC 131

DNC 135 - Yoga II  
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.

DNC 137 - Bikram Yoga III  
Credit Hours: 1, Contact Hours: 2  
Division: Humanities  
This course is all Bikram 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 138 - Bikram Yoga IV  
Credit Hours: 1, Contact Hours: 2  
Division: Humanities  
This course is all Bikram 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 139 - Bikram Yoga V  
Credit Hours: 1, Contact Hours: 2  
Division: Humanities  
This course is all Bikram 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 140 - Bikram Yoga VI  
Credit Hours: 1, Contact Hours: 2  
Division: Humanities  
This course is all Bikram 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 141 - Bikram Yoga VII  
Credit Hours: 1, Contact Hours: 2  
Division: Humanities  
This course is all Bikram 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 142 - Bikram Yoga VIII  
Credit Hours: 1, Contact Hours: 2  
Division: Humanities  
This course is all Bikram 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 143 - Bikram Yoga IX  
Credit Hours: 1, Contact Hours: 2  
Division: Humanities  
This course is all Bikram 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 144 - Bikram Yoga X  
Credit Hours: 1, Contact Hours: 2  
Division: Humanities  
This course is all Bikram 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 145 - Bikram Yoga XI  
Credit Hours: 1, Contact Hours: 2  
Division: Humanities  
This course is all Bikram 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 146 - Bikram Yoga XII  
Credit Hours: 1, Contact Hours: 2  
Division: Humanities  
This course is all Bikram 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 147 - Bikram Yoga XIII  
Credit Hours: 1, Contact Hours: 2  
Division: Humanities  
This course is all Bikram 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 148 - Bikram Yoga XIV  
Credit Hours: 1, Contact Hours: 2  
Division: Humanities  
This course is all Bikram 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 149 - Bikram Yoga XV  
Credit Hours: 1, Contact Hours: 2  
Division: Humanities  
This course is all Bikram 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 150 - Bikram Yoga XVI  
Credit Hours: 1, Contact Hours: 2  
Division: Humanities  
This course is all Bikram 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.
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.

HDA 241 - Chairside Procedures Lab  
Credit Hours: 2, Contact Hours: 5  
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.

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.

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 Prerequisite(s): HAH 120, HDA 120, HDA 160, HDA 140, HDA 150, HDA 160, HDA 242, HDA 243

Corequisites: HDA 241

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 Prerequisite(s): 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 Prerequisite(s): HDA 240, HDA 241  
Corequisites: HDA 286

**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 2D CAD software. Group 2 course. Critical Thinking - Direct.

**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 Prerequisite(s): 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. As part of this course, students will earn a CSWA Certified Solidworks Associate certification. Group 2 course. Critical Thinking - Direct.  
Recommended Prerequisite(s): Placement into MTH 23 and ENG 99/108

**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.  
Required Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): ECE 101, placement into ENG 11/111

ECE 230 - Early Literacy and Learning  
**Credit Hours: 3, Contact Hours: 3**  
Division: Social Science  
This course focuses on the issues related to child development and 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 Prerequisite(s): 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 Prerequisite(s): ECE 101, ECE 204, and placement into ENG 11/111
Economics (ECO)

**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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): ECE 101

**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. It is recommended that students take ECO 201 before ECO 202. Critical Thinking - Direct. Recommended Prerequisite(s): MTH 23, placement into ENG 111

**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. It is recommended that students take ECO 201 before ECO 202. Critical Thinking - Direct. Recommended Prerequisite(s): MTH 23, placement into ENG 111

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 Prerequisite(s): 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. Recommended Prerequisite(s): Placement into ENG 111

**EDU 290A - Academic Service/Internship**
Credit Hours: 1-4, Contact Hours: 1-4
Division: Social Science
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. Recommended Prerequisite(s): 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.

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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): EET 103 or ELE 105 or MNG 234 or MNG 235.

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 Prerequisite(s): EET 103 or ELE 105 or MNG 234 or MNG 235.

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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): EET 102, EET 103, RAM 155

Recommended Prerequisite(s): 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 Prerequisite(s): 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.  
Required Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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.  
Required Prerequisite(s): CAR 100, may be taken concurrently

Recommended Prerequisite(s): Placement in MTH 111 or higher, or co-enrollment in the appropriate developmental Math course, and 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 Prerequisite(s): ELE 101 or EET 103 or HVA 101, may be taken concurrently

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 Prerequisite(s): ELE 105

Recommended Prerequisite(s): 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 Prerequisite(s): ELE 110
Recommended Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): ELE 121

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 Prerequisite(s): ELE 131

ELE 142 - Industrial Electrical
Credit Hours: 3, Contact Hours: 4
Through structured classroom and hands-on skill building, the student will learn plans and sitework, the unit substation, feeder bus system, panelboards, trolley busways, using wire tables, signaling systems, basic motor controls, motors and controllers, and motor installation. Group 2 course.
Required Prerequisite(s): 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 power factor, ventilating, air conditioning, and other facilities, system protection, lightning protection, site lighting, programmable logic controllers, developing a program for a PLC, fiber optics, hazardous locations, and harmonics. Group 2 course.
Required Prerequisite(s): ELE 142

Engineering (EGR)

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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): MTH 122
Recommended Prerequisite(s): 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 Prerequisite(s): MTH 141
Recommended Prerequisite(s): 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 Prerequisite(s): EGR 201
Recommended Prerequisite(s): 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 Prerequisite(s): EGR 201
Recommended Prerequisite(s): 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 Prerequisite(s): MTH 142, may be taken concurrently
Recommended Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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. Based on placement testing. See advisor.
Required Prerequisite(s): Placement into ENG 11/111 or successful placement testing. See advisor.
Corequisites: ENG 99 and ENG 108

ENG 12 - English/Writing Methods
Credit Hours: 2, Contact Hours: 2
Division: Communications
ENG 12 is to be taken concurrently with ENG 112 and helps 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 Prerequisite(s): Successful completion of ENG 111 or ENG 11

Corequisites: ENG 11

ENG 112 - 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 Prerequisite(s): Successful completion of ENG 111 or ENG 11

Recommended Prerequisite(s): 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 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 Prerequisite(s): Students are placed in this course according to placement guidelines set by NMC
Corequisites: ENG 108

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 Prerequisite(s): 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. See an advisor.
Communications - Direct, Critical Thinking - Direct, Infused: Writing Intensive.
Required Prerequisite(s): Students are placed in this course according to placement guidelines set by NMC

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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): ENG 112 or permission of instructor
Recommended Prerequisite(s): 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, 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 Prerequisite(s): ENG 221 or instructor permission  
Recommended Prerequisite(s): 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, craft techniques, revision, discipline and practice in 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 Prerequisite(s): ENG 112 or permission of instructor  
Recommended Prerequisite(s): Students should have language skills at least equivalent to ENG 112

ENG 224 - Writing for the Media  
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 ethics 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 Prerequisite(s): Placement into ENG 111  
Recommended Prerequisite(s): 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 Prerequisite(s): 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 archetypal 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 nature and culture 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 culture on American art. Group 1 course. Communications - Direct, Critical Thinking - Direct, Degree Req:Cultural Persp/Div, Infused: Writing Intensive.  
Required Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): Placement into ENG 111

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 Prerequisite(s): MTH 08 or equivalent  
Recommended Prerequisite(s): 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 Prepalaeozoic microorganisms and Palaeozoic 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.
Recommended Prerequisite(s): MTH 08 or equivalent
Corequisites: ENV 104

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.
Recommended Prerequisite(s): MTH 23 or equivalent
Corequisites: ENV 111

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 Prerequisite(s): 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.
Recommended Prerequisite(s): MTH 23
Corequisites: ENV 117L

ENV 117L - Meteorology & Climatology Lab
Credit Hours: 0, Contact Hours: 0
Division: Science Math
See ENV 117 for course description. Co-req = ENV 117.
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.
Recommended Prerequisite(s): MTH 23
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 Prerequisite(s): 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 Prerequisite(s): Completion of any science course with laboratory and instructor permission
Recommended Prerequisite(s): 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 Prerequisite(s): MTH 23, instructor permission required
Recommended Prerequisite(s): 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 Prerequisite(s): Completion of any science course with laboratory and instructor permission
Recommended Prerequisite(s): 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. You will need a minimal ability using technology to take advantage of outside-of-class requirements. Communications - Direct, Critical Thinking - Direct, Degree Req:Cultural Persp/Div.
Recommended Prerequisite(s): Students will be required to read, write, listen, and speak in French

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 Prerequisite(s): FRN 101 with a minimum grade of 2.0 or required score on the NMC language placement test or instructor permission You will need a minimal ability using technology to take advantage of outside-of-class requirements
Recommended Prerequisite(s): Students will be required to read, write, listen, and speak in French

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 Prerequisite(s): FRN 102 with a minimum grade of 2.0 or required score on the NMC placement test or instructor permission You will need a minimal ability using technology to take advantage of outside-of-class requirements
Recommended Prerequisite(s): You will be required to read, write, listen, and speak in French

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 Prerequisite(s): FRN 201 with a minimum grade of 2.0 or required score on the NMC placement test or instructor permission You will need a minimal ability using technology to take advantage of outside-of-class requirements
Recommended Prerequisite(s): Students will be required to read, write, listen, and speak in French

Geography (GEO)
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 Prerequisite(s): 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 Prerequisite(s): Intermediate computer skills (Windows) and Internet experience required.  
Corequisites: GEO 105L  

GEO 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.  
Recommended Prerequisite(s): 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.  
Recommended Prerequisite(s): Students scoring below ENG 111 on the placement test should plan on additional study time  

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.  
Recommended Prerequisite(s): Intermediate computer skills (Windows) and Internet experience required

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**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. You will need a minimal ability using technology to take advantage of outside-of-class requirements.  
Recommended Prerequisite(s): Students will be required to read, write, listen and speak in German  

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. You will need a minimal ability using technology to take advantage of outside-of-class requirements.  
Recommended Prerequisite(s): GRM 101 with a minimum of 2.0, required score on the NMC language placement test or instructor permission  

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. Cultural topics are integrated into each unit. Group 2 course. You will need a minimal ability using technology to take advantage of outside-of-class requirements.  
Recommended Prerequisite(s): GRM 102 with a minimum grade of 2.0, required score on the NMC language placement test or instructor permission  

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 2 course. You will need a minimal ability using technology to take advantage of outside-of-class requirements.  
Recommended Prerequisite(s): GRM 201 with a minimum grade of 2.0 or required score on the NMC language placement test or instructor permission  

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. Required Prerequisite(s): CAR 100, may be taken concurrently

Recommended Prerequisite(s): 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 Prerequisite(s): HVA 101, may be taken concurrently

Recommended Prerequisite(s): 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 Prerequisite(s): HVA 101

Recommended Prerequisite(s): Placement in ENG 111 and MTH 111

HVA 126 - Residential and Commercial Air Conditioning
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 Prerequisite(s): HVA 122 - may be taken concurrently

Recommended Prerequisite(s): Placement in ENG 111 and MTH 111

HVA 132 - Commercial Air Conditioning & 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 Prerequisite(s): HVA 126 with a grade of 2.5 or higher

Recommended Prerequisite(s): 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 their 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 Prerequisite(s): HVA 126 - may be taken concurrently

Recommended Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): Placement into ENG 111

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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): Placement into ENG 111

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

HUM 290C - Academic Service/Internship
Credit Hours: 1-4, Contact Hours: 1-4
Division: Humanities

HUM 290E - Academic Service/Internship
Credit Hours: 1-4, Contact Hours: 1-4
Division: Humanities

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 Prerequisite(s): 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 Prerequisite(s): Must be approved by MCOLES and registered with the Director of the Police Academy prior to enrollment.

LWE 195 - Police Practicum
Credit Hours: 2, Contact Hours: 2
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.
Required Prerequisite(s): 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 Prerequisite(s): Must be approved by MCOLES and registered with the Director of the Police Academy prior to enrollment.

LWE 211 - Criminal Investigation
Credit Hours: 3, Contact Hours: 3
Division: Social Science
This course is designed to give the students a complete understanding of the criminal justice system. Legal issues will be covered in the areas of evidence collection and preservation, basic police procedures, report writing, investigative methods, and the use of technological applications. Group 2 course. Critical Thinking - Direct.
Required Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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. Students 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): Must be approved by MCOLES and registered with the Director of the Police Academy prior to enrollment
Recommended Prerequisite(s): LWE 226

LWE 228 - Speed Measurement
Credit Hours: 3, Contact Hours: 3
Division: Social Science
This course will teach the legal and practical aspects of radar and basic traffic crash investigations. Class discussions will include the relationship between excessive speed and motor vehicle traffic crashes. The course will also explore policies and procedures regarding radar use. Students will understand and demonstrate basic accident investigation knowledge and related evidence collection skills. Must register with the LWE coordinator prior to course enrollment. Group 2 course. Critical Thinking - Direct.
Required Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): MGT 245 or instructor permission
Recommended Prerequisite(s): 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 Prerequisite(s): 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.
Required Prerequisite(s): 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. As part of this course, students will earn an IFPS Connector and Conductor certification. Group 2 course. Critical Thinking - Direct, Quantitative Reasoning. Recommended Prerequisite(s): Print reading, precision measurement, GPA of 2.0 or higher, MTH 111. Critical Thinking - Direct.

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. Students will greatly benefit from having competency up to MTH 111. Critical Thinking - Direct.
Recommended Prerequisite(s): Print reading, precision measurement, basic machining knowledge and skills, competencies in Communications equal to ENG 99/108 and Math equal to MTH 23

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 Prerequisite(s): MFG 113 or MNG 260 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 Prerequisite(s): 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 Prerequisite(s): MFG 113
Recommended Prerequisite(s): MFG 113 or MNG 260

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 Prerequisite(s): 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.
Required Prerequisite(s): 30 credits of program specific courses with a GPA of 2.0 or higher
**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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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. 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.  
Required Prerequisite(s): Must complete first academic year with a 2.0 or higher in all required courses.

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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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  
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. 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.  
Required Prerequisite(s): Completion to second academic year with a 2.0 or higher in all required courses.

MDK 310 - Deck Sea Project II  
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 U.S. Coast Guard and the criteria established by the Maritime Administration. STCW. 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.  
Required Prerequisite(s): 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 311 - Deck Sea Project III  
Credit Hours: 6, Contact Hours: 6  
Division: Maritime  
This internship is a continuation of MDK 310 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. 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 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): ENG 111 and MTH 111
Corequisites: MDK 332

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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): ENG 111 and MTH 111

MDK 344 - 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. Cargo stowage plans will be developed and reviewed. Students will critique loads they were involved with during their time aboard ship. STCW.
Required Prerequisite(s): 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 Prerequisite(s): ENG 111 and MTH 111

MDK 411 - 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 Prerequisite(s): 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 414 - 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 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 Prerequisite(s): 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 Prerequisite(s): 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.

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 Prerequisite(s): 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 Prerequisite(s): ENG 111 and MTH 111; elementary computer skills

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 their GLMA program of study. STCW.
Required Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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. 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 Prerequisite(s): 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 Prerequisite(s): 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. 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. Quantitative Reasoning. Required Prerequisite(s): Completion of first academic year.

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 Prerequisite(s): 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  
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 Prerequisite(s): 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 271L

MNG 271L - Maritime Welding Lab  
Credit Hours: 0, Contact Hours: 0  
Division: Maritime  
See MNG 271 for course description. Critical Thinking - Direct. Required Prerequisite(s): 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 Prerequisite(s): 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 refrigerants (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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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

**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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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.  
Required Prerequisite(s): 30 credits of program specific courses with a GPA of 2.0 or higher

**Mathematics (MTH)**

**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 Prerequisite(s): 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 Prerequisite(s): A grade of 2.0 or better in MTH 23 or appropriate placement

**Recommended Prerequisite(s): 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 Prerequisite(s): A grade of 2.0 or better in MTH 23 or appropriate placement

**Recommended Prerequisite(s): 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 Prerequisite(s): A grade of 2.0 or better in MTH 111 or higher (excluding MTH 120 and MTH 131) or appropriate placement

**Recommended Prerequisite(s): 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 Prerequisite(s): A grade of 2.0 or better in MTH 121 or higher (excluding MTH 131) or appropriate placement

**Recommended Prerequisite(s): 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 Prerequisite(s): A grade of 2.0 or better in MTH 111 or MTH 120 or higher or appropriate placement

**Recommended Prerequisite(s): 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 Prerequisite(s): A grade of 2.0 or better in MTH 122 or higher (excluding MTH 131) or appropriate placement  
Recommended Prerequisite(s): 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 Prerequisite(s): A grade of 2.0 or better in MTH 141 or equivalent  
Recommended Prerequisite(s): 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 Prerequisite(s): A grade of 2.0 or better in MTH 142 or equivalent  
Recommended Prerequisite(s): 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 Prerequisite(s): A grade of 2.0 or better in MTH 142 or equivalent  
Recommended Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 technique of harmonization. Students are required to complete and analyze music using practices listed above. Group 2 course.  
Required Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): MUS 116, 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): MUS 120, 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 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 Prerequisite(s): 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 Prerequisite(s): 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 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 (jacob@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 (jacob@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 (jacob@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 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 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 (jacob@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 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 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 153C - 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 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 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 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 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 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 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 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 166 - Applied Music-Classical 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 167 - Applied Music - Classical 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 168 - Applied Music - Jazz 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 169 - 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 170 - Applied Music - Classical 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 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 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 170 - 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.

Corequisites: MUS 102, MUS 104, MUS 107; or equivalent competency

MUS 201 - 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.

Corequisites: MUS 201, MUS 203, MUS 206; or equivalent competency
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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): MUS 203, 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 Prerequisite(s): MUS 204, 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 215. 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 227. Group 2 course.
Recommended 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 Prerequisite(s): MUS 136B, pervious 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 Prerequisite(s): MUS 236A, previous choral experience or instructor permission

MUS 236C - Ensembles - Vocal Jazz II  
Credit Hours: 1, Contact Hours: 1  
Division: Humanities
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, 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 (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, one Music Convocation each semester. Group 2 course.  
Recommended Prerequisite(s): MUS 140
Recommended Prerequisite(s): MUS 143

Musical development. Students are expected to perform, at a minimum, 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 Prerequisite(s): MUS 142

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.

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.

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, 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 - 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 Prerequisite(s): MUS 151

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.
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 Prerequisite(s): 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.  
Recommended Prerequisite(s): MUS 152

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 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 252C - 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 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 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 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 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 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 259 - 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. Recommended Prerequisite(s): 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 259C - 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 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.
Recommended Prerequisite(s): MUS 162

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 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.

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 Prerequisite(s): 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 Prerequisite(s): MUS 165

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.

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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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

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 Prerequisite(s): Admission to the nursing program, BIO 228 with a grade of 2.5 or higher, 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 Prerequisite(s): HAH 100C, HNR 101, and HNR 106 with a grade of 2.5 or higher; 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 Prerequisite(s): 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 Prerequisite(s): 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 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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-Clinical
Credit Hours: 2, Contact Hours: 6
Division: Health Occupations
This course provides for the clinical application of the principles presented in the corequisite: 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, participate 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 Prerequisite(s): 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 Prerequisite(s): HNR 221, HNR 241 with a grade of 2.5 or higher, and HNR 242 with an S
Corequisites: HNR 222, HNR 261

HNR 251 - Mental Health Nursing - Lecture
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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): HNR 221 and HNR 241 with a grade of 2.5 or higher; HNR 242 with an 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 Prerequisite(s): HNR 222 with a grade of 2.5 or higher; HNR 248 with an S
Corequisites: HNR 261

Philosophy (PHL)

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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): MTH 23
Recommended Prerequisite(s): 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 Prerequisite(s): MTH 122
Recommended Prerequisite(s): ENG 111
Corequisites: PHY 121L, PHY 121R

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 Prerequisite(s): MTH 141, may be taken concurrently
Recommended Prerequisite(s): 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 221L

PHY 221R - Prob.& Princ. of Physics I Rec
Credit Hours: 1, Contact Hours: 2
Division: Science Math
This course is a recitation to accompany lecture 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 Prerequisite(s): PHY 221, PHY 221L, PHY 221R, MTH 141
Recommended Prerequisite(s): 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 222/222 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
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 Prerequisite(s): Placement into MTH 23 and ENG 11/11 or co-enrollment in the recommended developmental Math and English course
Required Prerequisite(s): 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 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 Prerequisite(s): PLU 105

PLU 125 - Plumbing Installation
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 Prerequisite(s): PLU 105

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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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. Recommended competencies: Placement into MTH 23 and ENG 11/111. Communications - Direct, Critical Thinking - Direct. Recommended Prerequisite(s): PLS 101 or PLS 211

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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): PSY 101

Recommended Prerequisite(s): 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 Prerequisite(s): PSY 101

Recommended Prerequisite(s): 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 Prerequisite(s): PSY 101 or SOC 101

Recommended Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): PSY 101  
Recommended Prerequisite(s): 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 Prerequisite(s): PSY 101  
Recommended Prerequisite(s): 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.  
Required Prerequisite(s): EGY 115, may be taken concurrently  
Recommended Prerequisite(s): 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 Prerequisite(s): 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 hot water heating systems. 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 Prerequisite(s): ELE 105  
Recommended Prerequisite(s): 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 lecture 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 Prerequisite(s): PLU 101  
Recommended Prerequisite(s): 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 Prerequisite(s): HVA 105  
Recommended Prerequisite(s): 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.  
Recommended Prerequisite(s): Basic keyboarding and computer skills
**Social Work (SWK)**

**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 Prerequisite(s): SWK 121, SWK 170, completion of ENG 111/11 or placement into ENG 111

**SWK 290A - Academic Service/Internship**  
**Credit Hours:** 1-4, **Contact Hours:** 1-4  
**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.  
Recommended Prerequisite(s): SWK 121, SWK 170

**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. Students will need a minimal ability using technology to take advantage of outside-of-class requirements. Communications - Direct, Critical Thinking - Direct, Degree Req:Cultural Persp/Div.  
Recommended Prerequisite(s): Students will be required to read, write, listen, and speak in Russian

**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 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. As part of this course, students will earn the PCEP - Certified Entry-Level Python Programmer certificate. Group 2 course. Critical Thinking - Direct, Quantitative Reasoning.  
Required Prerequisite(s): 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 Prerequisite(s): RAM 155
Sociology (SOC)

**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 Prerequisite(s): 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 Prerequisite(s): 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. 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. Communications - Direct, Critical Thinking - Direct, Degree Req:Cultural Persp/Div, Infused: Writing Intensive.  
Recommended Prerequisite(s): SOC 101 strongly recommended, Students need college-ready study, reading and writing skills for this course

**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, Degree Req:Cultural Persp/Div, Infused: Writing Intensive.  
Recommended Prerequisite(s): 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 Prerequisite(s): 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. You will need a minimal ability using technology to take advantage of outside-of-class requirements. Communications - Direct, Critical Thinking - Direct, Degree Req:Cultural Persp/Div.  
Recommended Prerequisite(s): Students will be required to read, write, listen, and speak in Spanish

**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 Prerequisite(s): SPN 101 with a minimum grade of 2.0 or required score on the NMC placement test or instructor permission You will need a minimal ability using technology to take advantage of outside-of-class requirements  
Recommended Prerequisite(s): Students will be required to read, write, listen, and speak in Spanish
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 Prerequisite(s): SPN 102 with a minimum grade of 2.0 or required score on the NMC language placement test or instructor permission You will need a minimal ability using technology to take advantage of outside-of-class requirements  
Recommended Prerequisite(s): Students will be required to read, write, listen, and speak in Spanish  

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 Prerequisite(s): SPN 201 with a minimum grade of 2.0 or required score on the NMC language placement test or instructor permission You will need a minimal ability using technology to take advantage of outside-of-class requirements  
Recommended Prerequisite(s): Students will be required to read, write, listen, and speak in Spanish  

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 Prerequisite(s): 3-4 years of high school Spanish  
Recommended Prerequisite(s): 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 Prerequisite(s): BIO 227, BIO 227L, HAH 101, HPD 110 or equivalent; SRG 102 and SRG 103 may be taken concurrently  
Recommended Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Quantitative Reasoning.
Required Prerequisite(s): MTH 111 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 Prerequisite(s): MTH 111 or higher, can be taken concurrently

SVR 150 - Construction Survey App
Credit Hours: 5, Contact Hours: 8
Division: Technical
Students perform design surveys and conduct construction layout for infrastructure. Major topics include using horizontal and vertical control, establishing alignment, obtaining topographic information, determining grades, horizontal and vertical curves, completion of construction plans, computation of earthwork quantities, and field stakeout. Students will use this knowledge in both field and office environments. Group 2 course.
Required Prerequisite(s): MTH 121 or higher, SVR 110, SVR 120

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 Prerequisite(s): 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 Prerequisite(s): SVR 120, SVR 160

**Theater (THR)**

THR 151 - Basic Acting
Credit Hours: 4, Contact Hours: 4
Division: Communications
An introduction to acting technique and craftsmanship, this course emphasizes theory and practice in modern realistic theater. Group 2 course. Communications - Direct.

THR 152 - Acting II
Credit Hours: 4, Contact Hours: 4
Division: Communications
This course allows students to learn a variety of performance styles. Period style acting is a primary focus, beginning with Greek tragedy and comedy and working up through Shakespearian acting and ending with Restoration comedy. Group 2 course. Communications - Direct.
Recommended Prerequisite(s): THR 151

**Unmanned Aerial Systems (UAS)**

UAS 107 - Remote Pilot Ground
Credit Hours: 3, Contact Hours: 3
Division: Aviation
This course is structured to provide the student with the knowledge to pass the FAA Remote Pilot written test. This certification is required to be a Commercial Drone Operator. Topics include: airport operations, aircraft performance, regulations, meteorology, airspace, maintenance, UAS operations, risk assessment/management. As part of this course, students will earn Part 107 Remote Pilot Certification. This course will be completed upon the student passing the FAA Remote Pilot written exam. FAA testing fee is not included in the course fee. Group 2 course.
UAS 131 - UAS in Law Enforcement
Credit Hours: 1, Contact Hours: 2
Division: Aviation
This lab course is designed to give the student the background necessary to operate drones for law enforcement applications. Students will be prepared to take the FAA Remote Pilot written test, which is required to operate drones for law enforcement purposes. Students will also receive hands-on training to develop flight skills and learn more about using drones for law enforcement purposes. Passing the FAA Remote Pilot written exam is a requirement of the class. Group 2.

UAS 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.

UAS 211 - Commercial Drone Operations
Credit Hours: 3, Contact Hours: 4
Division: Aviation
This course will guide students deeper into the Unmanned Aerial Systems industry. Topics such as aerial mapping, land survey, agricultural applications and industrial inspections will be covered in this lecture/lab based class. In addition, the student will be introduced to operating professional Unmanned Aerial Systems. Group 2 course.
Required Prerequisite(s): UAS 107 or AVG 142, and UAS 141 or AVF 141

UAS 220 - UAS Projects and Maintenance
Credit Hours: 3, Contact Hours: 4
Division: Aviation
This hands-on course will give the student an opportunity to build and test fly both multirotor and fixed wing aircraft. The course focuses on building and maintenance techniques, autopilot integration, flight tuning, power sources, servos and communication links. Group 2 course.
Required Prerequisite(s): UAS 107 or AVG 142, and UAS 141 or AVF 141

UAS 241 - Advanced Drone Operations
Credit Hours: 3, Contact Hours: 4
Division: Aviation
This lecture and lab based course will introduce the student to advanced autopilot programming and more complex UAS operations such as gas powered fixed wing aircraft. Students will also be applying crew resource management and risk assessment techniques to their operations. Group 2 course.
Required Prerequisite(s): UAS 211 or AVF 211

UAS 255 - UAS Safety Management
Credit Hours: 2, Contact Hours: 2
Division: Aviation
This online course will introduce remote pilots to the four pillars of a safety management system to include safety policy, safety risk management, safety assurance and safety promotion. Additionally, this course will explore, through exercises and readings, the process for incorporating these principles into a small UAS flight service company. Group 2 course.
Required Prerequisite(s): UAS 241 or AVF 241

UAS 260 - Aerosonde UAS Flight Training
Credit Hours: 4, Contact Hours: 5
Division: Aviation
This hands-on flight course allows students to earn a manufacturer's certification from one of the leading UAS platforms 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 Prerequisite(s): UAS 260 or AVG 260

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 Prerequisite(s): VCA 150
Recommended Prerequisite(s): 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 Prerequisite(s): VCA 125  
Recommended Prerequisite(s): 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 Abode Certified Associate Exam for Photoshop is included in the cost for this course. Group 2 course. Use of the Macintosh or Windows operating system highly recommended. Communications - Direct.  
Critical Thinking - Direct.  
Recommended Prerequisite(s): CIT 100, Basic keyboarding skills 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 Prerequisite(s): VCA 127, VCA 150

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 Prerequisite(s): VCA 127, VCA 150

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. Use of the Macintosh or Windows operating system highly recommended. Communications - Direct.  
Recommended Prerequisite(s): VCA 125, Recommended competencies: Basic keyboarding skills 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 Prerequisite(s): VCA 125  
Recommended Prerequisite(s): 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 an 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 Prerequisite(s): VCA 125

Recommended Prerequisite(s): ENG 112

Corequisites: VCA 200

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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 emphasis creative and narrative language. Students should be self-motivated, this advanced section involves independent projects. Group 2 course. Communications - Direct, Critical Thinking - Direct.  
Required Prerequisite(s): VCA 146  

Recommended Prerequisite(s): 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 Prerequisite(s): 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 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 Prerequisite(s): VCA 127  
Recommended Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): VCA 125, VCA 290  
Recommended Prerequisite(s): Students must have completed all VCA courses with a minimum 2.5 GPA and departmental approval  

Recommended Prerequisite(s): 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
This class provides students 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 Prerequisite(s): 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 Prerequisite(s): 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. Completion of MTH 111 and ENG 111 or appropriate placement scores. Recommended Prerequisite(s): Recommended competencies: Ability to work/learn aboard R/V Northwestern and in the field

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 Prerequisite(s): MTH 111 or higher
Recommended Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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.
Recommended Prerequisite(s): ENV 115 or GEO 115 with a 2.0 or higher
Recommended Prerequisite(s): 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.
Recommended Prerequisite(s): ENG 111 and MTH 23 or higher, both may be taken concurrently
Recommended Prerequisite(s): PLS 101, WSI 105

Full PDF 291
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 Prerequisite(s): EET 103 and MTH 111 or higher  
Recommended Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): WSI 215 - may be taken concurrently  
Recommended Prerequisite(s): 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.  
Recommended Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 the 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 students can earn a Certified Associate in Project Management (CAPM) certification. Group 2 course. Communications - Direct, Critical Thinking - Direct.

Required Prerequisite(s): WSI 300, WSI 310, WSI 440

Recommended Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): 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 Prerequisite(s): WPT 111 and WPT 112

Corequisites: WPT 113

WPT 161 - Welding Qualification Prep  
Credit Hours: 3, Contact Hours: 4  
Division: Technical  
Students will learn performance qualification according to American Welding Society (AWS) standards. As part of this course, students may earn various qualifications according to AWS standards adhering to D1.1 (steel) and D1.2 (aluminium) covering multiple processes. Group 2 course. Prerequisites: None. 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 Prerequisite(s): 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 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 Prerequisite(s): 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 Prerequisite(s): WPT 211

Corequisites: WPT 214
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 Prerequisite(s): WPT 211  
Recommended Prerequisite(s): 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. Critical Thinking - Direct.  
Required Prerequisite(s): 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. Communications - Direct.  
Required Prerequisite(s): 30 credits of program specific courses with a GPA of 3.0 or higher
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

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 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>
</tbody>
</table>
Good Standing
You are considered to be in academic good standing when you have a minimum overall grade point average of 2.0.

Grade Point Average
Grade point average (GPA) is a weighted average of grades. A grade for a course is multiplied by the credit hours for that course to obtain “points.”

<table>
<thead>
<tr>
<th>GRADE</th>
<th>POINT VALUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.0</td>
<td>satisfactory</td>
</tr>
<tr>
<td>3.5</td>
<td>unsatisfactory</td>
</tr>
<tr>
<td>3.0</td>
<td>failing</td>
</tr>
<tr>
<td>2.0</td>
<td>deficiency</td>
</tr>
<tr>
<td>1.0</td>
<td>failure</td>
</tr>
<tr>
<td>0.0</td>
<td>withdrawn</td>
</tr>
</tbody>
</table>

Total points are then divided by total credit hours to determine the grade point average. A GPA calculator is available online.

When a course is repeated, both the most recent grade and the previous grade will appear on the transcript (official academic record). However, only the last grade will be counted in the NMC cumulative GPA. Grades of S, U, I, W, FA, and AU are not used in the computation of grade point averages. Consult with the Advising Center with questions.

Dean’s List
Students who have completed five or more credits and achieved a semester grade point average (GPA) of 3.5 or higher qualify for the Dean’s List. Each student receives a congratulatory letter from the Vice President for Educational Services. Dean’s List students will have their names listed in the lobby between the Biederman and Tanis buildings, and posted online.

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 field 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 closings 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
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, 2019 to December 31, 2019. 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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</tr>
<tr>
<td>Sex Offenses: Forcible</td>
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</tr>
<tr>
<td>Sex Offenses: Non forcible</td>
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<td>0</td>
</tr>
<tr>
<td>Robbery</td>
<td>0</td>
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</tr>
<tr>
<td>Aggravated Assault</td>
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</tr>
<tr>
<td>Burglary</td>
<td>0</td>
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</tr>
<tr>
<td>Motor Theft</td>
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</tr>
<tr>
<td>Arson</td>
<td>0</td>
<td>0</td>
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</tr>
<tr>
<td>Liquor Law Violations: Referred for action</td>
<td>10</td>
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<td>0</td>
</tr>
<tr>
<td>Liquor Law Violations: Arrest</td>
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<tr>
<td>Drug Law Violations: Referred for action</td>
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<td>Drug Law Violations: Arrest</td>
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<tr>
<td>Illegal Weapons Violations: Arrest</td>
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<tr>
<td>Hate Crime</td>
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</tr>
<tr>
<td>Domestic Violence</td>
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</tr>
<tr>
<td>Dating Violence</td>
<td>0</td>
<td>0</td>
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</tr>
<tr>
<td>Stalking</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

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 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 Academy
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
Special Assistant to the President
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 Resrch, Planning, & Eff.
M.A., University of Pittsburgh
B.A., Baylor University
B.S., Bellevue University
A.A.S., McLennan Community College

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

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
Business Instructor
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
A.D.N., Northwestern Michigan College

Biolchini, John M
GLMA Instructor
U.S. Coast Guard Merchant Mariner’s Credential (USCG MMC)
B.S., A.A.S., Northwestern Michigan College

Blackford, Lisa A
Social Work Instructor
M.S.W., Michigan State University
B.S., Lake Superior State University
Bloomquist, Cheryl M
Social Sciences Instructor
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

Chu, Judy Y
Communications Instructor
M.A., University of Chicago
B.A., University of California UCLA

Coleman, Tamara C
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Ph.D., Western Michigan University
M.S., Michigan State University
B.A., Calvin College
A.N., Northwestern Michigan College

Dobek, Gerald O
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M.A.A.S., Out of USA College 1
B.S., Trinity College
B.S., Ferris State University
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
B.S.E.D., Northwest Missouri State Univ

Elliott, Mary Jo
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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
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F
Fewins, Nicole S
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B.S., Michigan Tech University
B.S., Ferris State University

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B.S., Murray State University

Gillett, Michael L
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B.S.M.E., Kettering University (GMI)

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A.A.S., Northwestern Michigan College

Gordon, Thomas A
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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

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A.A.S., C.C., Northwestern Michigan College

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B.S., Central Michigan University

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M.A., B.A., Pennsylvania State University
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G.C.P., Out of USA College 2

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Jenkins, Anthony L  
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B.S., Manchester College

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Director of Dental Assistant Program  
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Registered Dental Assistant (RDA)  
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A.S., Stark State College

Kelly, Keith E  
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Kesler, April N  
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Key, Blake D  
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M.S., New Mexico State University

Klotzbach, Gary W  
Business & Humanities Instructor  
Attorney, State Bar of Michigan  
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B.A., Michigan State University

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B.S., A.A.S., Ferris State University

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B.S., Michigan State University

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Nurse Practitioner  
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B.S.N., University of Michigan  
A.D.N., Northwestern Michigan College

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Ph.D., University of Arizona  
M.A., Northern Arizona University  
M.A., B.S., Other College  
B.S., Northern Arizona University

Mathis, Richard A  
Welding Instructor  
M.Ed., Grand Valley State University  
B.S., Ferris State University  
C.P., Grand Valley State University  
C.A., Ferris State University

McDonald, Kristy B  
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M.A., Eastern Michigan University  
B.A., University of Montana

Mills, Briana  
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M.A., Central Michigan University  
M.S., Portland State University  
B.S., Central Michigan University

Minor, Benjamin T  
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B.S., Northwestern Michigan College  
B.S., University of Oregon  
A.A.S., Northwestern Michigan College

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Culinary Arts Instructor  
Certified Executive Chef (CEC)  
A.A.S., Northwestern Michigan College

Nelson, James D  
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M.A.T., University of Idaho  
B.S., Ferris State University  
A.A., Northwestern Michigan College

OConnor, Michael J  
Technical Instructor  
B.S., Michigan Tech University

Owens, Jay B  
Communications Instructor  
Ph.D., Washington State University  
M.A., B.A., Central Washington University
Papcun, Joel  
Culinary Arts Instructor  
ACF Certified Chef de Cuisine (CCC)  
American Culinary Federation CCE  
Certified Executive Chef (CEC)  
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Parshall, Nancy J  
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M.Ed., Temple University  
B.A., Albion College

Pepinsky, Nathan G  
Science & Math Instructor  
Ph.D., B.S., Western Michigan University

Pharo, Debra A  
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M.A., Univ of Northern Colorado  
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M.S., State Univ of New York (SUNY)  
B.S.B.A., Ferris State University  
A.A.S., Northwestern Michigan College  
G.C.P., Boise State University

Rice, Steven H  
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M.A., Wheaton College  
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M.A.T., University of Idaho  
B.S., Ferris State University

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M.S., Central Michigan University  
B.A., Alma College

Ruane, Sean E  
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M.A., Pepperdine University  
B.A., New York University  
A.A.S., SUNY Onondaga Comm College

Salathiel, Kristen M  
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M.A., Central Michigan University  
M.A., B.A., University of Michigan

Schaefer-Hills, Caroline L  
Humanities Instructor  
Apple Certified Professional  
Apple Certified Trainer  
M.F.A., M.A., Savannah Col of Art & Design  
B.F.A., College for Creative Studies

Schroeder, Karl H  
GLMA Instructor  
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B.S., A.A.S., Northwestern Michigan College

Skarupinski, Michael T  
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A.A.S., Oakland Community College  
A.A.S., Northwestern Michigan College

Smith, Alexandra C  
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B.F.A., College for Creative Studies  
B.A., Michigan State University

Smith, James D  
Science & Math Instructor  
Ph.D., M.S., University of Michigan  
B.S., Western Michigan University

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  
Social Sciences Instructor  
M.S., B.S., Idaho State University  
A.A., C.P., College of Southern Idaho

Speelman, Nicole L  
Science & Math Instructor  
M.S., Wright State University  
B.A., Ohio State University

Sprenkle, Melissa P  
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Ph.D., M.A., University of Tennessee

Swan, Scott J  
Geographic Information Systems Instructor  
M.S., B.S., B.S., University of Michigan

Tate, Zachary  
Humanities Instructor  
M.F.A., Texas Tech University  
B.F.A., Missouri State University
Traines, David P
Aviation Instructor
Certified Flight Instructor (CFI)
Certified Flight Instrument Instructor (CFII)
Multiengine Instructor (MEI)
B.S., Johnson State College
A.A.S., Northwestern Michigan College

Trouslot, Amy L
Health Occupations Instructor
M.S.N., Benedictine University
B.S., University of Michigan

W
Wangler, Sarah J
Communications Instructor
M.A., Northern Michigan University
M.F.A., Oklahoma State University
B.A., Saginaw Valley State Univ

Wilczewski, Rachel A
Social Sciences Instructor
Ph.D., Michigan State University
B.A., Aquinas College

Wilson, Ryan M
Communications Instructor
M.A., DePaul University
M.F.A., Univ of Massachusetts-Amherst
B.S., Ohio University

Wolff, Glenn A
Humanities Instructor
B.F.A., Mineapolis Col of Art & Design
A.A., Northwestern Michigan College

Wooters, Rebecca L
Health Occupations Instructor
Certified Dental Assistant (CDA)
Registered Dental Assistant (RDA)
B.S., Ferris State University
A.A.S., Northwestern Michigan College

Z
Zachman, John R
Social Sciences Instructor
Ph.D., M.A., Duke University
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>
</thead>
<tbody>
<tr>
<td>Glen Anderson</td>
<td>1959-1985</td>
</tr>
<tr>
<td>Norman E. Averill</td>
<td>1966-1996</td>
</tr>
</tbody>
</table>
Regis R. McCord 1986-2015
Michael A. McIntosh 1970-2004
Richard L. Minor 1972-2000
Arthur Moenkhaus 1958-1987
Hettie A. Molvang 1974-1994
Henry Morgenstein 1971-2000
Arlo Moss 1962-1988
Mark D. Nelson 1987-2017
Peter Nelson 1964-1988
Raymond D. Niergarth 1979-2010
Mary E. Norris 1982-2012
Harry E. Oliver 1958-1989
Sonja Olshove 1991-2016
Keith E. Overbaugh 1987-2017
Jack A. Ozegovic 1968-1989
John C. Pahl 1966-2013
Richard Pascoe 1966-1988
Anne L. Patrick 1984-2007
John R. Pfughoeft 1988-2021
James Press 1989-2016
Mark R. Puchala 1986-2012
Joseph H. Rogers 1955-1984
Jean M. Rokos 1981-2016
Kenneth A. Rose 1968-2000
Mark G. Ross 1984-2019
Robert F. Rudd 1963-1998
Maureen C. Schneider 1985-2006
William Shaw 1964-1994
Jacqueline C. Shinners 1989-2010
Allison Shumsky 1957-1995
Terry L. Sievert 1982-2012
Frank S. Snyder 1973-2015
James Spenceley 1957-1980
Marvin D. Studinger 1980-2013
Frederick H. Tank 1966-2007
John G. Tanner 1974-1995
Roberta Teahen 1975-2001
Roy A. Terdal 1964-1994
David J. Terrell 1970-2007
Jacqueline Tompkins 1955-1984
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
Health Occupations Instructor
B.S.N., Ferris State University

Alner, James I
Adjunct - Aviation Single Flight

Andriyakhova, Marina
Health Occupations Instructor
Licensed Registered Nurse (RN)
A.A.S., Atlantic Community College

Annis, Joedy M
Adjunct - Physical Education
A.D.N., A.A.S., Northwestern Michigan College

Assendelft, Barbara A
Social Science Instructor
J.D., Detroit College of Law
B.A., Michigan State University

**B**

Baker, Cyril C
Technical Instructor
Master Auto Mechanic, State of Michigan

Baker, Renee M
Adjunct - Construction - Renewable Energy
M.B.A., Eastern Michigan University
B.S., Lawrence Tech University

Bassett, Matthew C
Adjunct - Maritime AB/QMED
U.S. Coast Guard Merchant Mariner's Credential (USCG MMC)
A.A.S., Northwestern Michigan College

Beard, Hannah M
Adjunct - Aviation Flight Course

Berg, Jason
Science & Math Instructor
M.S., Univ of Wisconsin - Milwaukee
B.S., Univ of Wisconsin - Whitewater

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

Bessette, Suzanne F
Science & Math Instructor
D.P.T., Grand Valley State University
J.D., M.U.P., University of Michigan
B.A., Brown University
Bigelow, Dale R  
Technical Instructor  
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

Bixby, James R  
Health Occupations Instructor  
A.A.S., A.G.S., Northwestern Michigan College

Boase-Miller, Samuel  
Adjunct - Music/Fine Arts

Bolton, Diane M  
Communications Instructor

Boyd, Jessamyn L  
Health Occupations Instructor  
Licensed Registered Nurse (RN)  
M.N., Southern New Hampshire Univers  
B.S., Grand Valley State University  
B.S., Spring Arbor University  
B.N., University of Michigan  
A.N., Northwestern Michigan College

Brumbaugh, Patricia J  
Humanities Instructor  
M.M., University of Michigan  
B.A., Olivet College

Bussell, James A  
Social Science Instructor  
M.L.I.B., Eastern Michigan University  
B.S., Ferris State University

Campbell, Jennifer L  
Communications Instructor  
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

Cannon, Nelson J  
Social Science Instructor  
M.P.A., Central Michigan University  
B.A., University of Detroit Mercy

Casper, Leslie K  
Health Occupations Instructor  
M.S.N., Walden University  
B.S.N., Western Michigan University

Casper, Todd A  
Construction Technology Instructor  
Master Electrician, State of Michigan  
A.A.S., Kellogg Community College

Cavera, Andrew J  
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Certified Flight Instructor (CFI)  
B.S., Western Michigan University

Chaphalkar, Sudhakar V  
Construction Technology/Technical Instructor  
B.S., Detroit Institute of Technology

Chesnut, Owen  
Humanities Instructor  
Ph.D., Andrews University  
M.A., Out of USA College 1

Clark, Diane M  
Humanities Instructor  
D.A., University of Mississippi  
M.M., Indiana University  
B.Mus., Rhodes College

Clark, Gerald J  
Science & Math Instructor  
M.A., University of Michigan  
B.S., Grand Valley State University

Clous, Brian G  
Adjunct - Nursing  
B.S.N., Jacksonville University  
A.D.N., A.A., Northwestern Michigan College

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A.D.N., Northwestern Michigan College

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A.S., Full Sail University

Cormish, Ian  
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Certified Flight Instructor (CFI)  
Commercial Pilot

Crawford, Logan S  
Adjunct - Aviation Flight Course  
Certified Flight Instructor (CFI)  
Commercial Pilot

Danielson, Fredrick S  
Adjunct - Aviation Flight Course  
B.S., Grand Valley State University

Darga, Ashley M  
Social Science Instructor  
M.A., Kent State University  
B.A., Western Michigan University
Davis, Michael J
Humanities Instructor
M.S.E.D., University of Saint Francis
B.S., Ball State University

Dean, Cory P
Construction Technology Instructor
B.B.A., Grand Valley State University
A.S.A., Northwestern Michigan College

Deater, Joseph
Technical Instructor
Certified Biomedical Equipment Technician
A.A., Baker College

Debusca, Robin L
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B.S.N., Ferris State University
A.D.N., Northwestern Michigan College

Deering, Ryan P
Technical Instructor

Dehne, Carolyn E
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B.A., Marymount University
A.A.S., Northwestern Michigan College

DenHerder, Tara L
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Dennis, Scott L
Adjunct - Aviation Single Flight
Certified Flight Instructor (CFI)
Certified Flight Instrument Instructor (CFII)
Commercial Pilot
M.S., Embry-Riddle Aeron Univ AZ
M.A., Military Transcript
B.S., Michigan Tech University

DePauw, Devan M
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B.S., A.A.S., Ferris State University
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Deponio, Alisha L
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Commercial Pilot
A.A.S., Northwestern Michigan College

Dollar, Thomas W
Technical Instructor

Donberg, William R
Adjunct - Aviation Single Flight
Certified Flight Instructor (CFI)
Certified Flight Instrument Instructor (CFII)
Commercial Pilot
Ground Instructor (GRI)
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Donohue, Samantha L
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Duell, Jake J
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B.S.A., Michigan State University
A.S.A., Northwestern Michigan College

Dybas, Dorian
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Certified Flight Instructor (CFI)
Commercial Pilot
B.S., Eastern Michigan University

Dykstra, Adam R
Adjunct - Aviation Flight Course
Certified Flight Instructor (CFI)
B.S., Western Michigan University

E

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Elston, Lee A
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M.S., Nova University
B.S.N., Barry University

Emling, Diane K
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Ph.D., B.A., Michigan State University

Ewing, Jennifer A
Business/Communications Instructor
SHRM Senior Certified Professional, Human Resources
Senior Professional in Human Resources (SPHR)
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B.S.B.A., Central Michigan University

F

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Adjunct - Maritime AB
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G
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M.S., B.E.D., University of Michigan
A.A.S., Northwestern Michigan College

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<th>Name</th>
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Guillard, Justin D  
Instructional Technology Specialist  

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Lead Accounting Assistant

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Director of Educational Media Technologies  
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A.A., Northwestern Michigan College
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Hanna, Christopher T
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M.A., Regent University
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Hanninen, Kim H
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Ground Instructor (GRI)
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Zeiler, Nicole
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B.S., Western Michigan University
The following staff members have retired with twenty or more years of service.

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<tr>
<td>Jeffrey B. Ackerman</td>
<td>1977-2003</td>
</tr>
<tr>
<td>Judith A. Albers</td>
<td>1987-2012</td>
</tr>
<tr>
<td>Karen J. Anderson</td>
<td>1983-2005</td>
</tr>
<tr>
<td>Robert Bailey</td>
<td>1963-1984</td>
</tr>
<tr>
<td>Dawn M. Bauer</td>
<td>1978-2001</td>
</tr>
<tr>
<td>Alan G. Beer</td>
<td>1997-2017</td>
</tr>
<tr>
<td>Kenneth Berry</td>
<td>1973-1993</td>
</tr>
<tr>
<td>Dennis L. Beyer</td>
<td>1978-2010</td>
</tr>
<tr>
<td>Edwin C. Blough, Jr.</td>
<td>1984-2017</td>
</tr>
<tr>
<td>Shirley F. Boyce</td>
<td>1985-2007</td>
</tr>
<tr>
<td>Donald Brown</td>
<td>1956-1986</td>
</tr>
<tr>
<td>Philip M. Butkovich</td>
<td>1973-2003</td>
</tr>
<tr>
<td>Rebecca L. Chartier</td>
<td>1978-1998</td>
</tr>
<tr>
<td>Elaine A. Chauvin</td>
<td>1989-2010</td>
</tr>
<tr>
<td>Robert A. Chauvin</td>
<td>1985-2012</td>
</tr>
<tr>
<td>Kathy A. Cline</td>
<td>1984-2011</td>
</tr>
<tr>
<td>Vivian I. Christensen</td>
<td>1971-2001</td>
</tr>
<tr>
<td>Marguerite Cotto</td>
<td>1981-2021</td>
</tr>
<tr>
<td>Dorian L. Creighton</td>
<td>1988-2015</td>
</tr>
<tr>
<td>Susan L. DeCamilis</td>
<td>1988-2019</td>
</tr>
<tr>
<td>Patricia J. Domagala</td>
<td>1985-2017</td>
</tr>
<tr>
<td>Ted Durga</td>
<td>1951-1977</td>
</tr>
<tr>
<td>Thomas W. Edenburn</td>
<td>1971-2006</td>
</tr>
<tr>
<td>Carol A. Evans</td>
<td>1995-2015</td>
</tr>
<tr>
<td>Margaret D. Everett</td>
<td>1984-2010</td>
</tr>
<tr>
<td>Debra J. Faas</td>
<td>1990-2010</td>
</tr>
<tr>
<td>Timothy J. Fader</td>
<td>1983-2014</td>
</tr>
<tr>
<td>Lynn A. Freeland</td>
<td>1985-2010</td>
</tr>
<tr>
<td>Gary J. Gallup</td>
<td>1984-2010</td>
</tr>
<tr>
<td>Janet B. Gasnik</td>
<td>1972-2014</td>
</tr>
<tr>
<td>Susan D. Gattshall</td>
<td>1976-2010</td>
</tr>
<tr>
<td>Kathy A. Gordon</td>
<td>1984-2011</td>
</tr>
<tr>
<td>Holly Gorton</td>
<td>1994-2021</td>
</tr>
<tr>
<td>Ronda Greiner</td>
<td>1981-2021</td>
</tr>
<tr>
<td>Kay Groszek</td>
<td>1966-1988</td>
</tr>
<tr>
<td>Kathleen E. Guy</td>
<td>1977-2011</td>
</tr>
<tr>
<td>William L. Hall</td>
<td>1968-1994</td>
</tr>
<tr>
<td>Rochelle M. Hammontree</td>
<td>1984-2019</td>
</tr>
<tr>
<td>Suzanne L. Hutchcraft</td>
<td>1974-2013</td>
</tr>
<tr>
<td>Keith D. Ingersoll</td>
<td>1985-2005</td>
</tr>
<tr>
<td>Judith M. Izard</td>
<td>1979-2009</td>
</tr>
</tbody>
</table>
Joyce Weiselberg 1963-1988
Stephen A. Westphal 1977-2013
Avace E. Wilde 1997-2010
Richard R. Wolin 1986-2019
Barbara A. Zupin 1989-2010

MAINTENANCE AND CUSTODIAL STAFF

A
Angel, Sharon M
Custodian

Asher, Brandon P
Groundskeeper

B
Bugai, Robert D
Groundskeeper

C
Christopher, Dennis P
Custodian
Cook, Frederick P
Custodian
Coy, Patricia A
Custodian

D
Dalley, John
Warehouse Clerk

F
Fewins, Stephen M
Custodian
B.S., College of Saint Francis

G
Garvon, Brenda M
Custodian

H
Haines, Todd A
Maintenance Mechanic
Harrand, Sandra M
Custodian

J
Jenkins, Deborah R
Custodian

K
Kimball, Lindsey J
Custodian
Kneer, Leanne E
Custodian

M
Maloney, Robin R
Custodian
Mashburn, Laura A
Custodian
McPherson, Kerry L
Custodian
Murphy, Daniel C
Maintenance Mechanic
Licensed Residential Builder, State of Michigan

P
Pleva, Michael L
Custodian

R
Reynolds, Valerie J
Custodian
Rider, Robert M
Maintenance Mechanic I

S
Sabins, Jeffrey J
Custodian
Schettek, Gary J
Painter
Send, Jeffery M
Boiler Maintenance
Sexton, David A
Maintenance Mechanic
Shattuck, Craig W
Custodian - Dennos Museum Center
Sieffert, Douglas A
Groundskeeper

T
Trowbridge, Philip J
Groundskeeper

V
VanSipe, Brian L
Maintenance Mechanic
Licensed Residential Builder, State of Michigan
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<td>249</td>
<td>Marketing (MKT)</td>
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<td>Mathematics (MTH)</td>
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