It is the policy of Schoolcraft College that no person shall, on the basis of race, religion, color, gender, age, marital status, disability, sexual orientation, and/or national origin, be subjected to discrimination during or be excluded from participating in or be denied the benefits of any program or activity in employment.

Any questions concerning the application of, or grievances for, Title IX of the Education Amendments of 1972, which prohibits discrimination on the basis of sex, and Title VI of the Civil Rights Act of 1964, which prohibits discrimination on the basis of race, creed, color, or national origin should be directed to:

Educational Programs & Activities: 
Cheryl M. Hagen  
Vice President of Student Services  
Schoolcraft College  
18600 Haggerty Road  
Livonia, MI 48152-2696  
734-462-4577 or chagen@schoolcraft.edu

Employment: 
Laura Sensing  
Executive Director of Human Resources  
Schoolcraft College  
18600 Haggerty Road  
Livonia, MI 48152-2696  
734-462-4405 or lsensing@schoolcraft.edu

Any questions concerning the application of, or grievances related to, Section 504 of the Rehabilitation Act of 1973, which prohibits discrimination on the basis of handicap, or the Americans with Disabilities Act of 1990, which requires reasonable accommodation to be provided to disabled persons, should be directed to:

Glenn Cerny  
Vice President and Chief Financial Officer  
Schoolcraft College  
18600 Haggerty Road  
Livonia, MI 48152-2696  
734-462-4416

Individuals who feel their rights have been misused in relationship to the provisions of equal opportunity at Schoolcraft College can contact the appropriate persons listed above.
Steps to Apply and Enroll

1 **Apply for Admission**
   Complete and submit Application for Admission online at www.schoolcraft.edu/admissions.

2 **Submit Test Scores**
   To ensure proper course placement, students entering Schoolcraft College must demonstrate ability in reading, writing and math.
   - **First Year Students**— Send ACT/SAT Scores to the Records Office if taken within the last three years.
   - **OR**
     Take a placement test in our Testing Center.
     Testing is offered on a walk-in basis at the Testing Center on the Livonia Campus in the McDowell Center. Students must have photo ID and Schoolcraft student number. Sample placement questions are available online on the Testing Center page of the Schoolcraft website. For more information, go to www.schoolcraft.edu/testing.
     The Livonia Testing Center hours of operation are:
     - Monday–Thursday: 8:00 AM–7:30 PM
     - Friday: 8:00 AM–4:30 PM
     - Saturday: 10:00 AM–2:00 PM

   - **Transfer Students**
     Students with college transfer credits or placement test scores from other institutions should meet with an academic advisor before testing.

3 **Submit High School/College Transcripts**
   - **First Year Students:** Send high school transcripts and/or GED scores to the Schoolcraft Records Office in the McDowell Center, email to screcord@schoolcraft.edu or fax to 734-462-4506.
   - **Transfer Students:** Official college transcripts must be sent directly from the transfer institution’s Registrar’s Office to the Schoolcraft Records Office. Electronic transcripts are the fastest and easiest way to have your transcripts sent to Schoolcraft College. Contact your school for further instructions.

4 **Log In to Your Schoolcraft Email Account**
   Access your **SCmail** account at www.schoolcraft.edu.
   New students will receive an official acceptance letter from Schoolcraft College that will provide them with their WebAdvisor login information and SCmail email address. It is mandatory that you use your SCmail account for all college and class email correspondence.

5 **Attend Orientation**
   Go to the Admissions page on the website and click on Tours and Orientation to sign up for new student orientation, where you will complete the necessary steps for enrollment, learn more about Schoolcraft College life and campus services and discover how to be a successful student.

6 **Apply for Financial Aid**
   See page 179 for more information about the types of Financial Aid available to students and how you can apply, or click on Paying for College on the Admissions page of the website.

7 **Meet with an Academic Advisor or Counselor**
   Explore your academic options, create an educational plan and select your classes. You can either walk in to the Counseling and Academic Advising office in the McDowell Center, or call 734-462-4429 to schedule an appointment. For more information and hours of operation, click on Counseling and Advising on the Admissions page of the website.

8 **Register for Classes through WebAdvisor**
   See page 180 for more about the Registration process, and go to Register for Classes on the Admissions page of the website for more comprehensive information and to learn how to use WebAdvisor.

9 **Pay Tuition and Fees**
   Schoolcraft College offers a Tuition Payment plan and also accepts cash, checks, debit cards, money orders, VISA, MasterCard, American Express and Discover for payment of tuition and fees. For more information, go to the Payment Options link in WebAdvisor.

What is WebAdvisor?
WebAdvisor is a secure online tool that provides access to important Schoolcraft College information systems and processes and enables students to do a variety of college-related tasks online, including:

- Plan their course schedule
- Register for and drop classes
- View grades
- View and print class schedule
- Make payments on financial obligations

To use WebAdvisor, students can go to www.schoolcraft.edu, click on WebAdvisor at the top of the page and use their student identification number (User ID) and birthdate (Password) to log in the first time.
Message from the President

Thank you for considering Schoolcraft College for your educational pursuits. As we celebrate our 50th commencement in May, 2015, we are proud of our history of helping students achieve their academic and career goals. That focus remains today as we continue to provide our students with rigorous academics in a supportive college community atmosphere.

With our expanded state-of-the-art campus facilities and top-notch faculty, you can get the quality college experience you want in an inviting environment close to home. Our students continue to find Schoolcraft College an excellent way to prepare for an in-demand career or to transfer to a four-year institution to earn a bachelor’s degree. Whatever your goals, we can assure you that becoming a Schoolcraft student will put you on the right academic path.

Welcome to Schoolcraft. Welcome to College.

Conway A. Jeffress, Ph.D.
President

College Values

- We recognize the students are our reason for existence and that student success is paramount to our mission.
- We pledge to follow ethical practices in the classroom, boardroom, business operations, and all other areas of the College.
- We value diversity in our students, staff, and programming.
- We are committed to having a positive intellectual, social, and economic impact on the communities we serve.
- We strive to achieve leadership in academics, management practices, employee relations, and institutional innovation.
- We strive to maintain a supportive, cordial, and aesthetically pleasing environment for our students, staff, and community.
- We encourage lifelong learning for our students and staff by providing the most current programs, utilizing the most effective instructional delivery methods.
- We believe that higher education should be accessible to the greatest number of our constituents.

Mission

Schoolcraft is a comprehensive, open door, community-based college. The mission of the College is to provide a transformational learning experience designed to increase the capacity of individuals and groups to achieve intellectual, social and economic goals.

Core Purpose

Everything Schoolcraft College does, from educational offerings and campus life to its role as a community center, is geared toward fulfilling the institution’s core purpose: To increase the intellectual and economic capacity of the individuals, corporations and communities it serves.
The Board of Trustees is a group of seven members, elected by the voters of Schoolcraft Community College District to serve for six-year terms. The authority of the Board of Trustees is established by the state legislature through the Community College Act. The Board is the policy-making body for the college.
Academic Deans

Deborah Daiek, Ph.D.
Dean of Education Programs and Learning Support

Cheryl Hawkins, Ph.D.
Dean of Liberal Arts & Sciences

Robert Leadley, Ph.D.
Dean of Occupational Programs & Economic Development

Accreditation Information

Schoolcraft College is accredited by The Higher Learning Commission of the North Central Association, 30 North LaSalle, Suite 2400, Chicago, IL 60602-2504; phone 800-621-7440; fax 312-263-0456 or access the Commission’s website at www.ncahigherlearningcommission.org.

Schoolcraft has the following programs that have state and national approval and accreditation:

- The Children’s Center is accredited by the National Association for the Education of Young Children (NAEYC). For more information regarding accreditation, call 800-424-2460.
- The criminal justice associate degree with academy program is certified by the Michigan Commission on Law Enforcement Standards (MCOLES). For more information regarding certification, call 517-322-1417.
- The culinary arts program is certified by the American Culinary Federation Education Foundation Accrediting Commission (ACFEFAC). For more information regarding certification, call 904-824-4468.
- The emergency medical technology program is approved by the Michigan Department of Community Health, Bureau of Health Policy Planning Access EMS and Trauma Systems section. For more information, call 517-241-9458.
- Fire Technology Fire Fighter 1 and 2 and the fire academy are certified by the Michigan Office of Fire Fighter Training. For more information regarding certification, call 616-447-2689.
- The health information technology associate degree program is accredited by the Commission on Accreditation for Health Informatics and Information Management Education (CAHIIM). For more information regarding accreditation, call 312-233-1100.
- The medical assisting certificate program is accredited by the Commission on Accreditation of Allied Health Education Programs (CAAHEP) upon the recommendation of the Medical Assisting Education Review Board (MAERB). For more information regarding accreditation, call 727-210-2350.
- The associate degree and practical nursing programs are approved by the Michigan Board of Nursing and also nationally accredited by the Accreditation Commission for Education in Nursing (ACEN). For more information on MI-Board of Nursing approval and licensure, call 517-335-0918. For more information regarding the optional ACEN national accreditation, call 404-975-5000 or email info@acenursing.org.
- The massage therapy associate degree program is accredited by the National Certification Board of Therapeutic Massage and Bodywork Assigned Program. For more information regarding certification, call 800-296-0664.
- The Alternate Route to Teacher Certification Program (ARC) is approved by the Michigan Department of Education as a Michigan Alternate Route to Interim Teacher Certification (MARITC) Program. For additional information regarding the MARITC programs, call 517-335-6615.
Foundation Board of Governors

Founded in 1966, the Schoolcraft College Foundation assists Schoolcraft College in realizing its mission by partnering with donors, businesses, and private foundations to help secure new resources, maximize returns on existing funds, and serve as ambassadors for the College within the surrounding communities.

**Front row:** Marian Wright, Beth Kohler, Craig Bowles, Kristina Mayer, Stephanie Squires, Conway Jeffress

**Back row:** Julie Carrigan, Nicole Sherard-Freeman, Gary Gabel, Jeff McCarthy, Paul Serwinek, Ryan Jenner, Frank Ruggirello

**Not pictured:** Paul Anderson, Joseph Corriveau, Gwen Davenport, Loretta Dickey, Joan Gebhardt, Rebecca Himm, Elizabeth Johnson, Tom Marek, Charles McIlhargy, John Santeiu, Thomas Steele, Frank Winters

**Officers**

<table>
<thead>
<tr>
<th>Position</th>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>President</td>
<td>Dr. Gary Gabel</td>
</tr>
<tr>
<td>President Elect</td>
<td>Elizabeth Johnson, J.D.</td>
</tr>
<tr>
<td>Vice President</td>
<td>Kristina Mayer, Vice</td>
</tr>
<tr>
<td>President</td>
<td>Dr. Rebecca Himm</td>
</tr>
<tr>
<td>Treasurer</td>
<td>Jeff McCarthy</td>
</tr>
<tr>
<td>Secretary</td>
<td>Julie Carrigan, Secretary</td>
</tr>
</tbody>
</table>

**Board Members**

<table>
<thead>
<tr>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paul Anderson, Jr.</td>
</tr>
<tr>
<td>Craig Bowles</td>
</tr>
<tr>
<td>Joseph Corriveau, J.D.</td>
</tr>
<tr>
<td>Gwendolyn Davenport</td>
</tr>
<tr>
<td>Loretta Dickey</td>
</tr>
<tr>
<td>Dr. Rebecca Himm</td>
</tr>
<tr>
<td>Ryan Jenner, J.D.</td>
</tr>
<tr>
<td>Paul Serwinek</td>
</tr>
<tr>
<td>Nicole Sherard-Freeman</td>
</tr>
<tr>
<td>Stephanie Suqires</td>
</tr>
<tr>
<td>Thomas Steele, J.D.</td>
</tr>
<tr>
<td>Dr. Frank Winters</td>
</tr>
<tr>
<td>Marian Wright</td>
</tr>
</tbody>
</table>

**Emeritus Members**

<table>
<thead>
<tr>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thomas Marek</td>
</tr>
<tr>
<td>Charles McIlhargy</td>
</tr>
<tr>
<td>John Santeiu, Jr.</td>
</tr>
</tbody>
</table>

**Ex-Officio**

<table>
<thead>
<tr>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Joan Gebhardt</td>
</tr>
<tr>
<td>Dr. Conway A. Jeffress</td>
</tr>
<tr>
<td>Frank Ruggirello, Jr.</td>
</tr>
</tbody>
</table>
## Schoolcraft College Academic Calendar 2015–2016

<table>
<thead>
<tr>
<th>Class duration</th>
<th>Fall 2015</th>
<th>Winter 2016</th>
<th>Spring 2016</th>
<th>Summer 2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>15 weeks</td>
<td>first 12 weeks</td>
<td>first 7 weeks</td>
<td>first 12 weeks</td>
<td>12 weeks</td>
</tr>
<tr>
<td>12 weeks</td>
<td>first 7 weeks</td>
<td>second 12 weeks</td>
<td>second 7 weeks</td>
<td>7 weeks</td>
</tr>
<tr>
<td>7 weeks</td>
<td>second 12 weeks</td>
<td>second 7 weeks</td>
<td>second 12 weeks</td>
<td>7 weeks</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Classes begin</th>
<th>Fall 2015</th>
<th>Winter 2016</th>
<th>Spring 2016</th>
<th>Summer 2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aug. 31</td>
<td>Sept. 22</td>
<td>Jan. 11</td>
<td>May 9</td>
<td>July 5</td>
</tr>
<tr>
<td>Aug. 31</td>
<td>Oct. 27</td>
<td>Jan. 11</td>
<td>May 9</td>
<td>July 5</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Last day of classes</th>
<th>Fall 2015</th>
<th>Winter 2016</th>
<th>Spring 2016</th>
<th>Summer 2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dec. 20</td>
<td>Dec. 2</td>
<td>May 2</td>
<td>Aug. 1</td>
<td>Aug. 22</td>
</tr>
<tr>
<td>Nov. 23</td>
<td>Oct. 19</td>
<td>April 11</td>
<td>June 17</td>
<td>Aug. 22</td>
</tr>
<tr>
<td>Oct. 19</td>
<td>Dec. 20</td>
<td>Feb. 28</td>
<td>May 1</td>
<td>Aug. 22</td>
</tr>
<tr>
<td>Oct. 19</td>
<td>Dec. 20</td>
<td>May 1</td>
<td>May 5</td>
<td>Aug. 22</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Final grades available</th>
<th>Fall 2015</th>
<th>Winter 2016</th>
<th>Spring 2016</th>
<th>Summer 2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dec. 22</td>
<td>Oct. 22</td>
<td>May 5</td>
<td>Aug. 4</td>
<td>Aug. 25</td>
</tr>
<tr>
<td>Dec. 2</td>
<td>Dec. 22</td>
<td>April 14</td>
<td>June 30</td>
<td>Aug. 25</td>
</tr>
<tr>
<td>Oct. 22</td>
<td>Dec. 22</td>
<td>Mar. 10</td>
<td>May 1</td>
<td>Aug. 22</td>
</tr>
<tr>
<td>Oct. 22</td>
<td>Dec. 22</td>
<td>May 5</td>
<td>May 5</td>
<td>Aug. 22</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>May 1</td>
<td>September 1</td>
<td>January 1</td>
<td>March 1</td>
<td></td>
</tr>
<tr>
<td>financial aid file completed</td>
<td>July 1</td>
<td>November 1</td>
<td>March 1</td>
<td>May 1</td>
</tr>
<tr>
<td>purchase books in campus bookstore</td>
<td>August 10 – September 25</td>
<td>December 14 – January 29</td>
<td>April 25 – May 13</td>
<td>TBD</td>
</tr>
<tr>
<td>Graduation ceremonies</td>
<td>N/A</td>
<td>May 7</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

### Student holidays—No classes; most on-campus services are not available.
- September 7: Labor Day
- November 26–29: Thanksgiving Break
- December 24 – January 4: Holiday Break
- January 18: Martin Luther King Day
- February 29–March 6: Mid-Winter Break
- March 27: Easter
- May 30: Memorial Day
- July 4: Independence Day
Where to go for Assistance

College website: www.schoolcraft.edu

Academic Advising
www.schoolcraft.edu/academicadvising
Academic Advising Office,
  McDowell Center 734-462-4429
  Email: eadvise@schoolcraft.edu

Academic Records
www.schoolcraft.edu/records
  Records Office,
  McDowell Center 734-462-4677
  Email: srecord@schoolcraft.edu

Academic Standing, Probation, Dismissal
Counseling and Academic Advising,
  McDowell Center 734-462-4429
  Email: counseling@schoolcraft.edu

Adding, Dropping, Changing or Withdrawing from a Course
www.schoolcraft.edu/register
  Online add and drop: https://webadvisor.schoolcraft.edu
  Registration Center, McDowell Center 734-462-4426
  Email: registration@schoolcraft.edu

Admission to the College
www.schoolcraft.edu/admissions
  Online: https://webadvisor.schoolcraft.edu

Admissions and Welcome Center,
McDowell Center 734-462-4426
  Email: admissions@schoolcraft.edu

Answer Center
www.schoolcraft.edu/answers
  McDowell Center 734-462-4426
  Email: answers@schoolcraft.edu

Athletics
www.schoolcraft.edu/athletics
  Athletics Office,
  Physical Education Building 734-462-4804

Books & Classroom Supplies
www.schoolcraftbooks.com
  Livonia Campus Bookstore 734-462-4409
  Garden City Radcliff Center Bookstore Room 130 734-462-4778
  Email: books@schoolcraft.edu

Campus Police Authority
www.schoolcraft.edu/safety
  Livonia, Service Building 734-462-4424
  Garden City Radcliff Center 734-462-4400 ext. 6424

Campus Tours
www.schoolcraft.edu/tour
  Livonia Campus 734-462-4683
  Garden City Radcliff Center 734-462-4786
  Email: recruitment@schoolcraft.edu

Career Information
www.schoolcraft.edu/careerservices
  Career Services, McDowell Center 734-462-4421
  Email: ctc@schoolcraft.edu

Catalogs
www.schoolcraft.edu/collegecatalogs
  Admissions and Welcome Center,
  McDowell Center 734-462-4426
  Email: admissions@schoolcraft.edu

Change of Name or Address
www.schoolcraft.edu/registration
  Registration Center,
  McDowell Center 734-462-4426
  Email: registration@schoolcraft.edu

Clubs; Organizing or Joining
www.schoolcraft.edu/sao
  Student Activities Office, VisTaTech Center,
  Waterman Wing...734-462-4422
  Email: sao@schoolcraft.edu

Child Care Services
www.schoolcraft.edu/childcare
  Children's Center, South Parking Lot,
  Livonia Campus 734-462-4442

Computer Use—Academic
www.schoolcraft.edu/computerlabs
  Livonia Campus, McDowell Center, Room 100
  Garden City Radcliff Center, Room 415
  Bradner and Radcliff Center Libraries for research
  Phone: 734-462-HELP (4357)

Computer Use—Wireless Internet Access
www.schoolcraft.edu/wireless

Continuing Education and Professional Development
www.schoolcraft.edu/cepd
  Continuing Education Center 734-462-4448
  Email: CEPD@schoolcraft.edu

Counseling Services
www.schoolcraft.edu/counseling
  Counseling,
  McDowell Center 734-462-4429
  Email: counseling@schoolcraft.edu

Disability Support Services
www.schoolcraft.edu/disabilitysupport
  Disability Support Services Office,
  McDowell Center 734-462-4421
  Email: ctc@schoolcraft.edu

Distance Learning Online Courses
www.schoolcraft.edu/online
  Distance Learning Office,
  McDowell Center 734-462-4532
  Email: dl@schoolcraft.edu

Dual Enrollment
www.schoolcraft.edu/admissions
  Admissions and Welcome Center,
  McDowell Center 734-462-4426
  Email: admissions@schoolcraft.edu

Financial Aid
www.schoolcraft.edu/aid
  Student Financial Services Office,
  McDowell Center 734-462-4433
  Email: financialaid@schoolcraft.edu

Where to go for Assistance

See website for more information.
Earning Your Schoolcraft Degree or Certificate

What academic credentials does Schoolcraft offer?

<table>
<thead>
<tr>
<th>CREDENTIAL</th>
<th>Credits/ courses required</th>
<th>Has general education requirements?</th>
<th>Designed for students who want to…</th>
<th>Transfer Options</th>
<th>Worth noting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Associate in Arts, Business Administration, Education, Engineering, Fine Arts, General Studies, or Science Degree</td>
<td>60–80 credits 20–22 courses</td>
<td>Yes</td>
<td>Transfer to a bachelor’s degree program at another college or university</td>
<td>Follow MTA requirements and/or Transfer Guides</td>
<td>To ensure that credits transfer, students must work with an academic advisor or counselor and follow the appropriate transfer guide for the destination college or university.</td>
</tr>
<tr>
<td>Associate in Applied Science Degree</td>
<td>60–80 credits 20–22 courses</td>
<td>Yes</td>
<td>Seek immediate employment or transfer to a bachelor’s degree program at another college or university</td>
<td>Follow Articulation Agreement requirements</td>
<td>Some associate degrees in applied science can be transferred into a particular bachelor’s degree program at a specific university through an articulation agreement. Students must work with an academic advisor or counselor and follow the articulation guide to ensure that credits will transfer.</td>
</tr>
<tr>
<td>Certificate</td>
<td>21–48 credits 9–12 courses</td>
<td>No</td>
<td>Seek immediate employment</td>
<td>Refer to Course Equivalencies</td>
<td>Credits earned in some certificate programs can be applied toward a related Schoolcraft associate degree.</td>
</tr>
<tr>
<td>Skills Certificate</td>
<td>16–19 credits 5–6 courses</td>
<td>No</td>
<td>Seek immediate employment</td>
<td>Refer to Course Equivalencies</td>
<td>Credits earned in some skills certificate programs can be applied toward a related certificate at Schoolcraft.</td>
</tr>
<tr>
<td>Individual Courses</td>
<td></td>
<td></td>
<td>Take one class at a time and possibly transfer credits to another college/university</td>
<td>Refer to Course Equivalencies</td>
<td>Take credit courses for vocational improvement, personal enrichment or to see what Schoolcraft has to offer.</td>
</tr>
<tr>
<td>Attend Schoolcraft as a Guest Student</td>
<td></td>
<td></td>
<td>Earn credits and transfer to the home institution</td>
<td>Refer to Course Equivalencies</td>
<td>Consult with an academic advisor.</td>
</tr>
</tbody>
</table>

Work closely with your academic advisor.

What are your goals?

As you think about your next move, consider:

- Many good-paying jobs do not require a bachelor’s degree. They can be acquired with an associate degree, certificate or other credential completed in less than four years.
- Schoolcraft offers certificates and associate degrees.
- Schoolcraft has agreements with other colleges and universities which allow you to start here and transfer to finish your bachelor’s degree.
- At Schoolcraft you can follow the path that makes the most sense for you.
  - Complete a program that leads directly to a job.
  - Pursue a path that leads to transfer to a bachelor’s degree program at another college or university.
  - Start by taking a few classes and exploring your options.
Meeting General Education Requirements and Core Abilities

General Education
General education requirements address the knowledge, intellectual concepts and attitudes associated with being an educated and well-rounded person. These courses are a required part of any associate degree or bachelor’s degree offered at any college or university. Students must take the minimum courses that meet Schoolcraft’s General Education requirements. In addition to those courses that are identified as general education, Schoolcraft College also offers numerous courses in dozens of subject areas, including liberal arts, sciences and specific occupational areas. As a part of a quality initiative, Schoolcraft’s liberal arts courses are used to assess students’ general education preparation.

Core Abilities
Colleges, universities and employers want students who possess abilities that go beyond a particular discipline, including the ability to:

- Communicate effectively
- Think creatively and critically
- Use technology effectively
- Use mathematics
- Manage information
- Work cooperatively
- Act responsibly
- Demonstrate social and cultural awareness

At Schoolcraft College, the core abilities are developed in all occupational and liberal arts courses. Our associate degree programs are designed to ensure that students who graduate have mastered these eight core ability expectations. An on-going quality assurance process is used to ensure that Schoolcraft’s courses and programs will develop a student’s competencies in the core abilities. This quality assurance process meets not only the students’ needs, but also those of our accrediting body, The Higher Learning Commission.

Education Plan Requirements

<table>
<thead>
<tr>
<th>Earning Plan</th>
<th>Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Earning Schoolcraft Associate Degree</td>
<td>Meet Degree Major, General Education and Core Abilities Requirements</td>
</tr>
<tr>
<td>Earning Schoolcraft Associate Degree and transferring to four-year institution</td>
<td>Combine Degree Major, General Education, Core Abilities and MTA Requirements</td>
</tr>
<tr>
<td>Take classes without earning a degree to transfer to four-year institution</td>
<td>Meet MTA and Transfer Guide Requirements</td>
</tr>
</tbody>
</table>

Transferring from Schoolcraft to a Four-Year College or University

Options for Transfer

Earn Associate Degree in a transfer major:
- Business
- Education
- Engineering
- General Studies
- Liberal Arts
- Science (including Pre-Pharmacy)
- Fine Arts (including Theater)

Earn Associate Degree in a career-focused major that transfer through articulation, special agreement or other transfer avenues:
- Advanced Manufacturing
- Computer Graphics Technology
- Culinary Arts
- Nursing
- Criminal Justice

Career-focused majors prepare students to find employment after completing their associate degree.

Articulation and Special Agreements
Schoolcraft College has signed nearly 40 agreements that allow greater acceptance of programs and courses that are not typically transferable. These articulations serve as a bridge and give Schoolcraft College students additional options, such as three years at Schoolcraft and one year at the college or university. Schoolcraft has created special agreements with several colleges that allow you to transfer with a career-focused major. Many of these agreements allow you to take additional classes at Schoolcraft beyond the associate degree. See www.schoolcraft.edu/transfer for more specifics.

Fulfill the Michigan Transfer Agreement (MTA)
The MTA makes it easier for students to transfer their general education courses earned at community colleges like Schoolcraft to participating four-year institutions in the State of Michigan and gives students more flexibility in the selection of courses they can take to satisfy the general education requirements. See next page for specific course requirements.

*Students who started Schoolcraft College prior to Fall 2014 are subject to the Michigan Association of Collegiate Registrars and Admissions Officers (MACRAO) transfer requirements and have until Summer 2019 to complete the MACRAO agreement. Ask your counselor or advisor for more information about the MACRAO agreement.

Earn Transfer Credit for Individual Courses
You can select courses outside of any of the degree programs in the Options for Transfer section and transfer them to your elected college or university. Please refer to Course Equivalencies. See how these courses transfer by going to the Academic page of the Schoolcraft website at www.schoolcraft.edu/transfer.
## Schoolcraft College General Education and Michigan Transfer Agreement Requirements

<table>
<thead>
<tr>
<th>Discipline</th>
<th>Schoolcraft College Associate Degree General Education Requirements</th>
<th>Michigan Transfer Agreement (MTA) Requirements *</th>
</tr>
</thead>
<tbody>
<tr>
<td>English Composition</td>
<td>Select one combination of courses based on program requirements 6 cr hrs</td>
<td>ENG 101 + 102, ENG 101 + COMA 103, or ENG 102 + COMA 103, or ENG 102 + ENG 221, or ENG 221 + COMA 103 6 cr hrs</td>
</tr>
<tr>
<td>Humanities</td>
<td>Select a minimum of one course 1–4 cr hrs</td>
<td>Select two courses from two different areas within humanities 4–8 cr hrs</td>
</tr>
<tr>
<td>Mathematics</td>
<td>Select a minimum of one course 3–5 cr hrs</td>
<td>Select at least one from the following: College Algebra, Statistics, Quantitative Reasoning (a.k.a. Every day or Liberal Arts Mathematics), or an advanced level course in any of these areas. 4–5 cr hrs</td>
</tr>
<tr>
<td>Sciences</td>
<td>Select a minimum of one course 3–5 cr hrs</td>
<td>Select two science courses, with one course containing a lab, from two different areas 7–9 cr hrs</td>
</tr>
<tr>
<td>Social Sciences</td>
<td>Select a minimum of one course 3–4 cr hrs</td>
<td>Select two courses from two different areas within social science 6–8 cr hrs</td>
</tr>
<tr>
<td>Total Credits</td>
<td>16–24 credit hours</td>
<td>Minimum of 30 credit hours required</td>
</tr>
</tbody>
</table>

### Courses Meeting General Education & Michigan Transfer (MTA) Course Options

<table>
<thead>
<tr>
<th>ENGLISH COMPOSITION</th>
</tr>
</thead>
<tbody>
<tr>
<td>English (ENG)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>HUMANITIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arabic (ARB)</td>
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<tr>
<td>Art (ART)</td>
</tr>
<tr>
<td>Chinese (CHIN)</td>
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<tr>
<td>Communications (COMA)</td>
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<tr>
<td>French (FR)</td>
</tr>
<tr>
<td>German (GER)</td>
</tr>
<tr>
<td>History (HIST)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>MATHEMATICS (MATH)</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>SCIENCES (bold course numbers contain a lab)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biology (BIOL)</td>
</tr>
<tr>
<td>Chemistry (CHEM)</td>
</tr>
<tr>
<td>Geography (GEOG)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SOCIAL SCIENCES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anthropology (ANTH)</td>
</tr>
<tr>
<td>Economics (ECON)</td>
</tr>
<tr>
<td>Geography (GEOG)</td>
</tr>
<tr>
<td>History (HIST)</td>
</tr>
<tr>
<td>Political Science (POLS)</td>
</tr>
<tr>
<td>Psychology (PSYCH)</td>
</tr>
<tr>
<td>Sociology (SOC)</td>
</tr>
</tbody>
</table>

All courses on this list qualify to be used toward meeting Schoolcraft College General Education requirements and are a part of a liberal arts distribution of learning.

ITALICIZED TEXT = Courses that may only be used to satisfy SC General Education requirements, but do not qualify to meet Michigan Transfer Agreement (MTA) requirements.

* = Course or combination of courses that may only be used to satisfy the final requirement for MTA math or communications.

Bold Course Number=Lab Science

Please note: Students may not use the same History course to satisfy both the Humanities and Social Science distribution area.
Students from other colleges welcome at Schoolcraft

- Students at other colleges can enroll as guest students at Schoolcraft.
  - Many guest students take classes over the spring and summer and transfer the credits back to their home college or university.
  - Guest students can enroll in traditional, online, hybrid and Open Entry/Open Exit courses at Schoolcraft. Many of these courses will transfer to their home college or university.

- The benefits of being a guest student at Schoolcraft include:
  - Cost savings thanks to Schoolcraft’s lower tuition rates.
  - Reducing credit hour load at the home university, freeing up time for a part-time job, internship, or student activities.
  - If enough credits at Schoolcraft are completed over spring and summer, the student can eliminate a semester at the home university and shorten the time it takes to complete a bachelor’s degree.

Transferring credits to Schoolcraft from another college

- Credits earned at another college or university—including other community colleges—can be transferred to Schoolcraft.
  - Students who earn 45 credits at Schoolcraft and continue at another college or university can still earn a Schoolcraft degree by sending their transcript from the second college back to SC. This is called “reverse transfer.”
  - Students who started at another college or university might be able to apply some or all of those credits toward a Schoolcraft credential.
  - Consult with an academic advisor or counselor to explore your options for transferring credits earned elsewhere to Schoolcraft.

Students with credentials or work experience requesting Prior Learning Credits

- Credits may be earned with evidence of certain types of learning that may have occurred outside the classroom. This is called Prior Learning Credit (PLC) and should be discussed with your academic advisor or counselor to explore your options.

For more information on transfer options, visit www.schoolcraft.edu/academics.
Degree Requirements

ASSOCIATE IN APPLIED SCIENCE (AAS)
By obtaining an associate in applied science degree, students will be prepared to seek employment in their chosen career field. To explore transferability options, it is recommended that students meet with a counselor or academic advisor.

1. English—6 credit hours as specified by individual curriculum.
2. Completion of one of the occupational programs listed in the Schoolcraft College catalog.
3. All courses that apply to this degree must be at the 100 level or higher.
4. Complete all Schoolcraft College core ability and general education requirements.

ASSOCIATE IN ARTS (AA)
The associate in arts degree is for students who plan to transfer to a four-year college or university. The associate in arts degree is appropriate for most transfer programs leading to a baccalaureate degree.

1. English 101 and 102 required—6 credit hours.
2. Humanities*—Minimum 8 credit hours in more than one discipline.
   Art, Communication Arts, English Literature, Foreign Language, History, Humanities, Music, Philosophy, or Theatre.
   One course must be a Communication Arts or a Foreign Language course.
3. Mathematics/Sciences—Minimum 8 credit hours.
   One course must be a mathematics course.
   One course must be a lab science course in Biology, Chemistry, Geography 105 or 135, Geology, or Physics.
4. Social Sciences*—Minimum 8 credit hours in more than one discipline.
   Anthropology, Geography 133 or 241, History, Political Science, Psychology, or Sociology.
   Economics 201 and 202 required. Political Science 105 recommended.
5. Additional Required Courses**—11 credit hours. Accounting 201 and 202 required. Business 101 required.
6. General Electives—Minimum 16 credit hours.
   Electives must be chosen from transferable 100- or 200-level courses.
7. All courses that apply to this degree must be at the 100- or 200-level.
8. Complete all Schoolcraft College core ability and general education requirements.

ASSOCIATE IN BUSINESS ADMINISTRATION (ABA)
The Associate in Business Administration (ABA) transfer degree is for students who plan to transfer to a four-year college or university program. The ABA degree provides the framework for four-year college degrees in, but not limited to, the following majors: Accounting, Business Administration, Computer Information Systems, Finance, Human Resource Management, International Business, Management, and Marketing.

Schoolcraft students may complete the ABA by following the requirements specified by the transfer institution and Schoolcraft College. Students are advised to discuss these requirements with their advisor, counselor, or the transfer institution.

1. English 101 and 102 required—6 credit hours.
2. Humanities*—Minimum 8 credit hours in more than one discipline.
   Art, Communication Arts, English Literature, Foreign Language, History, Humanities, Music, Philosophy, or Theatre. Communication Arts 103 required.
3. Mathematics/Sciences—Minimum 8 credit hours.
   One course must be a mathematics course.
   One course must be a lab science course in Biology, Chemistry, Geography 105 or 135, Geology, or Physics.
4. Social Sciences*—Minimum 11 credit hours in more than one discipline.
   Anthropology, Geography 133 or 241, History, Political Science, Psychology, or Sociology.
   Economics 201 and 202 required. Political Science 105 recommended.
5. Additional Required Courses**—11 credit hours. Accounting 201 and 202 required. Business 101 required.
6. General Electives—Minimum 16 credit hours.
   Electives must be chosen from 100- or 200-level courses. The following courses are recommended while referring to the transfer institution’s requirements: Business 207, Mathematics 122, Computer Information Systems 115 or 120 recommended.
7. All courses that apply to this degree must be at the 100- or 200-level.
8. Complete all Schoolcraft College core ability and general education requirements.

* Please note: Students may not use the same History course to satisfy both the Humanities and Social Sciences distribution requirement.

** Occupational courses may not account for more than 15 credits in an ABA degree. Transferable liberal arts courses may be found in the Schoolcraft College General Education and Michigan Transfer Agreement (MTA) requirements. While occupational courses provide immediate skill-building opportunities, their transferability and value should be discussed with a counselor or advisor.
ASSOCIATE IN ENGINEERING (AE)
The associate in engineering degree is for students who plan to pursue a baccalaureate degree in engineering.

1. English 101 and 102 required—6 credit hours.
2. Humanities*—Minimum 6 credit hours in more than one discipline.
   Art, Communication Arts, English Literature, Foreign Language, History, Humanities, Music, Philosophy, or Theatre.
4. Social Sciences*—Minimum 7 credit hours in more than one discipline.
   Anthropology, Geography 133 or 241, History, Political Science, Psychology, or Sociology. Economics 201 required.
5. General Electives—Minimum 7 credit hours. Refer to the transfer institution’s requirements.
   Electives must be chosen from 100- or 200-level courses.
6. All courses that apply to this degree must be at the 100- or 200-level.
7. Complete all Schoolcraft College core ability and general education requirements.

* Please note: Students may not use the same History course to satisfy both the Humanities and Social Sciences distribution requirement.

ASSOCIATE IN FINE ARTS (AFA)
The associate in fine arts degree is for students who plan to transfer to a four-year college or university. The associate in fine arts degree is appropriate for most transfer programs leading to a baccalaureate degree in the fine arts fields.

1. English 101 and 102 required—6 credit hours.
2. Humanities*—20 credit hours in more than one discipline. Students are recommended to complete a specific track as specified below while referring to the transfer institution’s requirements**:
   Art courses recommended: 105, 106, 109 or 126, 115, 116, 201, 248.
   English Literature courses recommended: 200, 205, 206, 243, 244, 245, 246, 248.
3. Mathematics/Sciences—8 credit hours.
   One course must be a mathematics course
   One course must be a lab science course in Biology, Chemistry, Geography 105 or 135, Geology, or Physics.
4. Social Sciences*—8 credit hours in more than one discipline. Anthropology, Economics, Geography 133 or 241, History, Political Science, Psychology, or Sociology.
5. General Electives—18 credit hours.
   Electives must be chosen from transferable 100- or 200-level courses. The following courses are recommended while referring to the transfer institution’s requirements:
   Art courses recommended: 218, 219, 125, 205, 243, 244.
   English Literature courses recommended: 170, 203, 275.
6. All courses that apply to this degree must be at the 100- or 200-level.
7. Complete all Schoolcraft College core ability and general education requirements.

* Please note: Students may not use the same History course to satisfy both the Humanities and Social Sciences distribution requirement.

** Occupational or applied Art, English Literature, or Music courses may not account for more than 15 credits in an AFA degree. Transferable courses may be found in the Schoolcraft College MTA requirements. While the applied courses provide immediate skill building opportunities, their transferability and value should be discussed with a counselor or academic advisor.

Note: Italicized and bolded course numbers are MTA supported courses that may fulfill a transfer institution’s general education requirement. Final decisions regarding transferability of courses are determined by the receiving institution.
ASSOCIATE IN GENERAL STUDIES (AGS)
The associate in general studies degree is for students who wish to earn an associate degree that may transfer to a college or university through an individualized program of study.

1. English 101 and 102 required—6 credit hours.
2. Humanities*—8 credit hours. Art, Communication Arts, English Literature, Foreign Language, History, Humanities, Music, Philosophy, or Theatre.
3. Mathematics/Sciences—Minimum 8 credit hours.
   One course must be a mathematics course.
   One course must be a lab science course in Biology, Chemistry, Geography 105 or 135, Geology, or Physics.
4. Social Sciences*—8 credit hours in more than one discipline. Anthropology, Economics, Geography 133 or 241, History, Political Science, Psychology, or Sociology.
5. General Electives—30 credit hours.
   Electives must be chosen from transferable or occupational 100- or 200-level courses.
6. All courses that apply to this degree must be at the 100- or 200-level.
7. Complete all Schoolcraft College core ability and general education requirements.

* Please note: Students may not use the same History course to satisfy both the Humanities and Social Sciences distribution requirement.

OR

1. English 101 and 102 required—6 credit hours.
2. Any two of the following for a total of 24 credit hours:
   Humanities*—12 credit hours required.
   Mathematics/Sciences—12 credit hours required.
   One course must be a mathematics course.
   One course must be a lab course.
   Social Sciences*—12 credit hours required.
3. General Electives—18 credit hours.
   Electives must be chosen from transferable 100- or 200-level courses.
4. All courses that apply to this degree must be at the 100- or 200-level.
5. Complete all Schoolcraft College core ability and general education requirements.

* Please note: Students may not use the same History course to satisfy both the Humanities and Social Sciences distribution requirement.

ASSOCIATE IN SCIENCE (AS)
The associate in science degree is for students who plan to pursue a baccalaureate degree in a science field.

1. English 101 and 102 required—6 credit hours.
2. Humanities*—Minimum 8 credit hours in more than one discipline.
   Art, Communication Arts, English Literature, Foreign Language, History, Humanities, Music, Philosophy, or Theatre.
3. Mathematics/Sciences—Minimum 20 credit hours.
   One course must be a mathematics course.
   One course must be a lab science course in Biology, Chemistry, Geography 105 or 135, Geology, or Physics.
4. Social Sciences*—8 credit hours in more than one discipline.
   Anthropology, Economics, Geography 133 or 241, History, Political Science, Psychology, or Sociology.
5. General Electives—18 credit hours.
   Electives must be chosen from transferable 100- or 200-level courses.
6. All courses that apply to this degree must be at the 100- or 200-level.
7. Complete all Schoolcraft College core ability and general education requirements.

* Please note: Students may not use the same History course to satisfy both the Humanities and Social Sciences distribution requirement.

65% of Schoolcraft graduates surveyed in the year following their graduation said that they were pursuing further education at another college or university. Source: Graduate Follow up Survey
Areas of Study

Students can choose from more than 70 different majors at Schoolcraft College. In addition, Schoolcraft offers a variety of paths by which students can pursue their education and career goals. Student must maintain an overall grade-point average of 2.0 or better to earn a degree or certificate.

**Associate degree**
- Requires completion of 60–80 credits (20–22 courses).
- Some are designed for immediate employment.
- Some are designed for transfer to a bachelor's degree program at another college or university.
- At least 15 credits must be earned at Schoolcraft.*

**Skills certificate**
- Requires completion of 16–19 credits (5–6 courses).
- At least 50% of credits must be earned at Schoolcraft.*

**Certificate**
- Requires completion of 21–48 credits (9–12 courses).
- Designed for immediate employment.
- Some skills certificates include credits that can be applied to a certificate.
- Some certificates include credits that can be applied to an associate degree.
- At least 50% of credits must be earned at Schoolcraft.*

**Post-associate certificate**
- Requires completion of 16 credit hours average (5–6 courses).
- Student must have earned an associate degree.
- Provides student with advanced job skills.
- At least 50% of credits must be earned at Schoolcraft.*

**Courses only designation**
- Some areas of study are marked 'courses only' because they have courses but no certificates or degrees.
- Many of these courses can be applied toward a Schoolcraft certificate or degree.
- Many can be taken for transfer to another college or university.

* Work with an academic advisor or counselor to determine if credits you've earned at another college or university can be applied toward a Schoolcraft certificate or degree.

See also the Alphabetical Departments and Program List beginning on page.

### Departments and Programs listed by Area of Study

<table>
<thead>
<tr>
<th>Area of Study</th>
<th>Skills certificate</th>
<th>Certificate</th>
<th>Associate/Transfer degree</th>
<th>Post-associate certificate</th>
<th>Courses only</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arabic</td>
<td>†</td>
<td>✓</td>
<td></td>
<td></td>
<td>✓</td>
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<tr>
<td>Art and Design</td>
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<tr>
<td>Arts—Fine Arts</td>
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<td>†</td>
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<tr>
<td>Broadcast Communications (articulation with Specs Howard School of Broadcasting)</td>
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<tr>
<td>Chinese</td>
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<td>Communication Arts</td>
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<tr>
<td>Computer Graphics Technology</td>
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<tr>
<td>Computer Graphics Technology: 3D and Video Graphics</td>
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<tr>
<td>Computer Graphics Technology: Foundation</td>
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<td>✓</td>
<td>✓</td>
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<tr>
<td>Computer Graphics Technology: Graphic Design</td>
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<td>✓</td>
<td>✓</td>
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<tr>
<td>Computer Graphics Technology: Web and Interactive Media</td>
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<td>✓</td>
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<tr>
<td>English</td>
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<tr>
<td>French</td>
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<tr>
<td>German</td>
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<td>History</td>
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<tr>
<td>Humanities</td>
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<td>Italian</td>
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<tr>
<td>Liberal Arts **</td>
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<tr>
<td>Music: Foundations</td>
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<tr>
<td>Music: Intermediate</td>
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<tr>
<td>Music: Piano Teacher</td>
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<tr>
<td>Philosophy</td>
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<tr>
<td>Sound Recording Technology</td>
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<tr>
<td>Spanish</td>
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<td>†</td>
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<tr>
<td>Theatre</td>
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</tbody>
</table>

### Culinary Arts

<table>
<thead>
<tr>
<th>Courses only</th>
<th>Skills certificate</th>
<th>Certificate</th>
<th>Associate/Transfer degree</th>
<th>Post-associate certificate</th>
<th>Courses only</th>
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<tbody>
<tr>
<td>Culinary Arts</td>
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<tr>
<td>Culinary Baking and Pastry Arts</td>
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<tr>
<td>Culinary Management</td>
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</tr>
</tbody>
</table>

An Alphabetical Department and Program List begins on page 21.
## Departments and Programs listed by Area of Study

An Alphabetical Department and Program List begins on page 21.

<table>
<thead>
<tr>
<th>Areas of Study</th>
<th>Skill certificate</th>
<th>Certificate</th>
<th>Associate/Transfer degree</th>
<th>Post-associate certificate</th>
<th>Courses only</th>
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<tbody>
<tr>
<td><strong>Business &amp; Information Technology</strong></td>
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<tr>
<td>Accounting</td>
<td>✓</td>
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<tr>
<td>Accounting for Small Business</td>
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<tr>
<td>Business</td>
<td></td>
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<tr>
<td>Business Administration</td>
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<tr>
<td>May be applicable in such areas as Accounting, Computer Information Systems,</td>
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<tr>
<td>Finance, Human Resource Management, International Business, Management and</td>
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<tr>
<td>Marketing.</td>
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<tr>
<td>Business: Marketing and Applied Management</td>
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<td>Business: Small Business for Entrepreneurs</td>
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<tr>
<td>Business Information Technology</td>
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<td>Computer Information Systems</td>
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<tr>
<td>Computer Information Systems: Computer Support Technician</td>
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<tr>
<td>Computer Information Systems: Introductory</td>
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<tr>
<td>Computer Information Systems: Networking Technology Integration</td>
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<tr>
<td>Computer Information Systems: Programming</td>
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<tr>
<td>Computer Information Systems: Web Specialist</td>
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<td>Health **</td>
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<td>Medical Assisting: Medical Biller/Receptionian</td>
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<td>Physical Education</td>
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</table>

Most of the associate degree programs offered by Schoolcraft College are transferable to four-year colleges and universities. Consult with your academic advisor or counselor to ensure your credits will transfer.

**KEY:**

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### Departments and Programs listed by Area of Study

An Alphabetical Department and Program List begins on page 21.

<table>
<thead>
<tr>
<th>Departments &amp; Programs</th>
<th>Skills certificate</th>
<th>Certificate</th>
<th>Associate/Transfer degree</th>
<th>Post-associate certificate</th>
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<td>✔</td>
<td>❌</td>
<td>❌</td>
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<td>Computer Aided Design: Mechanical</td>
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<td>Computer Aided Drafting: Technical Design</td>
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<td>Engineering</td>
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<tr>
<td>May be applicable in such special engineering areas as Chemical, Civil, Computer Systems, Electrical, Environmental, Industrial, Manufacturing, Materials Science, Mechanical and Sustainability.</td>
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<td>Manufacturing: Plastic Technology</td>
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<td>Welding: Joining Technology</td>
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<td>Criminal Justice with Academy</td>
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<td>Fire Technology</td>
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<td>Fire Technology with Academy</td>
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<td>Collegiate Skills</td>
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<tr>
<th>Alphabetical Department and Program List</th>
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<th>Area of Study</th>
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<td>Manufacturing &amp; Technology</td>
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</table>
ARTS, HUMANITIES & COMMUNICATION

Critical thinking and creativity skills are often the cornerstone of careers in today’s fast-paced global economy. With 15 different areas of study in the arts, humanities and communication disciplines, Schoolcraft provides students with strong liberal arts programs that can lead directly to a career or prepare them to transfer to a four-year institution.

All courses are not offered each semester. Please work with an academic advisor or counselor to develop a schedule that will work for you.

Unless otherwise specified, salary data is sourced from the Bureau of Labor Statistics (www.bls.gov/), Glassdoor.com or Career Cruising, an online resource available through our Career Services office (www.schoolcraft.edu/careerservices). Earnings may vary based on experience, education and location.

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Areas of Study

Schoolcraft College 2015–2016 Catalog

Arts, Humanities & Communication

FACULTY

Art and Design
James Nissen
734-462-4400 ext. 5719 | jnissen@schoolcraft.edu
Sarah Olson
734-462-4400 ext. 5221 | solson@schoolcraft.edu

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JuJuan C. Taylor
734-462-4400 ext. 5261 | jtaylor@schoolcraft.edu

English
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Steven Berg
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Sumita Chaudhery
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Helen Ditouras
734-462-4400 ext. 5647 | hditoura@schoolcraft.edu
Steven Dolgin
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Mark Harris
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Archanah Maheshwari
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Foreign Languages
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734-462-4400 ext. 5285 | anofz@schoolcraft.edu
Anita Suess Kaushik
French, German, Italian
734-462-4400 ext. 5668 | asuess@schoolcraft.edu

History
Steven Berg
734-462-4400 ext. 5803 | sberg@schoolcraft.edu
Kimberly Dyer
734-462-4400 ext. 5280 | kdyer@schoolcraft.edu
Kent Kirkpatrick
734-462-4400 ext. 5754 | kkirkpat@schoolcraft.edu
Alexander Thomson
734-462-4400 ext. 5294 | athomson@schoolcraft.edu

Humanities
James Nissen
734-462-4400 ext. 5719 | jnissen@schoolcraft.edu

Music
James Nissen
734-462-4400 ext. 5719 | jnissen@schoolcraft.edu
Barton Polot
734-462-4400 ext. 5217 | bpolot@schoolcraft.edu

Philosophy
Mark Huston
734-462-4400 ext. 5673 | mhuston@schoolcraft.edu

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734-462-4400 ext. 5527 | jhartman@schoolcraft.edu

INSTRUCTIONAL ADMINISTRATOR

Cheryl D. Hawkins
Dean of Liberal Arts and Sciences
734-462-4400 ext. 5336 | chawkins@schoolcraft.edu

FACULTY

Broadcast Communications
Contact the Associate Dean of Occupational Programs

Computer Graphics Technology
Colleen M. Case
734-462-4400 ext. 5219 | ccas@schoolcraft.edu
Michael Mehall
734-462-4400 ext. 5705 | mmehall@schoolcraft.edu
Stephen Wroble
734-462-4400 ext. 5635 | swroble@schoolcraft.edu

Sound Recording Technology
Todd Sager
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INSTRUCTIONAL ADMINISTRATORS

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Dean of Occupational Programs and Economic Development
734-462-4530 | rleadley@schoolcraft.edu

Amy M. Jones
Associate Dean of Occupational Programs
734-462-4530 | ajones@schoolcraft.edu

FACULTY

English as a Second Language
Christa Fichtenberg
734-462-4400 ext. 5522 | cfichten@schoolcraft.edu

INSTRUCTIONAL ADMINISTRATORS

Deborah B. Daiek
Dean of Education Programs and Learning Support
734-462-4555 | daiek@schoolcraft.edu
Dennis Genig
Associate Dean of Education Programs
734-462-4335 | dgenig@schoolcraft.edu
Broadcast Communications AAS Degree

Students will develop the skills necessary to function as entry-level employees in radio, television, cable television or industry television settings. The sixty-hour program is articulated with the Specs Howard School (SHS) of Media Arts, Inc. located in Southfield, Michigan. Fifteen credit hours are awarded for completion of the SHS certificate program and the remaining credit hours are taken at Schoolcraft.

All courses are not offered each semester. Students should work with an academic advisor or counselor to develop a schedule that will work for them. The program can begin at either school. Students who satisfactorily complete all college and program requirements qualify for an associate in applied science degree.

Specs Howard School of Media Arts
Approved Articulation Credit

Total Credits 15

SCHOOLCRAFT COLLEGE  College Requirements
Students are encouraged to take their college requirements early in their program. However, these courses are not required before beginning program courses.

SAMPLE SCHEDULE OF COURSES

First Year—Fall Semester
Mathematics  Select 1 3–4
MATH 101  Business Mathematics
MATH 113  Intermediate Algebra for College Students
BUS 101  Introduction to Business 3
COMA 103  Fundamentals of Speech 3
ENG 101  English Composition 1 3
THEA 208  Acting I 3

Total Credits 15–16

First Year—Winter Semester
CIS 105  Computer Orientation 1
COMA 201  Discussion 3
GEOG 135  Earth Systems 4
PSYCH 201  Introductory Psychology 4
THEA 241*  Oral Interpretation of Literature 3

Total Credits 15

PROGRAM TOTAL 60–62 CREDITS

* This class is offered on a rotational basis.
Contact Liberal Arts office for current offerings.

** Any 100- or 200-level course not previously taken.

Students planning to transfer should check the transfer institution’s requirements/guides or discuss their options with a counselor or advisor. Number of credits may vary depending on the course selection.
### COMPUTER GRAPHICS TECHNOLOGY

**Foundation Skills Certificate**

Schoolcraft program code # CRT.000364

The foundation skills certificate provides students with basic design and application skills for a career in the fields of graphic design and computer graphics. These skills are required for entry into any of the computer graphics technology certificate tracks. All courses are not offered each semester. Students should work with an academic advisor or counselor to develop a schedule that will work for them. Students who satisfactorily complete the program requirements qualify for a certificate of program completion.

Note: Schoolcraft has articulation agreements with some high schools and career/technical centers which allow for credits earned to be applied toward a specific Schoolcraft certificate or associate degree. In addition, students may have some non-instructional life experiences that make them eligible for credit. Students should work with an academic advisor or counselor to explore their options for transfer and work life credit.

**SAMPLE SCHEDULE OF COURSES**

First Year—Fall Semester

- **CGT 109** Design Concepts and Technology ............ 3
- **CGT 123** Illustration—Illustrator .......................... 3
- **CGT 125** Digital Imaging 1—Photoshop ................. 3
- **CGT 127** Publishing—InDesign .......................... 3
- **HUM 106** Introduction to Art and Music ................. 1

Track Option: Select 1 .............................................. 3

3D Video: **CGT 247 3D Animation—Introduction**

Web Interactive: **CGT 136 Web Design and Development 1**

Digital Arts: **ART 105 Basic Drawing**

**PROGRAM TOTAL 16 CREDITS**

### Computer Graphics Technology: Post-Associate Certificate

Schoolcraft program code #PAC.00181

The post-associate certificate is for those students who have a degree in computer graphics and/or are working in the profession and wish to add an additional area of specialty to their portfolio. Students should take a combination of six courses based on the specific area of study. It is highly recommended that Computer Graphics Technology (CGT) faculty be consulted when selecting courses. Students can assemble courses to develop expertise in 3D animation, video graphics, web design, interactive media, publishing or graphic design. Prerequisite and co-requisite requirements must be honored.

All courses are not offered each semester. Students should work with an academic advisor or counselor to develop a schedule that will work for them. The post-associate certificate is awarded upon successful completion of 16 credits (exact number may vary slightly due to credit value of course).

- **ART 105** Basic Drawing ........................................ 3
- **ART 115** Art History 1 ........................................ 4
- **ART 116** Art History 2 ........................................ 4
- **ART 125** Life Drawing .......................................... 3
- **ART 243** Sculpture ............................................. 3
- **CGT 136** Web Design and Development 1 ............... 3
- **CGT 141** Introduction to Interactive Media ............... 3
- **CGT 149** Typography .......................................... 3
- **CGT 154** Sound Editing for Graphic Artists ............. 2
- **CGT 157** Prepress .............................................. 2
- **CGT 163** Web Design and Development 2 ............... 3
- **CGT 166** Photography ......................................... 3
- **CGT 168** Storyboarding ........................................ 3
- **CGT 208** Digital Video Production ......................... 3
- **CGT 210** Visual Effects Production ......................... 3
- **CGT 211** Flash .................................................. 3
- **CGT 212** Flash Action Scripting ............................. 3
- **CGT 215** Motion Graphics 1—After Effects ............ 3
- **CGT 226** Digital Imaging 2—Photoshop ................... 3
- **CGT 231** Electronic Publishing .................. 3
- **CGT 234** Web Design and Development 3 ............... 3
- **CGT 244** History of Animation ....................... 3
- **CGT 246** Motion Graphics 2—After Effects ............ 3
- **CGT 247** 3D Animation—Introduction .................... 3
- **CGT 252** 3D Animation—Animating ....................... 3
- **CGT 254** 3D Animation—Advanced Models and Textures 3
- **WELD 112** Contemporary Metal Sculpture .............. 3

**PROGRAM TOTAL 16–20 CREDITS**

*CC — Career Cruising. www.careercruising.com  
GD — Glass Door. www.glassdoor.com  

**Areas of Study | Schoolcraft College 2015–2016 Catalog**
### 3D AND VIDEO GRAPHICS TRACK

#### Computer Graphics Technology: 3D and Video Graphics Certificate

**Schoolcraft program code # 1YC.00132**

This certificate prepares students for a career combining the skills of three-dimensional imaging and video production. With the industry's expansion of computer graphics imaging (CGI), these skills will allow the students to create 3D objects and composite videos with special effects and motion graphics. It creates the opportunity to develop simulations, engineering and architectural visualization for advertising and marketing projects. All courses are not offered each semester. Students should work with an academic advisor, counselor or Computer Graphics Technology (CGT) faculty to develop a schedule that will work for them. Students who satisfactorily complete the program requirements qualify for a certificate of program completion.

**SAMPLE SCHEDULE OF COURSES**

**First Year — Fall Semester**
- CGT 166 Photography .................. 3
- CGT 168 Storyboarding .................. 3
- CGT 215 Motion Graphics 1—After Effects .................. 3
- CGT 226 Digital Imaging 2—Photoshop .................. 3
- CGT 254 3D Animation—Advanced Models and Textures .................. 3

**Total Credits 15**

**First Year — Winter Semester**
- CGT 208 Digital Video Production ................. 3
- CGT 210 Visual Effects Production ................. 3
- CGT 246 Motion Graphics 2—After Effects ................. 3
- CGT 252 3D Animation—Animating ................. 3
- CGT 256 Portfolio 3D—Reel Development ................. 3

**Total Credits 15**

**PROGRAM TOTAL 30 CREDITS**

#### Computer Graphics Technology: 3D and Video Graphics AAS Degree

**Schoolcraft program code # AAS.00032**

Similar to the 3D and video graphics certificate, this degree provides students for a career combining the skills of three-dimensional imaging and video production. In addition, it includes capstone courses that develop creative and practical skills beyond what is taught in the certificate program, as well as coursework that meets the general education requirements for a Schoolcraft associate in applied science (AAS) degree. The degree strengthens the student’s position in the profession and gives the student an academic credential with a higher standing.

All courses are not offered each semester. Students should work with an academic advisor, counselor or CGT faculty to develop a schedule that will work for them. Students who satisfactorily complete all college and program requirements qualify for an associate in applied science degree. Students wishing to pursue a post-associate certificate must have a computer graphics technology associate degree or equivalent professional experience.

**SAMPLE SCHEDULE OF COURSES**

**First Year — Fall Semester**
- Mathematics Select 1 .................. 3-4
- MATH 101 Business Mathematics
- MATH 102 Technical Mathematics
- MATH 113 Intermediate Algebra
- CGT 166 Photography .................. 3
- CGT 168 Storyboarding .................. 3
- CGT 215 Motion Graphics 1—After Effects .................. 3
- CGT 254 3D Animation—Advanced Models .................. 3

**Total Credits 15—16**

**First Year — Winter Semester**
- ENG 101 English Composition 1 .................. 3
- COMA 103 Fundamentals of Speech .................. 3
- CGT 208 Digital Video Production .................. 3
- CGT 246 Motion Graphics 2—After Effects .................. 3
- CGT 252 3D Animation—Animating .................. 3

**Total Credits 15**

**Second Year — Fall Semester**
- ENG 102 English Composition 2 .................. 3
- Science Select 1 .................. 4
- BIOL 101 General Biology
- CHEM 111 General Chemistry 1
- PHYS 104 Introduction to Astronomy
- CGT154 Sound Editing for Graphic Artists .................. 2
- CGT 226 Digital Imaging 2—Photoshop .................. 3
- CGT 244 History of Animation .................. 3

**Total Credits 15**

**Second Year — Winter Semester**
- Social Science Select 1 .................. 3
- POLS 105 Survey of American Government
- PSYCH 153 Human Relations
- CGT 210 Visual Effects .................. 3
- BUS 103 Organizing a Small Bus .................. 3
- Capstone Select 1 .................. 3
- CGT 250 Practical Application
- CGT 270* Internship
- CGT 298* Honors Studies
- CGT 256 Portfolio—Reel Development .................. 3

**Total Credits 15**

**PROGRAM TOTAL 60–61 CREDITS**

* These classes are offered as independent learning. Contact CGT faculty.

Students planning to transfer should check the transfer institution’s requirements/guides or discuss their options with a counselor or advisor. Number of credits may vary depending on the course selection.
**SAMPLE SCHEDULE OF COURSES**

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<td><strong>GRAPHIC ARTS TRACK</strong></td>
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<tr>
<td><strong>Schoolcraft program code # AAS.00028</strong></td>
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<tr>
<td>Similar to the graphic arts certificate, this program teaches students how to blend traditional art techniques with skill using professional graphic design software to create illustrative, fine art and graphic media, preparing students for a wide range of jobs within the design industry. In addition, it includes capstone courses that develop creative and practical skills beyond what is taught in the certificate program, as well as coursework that meets the general education requirements for a Schoolcraft associate in applied science (AAS) degree. The degree strengthens the student's position in the profession and gives the student an academic credential with a higher standing.</td>
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<tr>
<td>This program teaches students how to blend traditional art techniques with skill using professional graphic design software to create illustrative, fine art and graphic media. By including instruction in color, type, image structure, production planning and marketing, the program prepares students for a wide range of jobs within the design industry. All courses are not offered each semester. Students should work with an academic advisor, counselor or CGT faculty to develop a schedule that will work for them. Students who satisfactorily complete the program requirements qualify for a certificate of program completion.</td>
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<td>CGT 166 Photography 3</td>
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<tr>
<td>CGT 149 Typography 3</td>
<td></td>
</tr>
<tr>
<td>CGT 231 Electronic Publishing 3</td>
<td></td>
</tr>
<tr>
<td>CGT 257 Portfolio Preparation 3</td>
<td></td>
</tr>
<tr>
<td>Elective CGT or ART 3</td>
<td></td>
</tr>
<tr>
<td><strong>Total Credits 15</strong></td>
<td></td>
</tr>
<tr>
<td><strong>PROGRAM TOTAL 30 CREDITS</strong></td>
<td></td>
</tr>
</tbody>
</table>

Arts, Humanities & Communication
**Computer Graphics Technology: Web and Interactive Media Certificate**

**Schoolcraft program code # 1YC.00131**

This certificate provides students with the web development, technical programming and graphic design skills necessary to build web and multimedia sites. The focus is on developing a skill set that enables students to stay in-step with constantly evolving requirements and standards in the interactive media industry. All courses are not offered each semester. Students should work with an academic advisor, counselor or Computer Graphic Technology (CGT) faculty to develop a schedule that will work for them. Students who satisfactorily complete the program requirements qualify for a certificate of program completion.

**SAMPLE SCHEDULE OF COURSES**

**First Year—Winter Semester**
- CGT 149 Typography ................. 3
- CGT 161 History of Graphic Design ................. 3
- CGT 163 Web Design and Development 2 ................. 3
- CGT 168 Storyboarding ................. 3
- CGT 211 Flash ................. 3
- Total Credits 15

**Second Year—Fall Semester**
- CGT 149 Typography ................. 3
- CGT 211 Flash ................. 3
- Total Credits 15

**PROGRAM TOTAL 30 CREDITS**

**Computer Graphics Technology: Web and Interactive Media AAS Degree**

**Schoolcraft program code # AAS.00031**

Similar to the web and interactive media certificate, this degree provides students with the web development, technical programming and graphic design skills necessary to build web and multimedia sites. In addition, it includes capstone courses that develop creative and practical skills beyond what is taught in the certificate program, as well as coursework that meets the general education requirements for a Schoolcraft associate in applied science (AAS) degree.

The degree strengthens the student’s position in the profession and gives the student an academic credential with a higher standing.

All courses are not offered each semester. Students should work with an academic advisor, counselor or CGT faculty to develop a schedule that will work for them. Students who satisfactorily complete all college and program requirements qualify for an associate in applied science degree. Students planning to transfer should check the transfer institution’s requirements/guides or discuss their options with a counselor or advisor. Number of credits may vary depending on the course selection.

**SAMPLE SCHEDULE OF COURSES**

**First Year—Fall Semester**
- ENG 101 English Composition 1 ................. 3
- MATH 101 Business Mathematics ................. 3
- MATH 163 Web Design and Development 2 ................. 3
- CGT 149 Typography ................. 3
- CGT 211 Flash ................. 3
- Total Credits 15

**Second Year—Fall Semester**
- Science Select 1 .......................... 4
- BIOL 101 General Biology .................. 3
- CHEM 111 General Chemistry 1 ................. 3
- PHYS 104 Introduction to Astronomy ................. 3
- COMA 103 Fundamentals of Speech ................. 3
- CGT 234 Web Design and Development 3 ................. 3
- CGT 226 Digital Imaging 2—Photoshop ................. 3
- BUS 122 Advertising ................. 3
- Total Credits 16

**Second Year—Winter Semester**
- Social Science Select 1 .......................... 3
- POLS 105 Survey of American Government ................. 3
- PSYCH 153 Human Relations ................. 3
- CIS 238 Java Script ................. 3
- BUS 103 Organizing a Small Bus ................. 3
- Capstone Select 1 .......................... 3
- CGT 250 Practical Application ................. 3
- CGT 270* Internship ................. 3
- CGT 298* Honors Studies ................. 3
- CGT 257 Portfolio Preparation ................. 3
- Total Credits 15

**PROGRAM TOTAL 61-62 CREDITS**

* These classes are offered as independent learning. Contact CGT faculty.

Students planning to transfer should check the transfer institution’s requirements/guides or discuss their options with a counselor or advisor. Number of credits may vary depending on the course selection.
At Schoolcraft we believe that everyone should have the opportunity to pursue their educational goals. For many individuals, building a strong foundation in the English language is the first step.

In our English as a Second Language courses, you will develop strong communication, speaking, listening, reading and writing skills in the English language.

All of the English as a Second Language courses require a placement test prior to registration.

This program does not result in a credential, but rather prepares students to be college-ready and to build academic success.

### English as a Second Language (ESL) Program

#### Schoolcraft program code:  
**Aligned with the student’s major program of study**

The courses in the English as a Second Language (ESL) program prepare students for study in American college settings and also teach the international student about American culture and the English language for daily living and communication with native speakers. The instruction includes:

- English and vocabulary development
- Academic writing activities: forms, letters, compositions, summaries, essay exams, and research papers
- Speaking activities: discussions, oral reports, and formal speeches
- Listening skills: lectures, video and audio tapes
- Reading and grammar for college level academic purposes
- Test preparation and note taking skills
- Computer-assisted instruction

Instruction is highly individualized to meet individual learner goals. Classes incorporate learning in the language labs, using computer-assisted instruction and other interactive instructional materials. Instructors work with students individually and in small groups to maximize the rate of student progress. In advanced levels of the program, students will complement the ESL courses with appropriate academic college coursework.

The English as a Second Language program consists of five levels, each focused on the following three content areas:

- Grammar and Writing
- Reading and Vocabulary
- Speaking and Listening

Students are initially placed into the appropriate level, based on their ESL Accuplacer Test scores. Therefore, not all classes may be required.

### SAMPLE SCHEDULES OF COURSES

#### First Year  
**Fall Semester**
- ESL 060 Reading and Vocabulary 1 . . . . . . . . . . . . 4
- ESL 064 Listening and Speaking 1 . . . . . . . . . . . . 4
- ESL 067 Grammar and Writing 1 . . . . . . . . . . . . 4

**Total Credits 12**

#### First Year  
**Winter Semester**
- ESL 070 Reading and Vocabulary 2 . . . . . . . . . . . . 4
- ESL 074 Listening and Speaking 2 . . . . . . . . . . . . 4
- ESL 077 Grammar and Writing 2 . . . . . . . . . . . . 4

**Total Credits 12**

#### Second Year  
**Fall Semester**
- ESL 080 Reading and Vocabulary 3 . . . . . . . . . . . . 4
- ESL 084 Listening and Speaking 3 . . . . . . . . . . . . 4
- ESL 087 Grammar and Writing 3 . . . . . . . . . . . . 4

**Total Credits 12**

#### Second Year  
**Winter Semester**
- ESL 110 Reading and Vocabulary 4 . . . . . . . . . . . . 4
- ESL 114 Listening and Speaking 4 . . . . . . . . . . . . 4
- ESL 117 Grammar and Writing 4 . . . . . . . . . . . . 4

**Total Credits 12**

#### Third Year  
**Fall Semester**
- ESL 130 ESL Capstone Course . . . . . . . . . . . . . . 4
- Elective Selected entry level courses . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . ..
MUSIC

Music: Foundations Certificate

Schoolcraft program code # 1YC.00162
The music foundations certificate is designed for students who want to build their musical abilities for personal growth and enjoyment. Students interested in transferring to a four-year institution as a music major or pursuing a career as a professional musician are advised to complete the music intermediate certificate with the guidance of the Music Department faculty.

Successful students completing this certificate will be able to notate all intervals, simple rhythmic patterns and basic chord progressions. Students will have a good general knowledge of musical styles from the 1600s to the present day; will have gained experience in performing publicly in ensembles; and will also have developed elementary training as soloists in voice or as instrumentalists.

All courses are not offered each semester. Students should work with an academic advisor or counselor to develop a schedule that will work for them. Students who satisfactorily complete the program requirements qualify for a certificate of program completion.

SAMPLE SCHEDULE OF COURSES
First Year—Fall Semester
MUSIC 104 Basic Materials in Music Theory .................. 3
Music Select 1 .............................................. 2
MUSIC 121 Class Piano 1
MUSIC 131 Applied Music—Piano 1
MUSIC 105 Music Appreciation ......................... 3
Music Select 1 .............................................. 2
MUSIC 133 Applied Music—Voice 1
MUSIC 135 Applied Music—Instrumental 1
MUSIC 164 Music History 1—17th and 18th Centuries . . . . 3
Music* Select 1 Music course not already taken from the list below ................. minimum 1

First Year—Winter Semester
Music Select 1 .............................................. 2
MUSIC 122** Class Piano 2
MUSIC 132 Applied Music—Piano 2
Music Select 1 .............................................. 2
MUSIC 134 Applied Music—Voice 2
MUSIC 136 Applied Music—Instrumental 2
HUM 106 Introduction to Art and Music ..................... 1
Electives English Literature, Poetry or Art Appreciation Suggested ................... 6
MUSIC 171 Music Technology 1 ................................ 3
Music* Select 1 Music course not already taken from the list below ................. minimum 1

Total Credits 15
PROGRAM TOTAL 29 CREDITS

* Number of credits may vary depending on the course selection.
** Requires audition.

Music courses:
MUSIC 117** Choir 1 ...................................... 2
MUSIC 118** Choir 2 ...................................... 2
MUSIC 124 Chamber Singers 1 .............................. 1
MUSIC 127 Chamber Singers 2 .............................. 1
MUSIC 133 Applied Music—Voice 1 ......................... 2
MUSIC 134 Applied Music—Voice 2 ......................... 2
MUSIC 135 Applied Music—Instrumental 1 ............... 2
MUSIC 136 Applied Music—Instrumental 2 ............... 2
MUSIC 141 Wind Ensemble ................................ 1
MUSIC 142 Jazz Band ...................................... 2
MUSIC 143 Practice Teaching and Practicum in Piano Teaching 1 ...................... 2
MUSIC 168 Synthesizer Ensemble 1 ......................... 3
MUSIC 169 Synthesizer Ensemble 2 ......................... 3

Total Credits 14
The music intermediate certificate is designed for students who wish to transfer to a four-year institution as a music major and/or pursue music as a profession. Students in this program must consult with a Music Department faculty member before beginning this program. Faculty will provide information about expectations for appropriate course work and practice schedules for students intending to major in music. Completion of this certificate does not automatically qualify students for admission to a four-year music major program.

The quality of the student's musicianship and auditions are key factors in admission decisions.

Successful students completing this certificate will be able to notate moderately difficult rhythmic patterns and moderately difficult chord progressions. Students will have developed technical and musical skills as well as performance experience as soloists in voice or as instrumentalists in public recitals and concerts.

All courses are not offered each semester. Students should work with an academic advisor or counselor to develop a schedule that will work for them. Students who satisfactorily complete the program requirements qualify for a certificate of program completion.

Students are advised to consult with Music Department faculty before beginning classes in this certificate.

**SAMPLE SCHEDULE OF COURSES**

### First Year—Fall Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUSIC 137</td>
<td>Sight Singing and Ear Training 1</td>
<td>2</td>
</tr>
<tr>
<td>MUSIC 153</td>
<td>Music Theory 1</td>
<td>3</td>
</tr>
<tr>
<td>Music</td>
<td>Select 1</td>
<td></td>
</tr>
<tr>
<td>MUSIC 131**</td>
<td>Applied Music—Piano 1</td>
<td>2</td>
</tr>
<tr>
<td>MUSIC 231**</td>
<td>Applied Music—Piano 3</td>
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<tr>
<td>Music</td>
<td>Select 1</td>
<td></td>
</tr>
<tr>
<td>MUSIC 233**</td>
<td>Applied Music—Voice 3</td>
<td></td>
</tr>
<tr>
<td>MUSIC 235**</td>
<td>Applied Music—Instrumental 3</td>
<td></td>
</tr>
<tr>
<td>Music*</td>
<td>Select 1 or 2 Music courses not already taken from the list below</td>
<td>minimum 3</td>
</tr>
</tbody>
</table>

**Total Credits 12**

### First Year—Winter Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Music</td>
<td>Select 1</td>
<td></td>
</tr>
<tr>
<td>MUSIC 132**</td>
<td>Applied Music—Piano 2</td>
<td>2</td>
</tr>
<tr>
<td>MUSIC 232**</td>
<td>Applied Music—Piano 4</td>
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<tr>
<td>Music</td>
<td>Select 1</td>
<td></td>
</tr>
<tr>
<td>MUSIC 234**</td>
<td>Applied Music—Voice 4</td>
<td></td>
</tr>
<tr>
<td>MUSIC 236**</td>
<td>Applied Music—Instrumental 4</td>
<td></td>
</tr>
<tr>
<td>MUSIC 138</td>
<td>Sight Singing and Ear Training 2</td>
<td>2</td>
</tr>
<tr>
<td>MUSIC 165</td>
<td>Music History 2—19th and 20th Centuries</td>
<td>3</td>
</tr>
<tr>
<td>MUSIC 154</td>
<td>Music Theory 2</td>
<td>3</td>
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</tbody>
</table>

**Total Credits 15**

### First Year—Spring/Summer Session

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elective</td>
<td>English Literature, Poetry, or Art Appreciation Suggested</td>
<td>3</td>
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</tbody>
</table>

**Total Credits 3**

**PROGRAM TOTAL 30 CREDITS**

* Number of credits may vary depending on the course selection.
** Requires audition.
*** Course selection dependent on courses taken in the foundations certificate.
Credentials
Piano Teacher certificate.............................................. 42 cr.

Major Description
If you dream of sharing your love for the piano with others, then Schoolcraft’s unique piano teacher certificate is perfect for you. The program offers a thorough grounding in teaching materials and techniques along with music theory and history. You will also have the opportunity to practice your teaching skills right on campus in our group piano classes for children. Prepare for a career of teaching piano in music academies, community education programs, or out of your own home.

• All applicants must audition in order to enter the piano teacher certificate program.
• Challenge your own abilities and prepare to share your love of music with the next generation.
• Establish a foundation for state and national Music Teachers Association certification.

Job Titles & Median Salaries or Hourly Rates
• Piano Teacher: $53,090 (with Bachelor’s Degree)

(US BLS)

SAMPLE SCHEDULE OF COURSES

First Year—Fall Semester
MUSIC 131 Applied Music—Piano 1 ..................... 2
MUSIC 143 Practice Teaching and Practicum in
  Piano Teaching 1 ............................................ 2
MUSIC 153 Music Theory 1 .................................. 3
MUSIC 164 Music History 1—17th and 18th Centuries . . . 3
MUSIC 201 Keyboard Skills for Piano Teachers 1 ........ 2

Total Credits 12

First Year—Winter Semester
MUSIC 132 Applied Music—Piano 2 ..................... 2
MUSIC 144 Practice Teaching and Practicum in
  Piano Teaching 2 ............................................ 2
MUSIC 154 Music Theory 2 .................................. 3
MUSIC 165 Music History 2—19th and 20th Centuries . . . 3
MUSIC 247* Piano Teaching Techniques and Materials 1 . . 3

Total Credits 13

Second Year—Fall Semester
MUSIC 137 Sight Singing and Ear Training 1 ............... 2
MUSIC 202 Keyboard Skills for Piano Teachers 2 ........ 2
MUSIC 231 Applied Music—Piano 3 ............................. 2
MUSIC 243 Practice Teaching and Practicum in
  Piano Teaching 3 ............................................ 2

Total Credits 8

Second Year—Winter Semester
MUSIC 138 Sight Singing and Ear Training 2 ............... 2
MUSIC 232 Applied Music—Piano 4 ............................. 2
MUSIC 244 Practice Teaching and Practicum in
  Piano Teaching 4 ............................................ 2
MUSIC 257* Piano Teaching Techniques and Materials 2 . . 3

Total Credits 9

PROGRAM TOTAL 42 CREDITS

* These classes are offered on a rotational basis.
Contact Liberal Arts office for current offerings.
SOUND RECORDING TECHNOLOGY

Sound Recording Technology AAS Degree

Schoolcraft program code # AAS.00244

The recording technology associate degree program is designed to prepare the student for transfer to institutions offering a bachelor’s degree in recording engineering or for apprenticeships at recording studios and various media venues. The program will teach the student the fundamentals and techniques relative to live concert and studio recording. Understanding the musical perspective is an important focus of the program. The required music courses will assist the recording engineer in better understanding what the performing musician is experiencing and will in turn improve the recording outcome.

Technological changes directly related to the recording industry are frequently introduced. The program is committed to staying current and will help the student understand new directions in the technology.

All courses are not offered each semester. Students should work with an academic advisor or counselor to develop a schedule that will work for them. Students who satisfactorily complete all college and program requirements qualify for an associate in applied science degree.

SAMPLE SCHEDULE OF COURSES

First Year—Fall Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HUM 106</td>
<td>Introduction to Art and Music</td>
<td>1</td>
</tr>
<tr>
<td>MUSIC 104</td>
<td>Basic Materials in Music Theory</td>
<td>3</td>
</tr>
<tr>
<td>MUSIC 121</td>
<td>Class Piano 1</td>
<td>2</td>
</tr>
<tr>
<td>SRT 121</td>
<td>Basic Sound and Recording Techniques 1</td>
<td>3</td>
</tr>
<tr>
<td>MATH 113</td>
<td>Intermediate Algebra for College Students</td>
<td>4</td>
</tr>
<tr>
<td>ENG 101</td>
<td>English Composition 1</td>
<td>3</td>
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Total Credits 16

First Year—Winter Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>MUSIC 117</td>
<td>Choir</td>
<td>1</td>
</tr>
<tr>
<td>MUSIC 168</td>
<td>Synthesizer Ensemble</td>
<td>1</td>
</tr>
<tr>
<td>MUSIC 141</td>
<td>Wind Ensemble</td>
<td>1</td>
</tr>
<tr>
<td>MUSIC 142</td>
<td>Jazz Band</td>
<td>1</td>
</tr>
<tr>
<td>SRT 110</td>
<td>Keyboard Skills for Recording Engineers</td>
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</tr>
<tr>
<td>SRT 122</td>
<td>Basic Sound and Recording Techniques 2</td>
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<tr>
<td>PHYS 123</td>
<td>Applied Physics</td>
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<tr>
<td>SRT 150</td>
<td>Ear Training for Recording Engineers</td>
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</table>

Total Credits 13–14

First Year—Spring/Summer Session

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>ENG 102</td>
<td>English Composition 2</td>
<td>3</td>
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<tr>
<td>COMA 103</td>
<td>Fundamentals of Speech</td>
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Total Credits 6

Second Year—Fall Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
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<tbody>
<tr>
<td>MUSIC 171</td>
<td>Music Technology</td>
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<tr>
<td>SRT 221</td>
<td>Advanced Audio Production</td>
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<tr>
<td>MUSIC 137</td>
<td>Sight Singing and Ear Training</td>
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</tr>
<tr>
<td>ELECT 131</td>
<td>Basic Measurement and Reporting Skills</td>
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<tr>
<td>Social Science</td>
<td>Select 1</td>
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<tr>
<td>PSYCH 153</td>
<td>Human Relations</td>
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<tr>
<td>PSYCH 201</td>
<td>Introductory Psychology</td>
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</table>

Total Credits 14–15

Second Year—Winter Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>MUSIC 138</td>
<td>Sight Singing and Ear Training 2</td>
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<tr>
<td>Music</td>
<td>Select 1</td>
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<tr>
<td>MUSIC 105</td>
<td>Music Appreciation</td>
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<tr>
<td>MUSIC 149</td>
<td>Popular Music Culture in America</td>
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</tr>
<tr>
<td>MUSIC 172</td>
<td>Music Technology 2</td>
<td>.</td>
</tr>
<tr>
<td>SRT 222</td>
<td>Advanced Audio Production</td>
<td>.</td>
</tr>
<tr>
<td>GEOG 133</td>
<td>World Regional Geography</td>
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</tr>
</tbody>
</table>

Total Credits 15

PROGRAM TOTAL 64–66 CREDITS

Students planning to transfer should check the transfer institution’s requirements/guides or discuss their options with a counselor or advisor. Number of credits may vary depending on the course selection.
# Sound Recording Technology Certificate

Schoolcraft program code # 1YC.00144

The sound recording technology certificate will provide the student with skills important to the apprentice at recording studios and for quality home studio production. The program will prepare the student to understand the functions of audio signals and the sound reproduction equipment. The program will also acquaint the student with emerging audio formats.

Listening in the manner of a recording engineer will be stressed as well as some fundamental music skills important to the musician’s point of view.

Technological changes directly related to the recording industry are frequently introduced. The program is committed to staying current and will help the student understand new directions in technology.

All courses are not offered each semester. Students should work with an academic advisor or counselor to develop a schedule that will work for them. Students who satisfactorily complete the program requirements qualify for a certificate of program completion.

## SAMPLE SCHEDULE OF COURSES

### First Year—Fall Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUSIC 104</td>
<td>Basic Materials in Music Theory</td>
</tr>
<tr>
<td>MUSIC 105</td>
<td>Music Appreciation</td>
</tr>
<tr>
<td>MUSIC 121</td>
<td>Class Piano 1</td>
</tr>
<tr>
<td>SRT 121</td>
<td>Basic Sound and Recording Techniques 1</td>
</tr>
<tr>
<td>ELECT 131</td>
<td>Basic Measurement and Reporting Skills</td>
</tr>
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</table>

**Total Credits 14**

### First Year—Winter Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
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<tbody>
<tr>
<td>SRT 110</td>
<td>Keyboard Skills for Recording Engineers</td>
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<tr>
<td>MUSIC 171</td>
<td>Music Technology 1</td>
</tr>
<tr>
<td>MUSIC 172</td>
<td>Music Technology 2</td>
</tr>
<tr>
<td>SRT 122</td>
<td>Basic Sound and Recording Techniques 2</td>
</tr>
<tr>
<td>SRT 150</td>
<td>Ear Training for Recording Engineers</td>
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</tbody>
</table>

**Total Credits 12**

### First Year—Spring Session

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>SRT 221</td>
<td>Advanced Audio Production 1</td>
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</table>

**Total Credits 3**

### First Year—Summer Session

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
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<tbody>
<tr>
<td>SRT 222</td>
<td>Advanced Audio Production 2</td>
</tr>
</tbody>
</table>

**Total Credits 3**

**PROGRAM TOTAL 32 CREDITS**
Theatre Program AA Degree

**Schoolcraft program code # AA.00042**

The theatre program is designed to provide students with a balanced curriculum of theatre and liberal arts courses that will prepare them to transfer to a four-year institution. This program includes performance and the technical aspects of theatre, including theory and practical experiences in theatre. All courses are not offered each semester. Students should work with an academic advisor or counselor to set up a schedule that will work for them. Students who satisfactorily complete all college and program requirements qualify for an associate in arts degree.

Note: The Theatre Department has adopted a dinner-theatre format for production with two plays produced annually.

**SAMPLE SCHEDULE OF COURSES**

**First Year—Fall Semester**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENG 101</td>
<td>English Composition 1</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 101</td>
<td>General Biology</td>
<td>4</td>
</tr>
<tr>
<td>THEA 120</td>
<td>Theatre Activities 1</td>
<td>1</td>
</tr>
<tr>
<td>THEA 208</td>
<td>Acting 1</td>
<td>3</td>
</tr>
<tr>
<td>THEA 101*</td>
<td>Introduction to Theatre</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total Credits</strong></td>
<td></td>
<td><strong>14</strong></td>
</tr>
</tbody>
</table>

**First Year—Winter Semester**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>THEA 121</td>
<td>Theatre Activities 2</td>
<td>1</td>
</tr>
<tr>
<td>THEA 207</td>
<td>Stagecraft and Lighting</td>
<td>3</td>
</tr>
<tr>
<td>THEA 209</td>
<td>Acting 2</td>
<td>3</td>
</tr>
<tr>
<td>MATH</td>
<td>Select any four-credit 100-level course</td>
<td>4</td>
</tr>
<tr>
<td><strong>Total Credits</strong></td>
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</table>

**Second Year—Fall Semester**

<table>
<thead>
<tr>
<th>Course</th>
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<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>THEA 220</td>
<td>Theatre Activities 3</td>
<td>1</td>
</tr>
<tr>
<td>COMA 103</td>
<td>Fundamentals of Speech</td>
<td>3</td>
</tr>
<tr>
<td>HIST 153</td>
<td>Contemporary America—U.S. History</td>
<td>3</td>
</tr>
<tr>
<td>ENG 248*</td>
<td>Introduction to Literature—Shakespeare</td>
<td>3</td>
</tr>
<tr>
<td>POLS 105</td>
<td>Survey of American Government</td>
<td>3</td>
</tr>
<tr>
<td>THEA 231*</td>
<td>History of Theatre 1</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total Credits</strong></td>
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<td><strong>16</strong></td>
</tr>
</tbody>
</table>

**Second Year—Winter Semester**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>THEA 221</td>
<td>Theatre Activities 4</td>
<td>1</td>
</tr>
<tr>
<td>THEA 241*</td>
<td>Oral Interpretation of Literature</td>
<td>3</td>
</tr>
<tr>
<td>ENG 245</td>
<td>Introduction to Literature—Drama</td>
<td>3</td>
</tr>
<tr>
<td>PSYCH 201</td>
<td>Introductory Psychology</td>
<td>4</td>
</tr>
<tr>
<td>THEA 232*</td>
<td>History of Theatre 2</td>
<td>3</td>
</tr>
<tr>
<td>THEA 204</td>
<td>Stage Makeup</td>
<td>2</td>
</tr>
<tr>
<td><strong>Total Credits</strong></td>
<td></td>
<td><strong>16</strong></td>
</tr>
</tbody>
</table>

**PROGRAM TOTAL 60 CREDITS**

* These classes are offered on a rotational basis. Contact Liberal Arts office for current offerings.

Students planning to transfer should check the transfer institution’s requirements/guides or discuss their options with a counselor or advisor. Number of credits may vary depending on the course selection.
Schoolcraft offers a variety of art appreciation, art education, art history, ceramics, design, drawing, painting and sculpture courses that may count toward an associate degree and transfer to a four-year institution to earn a bachelor’s degree. These courses can also provide students with skills that can be used in a variety of fine art and art-related careers such as architecture, painting, sculpting, illustration, fashion designing, interior designing, photography, graphic design, web design, museum curating and/or art education.

Art and Design. Schoolcraft offers a variety of art appreciation, art education, art history, ceramics, design, drawing, painting and sculpture courses that may count toward an associate degree and transfer to a four-year institution to earn a bachelor’s degree. These courses can also provide students with skills that can be used in a variety of fine art and art-related careers such as architecture, painting, sculpting, illustration, fashion designing, interior designing, photography, graphic design, web design, museum curating and/or art education.

Communication Arts. The ability to communicate effectively can improve students’ chances to succeed in both work and life. Schoolcraft offers a variety of communication courses to provide them the opportunity to become better communicators, including argumentation and persuasion, communication for leaders, interpersonal communications, mass communications and speech.

English. An education in English can help students pursue a career as an author, editor, technical writer or screenwriter. It also offers a strong foundation for careers in advertising, education, public relations and law, to name a few.

Schoolcraft’s courses cover everything from grammar, essay and research writing, and creative writing skills to more professional disciplines like journalism or technical writing. There are also courses that delve into great literary works through the ages.

Students can gain additional knowledge and experience by applying for a position with the student newspaper, the Schoolcraft Connection, or by submitting articles to The MacGuffin, a peer-reviewed literary journal.

Foreign Languages. Learning a foreign language can help prepare students to communicate more effectively in today’s global society. At Schoolcraft College, we offer courses in elementary and intermediate:

- Arabic
- Chinese
- French
- German
- Italian
- Spanish

Being multi-lingual opens up many career opportunities abroad as well as qualify students for a variety of language-related jobs, including educators, interpreters, international relations or linguistics.

History. Studying regional, U.S. and world history helps students learn about the past and apply those learnings to today’s society. Schoolcraft offers a variety of history courses, such as ancient and modern world history along with unique courses on the History of Michigan and the Great Lakes and U.S. Business History. In addition, the credits from these history courses may count toward a Schoolcraft associate degree and/or transfer to a four-year institution.

Humanities. The study of humanities gives students the chance to learn about art, culture, history and music throughout the world, while earning credits that may count toward a Schoolcraft associate degree and transfer toward a bachelor’s degree at a four-year institution. Course offerings include World Masterpieces, Mass Media and Popular Culture and many others. Students can also take part in field study courses that include trips to England, France, Italy and Spain for hands-on experiences of foreign arts and cultures.

Philosophy. Schoolcraft’s courses in philosophy include the study of ethical issues and the use of logic that can be utilized both in everyday life and business. Students will gain insight into how to think critically and then strengthen these skills that are so important in today’s society. The study of philosophy also provides a sound foundation for a variety of careers, including business, communications, education, public relations and the law. Credits earned may count toward a Schoolcraft associate degree and transfer towards a bachelor’s degree at a four-year institution.
Whether you want to work at a large corporation, a small business or become an entrepreneur, taking courses and earning a degree in one of the Business and Information Technology programs at Schoolcraft gives you the educational background needed to launch your career or prepare you to transfer to a four-year institution to earn a bachelor’s degree.

All courses are not offered each semester. Please work with an academic advisor or counselor to develop a schedule that will work for you. Students who complete all required courses can earn the associate degree or certificate noted in the following Areas of Study descriptions.

Unless otherwise specified, salary data is sourced from the Bureau of Labor Statistics (www.bls.gov), Glassdoor.com or Career Cruising, an online resource available through our Career Services office (www.schoolcraft.edu/career services). Earnings may vary based on experience, education and location.

**BUSINESS & INFORMATION TECHNOLOGY**

**AREAS OF STUDY**

**Accounting degree and certificate** ..................... 40–41
- **Accounting for Small Business skills certificate** ........ 41
- **ACCT courses** ........................................ 116–117

**Business**
- **Business Administration degree** ..................... 15, 56
- **Basic certificate** .......................................... 44
- **General degree** .......................................... 43
- **Marketing and Applied Management degree** .......... 44
- **Small Business for Entrepreneurs degree and certificate** ........................................ 45
- **BUS courses** ............................................. 122–123

**Business Information Technology degree and certificate** ..................... 46–47

**Computer Information Systems**
- **Computer Support Technician degree** ................ 48
- **Introductory certificate** ................................... 48
- **Networking Technology Integration certificate** ...... 49
- **Post-associate certificate** ................................. 52
- **Programming degree and certificate** ................... 50
- **Web Specialist degree and certificate** ................... 51
- **CIS courses** ............................................. 132–135

**Computer Service Technician certificate** ................ 52
- **COMPS courses** .......................................... 137

**Cosmetology Management degree** ...................... 53

**Economics courses (ECON)** .............................. 56, 138

**Office Information Systems**
- **Office Administration degree** ......................... 54
- **Office Specialist certificate and skills certificate** ...... 55
- **OIS courses** ............................................. 168–169
FACULTY

Accounting
LaVonda Ramey
734-462-4400 ext. 5122 | lramey@schoolcraft.edu
Michelle Randall
734-462-4400 ext. 5126 | mrandall@schoolcraft.edu

Business
Janice Feldbauer
734-462-4400 ext. 5747 | jfeldbau@schoolcraft.edu
Gerard J. Mellnick
734-462-4400 ext. 5899 | gmellnic@schoolcraft.edu
Susan Ontko
734-462-4400 ext. 5120 | sontko@schoolcraft.edu

Business Information Technology
Contact the Associate Dean of Occupational Programs

Computer Information Systems
Timothy S. Baron
734-462-4400 ext. 5137 | tsbaron@schoolcraft.edu
Timothy Ellis
734-462-4400 ext. 5579 | tellis@schoolcraft.edu
William Schlick
734-462-4400 ext. 5478 | wschlick@schoolcraft.edu

Computer Service
Timothy Ellis
734-462-4400 ext. 5579 | tellis@schoolcraft.edu
William Schlick
734-462-4400 ext. 5478 | wschlick@schoolcraft.edu

Cosmetology Management
Contact the Associate Dean of Occupational Programs

Office Information Systems
Timothy Ellis
734-462-4400 ext. 5579 | tellis@schoolcraft.edu

INSTRUCTIONAL ADMINISTRATOR

Robert J. Leadley
Dean of Occupational Programs and Economic Development
734-462-4530 | rleadley@schoolcraft.edu
Amy M. Jones
Associate Dean of Occupational Programs
734-462-4530 | ajones@schoolcraft.edu

INSTRUCTIONAL ADMINISTRATOR

Cheryl D. Hawkins
Dean of Liberal Arts and Sciences
734-462-4400 ext. 5336 | chawkins@schoolcraft.edu
Charles Hayes
Associate Dean of Sciences
734-462-4400 ext. 5650 | chayes@schoolcraft.edu

FACULTY

Economics
Frederick Galperin
734-462-4400 ext. 5163 | fgalper@schoolcraft.edu
Cedric Howie
734-462-4400 ext. 5133 | chowie@schoolcraft.edu
ACCOUNTING

Credentials
Accounting for Small Business skills certificate ............ 17 cr.
Accounting certificate ........................................ 33 cr.
Accounting AAS degree ........................................ 62–65 cr.

Major Description
Virtually every business and organization needs someone to manage their financials. Schoolcraft’s accounting program will prepare you for a career as a bookkeeper or accountant with courses that cover the principles of accounting, income tax preparation, payroll and current accounting software. The accounting program offers three options for specialization:

- Accounting associate in applied science degree
  - Earning this associate degree is a first step towards a career in accounting and also prepares the student to transfer to a four-year college or university to earn a bachelor’s degree.

- Accounting certificate
  - This certificate program takes approximately three semesters to complete and prepares students for a position as an entry-level bookkeeper.

- Accounting for small business skills certificate
  - This program is a good option for anyone interested in working at a small business as an entry level bookkeeper or to enhance their potential for small-business management.

National Median Salaries for Various Accounting-Related Jobs
- Accounting clerk: $35,170
- Tax Preparer: $37,240
- Accountant (Bachelor’s): $63,550
- Auditor (Bachelor’s): $63,550

(Accounting AAS Degree)

Schoolcraft program code # AAS.00005
The accounting program is designed to familiarize students with the work and challenges facing accountants. The program provides training for those planning to seek a career in accounting.

All courses are not offered each semester. Students should work with an academic advisor or counselor to develop a schedule that will work for them. Students who satisfactorily complete all college and program requirements qualify for an associate in applied science degree.

SAMPLE SCHEDULE OF COURSES

First Year—Fall Semester
ACCT 201 Principles of Accounting 1 ................. 4
CIS 120 Software Applications .......................... 3
ENG 101 English Composition 1 ....................... 3
Mathematics Select 1 ..................................... 3–4
MATH 101 Business Mathematics
MATH 113 Intermediate Algebra for College Students

First Year—Winter Semester
ACCT 202 Principles of Accounting 2 ................. 4
CIS 180 Spreadsheet Applications—Current Software . 3
Elective Select 1 ........................................... 3
ACCT 260 Computerized Accounting Using Sage 50 Complete Accounting
ACCT 263 Computerized Accounting Using QuickBooks
ECON 201 Principles of Macroeconomics .............. 4

First Year—Spring/Summer Session
COMA 103 Fundamentals of Speech ..................... 3
ENG 106 Business English .................. 3

Second Year—Fall Semester
ACCT 221 Intermediate Accounting 1 ................. 4
ACCT 226 Cost Accounting ............................. 4
BUS 207 Business Law 1 ................................. 3
Elective Select 1 ........................................... 3–4
ACCT 262 Payroll Accounting
BUS 101 Introduction to Business
ECON 202 Principles of Microeconomics

Second Year—Winter Semester
ACCT 222 Intermediate Accounting 2 ................. 4
Elective Select 4 tax credit hours below ............... 4
ACCT 238 Federal Tax Accounting .................... 4
OR
ACCT 138 Income Tax Preparation ..................... 2
ACCT 139 Michigan Taxes ............................... 2
Elective Select 1 ........................................... 3–4
ACCT 205 Accounting Internship
BUS 202 Business Ethics
BUS 240 International Business
PSYCH 153 Human Relations
POL 209 International Relations
BUS 246 Business Ethics
PHIL 247 Logic
SOC 201 Principles of Sociology
Science Select any General Education Science course . 4

Total Credits 14–15

Total Credits 13–14

Program Total 62–65 Credits

* Number of credits may vary depending on the General Education Science course selection.

Students planning to transfer should check the transfer institution’s requirements/guides or discuss their options with a counselor or advisor. Number of credits may vary depending on the course selection.
## Accounting Certificate

Schoolcraft program code # 1YC.00001

The accounting program is designed to familiarize students with the work and challenges facing accountants. This certificate program prepares the student for a job as an entry-level bookkeeper within an accounting department or firm.

All courses are not offered each semester. Students should work with an academic advisor or counselor to set up a schedule that will work for them. Students who successfully complete all program courses qualify for a certificate of program completion.

### SAMPLE SCHEDULE OF COURSES

**First Year—Fall Semester**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACCT 201</td>
<td>Principles of Accounting 1</td>
<td>4</td>
</tr>
<tr>
<td>CIS 120</td>
<td>Software Applications</td>
<td>3</td>
</tr>
<tr>
<td>ENG 101</td>
<td>English Composition 1</td>
<td>3</td>
</tr>
<tr>
<td>MATH 101</td>
<td>Business Mathematics</td>
<td>3</td>
</tr>
</tbody>
</table>

**Total Credits 13**

**First Year—Winter Semester**

<table>
<thead>
<tr>
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<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACCT 202</td>
<td>Principles of Accounting 2</td>
<td>4</td>
</tr>
<tr>
<td>Elective</td>
<td>Select 4 tax credit hours below</td>
<td>4</td>
</tr>
<tr>
<td>ACCT 238</td>
<td>Federal Tax Accounting</td>
<td>4</td>
</tr>
<tr>
<td>OR</td>
<td>Income Tax Preparation</td>
<td>2</td>
</tr>
<tr>
<td>ACCT 138</td>
<td>Michigan Taxes</td>
<td>2</td>
</tr>
<tr>
<td>BUS 207</td>
<td>Business Law 1</td>
<td>3</td>
</tr>
<tr>
<td>Elective</td>
<td>Select 1</td>
<td>3</td>
</tr>
<tr>
<td>ACCT 260</td>
<td>Computerized Accounting</td>
<td>3</td>
</tr>
<tr>
<td>ACCT 263</td>
<td>Computerized Accounting</td>
<td>3</td>
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</table>

**Total Credits 7**

**Second Year—Fall Semester**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
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</tr>
</thead>
<tbody>
<tr>
<td>COMA 103</td>
<td>Fundamentals of Speech</td>
<td>3</td>
</tr>
<tr>
<td>ACCT 262</td>
<td>Payroll Accounting</td>
<td>3</td>
</tr>
</tbody>
</table>

**Total Credits 6**

**PROGRAM TOTAL 33 CREDITS**

## Accounting for Small Business Skills Certificate

Schoolcraft program code # CRT.00365

The accounting program is designed to familiarize students with the work and challenges facing accountants. This certificate program is designed for those: who seek entry-level bookkeeping positions in specialized areas; who seek a credential in order to receive pay raises, promotions, or benefits from employers; or who currently own or are starting a small business.

All courses are not offered each semester. Students should work with an academic advisor or counselor to develop a schedule that will work for them. Students who satisfactorily complete the program requirements qualify for a certificate of program completion. All program required courses must have been completed with a grade of 2.0 or better.

### SAMPLE SCHEDULE OF COURSES

**First Year—Fall Semester**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACCT 201</td>
<td>Principles of Accounting 1</td>
<td>4</td>
</tr>
<tr>
<td>CIS 120</td>
<td>Software Applications</td>
<td>3</td>
</tr>
</tbody>
</table>

**Total Credits 7**

**First Year—Winter Semester**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elective</td>
<td>Select 1</td>
<td>3</td>
</tr>
<tr>
<td>ACCT 260</td>
<td>Computerized Accounting</td>
<td>3</td>
</tr>
<tr>
<td>ACCT 263</td>
<td>Computerized Accounting</td>
<td>3</td>
</tr>
<tr>
<td>Elective</td>
<td>Select 4 tax credit hours below</td>
<td>4</td>
</tr>
<tr>
<td>ACCT 238</td>
<td>Federal Tax Accounting</td>
<td>4</td>
</tr>
<tr>
<td>OR</td>
<td>Income Tax Preparation</td>
<td>2</td>
</tr>
<tr>
<td>ACCT 138</td>
<td>Michigan Taxes</td>
<td>2</td>
</tr>
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</table>

**Total Credits 7**

**Second Year—Fall Semester**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elective</td>
<td>Select 1</td>
<td>3</td>
</tr>
<tr>
<td>CIS 180</td>
<td>Spreadsheet Applications—Current Software</td>
<td>3</td>
</tr>
<tr>
<td>ACCT 262</td>
<td>Payroll Accounting</td>
<td>3</td>
</tr>
</tbody>
</table>

**Total Credits 3**

**PROGRAM TOTAL 17 CREDITS**
Credentials
Business-Basic certificate ........................................... 32 cr.
Small Business for Entrepreneurs certificate ...................... 30-31 cr.
Business-General AAS degree ......................................... 62-64 cr.
Marketing and Applied Management AAS degree ............. 62-64 cr.
Small Business for Entrepreneurs AAS degree ................. 62-64 cr.

Major Description
Schoolcraft’s business program prepares students for a variety of positions in the corporate world or to run their own business, and lays the foundation to transfer to a four-year college of university to earn a bachelor's degree.

There are four associate in applied science degrees (AAS) and three certificate options available in business:

- **Business General degree:** This general degree program provides a good basis to qualify students for several entry-level jobs.
- **Marketing and Applied Management degree:** Marketing and sales is the lifeblood of any business, and this program gives students a well-rounded business background to prepare them to manage and market a company’s products or services.
- **Small Business for Entrepreneurs degree:** The program is designed for those who own and/or operate a small business or plan to start their own company. The curriculum combines general business, liberal arts and elective course options to give the student a diversified background that is vital in today’s small-business environment.
- **Business Information Technology degree:** Information technology professionals are in high demand in today’s business world, and this degree program provides students with a sound business education combined with computer science courses to meet the challenges of managing an organization's information technology needs.

- **Business-Basic Certificate:** This certificate program provides students with a well-rounded introduction to the business world, including courses in accounting, economics and the basics of business. It prepares them for the pursuit of an associate degree or for various job opportunities.
- **Small Business for Entrepreneurs Certificate:** Completion of this certificate program will prepare students for the unique challenges entrepreneurs and small business owners routinely deal with in today’s highly competitive business world.
- **Business Information Technology Certificate:** Many of today’s employers are requesting students with a solid background in business and computer systems, and completion of this certificate program gives students a knowledge base in both areas to help them in their pursuit of a career as an information technology professional.

National Median Salaries for Various Business-Related Jobs
- Manager Trainee: $34,750
- Market Researcher: $34,750
- Sales Manager/Supervisor: $874,870 with Bachelor’s degree

(US BLS)
- Small Business Owner: $40,000 - $63,000

(Glassdoor.com)
## Business-General AAS Degree

Schoolcraft program code # AAS.00008

The general business program is intended to provide students with a balanced curriculum composed of liberal arts, general business, and technical skills to develop a unified awareness of the activities and operational setting of a business. The program is intended to lay a foundation for a variety of entry-level positions in business that may ultimately lead to specialized study in some area of management training.

All courses are not offered each semester. Students should work with an academic advisor or counselor to develop a schedule that will work for them. Students who satisfactorily complete all college and program requirements qualify for an associate in applied science degree.

### SAMPLE SCHEDULE OF COURSES

#### First Year—Fall Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUS 101</td>
<td>Introduction to Business</td>
<td>3</td>
</tr>
<tr>
<td>MATH 101</td>
<td>Business Mathematics</td>
<td>3</td>
</tr>
<tr>
<td>BUS 122</td>
<td>Advertising</td>
<td>3</td>
</tr>
<tr>
<td>English</td>
<td>Select 1</td>
<td>3</td>
</tr>
<tr>
<td>ENG 100</td>
<td>Communication Skills</td>
<td></td>
</tr>
<tr>
<td>EN 101</td>
<td>English Composition 1</td>
<td></td>
</tr>
<tr>
<td>Humanities*</td>
<td>Select any General Education</td>
<td></td>
</tr>
<tr>
<td>COMA 103</td>
<td>Fundamentals of Speech (recommended)</td>
<td></td>
</tr>
</tbody>
</table>

#### Total Credits 15

#### First Year—Winter Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUS 120</td>
<td>Strategic Selling</td>
<td>3</td>
</tr>
<tr>
<td>Elective</td>
<td>Select 1</td>
<td>4</td>
</tr>
<tr>
<td>ACCT 103</td>
<td>Introduction to Accounting</td>
<td></td>
</tr>
<tr>
<td>ACCT 201</td>
<td>Principles of Accounting 1</td>
<td></td>
</tr>
<tr>
<td>English</td>
<td>Select 1</td>
<td>3</td>
</tr>
<tr>
<td>ENG 102</td>
<td>English Composition 2</td>
<td></td>
</tr>
<tr>
<td>ENG 106</td>
<td>Business English</td>
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</tr>
<tr>
<td>PSYCH 153</td>
<td>Human Relations</td>
<td>3</td>
</tr>
<tr>
<td>Science*</td>
<td>Select any General Education Science course</td>
<td>4</td>
</tr>
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</table>

#### Total Credits 17

#### Second Year—Fall Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUS 217</td>
<td>Business Management</td>
<td>3</td>
</tr>
<tr>
<td>BUS 220</td>
<td>Supervision</td>
<td>3</td>
</tr>
<tr>
<td>ECON 201</td>
<td>Principles of Macroeconomics</td>
<td>4</td>
</tr>
<tr>
<td>BUS 202</td>
<td>Business Ethics</td>
<td>3</td>
</tr>
<tr>
<td>BUS 240</td>
<td>International Business</td>
<td>3</td>
</tr>
</tbody>
</table>

#### Total Credits 16

#### Second Year—Winter Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUS 204</td>
<td>Personal Finance</td>
<td>3</td>
</tr>
<tr>
<td>BUS 207</td>
<td>Business Law 1</td>
<td>3</td>
</tr>
<tr>
<td>BUS 215</td>
<td>Business on the Web</td>
<td>3</td>
</tr>
<tr>
<td>BUS 226</td>
<td>Principles of Marketing</td>
<td>3</td>
</tr>
<tr>
<td>Electives</td>
<td>Select from the list below</td>
<td>2–4</td>
</tr>
</tbody>
</table>

#### Total Credits 14–16

### PROGRAM TOTAL 62–64 CREDITS

* Number of credits may vary depending on the General Education course selection.

Students planning to transfer should check the transfer institution’s requirements/guides or discuss their options with a counselor or advisor. Number of credits may vary depending on the course selection.

#### Electives

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACCT 138</td>
<td>Income Tax Preparation</td>
<td>2</td>
</tr>
<tr>
<td>BUS 103</td>
<td>Organizing a Small Business</td>
<td>3</td>
</tr>
<tr>
<td>BUS 104</td>
<td>Operating a Small Business</td>
<td>3</td>
</tr>
<tr>
<td>BUS 123</td>
<td>Consumer Behavior</td>
<td>3</td>
</tr>
<tr>
<td>BUS 161</td>
<td>Retail Principles and Practices</td>
<td>3</td>
</tr>
<tr>
<td>BUS 205</td>
<td>Personal Investing</td>
<td>3</td>
</tr>
<tr>
<td>BUS 208</td>
<td>Business Law 2</td>
<td>3</td>
</tr>
<tr>
<td>BUS 230</td>
<td>Human Resource Management</td>
<td>3</td>
</tr>
<tr>
<td>CIS 120</td>
<td>Software Applications</td>
<td>3</td>
</tr>
<tr>
<td>CIS 215</td>
<td>Advanced Software Applications</td>
<td>3</td>
</tr>
<tr>
<td>ENG 116</td>
<td>Technical Writing</td>
<td>3</td>
</tr>
<tr>
<td>MATH 122</td>
<td>Elementary Statistics</td>
<td>4</td>
</tr>
</tbody>
</table>

#### Total Credits 17

** These courses are designed for students pursuing the Walsh College Honors Fast Track Program.
Business Basic Certificate

Schoolcraft program code # 1YC.00002

The basic business program introduces students to accounting, economics, and the basics of business. Completion of the program positions the student for pursuit of an associate degree or for transition into the business community.

All courses are not offered each semester. Students should work with an academic advisor or counselor to develop a schedule that will work for them. Students who satisfactorily complete the program requirements qualify for a certificate of program completion.

SAMPLE SCHEDULE OF COURSES

First Year—Fall Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUS 101</td>
<td>Introduction to Business</td>
<td>3</td>
</tr>
<tr>
<td>MATH 101</td>
<td>Business Mathematics</td>
<td>3</td>
</tr>
<tr>
<td>English</td>
<td>Select 1</td>
<td>3</td>
</tr>
<tr>
<td>ENG 100</td>
<td>Communication Skills</td>
<td>3</td>
</tr>
<tr>
<td>ENG 101</td>
<td>English Composition 1</td>
<td></td>
</tr>
<tr>
<td>COMA 103</td>
<td>Fundamentals of Speech</td>
<td>3</td>
</tr>
<tr>
<td>BUS 220</td>
<td>Supervision</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 15

First Year—Winter Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>English</td>
<td>Select 1</td>
<td>3</td>
</tr>
<tr>
<td>ENG 102</td>
<td>English Composition 2</td>
<td></td>
</tr>
<tr>
<td>ENG 106</td>
<td>Business English</td>
<td></td>
</tr>
<tr>
<td>Accounting</td>
<td>Select 1</td>
<td>4</td>
</tr>
<tr>
<td>ACCT 103</td>
<td>Introduction to Accounting</td>
<td></td>
</tr>
<tr>
<td>ACCT 201</td>
<td>Principles of Accounting 1</td>
<td>3</td>
</tr>
<tr>
<td>ENG 100</td>
<td>Communication Skills</td>
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</table>

Total Credits 14

First Year—Spring Session

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUS 202</td>
<td>Business Ethics</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 3

PROGRAM TOTAL 32 CREDITS

Marketing and Applied Management AAS Degree

Schoolcraft program code # AAS.00009

The Schoolcraft College marketing and applied management program produces well-trained individuals who work in the distribution of goods and services. These individuals serve the customer and represent the company to the consumer. Therefore, graduates must be able to think, communicate and apply knowledge of business.

Career opportunities are available in occupations ranging from buying and selling to distribution management.

All courses are not offered each semester. Students should work with an academic advisor or counselor to develop a schedule that will work for them. Students who satisfactorily complete all college and program requirements qualify for an associate in applied science degree.

SAMPLE SCHEDULE OF COURSES

First Year—Fall Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUS 101</td>
<td>Introduction to Business</td>
<td>3</td>
</tr>
<tr>
<td>BUS 122</td>
<td>Advertising</td>
<td>3</td>
</tr>
<tr>
<td>BUS 123</td>
<td>Consumer Behavior</td>
<td>3</td>
</tr>
<tr>
<td>Elective</td>
<td>Select 1</td>
<td>4</td>
</tr>
<tr>
<td>ACCT 103</td>
<td>Introduction to Accounting</td>
<td></td>
</tr>
<tr>
<td>ACCT 201</td>
<td>Principles of Accounting 1</td>
<td>3</td>
</tr>
<tr>
<td>English</td>
<td>Select 1</td>
<td></td>
</tr>
<tr>
<td>ENG 100</td>
<td>Communication Skills</td>
<td></td>
</tr>
<tr>
<td>ENG 101</td>
<td>English Composition 1</td>
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</tr>
</tbody>
</table>

Total Credits 16

First Year—Winter Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 101</td>
<td>Business Mathematics</td>
<td>3</td>
</tr>
<tr>
<td>BUS 120</td>
<td>Strategic Selling</td>
<td>3</td>
</tr>
<tr>
<td>English</td>
<td>Select 1</td>
<td>3</td>
</tr>
<tr>
<td>ENG 102</td>
<td>English Composition 2</td>
<td></td>
</tr>
<tr>
<td>ENG 106</td>
<td>Business English</td>
<td></td>
</tr>
<tr>
<td>PSYCH 153</td>
<td>Human Relations</td>
<td>3</td>
</tr>
<tr>
<td>Science*</td>
<td>Select any General Education Science course</td>
<td>4</td>
</tr>
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</table>

Total Credits 16

Second Year—Fall Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUS 217</td>
<td>Business Management</td>
<td>3</td>
</tr>
<tr>
<td>BUS 220</td>
<td>Supervision</td>
<td>3</td>
</tr>
<tr>
<td>BUS 240</td>
<td>International Business</td>
<td>3</td>
</tr>
<tr>
<td>HUM 106</td>
<td>Introduction to Art and Music</td>
<td>1</td>
</tr>
<tr>
<td>ECON 201</td>
<td>Principles of Macroeconomics</td>
<td>4</td>
</tr>
</tbody>
</table>

Total Credits 14
Small Business for Entrepreneurs AAS Degree

**Schoolcraft program code # AAS.00011**

The small business for entrepreneurs curriculum offers a well-balanced program of liberal arts courses, general business subjects, electives and the necessary training to meet the challenge of today's highly competitive business world. The small business for entrepreneurs curriculum is designed for those who already own and operate a small business, who are contemplating starting their own small business, or who seek employment opportunities as managers in small business.

All courses are not offered each semester. Students should work with an academic advisor or counselor to develop a schedule that will work for them. Students who satisfactorily complete all college and program requirements qualify for an associate in applied science degree.

**SAMPLE SCHEDULE OF COURSES**

<table>
<thead>
<tr>
<th>First Year—Fall Semester</th>
<th>BUS 104</th>
<th>Operating a Small Business</th>
<th>3</th>
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</thead>
<tbody>
<tr>
<td>Elective</td>
<td>Select</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>ACCT 103</td>
<td>Principles of Accounting 1</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>English</td>
<td>Select</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>ENG 102</td>
<td>English Composition 2</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>ENG 106</td>
<td>Business English</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Science*</td>
<td>Select any General Education Science course</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>BUS 120</td>
<td>Strategic Selling</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

**Total Credits 15**

**Second Year—Fall Semester**

| BUS 204 | Personal Finance | 3 |
| BUS 220 | Supervision     | 3 |
| BUS 202 | Business Ethics | 3 |
| HUM 106 | Introduction to Art and Music | 1 |
| BUS 215 | Business on the Web | 3 |
| Elective | Select from the list below | 3 |

**Total Credits 16**

**Second Year—Winter Semester**

| BUS 207 | Business Law 1 | 3 |
| BUS 226 | Principles of Marketing | 3 |
| BUS 230 | Human Resource Management | 3 |
| PSYCH 153 | Human Relations | 3 |
| Elective | Select from the list below | 2–4 |

**Total Credits 14–16**

**PROGRAM TOTAL 62–64 CREDITS**

* Number of credits may vary depending on the General Education Science course selection.

Students planning to transfer should check the transfer institution's requirements/guides or discuss their options with a counselor or advisor. Number of credits may vary depending on the course selection.

**Electives**

| ACCT 138 | Income Tax Preparation | 2 |
| ACCT 263 | Computerized Accounting Using QuickBooks | 3 |
| BUS 123 | Consumer Behavior | 3 |
| BUS 161 | Retail Principles and Practices | 3 |
| BUS 205 | Personal Investing | 3 |
| BUS 208 | Business Law 2 | 3 |
| BUS 217 | Business Management | 3 |
| BUS 240 | International Business | 3 |
| CIS 120 | Software Applications | 3 |
| CIS 215 | Advanced Software Applications | 3 |
| ECON 201 | Principles of Macroeconomics | 4 |
| ENG 116 | Technical Writing | 3 |

**Small Business for Entrepreneurs Certificate**

**Schoolcraft program code # 1YC.00213**

The small business for entrepreneurs certificate is for individuals considering starting a small business, those who already own a business or students who seek employment opportunities managing a small business. The coursework prepares learners for the unique challenges small business owners and entrepreneurs routinely deal with in today's highly competitive business world.

All courses are not offered each semester. Students should work with an academic advisor or counselor to develop a schedule that will work for them. Students who satisfactorily complete the program requirements qualify for a certificate of program completion.

**SAMPLE SCHEDULE OF COURSES**

**First Year—Fall Semester**

| BUS 103 | Organizing a Small Business | 3 |
| English | Select 1 | 3 |
| ENG 100 | Communication Skills | 3 |
| ENG 101 | English Composition 1 | 3 |
| BUS 220 | Supervision | 3 |
| Elective | Select 1 | 4 |
| ACCT 103 | Introduction to Accounting | 3 |
| ACCT 201 | Principles of Accounting 1 | 3 |

**Total Credits 13**

**First Year—Winter Semester**

| BUS 104 | Operating a Small Business | 3 |
| BUS 122 | Advertising | 3 |
| Elective | Select 1 | 3 |
| ACCT 102 | English Composition 2 | 3 |
| ENG 106 | Business English | 3 |
| PSYCH 153 | Human Relations | 3 |
| Elective | Select from the list below | 2–3 |

**Total Credits 14–15**

**First Year—Spring Session**

| BUS 202 | Business Ethics | 3 |

**Total Credits 3**

**PROGRAM TOTAL 30–31 CREDITS**

**Electives**

| ACCT 138 | Income Tax Preparation | 2 |
| ACCT 263 | Computerized Accounting Using QuickBooks | 3 |
| BUS 120 | Strategic Selling | 3 |
| BUS 123 | Consumer Behavior | 3 |
| BUS 215 | Business on the Web | 3 |
BUSINESS INFORMATION TECHNOLOGY

**Business Information Technology AAS Degree**

The business information technology program is designed to meet the growing needs of industry for a new category of information technology professional. Today's employers increasingly request graduates who have a sound business background combined with the ability to develop and manage business computer systems.

This is a fast growing field with continual changes in hardware, software and procedures. The widespread use of computers in all areas of businesses has generated new positions and expanded opportunities in information technology. Effective use of technology enables businesses to serve customers better, access more information, be more flexible in responding to business changes and increase employee productivity.

All courses are not offered each semester. Students should work with an academic advisor or counselor to develop a schedule that will work for them. Students who satisfactorily complete all college and program requirements qualify for an associate in applied science degree.

**SAMPLE SCHEDULE OF COURSES**

### First Year—Fall Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENG 101</td>
<td>English Composition 1</td>
<td>3</td>
</tr>
<tr>
<td>BUS 101</td>
<td>Introduction to Business</td>
<td>3</td>
</tr>
<tr>
<td>CIS 125</td>
<td>Principles of Information Security</td>
<td>3</td>
</tr>
<tr>
<td>CIS 120</td>
<td>Software Applications</td>
<td>3</td>
</tr>
<tr>
<td>Elective</td>
<td>Select from the list below</td>
<td></td>
</tr>
</tbody>
</table>

**Total Credits 15**

### First Year—Winter Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>English</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>ENG 102</td>
<td>English Composition 2</td>
<td></td>
</tr>
<tr>
<td>ENG 106</td>
<td>Business English</td>
<td></td>
</tr>
<tr>
<td>MATH 113</td>
<td>Intermediate Algebra for College Students</td>
<td>4</td>
</tr>
<tr>
<td>BUS 217</td>
<td>Business Management</td>
<td>3</td>
</tr>
<tr>
<td>CIS 129</td>
<td>Introduction to Programming Logic</td>
<td>3</td>
</tr>
<tr>
<td>CIS Elective</td>
<td>Select any CIS course from the list below</td>
<td>2–3</td>
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</table>

**Total Credits 15–16**

### First Year—Spring/Summer Session

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social Science</td>
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<td>3–4</td>
</tr>
<tr>
<td>POLS 105</td>
<td>Survey of American Government</td>
<td></td>
</tr>
<tr>
<td>PSYCH 153</td>
<td>Human Relations</td>
<td></td>
</tr>
<tr>
<td>PSYCH 201</td>
<td>General Psychology</td>
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<td>COMA 103</td>
<td>Fundamentals of Speech</td>
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**Total Credits 6–7**

### Second Year—Fall Semester

<table>
<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
<td>BUS 220</td>
<td>Supervision</td>
<td>3</td>
</tr>
<tr>
<td>CIS 250</td>
<td>Systems Development and Design</td>
<td>4</td>
</tr>
<tr>
<td>CIS Elective</td>
<td>Select any CIS course from the list below</td>
<td>2–3</td>
</tr>
<tr>
<td>Science*</td>
<td>Select any General Education Science course</td>
<td>4</td>
</tr>
</tbody>
</table>

**Total Credits 13–14**

### Second Year—Winter Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIS 251</td>
<td>IT Project Management</td>
<td>3</td>
</tr>
<tr>
<td>ACCT 201</td>
<td>Principles of Accounting 1</td>
<td>4</td>
</tr>
<tr>
<td>ECON 201</td>
<td>Principles of Macroeconomics</td>
<td>4</td>
</tr>
<tr>
<td>Elective</td>
<td>Select from the list below</td>
<td>3</td>
</tr>
</tbody>
</table>

**Total Credits 14**

**PROGRAM TOTAL 63–66 CREDITS**

* Number of credits may vary depending on the General Education Science course selection.

Students planning to transfer should check the transfer institution's requirements/guides or discuss their options with a counselor or advisor. Number of credits may vary depending on the course selection.

### Electives

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUS 207</td>
<td>Business Law 1</td>
<td>3</td>
</tr>
<tr>
<td>BUS 208</td>
<td>Business Law 2</td>
<td></td>
</tr>
<tr>
<td>BUS 215</td>
<td>Business on the Web</td>
<td></td>
</tr>
<tr>
<td>BUS 226</td>
<td>Principles of Marketing</td>
<td></td>
</tr>
<tr>
<td>CIS 170</td>
<td>Microsoft Windows</td>
<td></td>
</tr>
<tr>
<td>CIS 171</td>
<td>Introduction to Networking</td>
<td></td>
</tr>
<tr>
<td>CIS 176</td>
<td>Visual Basic.NET</td>
<td></td>
</tr>
<tr>
<td>CIS 185</td>
<td>Introduction to HTML</td>
<td></td>
</tr>
<tr>
<td>CIS 211</td>
<td>Introduction to C++</td>
<td>2</td>
</tr>
<tr>
<td>CIS 221</td>
<td>Advanced C++</td>
<td>2</td>
</tr>
<tr>
<td>CIS 223</td>
<td>Introduction to C#</td>
<td></td>
</tr>
<tr>
<td>CIS 225</td>
<td>Database Management Systems</td>
<td></td>
</tr>
<tr>
<td>CIS 235</td>
<td>Managing and Troubleshooting PCs</td>
<td></td>
</tr>
<tr>
<td>CIS 265</td>
<td>Networking</td>
<td></td>
</tr>
<tr>
<td>CIS 276</td>
<td>Networking</td>
<td></td>
</tr>
<tr>
<td>CIS 290</td>
<td>Object-Oriented Programming With Java</td>
<td></td>
</tr>
</tbody>
</table>

**Total Credits 13–14**

**** This course is designed for students pursuing the Walsh College Honors Fast Track Program.
Schoolcraft program code # 1YC.00242

The business information technology program is designed to meet the growing needs of industry for a new category of information technology professional. Today’s employers increasingly requests graduates who have of a sound business background combined with the ability to develop or manage business computer systems.

This is a fast growing field with continual changes in hardware, software and procedures. The widespread use of computers in all areas of business has generated new positions and expanded opportunities in Information Technology. Effective use of technology enables businesses to serve customers better, access more information, be more flexible in responding to business changes and increase employee productivity.

This certificate is designed to provide students with an overview of business and computer systems. All courses are not offered each semester. Students should work with an academic advisor or counselor to develop a schedule that will work for them. Students who satisfactorily complete the program requirements qualify for a certificate of program completion.

SAMPLE SCHEDULE OF COURSES

First Year—Fall Semester
BUS 101 Introduction to Business ..................... 3
CIS 120 Software Applications ......................... 3
CIS 129 Introduction to Programming Logic .......... 3
CIS 125 Principles of Information Security .......... 3
CIS Elective Select any CIS course listed below ........ 2–3

Total Credits 14–15

First Year—Winter Semester
ACCT 201 Principles of Accounting 1 ................. 4
CIS 251 IT Project Management ....................... 3
BUS 220 Supervision .................................... 3
CIS 250 Systems Development and Design ............ 4

Total Credits 14

First Year—Spring Session
BUS 217 Business Management ...................... 3
Elective Select from the list below ..................... 2–3

Total Credits 5–6

PROGRAM TOTAL 33–35 CREDITS
COMPUTER INFORMATION SYSTEMS

Credentials

Programming skills certificate ........................................... 16 cr.
Introductory certificate ..................................................... 27–28 cr.
Networking Technology Integration certificate ....... 31 cr.
Web Specialist certificate ................................................... 30 cr.
Computer Support Technician AAS degree .......... 60–62 cr.
Programming AAS degree .................................................. 60–62 cr.
Web Specialist AAS degree ............................................... 64 cr.
Post-associate certificate ................................................... 16 cr.

Major Description

If you are interested in learning the basics of software applications and programming, enhancing your skills by learning the latest in technology and network integration, or preparing for a career as a support technician, entry-level programmer or web specialist, Schoolcraft’s CIS program has what you need to succeed in the growing world of information technology. We offer three associate of applied science degrees and six certificates to match our students’ needs and interests. The educational options include:

- **Computer Support Technician AAS Degree**: This degree program prepares students for entry-level positions supporting users of microcomputer components of the operating system. Technicians assist users by recommending hardware and software, interpreting manuals, organizing storage, networking workstations and creating systems solutions using the microcomputer.

- **Programming AAS Degree**: This degree offers students a schedule of core computer courses and electives to prepare them for an position as an entry-level programmer. Students will learn how a computer programmer analyzes problems and writes step-by-step instructions to enable a computer system to process data efficiently.

- **Web Specialist AAS Degree**: Virtually every company and organization has a website on the Internet these days, and this degree program prepares students to be able to design web pages and program for the web in the constantly evolving world of website technology. It provides working knowledge in key areas that are vital to becoming an Internet professional, including various programming languages, multimedia technologies, graphic development and web design tools.

- **Introductory Certificate**: This certificate program introduces students to the operating system, concepts of programming logic, programming language and software applications. During or after the first year of this certificate program, students may choose to earn one of the computer information system associate degrees, providing all degree requirements are fulfilled.

- **Networking Technology Integration Certificate**: The certificate curriculum provides students with in-depth understanding of the theory, hardware and software of computer networking and is applicable for both those who are new to the field or have networking experience.

- **Programming Skills Certificate**: This program is designed to introduce students to the top programming languages used in software development and web applications. Students will also learn how to use the Microsoft .NET framework, which is the common environment for building, deploying and running web services and applications in Windows. In addition, the new Visual Studio .NET will be used, a common development environment for the new .NET framework.

- **Web Specialist Certificate**: With the technology of the Internet constantly evolving in terms of infrastructure and website development, this certificate program provides an overview of technical programming and graphic design for web page development needed to stay abreast of these technological advances. Areas of study include programming logic, design concepts and technology, and web design and development. Students will also learn about the latest in web technology and design programs, such as Adobe Flash, Illustrator and Photoshop, and JavaScript.

- **Post-Associate Certificate**: Designed for working professionals who have earned an associate degree in applied science and have experience and/or training in the computer field, it provides insight into the latest computer technology and will enhance their ability to meet the needs of the fast-changing computer information systems environment.

National Median Salaries for Various Computer Information Systems-Related Jobs

- Microcomputer Support Tech: $36,620
- Programmer: $74,280
- Computer Support Specialist: $48,900
- Network and Computer Systems Admin: $72,560
- Web Page Designer: $43,930
- Web Developer: $62,500

(US BLS)

Computer Information Systems

Introductory Certificate

Schoolcraft program code # 1YC.00004

The computer information systems certificate program introduces students to the operating system and concepts surrounding programming logic. In addition, students obtain a basic knowledge of software applications and programming languages.

Students may select one of the computer information systems associate degree programs at anytime during or after the first year. However, all degree requirements must be fulfilled.

All courses are not offered each semester. Students should work with an academic advisor or counselor to develop a schedule that will work for them. Students who satisfactorily complete the program requirements qualify for a certificate of program completion.

**SAMPLE SCHEDULE OF COURSES**

**First Year—Fall Semester**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENG 101</td>
<td>English Composition 1</td>
<td>3</td>
</tr>
<tr>
<td>MATH 102</td>
<td>Technical Mathematics</td>
<td>4</td>
</tr>
<tr>
<td>MATH 113</td>
<td>Intermediate Algebra for College Students</td>
<td>3</td>
</tr>
<tr>
<td>CIS 176</td>
<td>Visual Basic, .NET</td>
<td>3</td>
</tr>
<tr>
<td>CIS 225</td>
<td>Database Management Systems</td>
<td>3</td>
</tr>
<tr>
<td>Elective</td>
<td>Select from the list below</td>
<td>2–3</td>
</tr>
</tbody>
</table>

**Total Credits 12**

**First Year—Winter Semester**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIS 115</td>
<td>Introduction to Computer Based Systems</td>
<td>3</td>
</tr>
<tr>
<td>CIS 120</td>
<td>Software Applications</td>
<td>3</td>
</tr>
<tr>
<td>CIS 129</td>
<td>Introduction to Programming Logic</td>
<td>3</td>
</tr>
<tr>
<td>CIS</td>
<td>Select 1</td>
<td>3</td>
</tr>
<tr>
<td>CIS 170</td>
<td>Microsoft Windows</td>
<td>3</td>
</tr>
<tr>
<td>CIS 178</td>
<td>Technical Microsoft Windows</td>
<td>3</td>
</tr>
</tbody>
</table>

**Total Credits 15–16**

**PROGRAM TOTAL 27–28 CREDITS**

**Electives**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIS 122</td>
<td>Microsoft Outlook</td>
<td>2</td>
</tr>
<tr>
<td>CIS 125</td>
<td>Principles of Information Security</td>
<td>3</td>
</tr>
<tr>
<td>CIS 171</td>
<td>Introduction to Networking</td>
<td>3</td>
</tr>
<tr>
<td>CIS 251</td>
<td>IT Project Management</td>
<td>3</td>
</tr>
<tr>
<td>CIS 255</td>
<td>Introduction to LINUX</td>
<td>3</td>
</tr>
</tbody>
</table>

**Total Credits**

**Business & Information Technology**
Computer Information Systems: Computer Support Technician AAS Degree

Schoolcraft program code # AAS.00014

This program is designed to prepare the student for entry-level positions supporting users of microcomputer components of the operating system. Technicians will assist microcomputer users by recommending appropriate hardware and software, interpreting software manuals, organizing the disk storage, networking workstations and creating systems solutions using the microcomputer.

All courses are not offered each semester. Students should work with an academic advisor or counselor to develop a schedule that will work for them. Students who satisfactorily complete all college and program requirements qualify for an associate in applied science degree.

SAMPLE SCHEDULE OF COURSES

First Year—Fall Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIS 115</td>
<td>Introduction to Computer Based Systems</td>
<td>3</td>
</tr>
<tr>
<td>CIS 171</td>
<td>Introduction to Networking</td>
<td>3</td>
</tr>
<tr>
<td>Mathematics Select 1</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>MATH 102</td>
<td>Technical Mathematics</td>
<td></td>
</tr>
<tr>
<td>MATH 113</td>
<td>Intermediate Algebra for College Students</td>
<td></td>
</tr>
<tr>
<td>English</td>
<td>Select 1</td>
<td></td>
</tr>
<tr>
<td>EN 100</td>
<td>Communication Skills</td>
<td>3</td>
</tr>
<tr>
<td>EN 101</td>
<td>English Composition 1</td>
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</table>

Total Credits 13

First Year—Winter Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIS 120</td>
<td>Software Applications</td>
<td>3</td>
</tr>
<tr>
<td>CIS 170</td>
<td>Microsoft Windows</td>
<td>3</td>
</tr>
<tr>
<td>English</td>
<td>Select 1</td>
<td></td>
</tr>
<tr>
<td>ENG 106</td>
<td>Business English</td>
<td></td>
</tr>
<tr>
<td>ENG 116</td>
<td>Technical Writing</td>
<td></td>
</tr>
<tr>
<td>CIS 173</td>
<td>Wireless Local Area Networks</td>
<td>3</td>
</tr>
<tr>
<td>CIS 235</td>
<td>Managing and Troubleshooting PCs</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 15

First Year—Spring Session

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social Science Select 1</td>
<td></td>
<td>3–4</td>
</tr>
<tr>
<td>POLS 105</td>
<td>Survey of American Government</td>
<td></td>
</tr>
<tr>
<td>PSYCH 153</td>
<td>Human Relations</td>
<td></td>
</tr>
<tr>
<td>PSYCH 201</td>
<td>Introductory Psychology</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 3–4

Second Year—Fall Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIS 178</td>
<td>Technical Microsoft Windows</td>
<td>3</td>
</tr>
<tr>
<td>CIS 180</td>
<td>Spreadsheet Applications-Current Software</td>
<td>3</td>
</tr>
<tr>
<td>CIS 265</td>
<td>Networking 1</td>
<td>3</td>
</tr>
<tr>
<td>COMA 103</td>
<td>Fundamentals of Speech</td>
<td>3</td>
</tr>
<tr>
<td>Science*</td>
<td>Select any General Education Science course</td>
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</tr>
</tbody>
</table>

Total Credits 16

Second Year—Winter Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIS 215</td>
<td>Advanced Software Applications</td>
<td>3</td>
</tr>
<tr>
<td>CIS 250</td>
<td>Systems Development and Design</td>
<td>4</td>
</tr>
<tr>
<td>CIS 276</td>
<td>Networking 2</td>
<td>3</td>
</tr>
<tr>
<td>Elective</td>
<td>Select from the list below</td>
<td>3–4</td>
</tr>
</tbody>
</table>

Total Credits 13–14

PROGRAM TOTAL 60–62 CREDITS

* Number of credits may vary depending on the General Education Science course selection.

Students planning to transfer should check the transfer institution’s requirements/guides or discuss their options with a counselor or advisor. Number of credits may vary depending on the course selection.

Electives

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIS 125</td>
<td>Principles of Information Security</td>
<td>3</td>
</tr>
<tr>
<td>CIS 172</td>
<td>Network Security Fundamentals</td>
<td>3</td>
</tr>
<tr>
<td>CIS 251</td>
<td>IT Project Management</td>
<td>3</td>
</tr>
<tr>
<td>CIS 255</td>
<td>Introduction to LINUX</td>
<td>3</td>
</tr>
<tr>
<td>CIS 267</td>
<td>Home Technology Integration</td>
<td>4</td>
</tr>
<tr>
<td>CIS 273</td>
<td>TCP/IP and Network Architectures</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 16

Computer Information Systems: Networking Technology Integration Certificate

Schoolcraft program code # 1YC.00270

The curriculum provides students with an in-depth understanding of the theory, hardware, and software of computer networking. This program provides a complete introductory program for students or adult learners who are new to the field. For students who have networking experience, this program also offers more advanced networking study.

All courses are not offered each semester. Students should work with an academic advisor or counselor to develop a schedule that will work for them. Students who satisfactorily complete the program requirements qualify for a certificate of program completion.

SAMPLE SCHEDULE OF COURSES

First Year—Fall Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIS 171</td>
<td>Introduction to Networking</td>
<td>3</td>
</tr>
<tr>
<td>CIS 170</td>
<td>Microsoft Windows</td>
<td>3</td>
</tr>
<tr>
<td>CIS 178</td>
<td>Technical Microsoft Windows</td>
<td>3</td>
</tr>
<tr>
<td>CIS 235</td>
<td>Managing and Troubleshooting PCs</td>
<td>3</td>
</tr>
<tr>
<td>CIS 267</td>
<td>Home Technology Integration</td>
<td>4</td>
</tr>
<tr>
<td>ENGR 100</td>
<td>Introduction to Engineering and Technology</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 16

First Year—Winter Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIS 172</td>
<td>Network Security Fundamentals</td>
<td>3</td>
</tr>
<tr>
<td>CIS 173</td>
<td>Wireless Local Area Networks</td>
<td>3</td>
</tr>
<tr>
<td>CIS 251</td>
<td>IT Project Management</td>
<td>3</td>
</tr>
<tr>
<td>CIS 271</td>
<td>Local Area Networks</td>
<td>3</td>
</tr>
<tr>
<td>CIS 273</td>
<td>TCP/IP and Network Architectures</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 15

PROGRAM TOTAL 31 CREDITS

Business & Information Technology
As business and industry embrace new technology and procedures, the need for specially trained people accelerates. This program is designed to prepare the student for a position as an entry-level programmer. Students will learn to become proficient in following directions, analyzing problems, and writing step-by-step instructions so that the computer will efficiently process the data needed to solve these problems. Accuracy, persistence, patience, and the ability to communicate both orally and in writing are important characteristics a computer programmer should possess.

All courses are not offered each semester. Students should work with an academic advisor or counselor to develop a schedule that will work for them. Students who satisfactorily complete all college and program requirements qualify for an associate in applied science degree.

**SAMPLE SCHEDULE OF COURSES**

**First Year—Fall Semester**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIS 119</td>
<td>Introduction to Computer Based Systems</td>
</tr>
<tr>
<td>CIS 129</td>
<td>Introduction to Programming Logic</td>
</tr>
<tr>
<td>Mathematics</td>
<td>Select 1</td>
</tr>
<tr>
<td>MATH 102</td>
<td>Technical Mathematics</td>
</tr>
<tr>
<td>MATH 113</td>
<td>Intermediate Algebra for College Students</td>
</tr>
<tr>
<td>COMA 103</td>
<td>Fundamentals of Speech</td>
</tr>
<tr>
<td>ENG 101</td>
<td>English Composition I</td>
</tr>
</tbody>
</table>

**Total Credits 16**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIS 115</td>
<td>Introduction to Computer Based Systems</td>
</tr>
<tr>
<td>CIS 129</td>
<td>Introduction to Programming Logic</td>
</tr>
<tr>
<td>Mathematics</td>
<td>Select 1</td>
</tr>
<tr>
<td>MATH 102</td>
<td>Technical Mathematics</td>
</tr>
<tr>
<td>MATH 113</td>
<td>Intermediate Algebra for College Students</td>
</tr>
<tr>
<td>COMA 103</td>
<td>Fundamentals of Speech</td>
</tr>
<tr>
<td>ENG 101</td>
<td>English Composition I</td>
</tr>
</tbody>
</table>

**Second Year—Winter Semester**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIS 250</td>
<td>Systems Development and Design</td>
</tr>
<tr>
<td>CIS 290</td>
<td>Object-Oriented Programming with Java</td>
</tr>
<tr>
<td>CIS 221</td>
<td>Advanced C++</td>
</tr>
<tr>
<td>Social Science</td>
<td>Select 1</td>
</tr>
<tr>
<td>POLS 105</td>
<td>Survey of American Government</td>
</tr>
<tr>
<td>PSYCH 153</td>
<td>Human Relations</td>
</tr>
<tr>
<td>PSYCH 201</td>
<td>Introductory Psychology</td>
</tr>
<tr>
<td>Elective</td>
<td>Select from the list below</td>
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</table>

**Total Credits 14–16**

**PROGRAM TOTAL 60–62 CREDITS**

Students planning to transfer should check the transfer institution’s requirements/guides or discuss their options with a counselor or advisor. Number of credits may vary depending on the course selection.

**Electives**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIS 120</td>
<td>Software Applications</td>
</tr>
<tr>
<td>CIS 122</td>
<td>Microsoft Outlook</td>
</tr>
<tr>
<td>CIS 125</td>
<td>Principles of Information Security</td>
</tr>
<tr>
<td>CIS 185</td>
<td>Introduction to HTML</td>
</tr>
<tr>
<td>CIS 223</td>
<td>Introduction to C#</td>
</tr>
<tr>
<td>CIS 238</td>
<td>JavaScript</td>
</tr>
<tr>
<td>CIS 251</td>
<td>IT Project Management</td>
</tr>
</tbody>
</table>

**Total Credits 12–14**

**Computer Information Systems: Programming Skills Certificate**

Schoolcraft program code # CRT.00366

The Microsoft .NET framework is a common environment for building, deploying, and running web services and web applications in the Windows environment. This certificate is designed to introduce the student to the top four programming languages used in software development today. The student will use the new Visual Studio.NET, which is a common development environment for the new .NET Framework. The .NET Framework provides a feature-rich application execution environment, simplified development, and easy integration between a number of different development languages.

All courses are not offered each semester. Students should work with an academic advisor or counselor to develop a schedule that will work for them. Students who satisfactorily complete all college and program requirements qualify for a certificate of program completion. All program required courses must have been completed with a grade of 2.0 or better.

**SAMPLE SCHEDULE OF COURSES**

**First Year—Fall Semester**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIS 129</td>
<td>Introduction to Programming Logic</td>
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</tbody>
</table>

**Total Credits 3**

**Second Year—Fall Semester**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIS 221</td>
<td>Advanced C++</td>
</tr>
<tr>
<td>CIS 223</td>
<td>Introduction to C#</td>
</tr>
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</table>

**Total Credits 5**

**Second Year—Winter Semester**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIS 290</td>
<td>Object-Oriented Programming with Java</td>
</tr>
</tbody>
</table>

**Total Credits 3**

**PROGRAM TOTAL 16 CREDITS**
## Computer Information Systems: Web Specialist AAS Degree

Schoolcraft program code # AAS.00275

The technology of the Internet is constantly evolving both in terms of delivery infrastructure and website development tools. To stay abreast of these technological advances requires programming and design knowledge, skills and experience. A good site must include both quality visual communication design and functionality. Programming is needed for interactivity to search databases and track usage. Visual graphic design is needed to convey the content message and provide branding for products and services.

This degree is designed to prepare the Internet professional to design web pages and to program for the web. It provides the working knowledge of various programming languages, multimedia technologies, graphic development, and web design tools. The Internet professional may be involved with designing, developing, operating, maintaining and managing web-based publishing.

All courses are not offered each semester. Students should work with an academic advisor or counselor to develop a schedule that will work for them. Students who satisfactorily complete all college and program requirements qualify for an associate in applied science degree.

### SAMPLE SCHEDULE OF COURSES

#### First Year—Fall Semester

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CGT 109</td>
<td>Design Concepts and Technology</td>
<td>3</td>
</tr>
<tr>
<td>CGT 123</td>
<td>Illustration—Illustrator</td>
<td>3</td>
</tr>
<tr>
<td>CGT 125</td>
<td>Digital Imaging 1—Photoshop</td>
<td>3</td>
</tr>
<tr>
<td>CIS 129</td>
<td>Introduction to Programming Logic</td>
<td>3</td>
</tr>
<tr>
<td>CGT 136</td>
<td>Web Design and Development 1</td>
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#### First Year—Winter Semester

<table>
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<tr>
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<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>Mathematics</td>
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</tr>
<tr>
<td>MATH 102</td>
<td>Technical Mathematics</td>
<td></td>
</tr>
<tr>
<td>MATH 113</td>
<td>Intermediate Algebra for College Students</td>
<td></td>
</tr>
<tr>
<td>ENG 101</td>
<td>English Composition 1</td>
<td>3</td>
</tr>
<tr>
<td>CIS 171</td>
<td>Introduction to Networking</td>
<td>3</td>
</tr>
<tr>
<td>COMA 103</td>
<td>Fundamentals of Speech</td>
<td>3</td>
</tr>
<tr>
<td>CGT 163</td>
<td>Web Design and Development 2</td>
<td>3</td>
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<tr>
<td>Total Credits</td>
<td></td>
<td>16</td>
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</table>

#### First Year—Spring Session

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENG 102</td>
<td>English Composition 2</td>
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</tr>
<tr>
<td>Total Credits</td>
<td></td>
<td>3</td>
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</table>

#### Second Year—Fall Semester

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIS 250</td>
<td>Systems Development and Design</td>
<td>4</td>
</tr>
<tr>
<td>CGT 234</td>
<td>Web Design and Development 3</td>
<td>3</td>
</tr>
<tr>
<td>CIS 238</td>
<td>JavaScript</td>
<td>3</td>
</tr>
<tr>
<td>Social Science</td>
<td>Select 1</td>
<td>3</td>
</tr>
<tr>
<td>POLS 105</td>
<td>Survey of American Government</td>
<td>3</td>
</tr>
<tr>
<td>PSYCH 153</td>
<td>Human Relations</td>
<td></td>
</tr>
<tr>
<td>Elective</td>
<td>Select from the list below</td>
<td>3</td>
</tr>
<tr>
<td>Total Credits</td>
<td></td>
<td>16</td>
</tr>
</tbody>
</table>

#### Second Year—Winter Semester

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HUM 106</td>
<td>Introduction to Art and Music</td>
<td>1</td>
</tr>
<tr>
<td>Elective</td>
<td>Select from the list below</td>
<td>3</td>
</tr>
<tr>
<td>CIS 176</td>
<td>Visual Basic.NET</td>
<td>3</td>
</tr>
<tr>
<td>CIS 223</td>
<td>Introduction to C#</td>
<td>3</td>
</tr>
<tr>
<td>CGT 211</td>
<td>Flash</td>
<td>3</td>
</tr>
<tr>
<td>Science*</td>
<td>Select any General Education Science course</td>
<td>4</td>
</tr>
<tr>
<td>Elective</td>
<td>Select from the list below</td>
<td>3</td>
</tr>
<tr>
<td>Total Credits</td>
<td></td>
<td>14</td>
</tr>
</tbody>
</table>

*Number of credits may vary depending on the General Education Science course selected.

Students planning to transfer should check the transfer institution's requirements/guides or discuss their options with a counselor or advisor. Number of credits may vary depending on the course selection.

### Electives

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIS 125</td>
<td>Principles of Information Security</td>
<td>3</td>
</tr>
<tr>
<td>CIS 176</td>
<td>Visual Basic.NET</td>
<td>3</td>
</tr>
<tr>
<td>CIS 185</td>
<td>Introduction to HTML</td>
<td>3</td>
</tr>
<tr>
<td>CIS 223</td>
<td>Introduction to C#</td>
<td>3</td>
</tr>
<tr>
<td>CIS 225</td>
<td>Database Management Systems</td>
<td>3</td>
</tr>
<tr>
<td>CIS 255</td>
<td>Introduction to LINUX</td>
<td>3</td>
</tr>
<tr>
<td>CGT 141</td>
<td>Game Design</td>
<td>3</td>
</tr>
<tr>
<td>Total Credits</td>
<td></td>
<td>3</td>
</tr>
</tbody>
</table>

### Concept TOTAL 64 CREDITS

---

## Computer Information Systems: Web Specialist Certificate

Schoolcraft program code #1YC.00241

The technology of the Internet is constantly evolving both in terms of delivery infrastructure and Website development tools. To stay abreast of these technological advances requires programming and design knowledge, skills and experience. A good site must include both quality visual communication design and functionality. Programming is needed for interactivity to search databases and track usage. Visual graphic design is needed to convey the content message and provide branding for products and services.

This certificate is designed to provide students with an overview of the technical programming and graphic design areas for web page development. All courses are not offered each semester. Students should work with an academic advisor or counselor to develop a schedule that will work for them. Students who satisfactorily complete the program requirements qualify for a certificate of program completion.

### SAMPLE SCHEDULE OF COURSES

#### First Year—Fall Semester

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CGT 109</td>
<td>Design Concepts and Technology</td>
<td>3</td>
</tr>
<tr>
<td>CGT 123</td>
<td>Illustration—Illustrator</td>
<td>3</td>
</tr>
<tr>
<td>CGT 125</td>
<td>Digital Imaging 1—Photoshop</td>
<td>3</td>
</tr>
<tr>
<td>CIS 129</td>
<td>Introduction to Programming Logic</td>
<td>3</td>
</tr>
<tr>
<td>CGT 136</td>
<td>Web Design and Development 1</td>
<td>3</td>
</tr>
<tr>
<td>Total Credits</td>
<td></td>
<td>12</td>
</tr>
</tbody>
</table>

#### First Year—Winter Semester

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIS 129</td>
<td>Introduction to Programming Logic</td>
<td>3</td>
</tr>
<tr>
<td>CGT 163</td>
<td>Web Design and Development 1</td>
<td>3</td>
</tr>
<tr>
<td>CIS 238</td>
<td>JavaScript</td>
<td>3</td>
</tr>
<tr>
<td>CGT 211</td>
<td>Flash</td>
<td>3</td>
</tr>
<tr>
<td>Total Credits</td>
<td></td>
<td>12</td>
</tr>
</tbody>
</table>

#### Second Year—Fall Semester

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CGT 234</td>
<td>Web Design and Development 3</td>
<td>3</td>
</tr>
<tr>
<td>Total Credits</td>
<td></td>
<td>3</td>
</tr>
</tbody>
</table>

#### Second Year—Winter Semester

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elective</td>
<td>Select 1</td>
<td>3</td>
</tr>
<tr>
<td>CIS 176</td>
<td>Visual Basic.NET</td>
<td>3</td>
</tr>
<tr>
<td>CIS 223</td>
<td>Introduction to C#</td>
<td>3</td>
</tr>
<tr>
<td>CGT 211</td>
<td>Flash</td>
<td>3</td>
</tr>
<tr>
<td>Total Credits</td>
<td></td>
<td>3</td>
</tr>
</tbody>
</table>

### PROGRAM TOTAL 30 CREDITS

---

## Business & Information Technology
**Computer Information Systems**  
**Post-Associate Certificate**

Schoolcraft program code # PAC.00155  
This post-associate certificate in computer science information systems is designed for working professionals who have experience and/or training in the computer field. This certificate will provide study in the newest technology and will enhance students’ ability to meet the needs of the ever-changing computer information systems environment.  
Prior to admission in this program, students must have already completed a minimum of an accredited associate degree in applied science. All courses are not offered each semester. Students should work with an academic advisor or counselor to set up a schedule that will work for them. The post-associate certificate is awarded upon successful completion of 16 credit hours (exact number may vary slightly due to credit value of courses).

**Program Courses**
- CIS 185  Introduction to HTML  
- CIS 211  Introduction to C++  
- CIS 221  Advanced C++  
- CIS 223  Introduction to C#  
- CIS 235  Managing and Troubleshooting PCs  
- CIS 238  JavaScript  
- CIS 250  Systems Development and Design  
- CIS 251  IT Project Management  
- CIS 255  Introduction to LINUX  
- CIS 265  Networking 1  
- CIS 276  Networking 2  
- CIS 290  Object-Oriented Programming with Java

Completion of a minimum of 16 credit hours is required.

Courses can be taken through independent study.

---

**Computer Service Technician Certificate**

Schoolcraft program code # YC.00159  
Computer service technicians provide technical support for computer systems, PCs, networks and peripheral devices. The technician needs to be able to provide diagnostic analysis and solutions to hardware, software and network problems. A technician will need to have a broad background in the areas of PCs, as well as network wiring and standards. The technician will also assist in the installation and maintaining of computer systems, networks, and software.

All courses are not offered each semester. Students should work with an academic advisor or counselor to develop a schedule that will work for them. Students who satisfactorily complete the program requirements qualify for a certificate of program completion.

**SAMPLE SCHEDULE OF COURSES**

**First Year—Fall Semester**
- CIS 235  Managing and Troubleshooting PCs  
- COMPS 124  Introduction to Personal Computers and Software  
- ELECT 131  Basic Measurement and Reporting Skills  
- ELECT 137  DC Circuits and Mathematical Modeling

Total Credits 14

**First Year—Winter Semester**
- CIS 265  Networking 1  
- COMPS 126  Technical Programming  
- COMPS 147  Computer and Peripheral Maintenance and Management  
- CIS 120  Software Applications

Total Credits 13

**First Year—Spring Session**
- Elective*  

Total Credits 3

**PROGRAM TOTAL 30 CREDITS**

* Any CIS course not previously taken.
COSMETOLOGY MANAGEMENT

Cosmetology Management AAS Degree

Schoolcraft program code # AAS.00010

This program is designed to give licensed, practicing cosmetologists an opportunity to develop special skills in business-related activities and to earn an associate degree in applied science from Schoolcraft College.

Schoolcraft College will grant credit equal to 30 semester credit hours upon receipt of current and proper evidence of license based upon the standards of the State Board of Cosmetology. These credits will not be entered into the student's transcript until a minimum of 15 semester credit hours has been earned with a grade-point average of 2.0 at Schoolcraft College.

All courses are not offered each semester. Students should work with an academic advisor or counselor to develop a schedule that will work for them. Students who satisfactorily complete all college and program requirements qualify for an associate in applied science degree.

SAMPLE SCHEDULE OF COURSES

Admission Prerequisite
Current Cosmetology License ......................... 30

<table>
<thead>
<tr>
<th>First Year—Fall Semester</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>BUS 101</td>
<td>Introduction to Business .......... 3</td>
</tr>
<tr>
<td>BUS 103</td>
<td>Operating a Small Business .......... 3</td>
</tr>
<tr>
<td>MATH 101</td>
<td>Business Mathematics .......... 3</td>
</tr>
<tr>
<td>ENG 100</td>
<td>Communication Skills .......... 3</td>
</tr>
<tr>
<td>PSYCH 153</td>
<td>Human Relations .......... 3</td>
</tr>
</tbody>
</table>

Total Credits 15

<table>
<thead>
<tr>
<th>First Year—Winter Semester</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>ACCT 103</td>
<td>Introduction to Accounting .......... 4</td>
</tr>
<tr>
<td>BUS 104</td>
<td>Operating a Small Business .......... 3</td>
</tr>
<tr>
<td>COMA 103</td>
<td>Fundamentals of Speech .......... 3</td>
</tr>
<tr>
<td>ENG 116</td>
<td>Technical Writing .......... 3</td>
</tr>
<tr>
<td>Social Science</td>
<td>Select 1 .......... 3</td>
</tr>
<tr>
<td>POLS 105</td>
<td>Survey of American Government</td>
</tr>
<tr>
<td>SOC 201</td>
<td>Principles of Sociology</td>
</tr>
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</table>

Total Credits 16

<table>
<thead>
<tr>
<th>First Year—Spring Session</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 101</td>
<td>General Biology .......... 4</td>
</tr>
<tr>
<td>CIS 105</td>
<td>Computer Orientation .......... 1</td>
</tr>
<tr>
<td>HUM 106</td>
<td>Introduction to Art and Music .......... 1</td>
</tr>
</tbody>
</table>

Total Credits 6

TOTAL 37 CREDITS

CURRENT COSMETOLOGY LICENSE .......................... 30 CREDITS

PROGRAM TOTAL 67 CREDITS

Students planning to transfer should check the transfer institution’s requirements/guides or discuss their options with a counselor or advisor. Number of credits may vary depending on the course selection.
## OFFICE INFORMATION SYSTEMS

### Office Administration AAS Degree

<table>
<thead>
<tr>
<th>Schoolcraft program code # AAS.00133</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>The office professional, as a member of the office information systems management team, plays an integral role in the successful operation of the organization. In today's information age, the OIS professional functions as the pivotal person in the office communications network.</strong> The office administration curriculum is designed to offer courses that enhance students' technical skills, communication skills, and leadership/management skills with an emphasis on the professional work ethic. All courses are not offered each semester. Students should work with an academic advisor or counselor to develop a schedule that will work for them. Students who satisfactorily complete all college and program requirements qualify for an associate in applied science degree.</td>
</tr>
</tbody>
</table>

### SAMPLE SCHEDULE OF COURSES

#### First Year—Fall Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>OIS 100</td>
<td>Keyboarding 1</td>
<td>2</td>
</tr>
<tr>
<td>OIS 102</td>
<td>Keyboarding 2</td>
<td>2</td>
</tr>
<tr>
<td>OIS 195</td>
<td>Time and Project Management</td>
<td>1</td>
</tr>
<tr>
<td>ENG 101</td>
<td>English Composition 1</td>
<td>3</td>
</tr>
<tr>
<td>BUS 101</td>
<td>Introduction to Business</td>
<td>3</td>
</tr>
<tr>
<td>OIS 105</td>
<td>Office Communications—Editing Skills</td>
<td>3</td>
</tr>
</tbody>
</table>

**Total Credits 14**

#### First Year—Winter Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIS 120</td>
<td>Software Applications</td>
<td>3</td>
</tr>
<tr>
<td>OIS 255</td>
<td>Office Procedures</td>
<td>2</td>
</tr>
<tr>
<td>OIS 165</td>
<td>Microsoft Word for Windows</td>
<td>3</td>
</tr>
<tr>
<td>ENG 106</td>
<td>Business English</td>
<td>3</td>
</tr>
<tr>
<td>MATH 101</td>
<td>Business Mathematics</td>
<td>3</td>
</tr>
</tbody>
</table>

**Total Credits 14**

#### First Year—Spring/Summer Session

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMA 103</td>
<td>Fundamentals of Speech</td>
<td>3</td>
</tr>
</tbody>
</table>

**Total Credits 3**

### Second Year—Fall Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>OIS 260</td>
<td>Office Administration</td>
<td>3</td>
</tr>
<tr>
<td>CIS 180</td>
<td>Spreadsheet Applications—Current Software</td>
<td>3</td>
</tr>
<tr>
<td>OIS 185</td>
<td>Business Presentation 1—Fundamental Concepts</td>
<td>3</td>
</tr>
<tr>
<td>ACCT 201</td>
<td>Principles of Accounting</td>
<td>4</td>
</tr>
<tr>
<td>CIS 225</td>
<td>Database Management Systems</td>
<td>3</td>
</tr>
</tbody>
</table>

**Total Credits 16**

### Second Year—Winter Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIS 122</td>
<td>Microsoft Outlook</td>
<td>2</td>
</tr>
<tr>
<td>OIS 265</td>
<td>Advanced Microsoft Word for Windows</td>
<td>3</td>
</tr>
<tr>
<td>Science*</td>
<td>Select any General Education Science course</td>
<td>4</td>
</tr>
<tr>
<td>CIS 215</td>
<td>Advanced Software Applications</td>
<td>3</td>
</tr>
<tr>
<td>PSYCH 153</td>
<td>Human Relations</td>
<td>3</td>
</tr>
</tbody>
</table>

**Total Credits 15**

**PROGRAM TOTAL 62 CREDITS**

* Number of credits may be higher dependent on the General Education Science course selected.

Students planning to transfer should check the transfer institution’s requirements/guides or discuss their options with a counselor or advisor. Number of credits may be higher dependent on the course selection.

---

### National Median Salaries for Office Information Systems-Related Jobs

- Adm. Support Supervisor: $41,144 (Glassdoor.com)
- Information Processing Coordinator: $37,240
- Legal Secretary: $42,170
- Medical Secretary: $31,350
- Exec. Secretary/Adm. Assistant: $47,500 (US BLS)
### Office Specialist Certificate

**Schoolcraft program code # 1YC.00166**

This certificate program focuses on office application software for today's administrative assistant. Computers and software applications are the center of the technological revolution taking place in today's business offices.

Students enrolled in the office specialist program will be prepared to take on broader and more challenging responsibilities in the business world. Successful completion of these courses helps to prepare students for the Microsoft Office Specialist certification exam.

Individuals who successfully complete this program will be prepared to obtain employment as administrative or executive secretaries, software specialists, word processing supervisors, and managers.

All courses are not offered each semester. Students should work with an academic advisor or counselor to develop a schedule that will work for them. Students who satisfactorily complete the program requirements qualify for a certificate of program completion.

**SAMPLE SCHEDULE OF COURSES**

#### First Year—Fall Semester

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>OIS 100</td>
<td>Keyboarding 1</td>
<td>2</td>
</tr>
<tr>
<td>OIS 102</td>
<td>Keyboarding 2</td>
<td>2</td>
</tr>
<tr>
<td>OIS 105</td>
<td>Office Communications—Editing Skills</td>
<td>3</td>
</tr>
<tr>
<td>CIS 120</td>
<td>Software Applications</td>
<td>3</td>
</tr>
<tr>
<td>OIS 195</td>
<td>Time and Project Management</td>
<td>1</td>
</tr>
</tbody>
</table>

**Total Credits 11**

#### First Year—Winter Semester

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>OIS 165</td>
<td>Microsoft Word for Windows</td>
<td>3</td>
</tr>
<tr>
<td>CIS 122</td>
<td>Microsoft Outlook</td>
<td>2</td>
</tr>
<tr>
<td>OIS 255</td>
<td>Office Procedures</td>
<td>2</td>
</tr>
<tr>
<td>CIS 180</td>
<td>Spreadsheet Applications—Current Software</td>
<td>3</td>
</tr>
<tr>
<td>CIS 215</td>
<td>Advanced Software Applications</td>
<td>3</td>
</tr>
</tbody>
</table>

**Total Credits 13**

#### Second Year—Fall Semester

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>OIS 185</td>
<td>Business Presentation 1—Fundamental Concepts</td>
<td>3</td>
</tr>
<tr>
<td>OIS 265</td>
<td>Advanced Microsoft Word for Windows</td>
<td>3</td>
</tr>
</tbody>
</table>

**Total Credits 6**

**PROGRAM TOTAL 30 CREDITS**

### Office Specialist Skills Certificate

**Schoolcraft program code # CRT.00370**

This program is designed to help prepare students for today's technologically driven work environment. The program combines instruction in the most commonly used computer software packages as well as the critical areas of business communication and time and project management. Individuals who are already employed may find that the certificate increases their opportunity for promotion.

This certificate can be used as a building block toward the achievement of the office specialist certificate or the associate degree in applied science in office administration. Successful completion of these courses will also provide the foundation for the Microsoft Office Specialist certification examination.

All courses are not offered each semester. Students should work with an academic advisor or counselor to develop a schedule that will work for them. Students who satisfactorily complete the program requirements qualify for a certificate of program completion. All program required courses must have been completed with a grade of 2.0 or better.

**SAMPLE SCHEDULE OF COURSES**

#### First Year—Fall Semester

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>OIS 100*</td>
<td>Keyboarding</td>
<td>2</td>
</tr>
<tr>
<td>OIS 195*</td>
<td>Time and Project Management</td>
<td>1</td>
</tr>
<tr>
<td>OIS 105*</td>
<td>Office Communication—Editing Skills</td>
<td>3</td>
</tr>
<tr>
<td>CIS 120*</td>
<td>Software Applications</td>
<td>3</td>
</tr>
</tbody>
</table>

**Total Credits 9**

#### First Year—Winter Semester

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>OIS 165*</td>
<td>Microsoft Word for Windows</td>
<td>3</td>
</tr>
<tr>
<td>CIS 122*</td>
<td>Microsoft Outlook</td>
<td>2</td>
</tr>
<tr>
<td>Elective</td>
<td>Select from the list below</td>
<td>2–3</td>
</tr>
</tbody>
</table>

**Total Credits 7–8**

**PROGRAM TOTAL 16–17 CREDITS**

### Electives

- BUS 204    Personal Finance ..................... 3
- CIS 180*   Spreadsheet Applications—Current Software .......... 3
- HDS 110    Career Decision Making .............. 2
- OIS 185*   Business Presentation 1—Fundamental Concepts .......... 3
- OIS 255*   Office Procedures ................... 2
- OIS 265*   Advanced Microsoft Word for Windows .... 3

* Courses are part of the office specialist certificate and/or the office administration associate degree.

All courses may be applied toward the associate of general studies degree.

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**Areas of Study**

- Business & Information Technology
### BUSINESS ADMINISTRATION

**Major Description**

Schoolcraft’s Associate Degree in Business Administration (ABA) degree prepares students for a variety of business career opportunities and is also designed for students who plan to transfer to a four-year college or university. The ABA includes all of the general education requirements and freshman and sophomore courses a business major need to prepare for the pursuit of a bachelor’s degree in a number of majors, including:

- Accounting
- Business Administration
- Computer Information Systems
- Finance
- Human Resources Management
- International Business
- Management
- Marketing

Additional learning opportunities include group projects for area businesses, participation in business-related student groups, and volunteering to provide income tax assistance.

The specific courses required will be determined by the destination college or university, and students need to work with an academic advisor or counselor to ensure that their courses transfer.

Courses are offered in the following subject area for which there is not a certificate or degree program available. However, many of these courses can be applied toward a Schoolcraft certificate or degree in another area of study. These courses can also be taken for personal or professional interest or for transfer to a four-year college or university.

### ECONOMICS

Understanding the ins and outs of U.S. and world economics is a key component to understanding how the business world works. Whether you want to earn a business degree and eventually work in finance or own or manage a business, understanding key economics principals like supply and demand, inflation, recession and interest rates will give you an advantage.
CULINARY ARTS

Schoolcraft’s culinary arts programs have a national reputation for quality, creativity and culinary excellence, producing chefs who continue to distinguish themselves at some of America’s top restaurants, hotels and resorts across the country. The programs feature top-notch faculty, including Certified Master Chefs and Certified Executive Chefs who teach in one of the most advanced teaching kitchens in the nation. Students in Schoolcraft’s nationally renowned culinary arts programs create inspiring cuisine and also learn classical and international techniques to hone their foundation. Students gain real world experience preparing high quality meals for the dining public on campus in Schoolcraft’s Main Street Café retail outlet and award-winning American Harvest Restaurant. All culinary classes have a low student/teacher ratio, so students get the individual attention they need to excel.

Students can earn an associate degree or certificate in culinary arts, a certificate in culinary baking and pastry, and can take courses in culinary management.

All courses are not offered each semester. Please work with an academic advisor or counselor to develop a schedule that will work for you. Students who complete all required courses can earn the associate degree or certificate noted in the following Areas of Study descriptions.

Unless otherwise specified, salary data is sourced from the Bureau of Labor Statistics (www.bls.gov), Glassdoor.com or Career Cruising, an online resource available through our Career Services office (www.schoolcraft.edu/career services). Earnings may vary based on experience, education and location.

AREAS OF STUDY

- CAP courses .......................................... 124–126
- Business courses ................................... 122–123
- Culinary Arts certificate and degree .............. 58–59
- CAP courses .......................................... 124–126
- Culinary Baking and Pastry certificate .......... 60
- CBPA courses ......................................... 126
- Culinary Management (CM) courses .......... 136

CONTACT US

FACULTY

■ Culinary Arts
Brian Beland 734-462-4400 ext. 5307 | bbeland@schoolcraft.edu
Joseph Decker 734-462-4400 ext. 5063 | jdecker@schoolcraft.edu
Jeffrey Gabriel 734-462-4400 ext. 5061 | jgabriel@schoolcraft.edu
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Shawn Loving, Department Chair 734-462-4400 ext. 5110 | sloving@schoolcraft.edu
Brian Polcyn 734-462-4400 ext. 5501 | bpolcyn@schoolcraft.edu

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■ Culinary Management
Shawn Loving, Department Chair 734-462-4400 ext. 5110 | sloving@schoolcraft.edu

INSTRUCTIONAL ADMINISTRATOR

Robert J. Leadley
Dean of Occupational Programs and Economic Development
734-462-4530 | rleadley@schoolcraft.edu
CULINARY ARTS

Culinary Arts Certificate

Schoolcraft program code # 1YC.00079

All courses are not offered each semester. Students should work with an academic advisor or counselor to develop a schedule that will work for them. Students who satisfactorily complete the program requirements qualify for a certificate of program completion.

Upon completion of the certificate program, students may select the associate degree as their second-year option. All the requirements of that associate degree must be fulfilled, including all of the college requirements.

This program requires a special admissions process. Contact the Admissions and Welcome Center at 734-462-4426 or admissions@schoolcraft.edu to complete an application.

Admission Prerequisites

These courses are pre-program requirements and not included in program totals.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAP 102*</td>
<td>Culinary Sanitation</td>
<td>2</td>
</tr>
<tr>
<td>CAP 103</td>
<td>Introduction to Professional Cooking Skills and Technique</td>
<td>5</td>
</tr>
</tbody>
</table>

Total Credits 7

SAMPLE SCHEDULE OF COURSES

First Year—Fall Semester

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAP 144</td>
<td>Baking</td>
<td>4</td>
</tr>
<tr>
<td>CAP 124</td>
<td>Breakfast and Pantry</td>
<td>4</td>
</tr>
<tr>
<td>CAP 125</td>
<td>Pastries 1</td>
<td>4</td>
</tr>
<tr>
<td>MATH 101</td>
<td>Business Mathematics</td>
<td>3</td>
</tr>
<tr>
<td>ENG 100</td>
<td>Communication Skills</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 18

First Year—Winter Semester

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAP 142</td>
<td>Butchery</td>
<td>4</td>
</tr>
<tr>
<td>CAP 128</td>
<td>Introduction to Food Techniques</td>
<td>4</td>
</tr>
<tr>
<td>CAP 143</td>
<td>Dining Room Service</td>
<td>4</td>
</tr>
<tr>
<td>ENG 106</td>
<td>Business English</td>
<td>3</td>
</tr>
<tr>
<td>CAP 241**</td>
<td>Culinary Nutrition</td>
<td>2</td>
</tr>
</tbody>
</table>

Total Credits 17

PROGRAM TOTAL 35 CREDITS

* If student provides documentation of current ServSafe certification, CAP 102 is not required. This course is also open to any Schoolcraft student.

** Signifies culinary course is open to any Schoolcraft student.

Students planning to transfer should check the transfer institution's requirements/guides or discuss their options with a counselor or advisor.

NON CERTIFICATE/DEGREE AREA OF STUDY

Courses are offered in the following subject area for which there is not a certificate or degree program available. However, many of these courses can be applied toward a Schoolcraft certificate or degree in another area of study. These courses can also be taken for personal or professional interest or for transfer to a four-year college or university.

Culinary Management

Taking courses in culinary management can be the first step toward becoming an entrepreneur in the restaurant or catering business, or it can improve your prospects to become a restaurant manager, sommelier, or a personal chef. Courses in this area explore food and culture, hospitality law, restaurant design, and wine and spirits.
Culinary Arts AAS Degree

Schoolcraft program code # AAS.00087

The culinary arts associate degree program provides the skills necessary to enter food service occupations at advanced levels. The technical portion of the curriculum prepares students in quality food preparation, advanced food preparation, cost control, portion control, quantity baking, quantity pastry, advanced pastry, meat cutting, garde manger, dining room operation and classical cooking techniques. Food purchasing and storage functions, menu formulation, terminology, and decorative culinary skills are also covered. This program contains some courses restricted to students officially admitted to this program. Additionally, CAP 102, Culinary Sanitation or proof of current ServSafe certification as well as CAP 103, Introduction to Professional Cooking Skills and Techniques are pre-requisites. Students planning to transfer should check the transfer institution’s requirements/guides or discuss their options with a counselor or advisor. Number of credits may vary depending on the course selection.

<table>
<thead>
<tr>
<th>First Year—Fall Semester</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>CAP 144</td>
<td>Baking</td>
</tr>
<tr>
<td>CAP 124</td>
<td>Breakfast and Pantry</td>
</tr>
<tr>
<td>CAP 125</td>
<td>Pastries 1</td>
</tr>
<tr>
<td>ENG 100</td>
<td>Communication Skills</td>
</tr>
<tr>
<td><strong>Total Credits 15</strong></td>
<td></td>
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</table>

<table>
<thead>
<tr>
<th>First Year—Winter Semester</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>CAP 142</td>
<td>Butchery</td>
</tr>
<tr>
<td>CAP 128</td>
<td>Introduction to Food Techniques</td>
</tr>
<tr>
<td>CAP 143</td>
<td>Dining Room Service</td>
</tr>
<tr>
<td>MATH 101</td>
<td>Business Mathematics</td>
</tr>
<tr>
<td><strong>Total Credits 15</strong></td>
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</table>

<table>
<thead>
<tr>
<th>First Year—Spring/Summer Session</th>
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<tbody>
<tr>
<td>CHEM 100</td>
<td>Introduction to the Chemistry of Food for Culinary Arts</td>
</tr>
<tr>
<td>ENG 106</td>
<td>Business English</td>
</tr>
<tr>
<td>HUM 106</td>
<td>Introduction to Art and Music</td>
</tr>
<tr>
<td>CAP 241**</td>
<td>Culinary Nutrition</td>
</tr>
<tr>
<td>Elective***</td>
<td>Select one course from the list below</td>
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<td><strong>Total Credits 13–14</strong></td>
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<table>
<thead>
<tr>
<th>Second Year—Fall Semester</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>CAP 227</td>
<td>Restaurant Cooking and Preparation</td>
</tr>
<tr>
<td>CAP 215</td>
<td>Charcuterie</td>
</tr>
<tr>
<td>CAP 244</td>
<td>International and American Cuisine</td>
</tr>
<tr>
<td><strong>Total Credits 16</strong></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Second Year—Winter Semester</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>CAP 240</td>
<td>Pastries 2</td>
</tr>
<tr>
<td>CAP 242</td>
<td>A la Carte</td>
</tr>
<tr>
<td>CAP 243</td>
<td>Storeroom Operations</td>
</tr>
<tr>
<td>PSYCH 153</td>
<td>Human Relations</td>
</tr>
<tr>
<td><strong>Total Credits 14</strong></td>
<td></td>
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</table>

<table>
<thead>
<tr>
<th>PROGRAM TOTAL 73–74 CREDITS</th>
<th></th>
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</thead>
</table>

* If student provides documentation of current ServSafe certification, CAP 102 is not required. This course is also open to any Schoolcraft student.
** Signifies culinary course is open to any Schoolcraft student.
*** If BUS 217 or BUS 226 is selected, student must first complete the prerequisite course of BUS 101.

Students planning to transfer should check the transfer institution’s requirements/guides or discuss their options with a counselor or advisor. Number of credits may vary depending on the course selection.

Sample Schedule of Courses

Admission Prerequisites

These courses are pre-program requirements and are not included in degree program totals.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAP 102*</td>
<td>Culinary Sanitation</td>
<td>2</td>
</tr>
<tr>
<td>CAP 103</td>
<td>Introduction to Professional Cooking Skills and Technique</td>
<td>5</td>
</tr>
</tbody>
</table>

**Total Credits 7**

<table>
<thead>
<tr>
<th>Electives</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Select one course (3–4 credit hours) from the classes listed below to fulfill the elective requirement:</td>
<td></td>
</tr>
<tr>
<td>ART 105</td>
<td>Basic Drawing</td>
</tr>
<tr>
<td>BUS 122</td>
<td>Advertising</td>
</tr>
<tr>
<td>BUS 207</td>
<td>Business Law</td>
</tr>
<tr>
<td>BUS 217**</td>
<td>Business Management</td>
</tr>
<tr>
<td>BUS 220</td>
<td>Supervision</td>
</tr>
<tr>
<td>BUS 226***</td>
<td>Principles of Marketing</td>
</tr>
<tr>
<td>CIS 120</td>
<td>Software Applications</td>
</tr>
<tr>
<td>CM 107**</td>
<td>Culinary Management—Food and Culture</td>
</tr>
<tr>
<td>CM 109**</td>
<td>Hospitality Law</td>
</tr>
<tr>
<td>CM 203*</td>
<td>Restaurant Concepts and Design</td>
</tr>
<tr>
<td>CM 210**</td>
<td>Wine and Spirits</td>
</tr>
<tr>
<td>CAP 191</td>
<td>Externship</td>
</tr>
<tr>
<td>CAP 247**</td>
<td>Banquets and Catering</td>
</tr>
<tr>
<td>CAP 260**</td>
<td>Competitive Ice Carving</td>
</tr>
<tr>
<td>CAP 265**</td>
<td>Advanced Competitive Ice Carving</td>
</tr>
<tr>
<td>CAP 267</td>
<td>Chocolatier</td>
</tr>
<tr>
<td>CAP 295</td>
<td>Salon Competition 1</td>
</tr>
<tr>
<td>CAP 297</td>
<td>Salon Competition 2</td>
</tr>
</tbody>
</table>

| Total Credits 15 |

The culinary arts program is certified by the American Culinary Federation Education Foundation Accrediting Commission (ACFEFAC). Accreditation assures that a program is meeting standards and competencies set for faculty, curriculum and student services.

For more information on accreditation please contact:
American Culinary Federation Education Foundation Accrediting Commission (ACFEFAC)
180 Center Place Way
St. Augustine, FL 32095
904-824-4408
Candice Childers, Assistant Director of Accreditation, cchilders@acfcchefs.net
Culinary Arts

Culinary Baking and Pastry Arts Certificate

Schoolcraft program code # 1YC.00247

The baking and pastry arts certificate program provides the skills necessary to enter bakeries, pastry shops, restaurants and hotel bakery and pastry kitchens.

The curriculum prepares students in quality baking and pastry preparation. The two core courses start with the fundamental skills and build gradually to the more advanced and refined skills. Topics covered include professionalism, safety and sanitation, dietetic baking, baking processes and techniques, pies, tarts, contemporary tortes, French pastry, cold and frozen desserts, chocolates, cake decoration, breads, cookies, and many other related nutritional desserts.

This program contains some courses restricted to students officially admitted to this program. Students who satisfactorily complete the program requirements qualify for a certificate of program completion.

This program requires a special admissions process. Contact the Admissions and Welcome Center at 734-462-4426 or admissions@schoolcraft.edu to complete an application.

Admission Prerequisites

These courses are pre-program requirements and not included in program totals.

CAP 102* Culinary Sanitation .......................... 2
CBPA 103 Introduction to Baking and Pastry Skills and Techniques .......................... 2

Total Credits 4

First Year—Fall Semester

CBPA 125 Pastries ........................................... 20

Total Credits 20

First Year—Winter Semester

CBPA 144 Baking ........................................... 15

Total Credits 15

PROGRAM TOTAL 35 CREDITS

* If student provides documentation of current ServSafe certification, CAP 102 is not required. This course is also open to any Schoolcraft student.
Whether you want to prepare for a career in child care and development or pursue your dreams of becoming an elementary or secondary education teacher, Schoolcraft College provides a variety of teacher education and human services options to reach your goals.

All courses are not offered each semester. Please work with an academic advisor or counselor to develop a schedule that will work for you. Students who complete all required courses can earn the associate degree or certificate noted in the following Areas of Study descriptions.

Unless otherwise specified, salary data is sourced from the Bureau of Labor Statistics (www.bls.gov), Glassdoor.com or Career Cruising, an online resource available through our Career Services office (www.schoolcraft.edu/careerservices). Earnings may vary based on experience, education and location.

**AREAS OF STUDY**

**Education-Early Childhood**

- Child Care and Development degree and certificate ........................................ 62–63
- Child Development Associate (CDA) skills certificate .......................... 63
- CCD courses .......................................................... 126–128

**Education-Special Education**

- Child Care-Special Needs Paraprofessional degree and certificate .................. 64–65

**Education**

- Education-Alternate Route to Interim Teacher Certification Elementary Education .................. 66
- Education-Alternate Route to Interim Teacher Certification Secondary Education .............................. 66
- Education-Teacher transfer degree ........................................... 67–68
- EDUC courses .......................................................... 138–139
### National Median Salaries for Child Care Positions

Students also have the option of transferring to a bachelor's theoretical and practical experiences.

Children during their early development stages using both theoretical and practical experiences.

The program combines a combination of online, traditional and direct classroom instruction with experience in the college's Children's Center that leads to either a certificate or associate degree. Students learn to work effectively with children during their early development stages using both theoretical and practical experiences.

Students also have the option of transferring to a bachelor's degree program at a four-year institution.

### Areas of Study

**Child Care and Development AAS Degree**

Schoolcraft program code # AAS.00020

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CCD 111</td>
<td>Children and Youth in Groups</td>
<td>3</td>
</tr>
<tr>
<td>CCD 214</td>
<td>Operation and Maintenance of a Child Care Facility</td>
<td>3</td>
</tr>
<tr>
<td>CCD 217</td>
<td>Children with Special Needs</td>
<td>3</td>
</tr>
<tr>
<td>CCD 121</td>
<td>The Adolescent</td>
<td>3</td>
</tr>
<tr>
<td>CCD 221</td>
<td>Early Literacy and Numerical Thinking</td>
<td>3</td>
</tr>
<tr>
<td>CCD 224</td>
<td>Emerging Educator</td>
<td>1</td>
</tr>
</tbody>
</table>

**Second Year—Winter Semester**

* Students in the child and family services program must adhere to the Code of Ethics of the National Association for the Education of Young Children and or the Council for Exceptional Children along with the child and family services program policies. For practicum courses, students must earn a minimum grade of 2.5 to pass the course. Students may only have two attempts at completing CCD 150 Practicum 1 and CCD 200 Practicum 2. Students that are not successful with the second attempt are not eligible to remain in the program. Child and family services program policies are provided from the department to the student in their practicum courses.

**Total Credits 16**

Students planning to transfer should check the transfer institution's requirements/guides or discuss their options with a counselor or advisor. Number of credits may vary depending on the course selection.

The Children’s Center at Schoolcraft College is accredited by the National Association for the Education of Young Children (NAEYC)—the foremost authority in the care of children, birth through age eight). The accreditation we earned is held by only 3 percent of centers in Michigan and 7 percent of centers in the United States.

For more information about accreditation please contact: National Association for the Education of Young Children (NAEYC)

1313 L. Street N.W., Suite 500

Washington, DC 20051-4101

1-800-424-2460

www.naeyc.org/accreditation

### Sample Schedule of Courses

**First Year—Fall Semester**

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENG 100</td>
<td>Communication Skills</td>
<td>3</td>
</tr>
<tr>
<td>CCD 116</td>
<td>Child Development</td>
<td>3</td>
</tr>
<tr>
<td>CCD 100</td>
<td>Introduction to Child Welfare Services</td>
<td>3</td>
</tr>
<tr>
<td>CCD 102</td>
<td>Foundations of Early Childhood Education</td>
<td>3</td>
</tr>
<tr>
<td>PSYCH 153</td>
<td>Human Relations</td>
<td>3</td>
</tr>
</tbody>
</table>

**Total Credits 15**

**First Year—Winter Semester**

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENG 106</td>
<td>Business English</td>
<td>3</td>
</tr>
<tr>
<td>CCD 118</td>
<td>Infant and Toddler Care</td>
<td>3</td>
</tr>
<tr>
<td>CCD 101</td>
<td>Preschool Child Care</td>
<td>3</td>
</tr>
<tr>
<td>CCD 115</td>
<td>School-Age Child Care</td>
<td>3</td>
</tr>
<tr>
<td>CCD 150*</td>
<td>Child Care Practicum 1</td>
<td>3</td>
</tr>
<tr>
<td>COLLS 111</td>
<td>Electronic Portfolio</td>
<td>1</td>
</tr>
</tbody>
</table>

**Total Credits 16**

**Second Year—Fall Semester**

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mathematics</td>
<td>Select any General Education Math course</td>
<td>3–4</td>
</tr>
<tr>
<td>CCD 126</td>
<td>Creative Activities</td>
<td>3</td>
</tr>
<tr>
<td>CCD 200*</td>
<td>Child Care Practicum 2</td>
<td>3</td>
</tr>
<tr>
<td>Sciences</td>
<td>Select 1</td>
<td>4–5</td>
</tr>
<tr>
<td>BIOL 101</td>
<td>General Biology</td>
<td></td>
</tr>
<tr>
<td>CHEM 111</td>
<td>General Chemistry 1</td>
<td></td>
</tr>
<tr>
<td>GEOG 105</td>
<td>Earth Science for Elementary Teachers</td>
<td></td>
</tr>
<tr>
<td>GEOL 133</td>
<td>Physical Geology</td>
<td></td>
</tr>
<tr>
<td>PHYS 104</td>
<td>Introduction to Astronomy</td>
<td></td>
</tr>
<tr>
<td>PHYS 123</td>
<td>Applied Physics</td>
<td></td>
</tr>
<tr>
<td>HUM 106</td>
<td>Introduction to Art and Music</td>
<td>1</td>
</tr>
</tbody>
</table>

**Total Credits 14–16**
Child Care and Development Certificate

Schoolcraft program code # 1YC.00031

The child care and development certificate program provides an educational foundation for understanding children’s development and children’s needs. The program emphasizes helping students acquire the knowledge and skills needed to plan developmentally appropriate learning environments, nurturing strategies and activities for children which promote their physical, intellectual, social and emotional growth and well-being.

All courses are not offered each semester. Students should work with an academic advisor or counselor to develop a schedule that will work for them. Students who satisfactorily complete the program requirements qualify for a certificate of program completion.

SAMPLE SCHEDULE OF COURSES

First Year—Fall Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CCD 116</td>
<td>Child Development</td>
<td>3</td>
</tr>
<tr>
<td>CCD 126</td>
<td>Creative Activities</td>
<td>3</td>
</tr>
<tr>
<td>CCD 214</td>
<td>Operation and Maintenance of a Child Care Facility</td>
<td>3</td>
</tr>
<tr>
<td>CCD 217</td>
<td>Children With Special Needs</td>
<td>3</td>
</tr>
<tr>
<td>CCD 100</td>
<td>Introduction to Child Welfare Services</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Total Credits 15</strong></td>
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</table>

First Year—Winter Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CCD 101</td>
<td>Preschool Child Care</td>
<td>3</td>
</tr>
<tr>
<td>CCD 102</td>
<td>Foundations of Early Childhood Education</td>
<td>3</td>
</tr>
<tr>
<td>CCD 118</td>
<td>Infant and Toddler Care</td>
<td>3</td>
</tr>
<tr>
<td>CCD 150*</td>
<td>Child Care Practicum 1</td>
<td>3</td>
</tr>
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<td><strong>Total Credits 12</strong></td>
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First Year—Spring Session

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>CCD 200*</td>
<td>Child Care Practicum 2</td>
<td>3</td>
</tr>
<tr>
<td>CCD 211</td>
<td>Children and Youth in Groups</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td><strong>Total Credits 6</strong></td>
<td></td>
</tr>
</tbody>
</table>

*PROGRAM TOTAL 33 CREDITS*

Child Development Associate (CDA) Skills Certificate

Schoolcraft program code # CRT.00315

The child development associate (CDA) program represents a national effort to credential qualified caregivers who work with children from birth to age five. At Schoolcraft College, CDA preparation consists of meeting the objectives and requirements of six courses in the child care and development curriculum that address the Competency Goals in 13 Functional Areas identified by the CDA Professional Preparation program. Candidates must also document 480 hours of experience working with children within the past five years, prepare a professional resource file, and be formally observed working with children.*

All courses are not offered each semester. Students should work with an academic advisor or counselor to develop a schedule that will work for them. Students who satisfactorily complete the program requirements qualify for a certificate of program completion. The following are the required courses necessary to meet CDA competencies.

SAMPLE SCHEDULE OF COURSES

First Year—Fall Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CCD 102</td>
<td>Foundations of Early Childhood Education</td>
<td>3</td>
</tr>
<tr>
<td>CCD 116</td>
<td>Child Development</td>
<td>3</td>
</tr>
<tr>
<td>CCD 221</td>
<td>Early Literacy and Numerical Thinking</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td><strong>Total Credits 9</strong></td>
<td></td>
</tr>
</tbody>
</table>

First Year—Winter Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CCD 118</td>
<td>Infant and Toddler Care</td>
<td>3</td>
</tr>
<tr>
<td>OR**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CCD 101</td>
<td>Preschool Child Care</td>
<td>3</td>
</tr>
<tr>
<td>CCD 150**</td>
<td>Child Care Practicum 1</td>
<td>3</td>
</tr>
<tr>
<td>CCD 126</td>
<td>Creative Activities</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td><strong>Total Credits 9</strong></td>
<td></td>
</tr>
</tbody>
</table>

First Year—Spring Session

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CCD 155</td>
<td>CDA Assessment Preparation</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td><strong>Total Credits 1</strong></td>
<td></td>
</tr>
</tbody>
</table>

*PROGRAM TOTAL 19 CREDITS*

* Upon successful completion of the required courses, students earn a Schoolcraft College certificate. To earn the CDA, candidates may then apply to the Council for Early Childhood Professional Recognition. The Council charges an application fee, assigns a representative to assess the candidate and awards this national credential.

** Choose course depending upon the type of CDA Credentials the student is pursuing. Check with the Child Care Department for more information.

*** Students in the child and family services program must adhere to the Code of Ethics of the National Association for the Education of Young Children and or the Council for Exceptional Children along with the child and family services program policies. For practicum courses students must earn a minimum grade of 2.5 to pass the course. Students may only have two attempts at completing CCD 150 Practicum 1. Students that are not successful with the second attempt are not eligible to remain in the program. Child and family services program policies are provided from the department to the student in their practicum courses.

* Students in the child and family services program must adhere to the Code of Ethics of the National Association for the Education of Young Children and or the Council for Exceptional Children along with the child and family services program policies. For practicum courses students must earn a minimum grade of 2.5 to pass the course. Students may only have two attempts at completing CCD 150 Practicum 1. Students that are not successful with the second attempt are not eligible to remain in the program. Child and family services program policies are provided from the department to the student in their practicum courses.
EDUCATION – SPECIAL EDUCATION

Child Care-Special Needs Paraprofessional AAS Degree

Schoolcraft program code # AAS.00021

Working with disabled children and adults requires sensitivity to individual needs and an ability to help identify and develop the strengths of each individual. This curriculum contains theoretical and practical experience designed to prepare students to work in public school special education classrooms, inclusive classrooms and resource rooms, institutional settings, sheltered workshops, job coaching programs, group homes, or supported-living programs. Students learn to work effectively as members of professional special needs teams. Students who successfully complete the program will meet the requirements of the No Child Left Behind legislation.

All courses are not offered each semester. Students should work with an academic advisor or counselor to develop a schedule that will work for them. Students who satisfactorily complete all college and program requirements qualify for an associate in applied science degree.

SAMPLE SCHEDULE OF COURSES

First Year—Fall Semester

| ENG 100 | Communication Skills | 3 |
| CCD 116 | Child Development | 3 |
| CCD 100 | Introduction to Child Welfare Services | 3 |
| Social Science Select 1 | 3–4 |
| PSYCH 153 | Human Relations | |
| PSYCH 201 | Introductory Psychology | |
| CCD 217 | Children with Special Needs | 3 |

Total Credits 15–16

First Year—Winter Semester

| ENG 106 | Business English | 3 |
| CCD Elective | Select 1 | 3 |
| CCD 101 | Preschool Child Care | |
| CCD 115 | School-Age Child Care | |
| CCD 105 | Introduction to Developmental Disabilities | 3 |
| SOC 201 | Principles of Sociology | 3 |
| CCD 150** | Child Care Practicum 1 | 3 |
| COLL 111 | Electronic Portfolio | 1 |

Total Credits 16

Second Year—Fall Semester

| BIOL 101 | General Biology | 4 |
| Mathematics | Select any General Education | |
| Mathematics course | 3–4 |
| CCD 215 | Methods and Curricula for Persons with Developmental Disabilities | 3 |
| CCD 211 | Children and Youth in Groups | 3 |
| HUM 106 | Introduction to Art and Music | 1 |

Total Credits 14–15

Second Year—Winter Semester

| CCD 113* | Special Educational Programs and Supported Living | 3 |
| CCD 126 | Creative Activities | 3 |
| CCD 130* | Learning Disabilities | 3 |
| CCD 140* | Emotional Impairment | 3 |
| CCD 218** | Practicum 2—Special Education Focus | 3 |
| CCD 224 | Emerging Educator | 1 |

Total Credits 16

PROGRAM TOTAL 61–63 CREDITS

* These classes are offered on a rotational basis.

** Students in the child and family services program must adhere to the Code of Ethics of the National Association for the Education of Young Children and or the Council for Exceptional Children along with the child and family services program policies. For practicum courses students must earn a minimum grade of 2.5 to pass the course. Students may only have two attempts at completing CCD 150 Practicum 1 and CCD 218 Practicum 2 Special Needs Focus. Students that are not successful with the second attempt are not eligible to remain in the program. Child and family services program policies are provided from the department to the student in their practicum courses.

Contact Child Care faculty for current and projected offerings.

Students planning to transfer should check the transfer institution’s requirements/guides or discuss their options with a counselor or advisor. Number of credits may vary depending on the course selection.
Child Care-Special Needs Paraprofessional Certificate

Schoolcraft program code # 1YC.00032

The child care special needs paraprofessional certificate program provides an educational foundation for understanding normal human development and the special needs of individuals who have mental, physical and/or emotional disabilities. The program emphasizes helping students develop the sensitivity and skills to identify and promote the potential of each individual regardless of the handicap.

All courses are not offered each semester. Students should work with an academic advisor or counselor to develop a schedule that will work for them. Students who satisfactorily complete the program requirements qualify for a certificate of program completion.

SAMPLE SCHEDULE OF COURSES

First Year—Fall Semester
CCD 116 Child Development ................. 3
CCD 217 Children with Special Needs ............ 3
CCD 215 Methods and Curricula for Persons with Developmental Disabilities ............ 3
CCD 113* Special Educational Programs and Supported Living ...................... 3
CCD 211 Children and Youth in Groups ................... 3

Total Credits 15

First Year—Winter Semester
CCD 105 Introduction to Developmental Disabilities ........ 3
CCD 150** Child Care Practicum 1 ................. 3
CCD 140* Emotional Impairment ................. 3
CCD 130* Learning Disabilities ...................... 3
CCD 218** Practicum 2—Special Education Focus ........ 3

Total Credits 15

PROGRAM TOTAL 30 CREDITS

* These classes are offered on a rotational basis.

** Students in the child and family services program must adhere to the Code of Ethics of the National Association for the Education of Young Children and or the Council for Exceptional Children along with the Child and Family Services Program Policies. For practicum courses students must earn a minimum grade of 2.5 to pass the course. Students may only have two attempts at completing CCD 150 Practicum 1 and CCD 218 Practicum 2 Special Needs Focus. Students that are not successful with the second attempt are not eligible to remain in the program. Child and family services program policies are provided from the department to the student in their practicum courses.

Contact Child Care faculty for current and projected offerings.
Alternate Route to Interim Teacher Certification  
**Credentials**  

Alternative Route to Interim Certification (ARC) . . . . . . . . . . 21-24 cr.  

Major Description  

Schoolcraft College has been approved by the Michigan Department of Education and accredited by the Higher Learning Commission (HLC) to be an educator preparation provider and to recommend candidates for the Michigan Interim Teaching Certificate through the Alternate Route to Interim Certification Program (ARC).  

With the Michigan Interim Teaching Certificate, candidates will be able to assume full-time classroom teaching positions. The candidate, under the supervision of the college, will be assigned a mentor, be able to attend workshops and professional development conferences, and complete prescribed coursework, while they are working as a classroom teacher.  

The Alternate Route to Interim Teacher Certification (ARC) Program is open to qualified individuals who are interested in teaching elementary (Grades K–5), secondary (Grades 6–12), or K–12 subjects. The Special Education and Early Childhood endorsements are not available through the alternate route programs. Michigan’s alternate route programs can be used only for initial teacher certification.  

The Schoolcraft College Alternate Route to Interim Teacher Certification (ARC) Program is recognized and approved by the Michigan Department of Education. It will provide eligible individuals an opportunity to complete an alternate route program for transitioning from a previous career and/or undergraduate or graduate degree program into teaching. The term “alternate route” refers to a program that is designed especially for individuals who hold a bachelor’s degree or higher and who may be allowed to teach full-time while completing approved alternate route teacher preparation requirements. The intention of the program is to enable those who commit their knowledge, skills, and preparation to become successful, fully certified classroom teachers through a quality, rigorous alternative route program. Schoolcraft College will recommend their participants for the Interim Certificate upon admission to their program. Following the successful completion of the program, the program completers may be recommended by Schoolcraft for the Michigan Provisional Teaching Certificate, Professional Education Certificate or Interim Occupational Certificate with an endorsement in his/her area of content or occupational specialization.  

The coursework in the Alternative Route (ARC) Program is based on both the Interstate Teacher Assessment and Support Consortium–Model Core Teaching Standards (2011) (InTASC) and International Society for Technology in Education (ISTE) standards. The coursework and field experiences are designed to prepare the candidate to make a successful and seamless transition into the classroom as an effective teacher.  

Students are admitted to the program in April, with courses being offered in May – August. Students who successfully complete the coursework can then arrange for a classroom placement as a certified teacher, under the Michigan Interim Teaching Certificate. Students will be responsible for arranging for their classroom placement. Students will work with a mentor in their building and be involved in continuous professional development for three years, while working as a full time classroom teacher. Candidates will be participating in workshops and seminars during the school year, as well as, completing coursework during the three summers. Following three years of successful teaching and meeting all program requirements, candidates will be eligible to be recommended for the Michigan Provisional Certificate. Students enrolled in the Alternate Route to Interim Teacher Certification Program will be required to maintain an overall 3.0 GPA, with no individual course grade lower than 3.0, and complete all program requirements within five years.  

The State of Michigan’s admission requirements for the program are:  

- Minimum of a bachelor’s degree from an accredited college or university  
- Minimum grade point average of 3.0 (4.0 point scale)  
- Pass the MTTC Professional Readiness Examination (Basic Skills Test) (Results sent to Schoolcraft College)  
- Pass the applicable MTTC Subject Area Test(s) (Results sent to Schoolcraft College) or, if applicable, testing through the Michigan Occupational Competency Assessment Center (MOCAC)  
- Evidence of current certification in CPR and First Aid  
- Criminal history check (Fingerprinting may also be required by some school districts for fieldwork)  

### Elementary Education  

**Schoolcraft program code # 1YC.001.70**  

**SAMPLE SCHEDULE OF COURSES**  

**First Year—Spring Session**  

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDUC 101</td>
<td>Introduction to Education</td>
<td>3</td>
</tr>
<tr>
<td>EDUC 210</td>
<td>Elementary Instructional Strategies</td>
<td>3</td>
</tr>
<tr>
<td>EDUC 230</td>
<td>Teaching Literacy in the Classroom</td>
<td>3</td>
</tr>
<tr>
<td>EDUC 290</td>
<td>Fieldwork Practicum</td>
<td>2</td>
</tr>
</tbody>
</table>

**Total Credits 11**  

**Second Year—Summer Session**  

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDUC 200</td>
<td>Children with Special Needs</td>
<td>3</td>
</tr>
</tbody>
</table>

**Total Credits 6**  

**Third Year—Summer Session**  

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDUC 260</td>
<td>The Professional Educator</td>
<td>1</td>
</tr>
</tbody>
</table>

**Total Credits 1**  

**Program Total 21 Credits**

**Secondary Education**  

**Schoolcraft program code # 1YC.001.71**  

**SAMPLE SCHEDULE OF COURSES**  

**Intensive Pre-Certification Session**  

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDUC 101</td>
<td>Introduction to Education</td>
<td>3</td>
</tr>
<tr>
<td>EDUC 220</td>
<td>Secondary Instructional Strategies</td>
<td>3</td>
</tr>
<tr>
<td>EDUC 240</td>
<td>Teaching Literacy in the Secondary School</td>
<td>3</td>
</tr>
<tr>
<td>EDUC 290</td>
<td>Fieldwork Practicum</td>
<td>2</td>
</tr>
</tbody>
</table>

**Total Credits 11**  

**First Year—Summer Session**  

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDUC 205</td>
<td>Promoting Learning in a Diverse Society Using Family, School and Community Partnerships</td>
<td>3</td>
</tr>
<tr>
<td>EDUC 110</td>
<td>Child Development</td>
<td>3</td>
</tr>
</tbody>
</table>

**Total Credits 6**  

**Second Year—Summer Session**  

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDUC 260</td>
<td>The Professional Educator</td>
<td>1</td>
</tr>
</tbody>
</table>

**Total Credits 3**  

**Program Total 21 Credits**  

**Note:** With the Michigan Interim Teaching Certificate, candidates will be able to assume full-time classroom teaching positions. While serving as the classroom teacher of record, the candidates will work with assigned peer mentors, attend workshops and professional development conferences, and complete prescribed coursework throughout the following three years of the program.  

This program requires an application and special admission process. Contact the Associate Dean of Education to complete an application or for additional information at 734-462-4400 ext. 4335.
The Teacher Education Transfer Program is designed to enable students who wish to become effective elementary or secondary education teachers to begin their professional studies at Schoolcraft and transfer into a teacher education program at a university. The coursework is based on both the Interstate Teacher Assessment and Support Consortium–Model Core Teaching Standards (2011) (iTASC) and International Society for Technology in Education (ISTE) standards.

Students in the Teacher Education Transfer Program who plan to attend a partner university will be able to receive academic advising and pre-transfer assistance from the participating university. Students in the Teacher Education Transfer Program who complete all program requirements will also be eligible to receive an Associate of Arts (AA), Associate of Science (AS), Associate of Fine Arts (AFA), or Associate in General Studies (AGS) degree with an education designation.

The Teacher Education Transfer Program requires successful completion of the following courses with a minimum GPA of 2.5, with no individual course grade lower than 2.0 (C):

- EDUC 101 Introduction to Education .................. 3*
- PSYCH 249 Educational Psychology .................. 3
- OR
- EDUC 110 Child Development .................. 3
- EDUC 205 Promoting Learning in a Diverse Society
  Using Family, School and Community Partnerships .................. 3*
- EDUC 200 Children with Special Needs .................. 3*
- EDUC 270 Instructional Technology .................. 3

- Overall minimum GPA of 2.5 (minimum of 60 hours)
- Pass all sections of the MTTC Professional Readiness Examination (Basic Skills Test)
- Criminal background check

*Courses requiring fieldwork (Fingerprinting may also be required by some school districts for fieldwork)

**Students may also complete this program with an AS, AGS, or an AFA degree after meeting all general education and degree requirements. Please contact your counselor for details.

Students who are not in the Teacher Education Transfer Program may transfer the course credit to other institutions. Students should review current transfer guides and articulation agreements when planning to transfer credits. The education designation on the transcript is available only to students who are admitted to and complete the requirements of the Teacher Education Transfer Program. All courses that apply to these degrees must be at the 100 or 200 level.

Please contact the Associate Dean of Education Programs for additional information, 734-462-4335.

SAMPLE SCHEDULE OF COURSES

**First Year—Fall Semester**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENG 101</td>
<td>3</td>
</tr>
<tr>
<td>Elective*</td>
<td>3</td>
</tr>
<tr>
<td>Social Science</td>
<td>3–4</td>
</tr>
<tr>
<td>EDUC 101</td>
<td>3</td>
</tr>
<tr>
<td>Elective*</td>
<td>3</td>
</tr>
</tbody>
</table>

**Total Credits 15–16**

**First Year—Winter Semester**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENG 102</td>
<td>3</td>
</tr>
<tr>
<td>PSYCH 249</td>
<td>3</td>
</tr>
<tr>
<td>OR</td>
<td>3</td>
</tr>
<tr>
<td>EDUC 110</td>
<td>3–4</td>
</tr>
<tr>
<td>Social Science**</td>
<td>3–4</td>
</tr>
<tr>
<td>Mathematics</td>
<td>3–4</td>
</tr>
<tr>
<td>Humanities**</td>
<td>3–4</td>
</tr>
</tbody>
</table>

**Total Credits 15–18**

Sample schedule of courses continued on page 68
### Second Year—Fall Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDUC 205</td>
<td>Promoting Learning in a Diverse Society Using Family, School and Community Partnerships</td>
</tr>
<tr>
<td>Elective*</td>
<td>Major/Minor Transfer</td>
</tr>
<tr>
<td>EDUC 200</td>
<td>Children with Special Needs</td>
</tr>
<tr>
<td>Science</td>
<td>Select one General Education Science Course</td>
</tr>
<tr>
<td>Humanities**</td>
<td>Select one General Education Humanities Course</td>
</tr>
</tbody>
</table>

**Total Credits 16–18**

### Second Year—Winter Semester

| Elective* | Major/Minor Transfer                                                 | 3 |
| Humanities** | Select one General Education Humanities Course                   | 3–4 |
| Elective* | Major/Minor Transfer                                                 | 3 |
| EDUC 270  | Instructional Technology                                              | 3 |

**Total Credits 15–16**

**PROGRAM TOTAL 61–68 CREDITS**

Potential courses that may be used toward meeting transfer requirements:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ART 113</td>
<td>Art Education</td>
</tr>
<tr>
<td>ENG 203</td>
<td>Children's Literature</td>
</tr>
<tr>
<td>GEOG 105</td>
<td>Earth Science for Elementary Teachers</td>
</tr>
<tr>
<td>MATH 105</td>
<td>Mathematics for Elementary Teachers 1</td>
</tr>
<tr>
<td>MATH 106</td>
<td>Mathematics for Elementary Teachers 2</td>
</tr>
<tr>
<td>MUSIC 107</td>
<td>Music for Elementary Teachers</td>
</tr>
<tr>
<td>PE 240</td>
<td>Physical Education for Elementary Teachers</td>
</tr>
</tbody>
</table>

*Electives in Liberal Arts Courses and Major/Minor Transfer Areas: Course selection may vary based upon the major or minor that is pursued.

**The MACRAO transfer agreement requires a minimum of 8 credit hours in more than one discipline for both the Social Sciences and Humanities distribution areas.**

This program outline provides the framework for a Teacher Education Transfer Program, but it does not represent a final academic plan for any specific four-year college or university. Students should consult with their counselor or advisor and the teacher preparation institution to which they are transferring, for details regarding transfer credit for all education courses, general education, and admission application requirements for the specific college/university to which they plan to transfer.

Students need to be aware that educational programs require a criminal background check. Fingerprinting may also be required by some school districts for fieldwork.

In order to complete the program requirements, students will need to have successfully passed all sections of the MTTC Professional Readiness Examination (Basic Skills Test) and have an overall minimum GPA of 2.5 (minimum of 60 hours), with no individual course grade lower than 2.0 (C).
Access to quality healthcare is one of the most important issues of our time. To prepare our students for a career in this growing sector, they will learn the latest techniques using state-of-the-art technology in our Health Professions Simulation Lab, ambulance simulator, simulated clinical training facilities, and during clinical practicums.

All courses are not offered each semester. Please work with an academic advisor or counselor to develop a schedule that will work for you.

Unless otherwise specified, salary data is sourced from the Bureau of Labor Statistics (www.bls.gov/), Glassdoor.com or Career Cruising, an online resource available through our Career Services office (www.schoolcraft.edu/careerservices). Earnings may vary based on experience, education and location.
**Areas of Study | Schoolcraft College 2015–2016 Catalog**

**FACULTY**

- **Emergency Medical Technology**
  Thomas Worthington
  734-462-4400 ext. 6083 | tworthin@schoolcraft.edu

- **Health Information Technology**
  Jody E. Scheller
  734-462-4400 ext. 6024 | jschelle@schoolcraft.edu
  Kathy Taylor
  734-462-4400 ext. 6026 | ktaylor@schoolcraft.edu

- **Massage Therapy**
  Lisa Travis, Program Coordinator
  734-462-4771 | ltravis@schoolcraft.edu

- **Medical Assisting**
  Mary Donahee-Rader
  734-462-4400 ext. 6057 | mrader@schoolcraft.edu

**INSTRUCTIONAL ADMINISTRATORS**

Robert J. Leadley
Dean of Occupational Programs and Economic Development
734-462-4530 | rleadley@schoolcraft.edu

Bonnie L. Heckard
Associate Dean of College Centers
734-462-4776 | bheckard@schoolcraft.edu

**FACULTY**

- **Nursing**
  Holly Austin
  734-462-4400 ext. 5687 | haustin@schoolcraft.edu
  Heidi Brendel
  734-462-4400 ext. 5688 | hbrendel@schoolcraft.edu
  Tamara Campbell
  734-462-4400 ext. 5164 | tcampbel@schoolcraft.edu
  Brenda Cronin
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  Elaine Lloyd
  734-462-4400 ext. 5277 | elloyd@schoolcraft.edu
  Nancy Maheas
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  Madeline Mott
  734-462-4400 ext. 5172 | mmott@schoolcraft.edu
  Nancy Palmer
  734-462-4400 ext. 5180 | npalmer@schoolcraft.edu
  Laurie Smith
  734-462-4400 ext. 5689 | lsmith@schoolcraft.edu
  Katherine Stegbauer
  734-462-4400 ext. 5686 | kstegbau@schoolcraft.edu

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734-462-4400 ext. 5336 | chawkins@schoolcraft.edu

Charles R. Hayes
Associate Dean of Sciences
734-462-4400 ext. 5650 | chayes@schoolcraft.edu

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734-462-4530 | rleadley@schoolcraft.edu

Leslie I. Petty
Associate Dean of Continuing Education and Professional Development
734-462-4493 | lpetty@schoolcraft.edu

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734-462-4567 | rleadley@schoolcraft.edu

Deborah S. Vendittelli
Associate Dean of Nursing
734-462-4400 ext. 5148 | dvenditt@schoolcraft.edu
Emergency Medical Technology

Emergency Medical Technology: Paramedic AAS Degree

Schoolcraft program code # AAS.00250

The emergency medical technology paramedic program prepares students for employment as emergency providers. A combination of lecture, laboratory, clinical and internship will be utilized to help fulfill all training requirements.

All courses are approved by the Michigan Department of Community Health EMS and Trauma Systems Section. Students achieving an 80 percent or higher in required courses will receive a certificate of completion and be eligible to test for state licensure.

Students will be evaluated in the following core competency areas: didactic, practical, clinical and internship performance. Practical skills are graded on a pass/fail basis, and students will be required to pass all skills examinations to successfully complete the program. All clinical and internship rotations will be graded on attendance, attitude and skills performance which will be evaluated by field mentors, clinical coordinator and/or the course instructor. All students will be required to purchase liability insurance which is valid for one year.

Students are admitted twice a year into the paramedic program; once in the fall and again in the winter semesters. All emergency medical technology courses must be taken in sequence.

All courses are not offered each semester. Students should work with an academic advisor or counselor to develop a schedule that will work for them. Students who satisfactorily complete all college and program requirements qualify for an associate in applied science degree.

This program requires a special admissions process. Contact the Admissions and Welcome Center at 734-462-4426 or admissions@schoolcraft.edu to complete an application.

First Year—Spring Session
HIT 114 Pharmacology for Health Professionals 2
PSYCH 153 Human Relations 3

Total Credits 5

First Year—Summer Session
CIS 105 Computer Orientation 1
ENG 116 Technical Writing 3
HUM 106 Introduction to Art and Music 1

Total Credits 5

Second Year—Fall Semester
EMT 210 Paramedic Technology 1 10

Total Credits 10

Second Year—Winter Semester
EMT 220 Paramedic Technology 2 10.5

Total Credits 10.5

Second Year—Spring Session
EMT 230 Paramedic Technology 3 9

Total Credits 9

PROGRAM TOTAL 66.5 CREDITS

Electives (Optional)
EMT 120 Emergency Medical Technology—Specialist 5.5
HIT 113 Human Diseases 3
MA 110 Phlebotomy 4

Students planning to transfer should check the transfer institution's requirements/guides or discuss their options with a counselor or advisor. Number of credits may vary depending on the course selection.

For more information on certification, please contact Michigan Department of Community Health
Bureau of Health Policy Planning Access
EMS & Trauma Systems Section
Capitol View Building, 6th Floor
201 Townsend Street
Lansing, Michigan 48913
517-335-1825
goddet@michigan.gov
www.michigan.gov/ems
State EMS Manager
Marvin Helmker
Helmkerml@michigan.gov
Emergency Medical Technology: Paramedic Certificate

Schoolcraft program code # 1YC.00024

The emergency medical technology paramedic certificate program prepares students for employment as pre-hospital emergency medical providers. A combination of lecture, laboratory, clinical and internship will be utilized to help fulfill all training requirements.

All courses are approved by the Michigan Department of Community Health EMS and Trauma Systems Section. Upon successful completion, students will be eligible to take the National Registry Certification test as required by the State of Michigan for licensure. Students will be evaluated in the following core competency areas: didactic, practical, clinical and internship performance. Students achieving an 80 percent or higher will receive a certificate of completion and be eligible for State licensure. Practical skills are graded on a pass/fail basis and students will be required to pass all practical examinations to successfully complete the program.

All clinical and internship rotations will be graded on attendance, attitude and skills performance which will be evaluated by field mentors, clinical coordinator and/or the course instructor. All students will be required to purchase liability insurance which is valid for one year.

The emergency medical technology certificate program will be awarded to students who successfully complete: EMT 115, 210, 220 and 230 with 80 percent or higher in addition to successfully passing all prerequisite/supportive courses as outlined.

All courses are not offered each semester. Students should work with an academic advisor or counselor to set up a schedule that will work for them.

The special nature of the emergency medical technology coursework precludes concurrent enrollment in the courses for this certificate, thus necessitating additional time to complete the requirements for this certificate. Historically, individuals who take all three courses have done so over a two-year period.

This program requires a special admissions process. Contact the Admissions and Welcome Center at 734-462-4426 or admissions@schoolcraft.edu to complete an application.

<table>
<thead>
<tr>
<th>SAMPLE SCHEDULE OF COURSES</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>First Year—Winter Semester</strong></td>
<td></td>
</tr>
<tr>
<td>EMT 115  Emergency Medical Technology—Basic</td>
<td>10</td>
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<tr>
<td>BIOL 101  General Biology</td>
<td>4</td>
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<tr>
<td><strong>Total Credits 14</strong></td>
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<tr>
<td><strong>First Year—Spring Session</strong></td>
<td></td>
</tr>
<tr>
<td>BIOL 236  Human Anatomy and Physiology</td>
<td>5</td>
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<td><strong>Total Credits 5</strong></td>
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<td><strong>Second Year—Fall Semester</strong></td>
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<tr>
<td>EMT 210  Paramedic Technology 1</td>
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<td><strong>Total Credits 10</strong></td>
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<tr>
<td><strong>Second Year—Winter Semester</strong></td>
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<tr>
<td>EMT 220  Paramedic Technology 2</td>
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<td><strong>Total Credits 10.5</strong></td>
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<tr>
<td><strong>Second Year—Spring Session</strong></td>
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<tr>
<td>EMT 230  Paramedic Technology 3</td>
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<td><strong>Total Credits 9</strong></td>
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<td><strong>PROGRAM TOTAL 48.5 CREDITS</strong></td>
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<tr>
<td>Elective (Optional)</td>
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<tr>
<td>EMT 120  Emergency Medical Technology—Specialist</td>
<td>5.5</td>
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Healthcare & Health Sciences
HEALTH INFORMATION TECHNOLOGY

Credentials
Health—Coding Specialist certificate .................. 35 cr.
Health Information Technology AAS degree .............. 68 cr.

Major Description
As virtually every medical care facility has moved to electronic medical record keeping, the need for health information technicians responsible for healthcare data in a variety of formats has become even more important. At Schoolcraft, students can earn either a health coding specialist certificate or health information technology associate of science degree to improve their opportunities to qualify for a position in this rapidly changing field. At Schoolcraft, our faculty is trained in the latest technology, along with state and federal legislation medical recordkeeping standards. Schoolcraft’s Health Information Technology Associate Degree Program is nationally accredited by the Commission on Accreditation for Health Informatics and Information Management Education (CAHIIM). Students will enjoy a combination of classroom, laboratory and off-campus experiences in a variety of healthcare facilities with supervised professional practice assignments to expand their learning opportunities.

- The coding specialist certificate prepares students to review and analyze health records to identify relevant diagnoses and procedures for patient services, translating diagnostic and procedural phrases utilized by healthcare providers into coded form.
- The coding specialist certificate prepares students to review and analyze health records to identify relevant diagnoses and procedures for patient services, translating diagnostic and procedural phrases utilized by healthcare providers into coded form.
- Associate of applied science degree graduates are eligible to take the Registered Health Information Technician examination.
- A minimum grade of 2.0 is required in all classes and full and part-time programs are available.
- The program has transfer agreements with many state universities.

National Median Salaries for Health Information Technology Positions
- Medical Coding Technician: $34,160
- Medical Records Technician $34,160

(US BLS)

Health: Coding Specialist Certificate
Schoolcraft program code # 1YC.00240
The coding specialist program will prepare a student to review and analyze health records to identify relevant diagnoses and procedure for patient services in the inpatient, ambulatory and/or ancillary setting. The student will practice translating diagnostic and procedural phrases utilized by healthcare providers into coded form.

In the program, students apply the following skills:
- Coding of inpatient diagnoses and procedures using International Classification of Diseases.
- Reading and interpreting health record documentation to identify all diagnoses and procedures that affect the current inpatient stay/outpatient encounter visit.
- Applying approved coding guidelines to assign and sequence the correct diagnosis; applying procedure codes for hospital inpatient and outpatient services.

Minimum grade of 2.0 is required for progression to the next health information technology course. A minimum grade of 2.0 is required for the basic science course.

The coder can be employed in hospital departments such as health information services (medical records), quality management, professional fee services, radiology, emergency room, outpatient/ambulatory surgery, ancillary services, and specialty physician clinics.

Coding specialists also work as independent contractors, consultants and trainers as well as for insurance companies, government agencies, health maintenance organizations and other facilities involved with the healthcare reimbursement process.

The curriculum in the coding specialist program will allow the student to select the health information technology associate degree program as a career path. All courses are not offered each semester. Students should work with an academic advisor or counselor to determine the ICD system appropriate for their individual career choices and to develop a schedule that will work for them. Students who satisfactorily complete the program requirements qualify for a certificate of program completion.

This program requires a special admissions process. Contact the Admissions and Welcome Center at 734-462-4426 or admissions@schoolcraft.edu to complete an application.

SAMPLE SCHEDULE OF COURSES
First Year—Fall Semester
BIOL 236* Human Anatomy and Physiology ........... 5
HIT 104 Medical Terminology .......................... 4
HIT 109 Principles of Health Information Management .................................................. 3

First Year—Winter Semester
HIT 113 Human Diseases .................................. 3
HIT Classification – Select 1 .............................. 3
HIT 111 ICD-9-CM Classification ........................ 3
HIT 117 ICD-10-CM/PCS3 ................................. 3

Second Year—Fall Semester
HIT Coding – Select 1 ..................................... 3
HIT 233 Intermediate ICD-9-CM Coding ........... 3
HIT 235 Intermediate ICD-10-CM/PCS ............... 3
HIT 234 Intermediate Ambulatory Coding .......... 3

Second Year—Spring Session
HIT 236 ICD Coding Practicum .......................... 2
HIT 231 Ambulatory Coding Practicum ............... 2

* Students desiring transfer credit should substitute BIOL 237 & BIOL 238. BIOL 101 is a prerequisite to BIOL 236 and the BIOL 237–238 sequence. Please review and follow all course prerequisites. All courses may be applied toward the associate of general studies degree.

Total Credits 35 CREDITS
The health information technology program will prepare the student to be a health information technician. The technician is responsible for performing tasks related to the use, analysis, validation, presentation, abstracting, coding, storage, security, retrieval, quality measurement and control of healthcare data in paper-based, hybrid and/or electronic health record systems.

The program coordinates classroom, laboratory and off-campus experience in a variety of healthcare facilities, such as acute care hospital, ambulatory care center, mental health facility and other health related facilities. The off-campus activities include supervised, professional practice assignments. The student gains experience in applying knowledge to technical procedures in health information systems.

The health information technician is detail oriented and recognizes the business aspects of healthcare. The technician will have a strong interest in activities, such as assisting medical staff in evaluating the quality of healthcare, protecting the privacy and confidentiality of patient information and utilizing health data.

Health information technology courses should be taken in accordance with prerequisites; a minimum grade of 2.0 in each course is required. Graduates are eligible to take the RHIT examina-tion in accordance with prerequisites; a minimum grade of 2.0 in health information technology courses should be taken in accordance with prerequisites; a minimum grade of 2.0 in

This program requires a special admissions process. Contact the Admissions and Welcome Center at 734-462-4426 or admissions@schoolcraft.edu to complete an application.
MASSAGE THERAPY

Schoolcraft program code # AAS.00266

Massage Therapy AAS Degree

Massage therapy is the systematic manipulation of the soft tissues of the body for the purpose of increased circulation of blood and lymph, pain reduction, relaxation and restoration of health and well-being of the client. The massage therapy program is designed to prepare an individual in the field of soft tissue manipulation and is taught from a clinical perspective. Massage therapists may be employed in a private practice, a spa, or a variety of healthcare settings including hospitals and managed care centers, rehabilitation and sports medicine clinics and group and private practices.

The massage therapy associate degree is offered to meet the expanding needs of both the allied and integrative healthcare systems. Those students who are interested in additional education and wish to enter either field with a broad background and the ability to work with a diverse group of clients and practitioners will do well to add the general education courses. This associate degree program integrates traditional and non-traditional knowledge bases regarding massage therapy and bodywork. Course work includes anatomy and physiology, a variety of massage and bodywork techniques and practices, and general education courses. Massage therapists who attain this degree may also plan to pursue a baccalaureate degree in a health or medical program, or an individualized area of study.

The massage therapy program is dedicated to advancing the science and art of massage therapy. This program has been approved by the State of Michigan Department of Licensing and Regulatory Affairs and allows students to apply for licensure to practice massage therapy.

All courses are not offered each semester. Students should work with an academic advisor or counselor to develop a schedule that will work for them. Students who satisfactorily complete all college and program requirements qualify for an associate in applied science degree.

This program requires a special admissions process. Contact the Admissions and Welcome Center at 734-462-4426 or admissions@schoolcraft.edu to complete an application.

**SAMPLE SCHEDULE OF COURSES**

<table>
<thead>
<tr>
<th>First Year—Fall Semester</th>
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</thead>
<tbody>
<tr>
<td>MAS 112 Massage Techniques 1</td>
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<tr>
<td>MAS 113 Comprehensive Study of Human Body Systems 1</td>
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<tr>
<td>MAS 117 Clinical Foundations</td>
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<tr>
<td>MAS 115 Business and Professionalism</td>
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**Total Credits** 12

<table>
<thead>
<tr>
<th>First Year—Winter Semester</th>
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<tbody>
<tr>
<td>MAS 122 Massage Techniques 2</td>
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<tr>
<td>MAS 123 Comprehensive Study of Human Body Systems 2</td>
</tr>
<tr>
<td>MAS 124 Student Clinic 1</td>
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<tr>
<td>MAS 125 Business and Professionalism 2</td>
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**Total Credits** 12

<table>
<thead>
<tr>
<th>Second Year—Fall Semester</th>
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<tbody>
<tr>
<td>ENG 100 Communication Skills</td>
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<tr>
<td>CIS 120 Software Applications</td>
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<tr>
<td>BIOL 101 General Biology</td>
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**Total Credits** 10

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<tr>
<th>Second Year—Winter Semester</th>
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<tbody>
<tr>
<td>ENG 116 Technical Writing</td>
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<tr>
<td>MATH 111 Applications—Utility of Math</td>
</tr>
<tr>
<td>HUM 106 Introduction to Art and Music</td>
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<tr>
<td>BIOL 236* Human Anatomy and Physiology</td>
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**Total Credits** 13

<table>
<thead>
<tr>
<th>Second Year—Spring/Summer Session</th>
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</thead>
<tbody>
<tr>
<td>PSYCH 153 Human Relations</td>
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</table>

**Total Credits** 3

**PROGRAM TOTAL 62.5 CREDITS**

*Students who may transfer to a baccalaureate program should elect the BIOL 237–238 sequence. BIOL 101 is a prerequisite to BIOL 236 and the BIOL 237–238 sequence. Please review and follow all course requirements.

Students planning to transfer should check the transfer institution’s requirements/guides or discuss their options with a counselor or advisor. Number of credits may vary depending on the course selection.

**Credentials**

- Massage Therapy certificate: 36.5 cr.
- Massage Therapy AAS degree: 62.5 cr.

**Major Description**

As more people seek preventative healthcare solutions, including massage in rehabilitation and treatment, the field of massage therapy continues to grow. At Schoolcraft, we offer both a massage therapy certificate and an associate of applied science degree to provide students with the knowledge and skills to work in group and private practices, spas and an increasing variety of healthcare settings. The curriculum includes:

- State-approved courses in bodywork and therapy skills that are designed to meet the expanding requirements of allied and complementary healthcare systems and prepare students to take the national certification exam.
- Real-life experiences by participating in community service activities such as providing massages at marathons and fund-raising walks.

**National Median Salaries for Massage Therapy Positions**

- Massage Therapist: $35,970

(US BLS)
Massage Therapy Certificate

Schoolcraft program code # 1YC.00255

Massage therapy is the systematic manipulation of the soft tissues of the body for the purpose of increased circulation of blood and lymph, pain reduction, relaxation and restoration of health and well-being of the client. The massage therapy program is designed to prepare an individual in the field of soft tissue manipulation and is taught from a clinical perspective. It offers the opportunity to earn a certificate in massage therapy. The certificate is granted after the successful completion of 36.5 credit hours of designated course work.

Massage therapists may be employed in private practice, spa, or a variety of healthcare settings including hospitals and managed care centers, rehabilitation and sports medicine clinics and group and private practices. This program has been approved by the State of Michigan Department of Licensing and Regulatory Affairs and allows students to apply for licensure to practice massage therapy. Successful completion of the certificate readies the individual to sit for exams approved by the State of Michigan massage licensure.

The massage therapy program is dedicated to advancing the science and art of massage therapy. Students who successfully complete all program courses qualify for a certificate of program completion.

This program requires a special admissions process. Contact the Admissions and Welcome Center at 734-462-4426 or admissions@schoolcraft.edu to complete an application.

SAMPLE SCHEDULE OF COURSES

First Year—Fall Semester
MAS 112 Massage Techniques 1 ...................... 5.5
MAS 113 Comprehensive Study of Human Body Systems 1 .................. 3
MAS 114 Clinical Foundations ......................... 1.5
MAS 115 Business and Professionalism 1 ............ 2

Total Credits 12

First Year—Winter Semester
MAS 122 Massage Techniques 2 ...................... 4
MAS 123 Comprehensive Study of Human Body Systems 2 .................. 4
MAS 124 Student Clinic 1 ............................. 1
MAS 125 Business and Professionalism 2 ............ 3

Total Credits 12

First Year—Spring/Summer Session
MAS 132 Massage Techniques 3 ...................... 3
MAS 133 Comprehensive Study of Human Body Systems 3 .................. 5
MAS 134 Student Clinic 2 ............................. 1.5
MAS 135 Business and Professionalism 3 ............ 3

Total Credits 12.5

PROGRAM TOTAL 36.5 CREDITS

For more information on certification, please contact:
Michigan Board of Massage Therapy Approved Program
PO Box 30670
Lansing, MI 48909
(517) 335-0918

National Certification Board of Therapeutic Massage & Bodywork Assigned Program
1333 Burr Ridge Parkway, Suite 200
Burr Ridge, IL 60527
1-800-296-0664
info@ncbtmb.org

Lisa Travis, BA, LMT, BCMTB
Massage Therapy Program Coordinator
Adjunct Assistant Professor
Schoolcraft College
ltravis@schoolcraft.edu
**Credentials**

Medical Biller/Receptionist skills certificate .................. 16 cr.
Physician Office Medical Transcription skills certificate ... 17 cr.
Phlebotomy skills certificate ................................ 16 cr.
Medical Assisting certificate .................................... 35 cr.

**Major Description**

Schoolcraft’s nationally accredited medical assisting program will prepare you for both the care-giving and administrative aspects of the growing healthcare field. The program offers four certificate options:

- The medical assisting certificate prepares students for entry-level employment as a medical assistant, performing a wide range of roles in a physician’s office, clinic or other healthcare setting.
- The medical biller/receptionist skills certificate can lead to a career in a variety of healthcare facilities, providing organizational and operational support.
- The phlebotomy skills certificate program will teach students how to draw blood through the venipuncture method, preparing them for employment as a phlebotomist in a doctor’s office, clinic or healthcare facility.
- With a physician office medical transcription skills certificate, students will prepare to handle the various job duties of a transcriptionist, including preparing medical letters, chart notes, consultations, history, physicals, discharge notes and initial office evaluations.

**National Median Salaries for Medical Assisting Positions**

- Medical Ass: $29,370
- Medical Biller/Receptionist: $31,350
- Phlebotomist: $29,730

(U.S. BLS)

**Medical Assisting Certificate**

**Schoolcraft program code # 1YC.00026**

The medical assisting program is designed to prepare the student for entry-level employment as a medical assistant. The curriculum is designed to prepare the student to acquire knowledge, skills and behavior necessary for a competent entry-level medical assistant in a healthcare setting. The program is designed to coordinate classroom and laboratory experience with practical experience in a healthcare facility such as the physician’s office. Medical assistants are multi-skilled allied health professionals who perform a wide range of roles in physicians’ offices, clinics and other healthcare settings. They are proficient in a multitude of clinical and administrative tasks and are widely viewed by doctors as vital members of the healthcare delivery team. Students are required to achieve a grade of 2.0 or better for all HIT and MA courses. Academic and medical assisting courses must be completed by the end of the winter semester to be eligible for placement in the Office Practicum offered in the spring. The Office Practicum is an externship that is structured to provide experiences in applying knowledge, in performing administrative and clinical procedures and in developing professional attitudes for interacting with other professionals and consumers in a healthcare facility.

All courses are not offered each semester. Students should work with an academic advisor or counselor to develop a schedule that will work for them. Students who satisfactorily complete the program requirements qualify for a certificate of program completion.

The medical assisting program is accredited by the Commission on Accreditation of Allied Health Education Programs (www.caahep.org) upon the recommendation of the Curriculum Review Board of the American Association of Medical Assistants Endowment (AAMAE). Graduates are eligible to take the Certified Medical Assistant (CMA) examination conducted by the certifying board of the American Association of Medical Assistants.

This program requires a special admissions process. Contact the Admissions and Welcome Center at 734-462-4426 or admissions@schoolcraft.edu to complete an application.

**SAMPLE SCHEDULE OF COURSES**

**Admission Prerequisites**

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<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>BIOL 105</td>
<td>Basic Human Anatomy and Physiology</td>
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<tr>
<td>HIT 104</td>
<td>Medical Terminology</td>
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**Total Credits 8**

**First Year—Fall Semester**

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<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>MA 134</td>
<td>Medical Insurance Coding</td>
<td>3</td>
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<tr>
<td>MA 140</td>
<td>Medical Office Procedures</td>
<td>3</td>
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<tr>
<td>MA 110</td>
<td>Phlebotomy</td>
<td>4</td>
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<tr>
<td>CIS 120</td>
<td>Software Applications</td>
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**First Year—Winter Semester**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>MA 174*</td>
<td>Medical Laboratory Techniques</td>
<td>4</td>
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<tr>
<td>MA 180*</td>
<td>Medical Office Clinical Procedures</td>
<td>4</td>
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<tr>
<td>MA 155</td>
<td>Medical Insurance Billing</td>
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**First Year—Spring Session**

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<tr>
<th>Course</th>
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<tbody>
<tr>
<td>MA 195</td>
<td>Office Practicum</td>
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</table>

**Total Credits 11**

**Total Credits 3**

**Program Total 35 Credits**

*Courses open only to students who are officially admitted to the medical assisting program.

For more information about accreditation, please contact:
Commission on Accreditation of Allied Health Education Programs (CAAHEP)
1361 Park Street
Clearwater, FL 33756
727-210-2350
mail@caahep.org
www.caahep.org
The medical biller/receptionist certificate prepares the student to answer telephones, route calls, greet visitors, respond to inquiries from the public, perform medical insurance billing and provide information about the health care facility. Job opportunities are in medical offices, hospitals, clinics, health-related facilities, urgent care centers, and surgical centers.

All courses are not offered each semester. Students should work with an academic advisor or counselor to develop a schedule that will work for them. Students who satisfactorily complete the program requirements qualify for a certificate of program completion. All program required courses must have been completed with a grade of 2.0 or better.

**SAMPLE SCHEDULE OF COURSES**

**First Year—Fall Semester**
- CIS 120  Software Applications .............................. 3
- HIT 104* Medical Terminology ............................. 4
- MA 134* Medical Insurance Coding ...................... 3

**First Year—Winter Semester**
- MA 155* Medical Insurance Billing ....................... 3
- MA 140* Medical Office Procedures .................... 3

**Total Credits 10**

**PROGRAM TOTAL 16 CREDITS**

* Courses apply to the medical assisting program.

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The phlebotomy certificate prepares the student for employment as a phlebotomist with job opportunities in a medical office, clinic or healthcare facility. The phlebotomist is trained to draw blood through a method called venipuncture. A venipuncture is performed when a large specimen of blood is needed for testing.

All courses are not offered each semester. Students should work with an academic advisor or counselor to develop a schedule that will work for them. Students who satisfactorily complete the program requirements qualify for a certificate of program completion. All program required courses must have been completed with a grade of 2.0 or better.

**SAMPLE SCHEDULE OF COURSES**

**First Year—Fall Semester**
- BIOL 105* Basic Human Anatomy and Physiology ...... 4
- HIT 104* Medical Terminology ............................. 4
- MA 110* Phlebotomy ........................................... 4

**First Year—Winter Semester**
- CIS 105  Computer Orientation ............................. 1
- MA 140* Medical Office Procedures .................... 3
- MA 160** Phlebotomy Internship .......................... 2

**Total Credits 12**

**PROGRAM TOTAL 18 CREDITS**

* Courses apply to the medical assisting program.
** MA 160 is not required to obtain the Phlebotomy Skills Certificate. If your major is Phlebotomy, you are strongly encouraged to complete the course in order to obtain eligibility to take the National Center for Competency Testing certification Exam.

All courses may be applied toward the associate in general studies degree.

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The physician office medical transcription certificate prepares the student for employment as a transcriptionist with job opportunities in a medical office, clinic, or physician office. The physician office transcriptionist is responsible for typing medical letters, chart notes, consultations, history, physicals, discharge notes, and initial office evaluations.

All courses are not offered each semester. Students should work with an academic advisor or counselor to develop a schedule that will work for them. Students who satisfactorily complete the program requirements qualify for a certificate of program completion. All program required courses must have been completed with a grade of 2.0 or better.

**SAMPLE SCHEDULE OF COURSES**

**First Year—Fall Semester**
- BIOL 105* Basic Human Anatomy and Physiology ...... 4
- HIT 104* Medical Terminology ............................. 4
- OIS 100  Keyboarding 1 ..................................... 2

**First Year—Winter Semester**
- HIT 114* Pharmacology for Health Professionals ...... 2
- MA 140* Medical Office Procedures .................... 3
- MT 108  Physician Office Transcription ................ 2

**Total Credits 10**

**PROGRAM TOTAL 17 CREDITS**

* Courses apply to the medical assisting program.

All courses may be applied toward the associate in general studies degree.
NURSING

Credentials
Nursing—Licensed Practical certificate  .......... 47 cr.
Nursing—Registered AAS degree (ADN) .......... 71 cr.

Major Description
Schoolcraft gives students four choices when preparing for a career in this vital healthcare field:

• The nursing-licensed practical certificate can usually be completed in one year and prepares students to take the National Council Licensure Examination for Practical Nursing.

• The nursing assistant training program skills certificate prepares students for entry-level positions, primarily in extended care facilities.

• The nursing-registered associate degree in applied science qualifies students to take the National Council Licensure Examination for Registered Nursing (RN) and provides the academic background they will need to enter a bachelor of science in nursing degree program.

• Another option allows licensed practical nurses (LPNs) advanced placement into the associate degree nursing program.

Schoolcraft nursing programs are approved by the Michigan Board of Nursing and the Accreditation Commission for Education in Nursing (ACEN) and provide both nursing theory and clinical practice in caring for adults, children and families to prepare students for entry level positions in a variety of healthcare settings.

Nursing courses must be taken in sequence and a minimum grade of 80% in each nursing course is required for progression to the next course. Academic courses other than nursing must be completed according to program requirements. Students are admitted once a year in the fall semester.

National Median Salaries for Nursing Positions
• LPN: $41,540
• RN: $65,470

(US BLS)

The nursing career ladder curriculum (NCLC) is designed to improve nursing career mobility and provide seamless progression from practical nursing (PN) to associate degree nursing (ADN) education. The NCLC contains both the PN and the ADN Programs. Following successful completion of the PN program requirements, students may apply for licensure as a licensed practical nurse (LPN) and have the option of continuing into the ADN program without further application or admission requirements. Upon successful completion of the ADN program, graduates may apply for licensure as a registered nurse (RN). Licensed practical nurses (LPNs) may also apply for advanced placement into the ADN program.

The associate degree and practical nursing programs are approved by the Michigan Board of Nursing. For more information on MI-Board of Nursing approval and licensure please contact:
Department of Licensing and Regulatory Affairs
Bureau of Health Care Services
Board of Nursing
611 West Ottawa Street
P.O. Box 30670
Lansing, MI 48909-8170
517-335-0918
bhpinfo@michigan.gov
www.michigan.gov/LARA

The associate degree and practical nursing programs are accredited by the Accreditation Commission for Education in Nursing (ACEN). For more information regarding the optional ACEN national accreditation, please contact:
Accreditation Commission for Education in Nursing
3343 Peachtree Road NE, Suite 850
Atlanta, GA 30326
404-975-5000
info@acenursing.org
www.acen.org
**Nursing: Registered AAS Degree (ADN)**

Schoolcraft program code # AAS.00000

Nursing courses are open only to students who are officially admitted to the nursing career ladder curriculum.

The associate degree nursing program is approved by the Michigan Board of Nursing and the Accreditation Commission for Education in Nursing (ACEN). This program provides advanced nursing theory and clinical practice in caring for adults, children and families to prepare graduates for entry-level positions in hospitals, long-term care facilities, medical offices, home health and other community settings. Students who satisfactorily complete the associate degree nursing program are eligible to apply to take the National Council Licensure Examination—Registered Nurse (NCLEX-RN) as a step in obtaining licensure as a registered nurse (RN).

The nursing program has pre-admission and admission requirements that are reviewed annually. It is essential to contact the Admissions and Welcome Center for a copy of the current requirements.

Courses must be taken in sequence. A minimum grade of 80% in each nursing course is required for progression to the next course. Academic courses other than nursing must be finished according to program requirements. Computer lab use is required in this program. See “Academic Computing Labs” in this catalog for policy requirements.

This program is offered at the Livonia Campus.

Students are admitted once a year, at the beginning of the fall semester.

All courses are not offered each semester. Students should work with an academic advisor or counselor to develop a schedule that will work for them. Students who satisfactorily complete all college and program requirements qualify for an associate in applied science degree.

This program requires a special admissions process. Contact the Admissions and Welcome Center at 734-462-4426 or admissions@schoolcraft.edu to complete an application.

**SAMPLE SCHEDULE OF COURSES**

**Admission Prerequisites and Supportive Courses**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 114</td>
<td>Basic Human Nutrition</td>
<td></td>
</tr>
<tr>
<td>BIOL 236**</td>
<td>Human Anatomy and Physiology</td>
<td></td>
</tr>
<tr>
<td>PSYCH 201</td>
<td>Introductory Psychology</td>
<td></td>
</tr>
</tbody>
</table>

*Total Credits 10*

**First Year—Fall Semester**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NURS 102</td>
<td>Nursing Informatics</td>
<td></td>
</tr>
<tr>
<td>NURS 104</td>
<td>Pharmacology for Nurses</td>
<td></td>
</tr>
<tr>
<td>NURS 110</td>
<td>Fundamentals of Nursing</td>
<td></td>
</tr>
<tr>
<td>PSYCH 239***</td>
<td>Abnormal Psychology</td>
<td></td>
</tr>
</tbody>
</table>

*Total Credits 16*

**First Year—Winter Semester**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NURS 124</td>
<td>Medical Nursing</td>
<td></td>
</tr>
<tr>
<td>NURS 125</td>
<td>Surgical Nursing</td>
<td></td>
</tr>
<tr>
<td>ENG 101</td>
<td>English Composition 1</td>
<td></td>
</tr>
</tbody>
</table>

*Total Credits 13*

**First Year—Spring Session**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NURS 128</td>
<td>Maternal-Child Nursing 1</td>
<td></td>
</tr>
</tbody>
</table>

*Total Credits 5*

**First Year—OPTIONAL Summer Session**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NURS 139</td>
<td>Advanced Concepts in Practical Nursing</td>
<td></td>
</tr>
</tbody>
</table>

*Total Credits 3*

**Second Year—Fall Semester**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NURS 245</td>
<td>Advanced Medical-Surgical Nursing</td>
<td></td>
</tr>
<tr>
<td>NURS 246</td>
<td>Psychiatric Mental Health Nursing</td>
<td></td>
</tr>
<tr>
<td>MATH 113</td>
<td>Intermediate Algebra for College Students</td>
<td></td>
</tr>
</tbody>
</table>

*Total Credits 13*

**Second Year—Winter Semester**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NURS 248</td>
<td>Maternal-Child Nursing 2</td>
<td></td>
</tr>
<tr>
<td>NURS 259</td>
<td>Advanced Concepts in Registered Nursing</td>
<td></td>
</tr>
<tr>
<td>HUM 106</td>
<td>Introduction to Art and Music</td>
<td></td>
</tr>
<tr>
<td>ENG 102</td>
<td>English Composition 2</td>
<td></td>
</tr>
</tbody>
</table>

*Total Credits 14*

**PROGRAM TOTAL 71 CREDITS**

* COLLS 130 Applied Learning Theory for Nursing Majors is a suggested elective for pre-nursing students to develop study skills and success strategies.

** Students who may transfer to a baccalaureate (BSN) program should elect the BIOL 237–238 sequence.

*** Students may also take PSYCH 229 Life-span Development Psychology which is preferred for BSN transfer programs.
Healthcare & Health Sciences

Schoolcraft program code# 1YC.00017

Nursing: Licensed Practical Certificate
(Practical Nursing Program)

Nursing courses are open only to students who are officially admitted to the nursing career ladder curriculum.

The practical nursing program is approved by the Michigan Board of Nursing and accredited by the Accreditation Commission for Education in Nursing (ACEN). This program provides basic nursing theory and clinical practice in caring for adults, children and families to prepare graduates for entry-level positions in long-term care facilities, medical offices, hospitals, home health and other community settings.

Students who satisfactorily complete the practical nursing program are eligible to apply to take the National Council Licensure Examination—Practical Nurse (NCLEX-PN) as a step in obtaining licensure as a licensed practical nurse (LPN). The nursing program has pre-admission and admission requirements that are reviewed annually. It is essential to contact the Admissions and Welcome Center for a copy of the current requirements.

Courses must be taken in sequence. A minimum grade of 80% in each nursing course is required for progression to the next course. Academic courses other than nursing must be finished by the completion of the nursing courses. Computer lab use is required in this program. See “Academic Computing Labs” in this catalog for policy requirements.

Students must furnish and maintain uniforms and supplies as required by the department and clinical facilities.

This program is offered at the Livonia Campus.

Following successful completion of the Schoolcraft College PN program, students may continue into the ADN program without further application or admission requirements.

Students are admitted once a year, at the beginning of the fall semester.

All courses are not offered each semester. Students should work with an academic advisor or counselor to develop a schedule that will work for them. Students who satisfactorily complete the program requirements qualify for a certificate of program completion.

This program requires a special admissions process. Contact the Admissions and Welcome Center at 734-462-4426 or admissions@schoolcraft.edu to complete an application.

SAMPLE SCHEDULE OF COURSES

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<tr>
<th>Admission Prerequisites and Supportive Courses*</th>
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<tr>
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<tr>
<td>BIOL 236** Human Anatomy and Physiology ........ 5</td>
</tr>
<tr>
<td>PSYCH 201 Introductory Psychology ................. 4</td>
</tr>
<tr>
<td><strong>Total Credits 10</strong></td>
</tr>
</tbody>
</table>

First Year—Fall Semester

| NURS 102 Nursing Informatics ....................... 1 |
| NURS 104 Pharmacology for Nurses .................. 3 |
| NURS 110 Fundamentals of Nursing ................... 9 |
| PSYCH 239*** Abnormal Psychology ................. 3 |
| **Total Credits 16**|

First Year—Winter Semester

| NURS 124 Medical Nursing ........................... 5 |
| NURS 125 Surgical Nursing ............................ 5 |
| ENG 101 English Composition 1 .................... 3 |
| **Total Credits 13**|

First Year—Spring Session

| NURS 128 Maternal-Child Nursing 1 ................. 5 |
| **Total Credits 5**|

First Year—Summer Session

| NURS 139 Advanced Concepts in Practical Nursing .. 3 |
| **Total Credits 3**

**PROGRAM TOTAL 47 CREDITS**

* COLL 130 Applied Learning Theory for Nursing Majors is a suggested elective for pre-nursing students to develop study skills and success strategies.

** Students who may transfer to a baccalaureate (BSN) program should elect the BIOL 237–238 sequence.

*** Students may also take PSYCH 229 Life-span Development Psychology which is preferred for BSN transfer programs.

Advanced Placement Option for LPNs

The associate degree nursing (ADN) program offers an advanced placement option for licensed practical nurses (LPNs) who are interested in becoming registered nurses (RNs). When program space is available, LPN candidates are placed in the ADN program sequence based on a thorough review of their academic record and nursing experience/employment background. Students interested in this option should contact the Nursing office at 734-462-4400 or nursing@schoolcraft.edu for detailed admission requirement and application information.
Nursing: Nursing Assistant Training Program Skills Certificate

Schoolcraft program code # CRT.00321

Students may take the Nursing Assistant Preparation course (NATP 110) alone or may complete the course along with the other courses listed if a Schoolcraft skills certificate is desired. Both options provide students with eligibility to take the state Competency Evaluated Nursing Assistant (CENA) exam. The state of Michigan exam is comprised of written and clinical skills evaluations.

This curriculum is designed to prepare the student for an entry-level nursing assistant position with potential for employment opportunities primarily in extended care facilities with some application to hospitals, clinics, doctors' offices, and patients' homes. Classroom lectures, hands-on practice of skills as well as supervised experience in an extended care facility are provided. This program meets federal and state requirements and is offered at the Livonia campus.

Students must meet health and clinical requirements and be able to pass a criminal background check and urine drug screen.

Students may wish to consider completing an associate in general studies degree, the practical nursing certificate, or the associate degree nursing program at Schoolcraft College.*

*Students may also take the Nursing Assistant Preparation course without completing the other skills certificate courses. These students will still qualify to take the CENA exam.

Students are admitted several times each year.

Students may find information regarding the course requirements in the Nurse Assistant Information packet.

Job Titles & Median Salaries or Hourly Rates

- Nursing Assistants: $24,420 (US BLS)
### Pre-Pharmacy AS Degree

<table>
<thead>
<tr>
<th>Schoolcraft program code # A5.00403</th>
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</thead>
<tbody>
<tr>
<td>The pre-pharmacy transfer program is designed for students interested in a transferable degree that provides appropriate science content and competencies that will help them as they pursue further study in the field of pharmacy. Students will be introduced to the roles, job opportunities, and some of the timely and important issues in the field of pharmacy.</td>
</tr>
<tr>
<td><strong>Total Credits 16</strong></td>
</tr>
</tbody>
</table>

#### Second Year—Fall Semester
- CHEM 213 Organic Chemistry 1 ............... 5
- BIOL 237 Principles of Human Anatomy and Physiology 1 ............... 4
- ENG 102 English Composition 2 ............... 3
- PHYS 181 General Physics 1 ............... 4

#### Total Credits 16–17

#### Second Year—Winter Semester
- CHEM 214 Organic Chemistry 2 ............... 5
- BIOL 238 Principles of Human Anatomy and Physiology 2 ............... 4
- PHYS 182 General Physics 2 ............... 4
- Humanities* Select one General Education Humanities course ............... 3–4

#### Total Credits 16–17

#### Second Year—Spring Session
- BIOL 243 Microbiology ............... 4
- PHARM 201 Capstone—Portfolio Preparation ............... 1
- Select Social Science or Humanities courses if needed to fulfill MACRAO*

#### Total Credits 5

**PROGRAM TOTAL 76–80 CREDITS**

* MACRAO transfer agreement requires a minimum of 8 credits in more than one discipline for both Social Science and Humanities distribution areas. When completing MACRAO, 80 credits will be the minimum program total required.

Students planning to transfer should check the transfer institution's requirements/guides or discuss their options with a counselor or advisor. Number of credits may vary depending on the course selection.

Completion of the pre-pharmacy program does not guarantee admission into a transfer institution's pharmacy program.
HEALTHCARE & HEALTH SCIENCES ADDITIONAL AREAS OF STUDY

PRE-PROFESSIONAL HEALTH

Courses are offered in the following subject areas for which there is not a certificate or degree program available. However, many of these courses can be applied toward a Schoolcraft certificate or degree in another area of study. These courses can also be taken for personal or professional interest or for transfer to a four-year college or university.

ALLIED HEALTH EDUCATION

This one-credit course provides a comprehensive overview of the healthcare industry to help students make decisions about which area to concentrate their studies. The extensive exploration of current issues and trends in healthcare, including the emergence and use of technology in the field, provides students with a distinctive advantage when preparing to enter the workforce.

PHYSICAL EDUCATION

Schoolcraft offers courses in fitness and conditioning, wellness, aerobic dance fitness, first aid and personal safety, swimming, tennis, paddleball/racquetball, basketball, volleyball, weight training, and physical education for elementary teachers for students who are interested in exploring career options in physical education, health and recreation. Some courses may also apply as elective credit toward a Schoolcraft associate degree.

PRE-PROFESSIONAL HEALTH

Credentials
Associate in Arts (AA) or Associate in Science (AS) degree . . . 60 cr.

Major Description
Students interested in earning a bachelor’s degree in the healthcare field can earn an associate in arts or associate in sciences degree at Schoolcraft while completing their academic foundation and general education courses that are transferrable to a four-year college or university.

This health transfer program is designed to prepare students to earn a bachelor’s degree in a variety of healthcare disciplines, such as pre-dental hygiene, pre-dentistry, pre-medicine, pre-mortuary science, pre-nursing, pre-occupational therapy, pre-optometry, pre-physical therapy and pre-veterinary programs.

The specific courses required will be determined by the destination college or university, and students must work with an academic advisor or counselor to ensure that courses transfer.
MANUFACTURING & TECHNOLOGY

Schoolcraft manufacturing and technology programs integrate the leading computer technology with state-of-the-art labs and an emphasis on quality and workforce readiness to give students a real-world focus on the ever-changing manufacturing process.

All courses are not offered each semester. Please work with an academic advisor or counselor to develop a schedule that will work for you. Students who complete all required courses can earn the associate degree or certificate noted in the following Areas of Study descriptions.

Unless otherwise specified, salary data is sourced from the Bureau of Labor Statistics (www.bls.gov), Glassdoor.com or Career Cruising, an online resource available through our Career Services office (www.schoolcraft.edu/career services). Earnings may vary based on experience, education and location.

AREAS OF STUDY

Biomedical Engineering Technology degree and post-associate certificate ........................................ 86–87
- BMET courses .......................................................... 121

Computer Aided Design
- Mechanical degree ...................................................... 88
- Technical certificate ..................................................... 89
- CAD courses ............................................................ 123–124

Design courses (DSGN) .................................................. 99, 138

Electronic Technology degree, certificate and skills certificate .................................................. 90–91
- ELECT courses .......................................................... 140–141

Engineering degree ......................................................... 13, 99
- ENGR courses .......................................................... 144

Manufacturing: Advanced Manufacturing degree, certificate and skills certificate ......................... 92–93
- MFG courses ............................................................ 159

Manufacturing: Plastic Technology ......................................... 96

Metallurgy and Materials Science degree ........................................ 94
- Metallurgy: Applied Physical certificate .................................. 95
- Materials Science post-associate certificate .................................. 95
- MET courses ............................................................ 158–159

Quality Management courses (QM) .................................. 99, 172

Welding Technology
- Fabrication certificate .................................................. 97
- Joining Technology degree .......................................... 98
- Welding Sculpture skills certificate .................................. 98
- WELD courses .......................................................... 175–176

Metallurgy and Materials Science
Donald Jordan
734-462-4400 ext. 5118 | djordan@schoolcraft.edu

Welding
Coley McLean
734-462-4400 ext. 5176 | cmclean@schoolcraft.edu

INSTRUCTIONAL ADMINISTRATOR
Robert J. Leadley
Dean of Occupational Programs and Economic Development
734-462-4530 | rleadley@schoolcraft.edu
CREDENTIALS
Biomedical Engineering Technologist AAS degree  . . . . . . 66–67 cr.
Biomedical Applications post-associate certificate  . . . . . . 16 cr.

MAJOR DESCRIPTION
The biomedical engineering technology programs prepare students to work on sophisticated diagnostic equipment and medical devices in a health-care setting. Schoolcraft offers two educational options and additional experience opportunities in this exciting field:

• An associate in applied science degree teaches students to maintain and repair medical electronic equipment in hospitals, labs and industries engaged in the manufacture and sale of these products.

• The biomedical applications post-associate certificate is for individuals already working in the field that want to advance their career opportunities by providing additional knowledge and skills needed to meet the demands of the rapidly changing biomedical field.

A state-of-the-art lab enables students to gain first-hand knowledge of troubleshooting equipment and design prototypes. In addition, a two-semester long internship provides additional hands-on field training in one of the area’s hospitals. Students must complete internships to be eligible to fulfill program requirements.

NATIONAL MEDIAN SALARIES FOR BIOMEDICAL ENGINEERING TECHNOLOGY POSITIONS

• Biomedical Engineering Technician: $44,570

US BLS
The biomedical engineering technologist (BMET) program is designed to develop technicians able to maintain and service medical electronic equipment in hospitals, pathological and hematological laboratories, and industries engaged in the manufacture and sale of medical electronic equipment. The program is divided into two components. The first year (three semesters) culminates in an electronic technology certificate. In order for candidates to be eligible to apply for the second year of the program they must meet the following qualifications:

1. Have an overall GPA of 2.5.
2. Achieve a minimum GPA of 2.5 in each electronics course.
3. Achieve a minimum GPA of 3.0 in Biology 105.

Candidates who have met these conditions must be approved by the BMET Internship Coordinator before registering in BMET 116, BMET 204, BMET 254 or BMET 255. Due to the limited availability of worksites, candidates who have met these conditions will be prioritized for admission into the BMET sequence based on the following elements: BMET application date, overall GPA, position in the sequence of candidates who have met these conditions, and overall GPA in Biology 105. Students who satisfactorily complete all college and program requirements qualify for an associate in applied science degree.

This program requires a special admissions process. Contact the Admissions and Welcome Center at 734-462-4426 or admissions@schoolcraft.edu to complete an application.

### SAMPLE SCHEDULE OF COURSES

#### Admission Prerequisites

**First Year—Fall Semester**

- **ELECT 131** Basic Measurement and Reporting Skills  
  3 credits
- **ELECT 137** DC Circuits and Mathematical Modeling  
  5 credits
- **ENG 101** English Composition 1  
  3 credits
- **BIOL 105** Basic Human Anatomy and Physiology  
  4 credits

**Total Credits 15**

**First Year—Winter Semester**

- **ELECT 138** AC Circuits and Mathematical Modeling  
  5 credits
- **ELECT 139** Diodes and Transistors  
  3 credits
- **ELECT 180** LabVIEW Programming CORE 1 and 2  
  5 credits

**Total Credits 13**

**First Year—Spring/Summer Session**

- **ELECT 215** Operational Amplifiers and Linear Integrated Circuits  
  4 credits
- **ELECT 219** Digital Logic Circuits  
  4 credits

**Total Credits 8**

#### Admission to the Biomedical Program Internship Sequence

**Second Year—Fall Semester**

- **BMET 116** Biomedical Instrumentation Terminology and Safety  
  3 credits
- **Mathematics** Select 1  
  3 credits
- **MATH 111** Applications—Utility of Math  
  3 credits
- **MATH 113** Intermediate Algebra for College Students  
  3 credits
- **Social Science** Select 1  
  3 credits
- **POLS 209** International Relations  
  3 credits
- **PSYCH 153** Human Relations  
  3 credits
- **SOC 210** Cultural Diversity  
  3 credits
- **English** Select 1  
  3 credits
- **ENG 102** English Composition 2  
  3 credits
- **ENG 116** Technical Writing  
  3 credits

**Total Credits 13**

**Second Year—Winter Semester**

- **BMET 204** Biomedical Instrumentation Terminology and Safety  
  4 credits
- **BMET 254** Biomedical Equipment Internship 1  
  3 credits
- **Elective** Select from the list below  
  3 credits
- **Elective** Select from the list below  
  3 credits
- **HUM 106** Introduction to Art and Music  
  1 credit

**Total Credits 14—16**

**Second Year—Spring/Summer Session**

- **BMET 255** Biomedical Equipment Internship 2  
  3 credits

**Total Credits 3**

**PROGRAM TOTAL 66–68 CREDITS**

Students planning to transfer should check the transfer institution’s requirements/guides or discuss their options with an academic advisor or counselor.

* Number of credits may vary depending on the course selection.

<table>
<thead>
<tr>
<th>Electives</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMET 125</td>
<td>Laser Safety Concepts</td>
</tr>
<tr>
<td>CIS 171</td>
<td>Introduction to Networking</td>
</tr>
<tr>
<td>CIS 235</td>
<td>Managing and Troubleshooting PCs</td>
</tr>
<tr>
<td>COMPS 124</td>
<td>Introduction to Personal Computers and Software</td>
</tr>
<tr>
<td>COMPS 126</td>
<td>Technical Programming</td>
</tr>
<tr>
<td>ELECT 144</td>
<td>Introduction to Microcontrollers</td>
</tr>
<tr>
<td>ELECT 145</td>
<td>Fluid Power</td>
</tr>
<tr>
<td>ELECT 218</td>
<td>AC/DC Motors</td>
</tr>
<tr>
<td>ELECT 228</td>
<td>Electronic Troubleshooting</td>
</tr>
<tr>
<td>ELECT 251</td>
<td>Programmable Logic and Industrial Controls</td>
</tr>
<tr>
<td>MET 102</td>
<td>Introduction to Materials Science</td>
</tr>
</tbody>
</table>

**Total Credits 3**
COMPUTER AIDED DESIGN/DRAFTING (CAD)

Credentials
CAD: Drafting-Technical certificate .......................... 28 cr.
CAD: Mechanical AAS degree ................................. 65 cr.

Major Description
Computer-aided design (CAD) has changed the world of
design, and the use of computer systems to assist in the cre‑
ation, modification, analysis or optimization of designs has
become the norm. Schoolcraft offers two CAD educational
options for students who want to pursue a career in in this
area:
• The CAD mechanical associate in applied science degree
program focuses on design and project management.
• The CAD drafting technical certificate prepares students
for employment as a CAD drafter or detailer. Students can
also transfer into the associate in applied science degree
program at any time.

National Median Salaries for Biomedical Engineering
Technology Positions
• Mechanical Designer: $50,360
• Tool Designer: $51,720
• Technical Drafter: $49,630

US BLS

CAD: Mechanical AAS Degree

Schoolcraft program code # AAS.00170
Technology improvements have moved the world of design
from the drafting arena to the data management and design
world. The designer now must produce multiple design
proposals through a process which includes modeling, simu‑
lation, performance analysis and free form fabrication. Product
life cycle management concepts are ingrained into this
program addressing the management of all data related to
the design, production and support of manufactured goods.

All courses are not offered each semester. Students should work with
an academic advisor or counselor to develop a schedule that will work
for them. Students who satisfactorily complete all college and program
requirements qualify for an associate in applied science degree.

SAMPLE SCHEDULE OF COURSES

First Year—Fall Semester
CAD 103  Engineering Graphics .................. 3
ENGR 100  Introduction to Engineering and Technology . 3
MET 102  Introduction to Materials Science .......... 3
MATH 113**  Intermediate Algebra for College Students . . 4
HUM 106*  Introduction to Art and Music ............ 1

Total Credits 14

First Year—Winter Semester
MET 114  Engineering Materials .................. 3
CAD 106  Advanced Drawing Views and
         Descriptive Geometry .................. 4
MFG 102  Manufacturing Processes ................. 4
Elective  Select 1 .................................. 4
CAD 211  CATIA—Level 1
CAD 221  SolidWorks—Level 1

Total Credits 15

First Year—Spring/Summer Session
MATH 119  Trigonometry ......................... 3
ENG 100*  Communication Skills ................. 3

Total Credits 6

Second Year—Fall Semester
DSGN 180  Machine Elements and Design ........... 4
ENG 106*  Business English ..................... 3
MFG 102  Basic Machining Processes ............. 3
CAD 107  Detailing ................................ 4

Total Credits 14

Second Year—Winter Semester
DSGN 250  Tool, Die, and Fixture Design .......... 4
DSGN 280  Capstone Project ..................... 4
PHYS 123  Applied Physics .................... 5
PSYCH 153*  Human Relations ................... 3

Total Credits 16

PROGRAM TOTAL 65 CREDITS

* Other courses meeting the college requirements may be
substituted.

** MATH 113 may be waived if student has successfully com‑
pleted high school Algebra II or based on student’s placement
test score.

Students planning to transfer should check the transfer institu‑
tion’s requirements/guides or discuss their options with a coun‑
selor or advisor. Number of credits may vary depending on the
course selection.
## CAD: Drafting-Technical Certificate

**Schoolcraft program code # 1YC.00119**

Skills developed in these courses prepare the student for employment as a CAD drafter or detailer. Students at any time may transfer into the computer aided design associate degree program.

All courses are not offered each semester. Students should work with an academic advisor or counselor to develop a schedule that will work for them. Students who satisfactorily complete the program requirements qualify for a certificate of program completion.

**SAMPLE SCHEDULE OF COURSES**

### First Year—Fall Semester

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<tr>
<th>Course</th>
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</thead>
<tbody>
<tr>
<td>CAD 103</td>
<td>Engineering Graphics</td>
<td>3</td>
</tr>
<tr>
<td>MET 102</td>
<td>Introduction to Materials Science</td>
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<td>3</td>
</tr>
<tr>
<td>MATH 113*</td>
<td>Intermediate Algebra for College Students</td>
<td>4</td>
</tr>
</tbody>
</table>

**Total Credits 13**

### First Year—Winter Semester

<table>
<thead>
<tr>
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<th>Title</th>
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</tr>
</thead>
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<tr>
<td>CAD 106</td>
<td>Advanced Drawing Views and Descriptive Geometry</td>
<td>4</td>
</tr>
<tr>
<td>MATH 119</td>
<td>Trigonometry</td>
<td>3</td>
</tr>
<tr>
<td>MFG 105</td>
<td>Manufacturing Processes</td>
<td>4</td>
</tr>
<tr>
<td>Elective</td>
<td>Select 1</td>
<td>4</td>
</tr>
<tr>
<td>CAD 211</td>
<td>CATIA—Level 1</td>
<td></td>
</tr>
<tr>
<td>CAD 221</td>
<td>SolidWorks—Level 1</td>
<td></td>
</tr>
</tbody>
</table>

**Total Credits 15**

**PROGRAM TOTAL 28 CREDITS**

* MATH 113 may be waived if student has successfully completed high school Algebra II or based on student's placement test score.
ELECTRONIC TECHNOLOGY

Credentials
Electronic Technology skills certificate ....................... 16 cr.
Electronic Technology certificate ............................. 33–34 cr.
Electronic Technology AAS degree ........................ 60–62 cr.

Major Description
Schoolcraft provides students interested in electronics a variety of educational options to increase their opportunities to become an electronics repair professional or an electronics engineering technician.

- The electronic technology skills certificate is designed for students who want to gain the basic skills needed for entry-level jobs in electronics.
- With an electronic technology certificate, students will have a solid foundation for positions such as an electronics repairer that require a thorough understanding of electronic fundamentals. The certificate is also required to apply for entrance into Schoolcraft’s biomedical engineering technology associate degree program.
- The associate of applied science in electronic technology gives students a strong background in electronics and the fundamentals of electricity, and opens up positions as an electronics engineering technician where they will be able to work with engineers to design and test computers, electronic devices, appliances, and medical and industrial equipment.
- Students gain additional knowledge of microcontrollers, programmable logic controllers and digital and analog circuits in Schoolcraft’s labs, while lectures focus on taking measurements and reporting findings in a clear, concise manner.

National Median Salaries for Electronic Technology Positions
- Electronics Repair: $46,550
- Electronics Engineering Technician: $51,820

(Source: US BLS)

Electronic Technology AAS Degree

Schoolcraft program code # AAS.00120

This electronics program is designed to give students a strong background in the fundamentals of electricity, electronic devices and basic circuits (digital and linear). The curriculum includes laboratory demonstration of the principles taught in class affording practical experience in fabrication, instrumentation and presentation.

The program is not directly aimed at specific products. With the multiplicity of equipment presently in use and the rapid advance and change in technology, the department stresses the development of a broad background that will enable students to find employment and be able to further their skills in a diversified number of industries.

All courses are not offered each semester. Students should work with an academic advisor or counselor to develop a schedule that will work for them. Students who satisfactorily complete all college and program requirements qualify for an associate in applied science degree.

SAMPLE SCHEDULE OF COURSES

First Year—Fall Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ELECT 131</td>
<td>Basic Measurement and Reporting Skills</td>
<td>3</td>
</tr>
<tr>
<td>ELECT 137</td>
<td>DC Circuits and Mathematical Modeling</td>
<td>5</td>
</tr>
<tr>
<td>ENG 101</td>
<td>English Composition 1</td>
<td>3</td>
</tr>
<tr>
<td>Science</td>
<td>Select 1</td>
<td>4–5</td>
</tr>
<tr>
<td>BIOL 105</td>
<td>Basic Human Anatomy and Physiology</td>
<td></td>
</tr>
<tr>
<td>CHEM 111</td>
<td>General Chemistry 1</td>
<td></td>
</tr>
<tr>
<td>PHYS 123</td>
<td>Applied Physics</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 15–16

First Year—Winter Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ELECT 138</td>
<td>AC Circuits and Mathematical Modeling</td>
<td>5</td>
</tr>
<tr>
<td>ELECT 139</td>
<td>Diodes and Transistors</td>
<td>3</td>
</tr>
<tr>
<td>ELECT 180</td>
<td>LabVIEW Programming CORE 1 and 2</td>
<td>5</td>
</tr>
</tbody>
</table>

Total Credits 13

First Year—Spring/Summer Session

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ELECT 215</td>
<td>Operational Amplifiers and Linear Integrated Circuits</td>
<td>4</td>
</tr>
<tr>
<td>ELECT 219</td>
<td>Digital Logic Circuits</td>
<td>4</td>
</tr>
</tbody>
</table>

Total Credits 8

Second Year—Fall Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ELECT 144</td>
<td>Introduction to Microcontrollers</td>
<td>3</td>
</tr>
<tr>
<td>ELECT 218</td>
<td>AC/DC Motors</td>
<td>3</td>
</tr>
<tr>
<td>Social Science</td>
<td>Select 1</td>
<td>3</td>
</tr>
<tr>
<td>POLS 209</td>
<td>International Relations</td>
<td>3</td>
</tr>
<tr>
<td>PSYCH 153</td>
<td>Human Relations</td>
<td>3</td>
</tr>
<tr>
<td>SOC 210</td>
<td>Cultural Diversity</td>
<td>3</td>
</tr>
<tr>
<td>English</td>
<td>Select 1</td>
<td>3</td>
</tr>
<tr>
<td>ENG 102</td>
<td>English Composition 2</td>
<td>3</td>
</tr>
<tr>
<td>ENG 116</td>
<td>Technical Writing</td>
<td>3</td>
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</tbody>
</table>

Total Credits 12

Second Year—Winter Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ELECT 251</td>
<td>Programmable Logic and Industrial Controls</td>
<td>4</td>
</tr>
<tr>
<td>Elective</td>
<td>Select from the list below</td>
<td>3–4</td>
</tr>
<tr>
<td>Mathematics</td>
<td>Select 1</td>
<td>4</td>
</tr>
<tr>
<td>MATH 111</td>
<td>Applications—Utility of Math</td>
<td>3</td>
</tr>
<tr>
<td>MATH 113</td>
<td>Intermediate Algebra for College Students</td>
<td>3</td>
</tr>
<tr>
<td>HUM 106</td>
<td>Introduction to Art and Music</td>
<td>1</td>
</tr>
</tbody>
</table>

Total Credits 12–13

PROGRAM TOTAL 60–62 CREDITS

* Number of credits may vary depending on the course selection.

Electives

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMET 125</td>
<td>Laser Safety Concepts</td>
<td>3</td>
</tr>
<tr>
<td>CIS 171</td>
<td>Introduction to Networking</td>
<td>3</td>
</tr>
<tr>
<td>CIS 235</td>
<td>Managing and Troubleshooting PCs</td>
<td>3</td>
</tr>
<tr>
<td>COMPS 124</td>
<td>Introduction to Personal Computers and Software</td>
<td>3</td>
</tr>
<tr>
<td>COMPS 126</td>
<td>Technical Programming</td>
<td>3</td>
</tr>
<tr>
<td>ELECT 133</td>
<td>Introduction to Battery Technology</td>
<td>3</td>
</tr>
<tr>
<td>ELECT 145</td>
<td>Fluid Power</td>
<td>4</td>
</tr>
<tr>
<td>ELECT 228</td>
<td>Electronic Troubleshooting</td>
<td>3</td>
</tr>
<tr>
<td>ELECT 252</td>
<td>Programmable Logic System Design</td>
<td>4</td>
</tr>
<tr>
<td>MET 102</td>
<td>Introduction to Materials Science</td>
<td>3</td>
</tr>
</tbody>
</table>

Students planning to transfer should check the transfer institution’s requirements/guides or discuss their options with a counselor or advisor. Number of credits may vary depending on the course selection.
### Electronic Technology Certificate
Schoolcraft program code # 1YC.00125
The certificate for electronics provides the student with a solid foundation for many jobs that require a thorough understanding of electronic fundamentals. Completion of the certificate program also offers the student the opportunity to pursue advanced technical credentials in healthcare, in manufacturing, or in computer systems.

All courses are not offered each semester. Students should work with an academic advisor or counselor to develop a schedule that will work for them. Students who satisfactorily complete the program requirements qualify for a certificate of program completion.

**SAMPLE SCHEDULE OF COURSES**

**First Year—Fall Semester**
- ELECT 131 Basic Measurement and Reporting Skills . . . . . 3
- ELECT 137 DC Circuits and Mathematical Modeling . . . . . 5
- ELECT 180 LabVIEW Programming CORE 1 and 2 . . . . . 5
- Science Select 1 . . . . . . . . . . . . . . . . . . . . . . . . . . . 4–5
- BIOL 105 Basic Human Anatomy and Physiology*
- CHEM 111 General Chemistry 1
- PHYS 123 Applied Physics

**Total Credits 17–18**

**Winter Semester**
- ELECT 138 AC Circuits and Mathematical Modeling . . . . . 5
- ELECT 139 Diodes and Transistors . . . . . . . . . . . . . . 3

**Total Credits 8**

**First Year—Spring/Summer Session**
- ELECT 215 Operational Amplifiers and Linear
  Integrated Circuits . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 4
- ELECT 219 Digital Logic Circuits . . . . . . . . . . . . . . . . . . . . 4

**Total Credits 8**

**PROGRAM TOTAL 33–34 CREDITS**

* BIOL 105 is required for the BMET program internship sequence.

### Electronic Technology Skills Certificate
Schoolcraft program code # CRT.00320
The electronic technology certificate is intended for students wishing to gain the basic skills needed for entry-level jobs in electronics. Completion of the skills certificate permits the student to take electrical measurements, understand DC and AC signals, and apply solid-state troubleshooting techniques used in modern jobs involving electronics.

All courses are not offered each semester. Students should work with an academic advisor or counselor to develop a schedule that will work for them. Students who satisfactorily complete the program requirements qualify for a certificate of program completion. All program required courses must have been completed with a grade of 2.0 or better.

**SAMPLE SCHEDULE OF COURSES**

**First Year—Fall Semester**
- ELECT 131 Basic Measurement and Reporting Skills . . . . . 3
- ELECT 137 DC Circuits and Mathematical Modeling . . . . . 5

**Total Credits 8**

**First Year—Winter Semester**
- ELECT 138 AC Circuits and Mathematical Modeling . . . . . 5
- ELECT 139 Diodes and Transistors . . . . . . . . . . . . . . 3

**Total Credits 8**

**PROGRAM TOTAL 16 CREDITS**
MANUFACTURING

Pre-Engineering

Major Description
The associate in engineering degree program is designed for students who intend to transfer to a four-year college or university to pursue a bachelor’s degree in engineering and provides a strong academic foundation in mathematics and science. The specific courses required will be determined by the destination college or university and/or the student’s intended major. Students must work with an academic advisor or counselor to ensure their courses transfer.

<table>
<thead>
<tr>
<th><strong>Advanced Manufacturing AAS Degree</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Schoolcraft program code # AAS.00135</strong></td>
</tr>
</tbody>
</table>

The advanced manufacturing program is designed to provide learners with growth and development in a variety of manufacturing processes, to expose them to materials and methods of production and make them aware of quality systems and tools. While this program offers an entry level certification for individuals pursuing a career in manufacturing, it has been designed to enable individuals the opportunity to continually expand and upgrade their applied skills as well as to maintain a thorough mastery of evolving manufacturing technologies.

Protective shop clothing and eye protection supplies required for the program will be purchased by the student. All courses are not offered each semester. Students should complete all college and program requirements qualify for a schedule that will work for them. Students who satisfactorily work with an academic advisor or counselor to develop a schedule that will work for them. Students who satisfactorily complete all college and program requirements qualify for an associate of applied science degree.

**SAMPLE SCHEDULE OF COURSES**

<table>
<thead>
<tr>
<th><strong>First Year—Fall Semester</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>MFG 101</td>
</tr>
<tr>
<td>MFG 102</td>
</tr>
<tr>
<td>ENGR 100</td>
</tr>
<tr>
<td>CAD 103</td>
</tr>
<tr>
<td>ENG 100*</td>
</tr>
</tbody>
</table>

**Total Credits 15**

<table>
<thead>
<tr>
<th><strong>First Year—Winter Semester</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>MFG 103</td>
</tr>
<tr>
<td>MFG 106</td>
</tr>
<tr>
<td>QM 107</td>
</tr>
<tr>
<td>MFG 105</td>
</tr>
</tbody>
</table>

**Total Credits 13**

<table>
<thead>
<tr>
<th><strong>First Year—Spring Session</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Elective</td>
</tr>
<tr>
<td>Science</td>
</tr>
</tbody>
</table>

**Total Credits 6–8**

<table>
<thead>
<tr>
<th><strong>Second Year—Fall Semester</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>MFG 203</td>
</tr>
<tr>
<td>MFG 206</td>
</tr>
<tr>
<td>MET 102</td>
</tr>
<tr>
<td>ENG 106*</td>
</tr>
<tr>
<td>Social Science</td>
</tr>
</tbody>
</table>

**Total Credits 15–16**

<table>
<thead>
<tr>
<th><strong>Second Year—Winter Semester</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>MFG 211</td>
</tr>
<tr>
<td>MET 114</td>
</tr>
<tr>
<td>Mathematics</td>
</tr>
<tr>
<td>Humanities</td>
</tr>
</tbody>
</table>

**Total Credits 12–15**

* Other courses meeting the college requirements may be substituted.

Students planning to transfer should check the transfer institution’s requirements/guides or discuss their options with a counselor or advisor. Number of credits may vary depending on the course selection.

<table>
<thead>
<tr>
<th><strong>Electives</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>WELD 110</td>
</tr>
<tr>
<td>WELD 115</td>
</tr>
<tr>
<td>WELD 119</td>
</tr>
</tbody>
</table>

**PROGRAM TOTAL 61–67 CREDITS**

MANUFACTURING & TECHNOLOGY

**National Median Salaries for Manufacturing Positions**
- Production Manager: $89,190
- QA Specialist: $34,460
- CNC Programmer: $44,160

(US BLS)
Advanced Manufacturing Certificate
Schoolcraft program code # 1YC.00237
The advanced manufacturing certificate addresses basic competency in skills needed for employment in today’s highly technical manufacturing environments. The certificate is designed to train those new to manufacturing, but also serves to update the skills of seasoned manufacturing workers with the most current technology and techniques. These classes all apply to the advanced manufacturing associate degree.

Protective shop clothing and eye protection supplies required for the program will be purchased by the student. All courses are not offered each semester. Students should work with an academic advisor or counselor to develop a schedule that will work for them. Students who satisfactorily complete the program requirements qualify for a certificate of program completion.

SAMPLE SCHEDULE OF COURSES
First Year—Fall Semester
MFG 101 Geometric Dimensioning and Tolerance, with Inspection ......................... 3
MFG 102 Basic Machining Processes ................. 3
CAD 103 Engineering Graphics ......................... 3
ENGR 100 Introduction to Engineering and Technology . 3
Total Credits 12

First Year—Winter Semester
MFG 103 Basic Computer Numerical Control (CNC) . . 3
MFG 106 Basic Mastercam ......................... 3
QM 107 Quality Planning and Team Building ............. 3
MFG 105 Manufacturing Processes ..................... 4
Total Credits 13

First Year—Spring Session
MFG 203 Advanced Computer Numerical Control (CNC) . 3
MFG 206 Advanced Mastercam ..................... 3
Total Credits 6

PROGRAM TOTAL 31 CREDITS

Advanced Manufacturing Skills Certificate
Schoolcraft program code # CRT.00337
The advanced manufacturing skills certificate introduces learners to advanced skills and techniques in manufacturing. It provides the basic skills needed for employment in today’s highly technical manufacturing environments. These classes all apply to the advanced manufacturing associate degree.

Protective shop clothing and eye protection supplies required for the program will be purchased by the student. All courses are not offered each semester. Students should work with an academic advisor or counselor to develop a schedule that will work for them. Students who satisfactorily complete the program requirements qualify for a certificate of program completion. All program required courses must have been completed with a grade of 2.0 or better.

SAMPLE SCHEDULE OF COURSES
First Year—Fall Semester
MFG 101 Geometric Dimensioning and Tolerance, with Inspection ......................... 3
MFG 102 Basic Machining Processes ................. 3
ENGR 100 Introduction to Engineering and Technology . 3
Total Credits 9

First Year—Winter Semester
MFG 103 Basic Computer Numerical Control (CNC) . . 3
MFG 106 Basic Mastercam ......................... 3
QM 107 Quality Planning and Team Building ............. 3
Total Credits 9

PROGRAM TOTAL 18 CREDITS
METALLURGY AND MATERIALS SCIENCE

**Metallurgy and Materials Science AAS Degree**

The metallurgy and materials science program has been specifically designed to accommodate most areas of industry associated with research, development, manufacturing and materials control. Carefully selecting electives will prepare students for specialization. Students interested in the laboratory control of processing may wish to select electives in welding, fabrication, manufacturing processes or quality control. Likewise, students interested in development or industrial research may wish to complete electives in materials or physical science, design or computer technology.

Metallurgy and materials science graduates have knowledge of the philosophy of metallic and nonmetallic materials used in industry and can apply principles basic to scientific laboratory investigation, research, product development and process control.

All courses are not offered each semester. Students should work with an academic advisor or counselor to develop a schedule that will work for them. Students who satisfactorily complete all college and program requirements qualify for an associate in applied science degree.

Students seeking transfer to a baccalaureate program should request transfer guides provided by the department.

**SAMPLE SCHEDULE OF COURSES**

**First Year—Fall Semester**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MET 102</td>
<td>Introduction to Materials Science</td>
<td>3</td>
</tr>
<tr>
<td>MET 120*</td>
<td>Hazardous Materials Management</td>
<td>2</td>
</tr>
<tr>
<td>ENGR 100</td>
<td>Introduction to Engineering and Technology</td>
<td>3</td>
</tr>
<tr>
<td>MET 152</td>
<td>Structure and Properties Laboratory</td>
<td>3</td>
</tr>
<tr>
<td>MATH 113</td>
<td>Intermediate Algebra for College Students</td>
<td>4</td>
</tr>
<tr>
<td>HUM 106</td>
<td>Introduction to Art and Music</td>
<td>1</td>
</tr>
</tbody>
</table>

**Total Credits 16**

**First Year—Winter Semester**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>English</td>
<td>Select 1</td>
<td>3</td>
</tr>
<tr>
<td>ENG 100</td>
<td>Communication Skills</td>
<td></td>
</tr>
<tr>
<td>ENG 101</td>
<td>English Composition 1</td>
<td></td>
</tr>
<tr>
<td>CAD 103</td>
<td>Engineering Graphics</td>
<td>3</td>
</tr>
<tr>
<td>MET 114</td>
<td>Engineering Materials</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 140</td>
<td>Scanning Electron Microscopy</td>
<td>4</td>
</tr>
<tr>
<td>MET 211*</td>
<td>Physical Metallurgy Structures</td>
<td>3</td>
</tr>
</tbody>
</table>

**Total Credits 16**

**Second Year—Fall Semester**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MET 215*</td>
<td>Mechanical Properties of Metals</td>
<td>3</td>
</tr>
<tr>
<td>MET 217*</td>
<td>Computer Applications in Materials Science</td>
<td>3</td>
</tr>
<tr>
<td>MFG 102</td>
<td>Basic Machining Processes</td>
<td>3</td>
</tr>
<tr>
<td>WELD 113</td>
<td>Shielded Metal Arc Welding (S.M.A.W.)</td>
<td>3</td>
</tr>
</tbody>
</table>

**Total Credits 12**

**Second Year—Winter Semester**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MET 248*</td>
<td>Electron Microscopy and Image Analysis</td>
<td>3</td>
</tr>
<tr>
<td>MET 280*</td>
<td>Special Problems in Materials Science</td>
<td>4</td>
</tr>
<tr>
<td>WELD 262</td>
<td>Welding Metallurgy</td>
<td>3</td>
</tr>
<tr>
<td>Elective</td>
<td>Select from the list below</td>
<td>3-4</td>
</tr>
</tbody>
</table>

**Total Credits 13-14**

**PROGRAM TOTAL 63–64 CREDITS**

* These classes are offered on a rotational basis. Contact Metallurgy faculty for current and projected offerings.

Students planning to transfer should check the transfer institution’s requirements/guides or discuss their options with a counselor or advisor. Number of credits may vary depending on the course selection.

**Electives**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUS 103</td>
<td>Organizing a Small Business</td>
<td>3</td>
</tr>
<tr>
<td>MET 160*</td>
<td>Composite Materials</td>
<td>3</td>
</tr>
<tr>
<td>MET 271*</td>
<td>Corrosion and Corrosion Analysis</td>
<td>4</td>
</tr>
<tr>
<td>MFG 105</td>
<td>Manufacturing Processes</td>
<td>4</td>
</tr>
</tbody>
</table>

**Total Credits 6**
**Metallurgy: Applied Physical Certificate**

Schoolcraft program code # 1YC.00124

The applied physical metallurgy certificate program is designed to provide people currently employed in the field with an opportunity to reinforce skills and acquire the academic foundations necessary for advancement in the laboratory and related process situations. The program is oriented to property, process and structure areas of study and is designed and scheduled with consideration for part-time students.

All courses are not offered each semester. Students should work with an academic advisor or counselor to develop a schedule that will work for them. Students who satisfactorily complete the program requirements qualify for a certificate of program completion.

**SAMPLE SCHEDULE OF COURSES**

**First Year—Fall Semester**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MET 102</td>
<td>Introduction to Materials Science</td>
<td>3</td>
</tr>
<tr>
<td>MFG 102</td>
<td>Basic Machining Processes</td>
<td>3</td>
</tr>
<tr>
<td>MET 120*</td>
<td>Hazardous Materials Management</td>
<td>2</td>
</tr>
<tr>
<td>MET 152</td>
<td>Structure and Properties Laboratory</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total Credits</strong></td>
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<td><strong>11</strong></td>
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</tbody>
</table>

**First Year—Winter Semester**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MET 114</td>
<td>Engineering Materials</td>
<td>3</td>
</tr>
<tr>
<td>WELD 113</td>
<td>Shielded Metallic Arc Welding (S.M.A.W.)</td>
<td>3</td>
</tr>
<tr>
<td>Elective**</td>
<td><strong>Select any applicable MET</strong></td>
<td>3</td>
</tr>
<tr>
<td><strong>Total Credits</strong></td>
<td></td>
<td><strong>9</strong></td>
</tr>
</tbody>
</table>

**Second Year—Fall Semester**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MET 211*</td>
<td>Physical Metallurgy Structures</td>
<td>3</td>
</tr>
<tr>
<td>MET 215*</td>
<td>Mechanical Properties of Metals</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total Credits</strong></td>
<td></td>
<td><strong>6</strong></td>
</tr>
</tbody>
</table>

**Second Year—Winter Semester**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MET 280*</td>
<td>Special Problems in Materials Science</td>
<td>4</td>
</tr>
<tr>
<td><strong>Total Credits</strong></td>
<td></td>
<td><strong>4</strong></td>
</tr>
</tbody>
</table>

**PROGRAM TOTAL 30 CREDITS**

* These classes are offered on a rotational basis. Contact Metallurgy faculty for current and projected offerings.

**Materials Science Post-Associate Certificate**

Schoolcraft program code # PAC.00179

This post-associate certificate in materials science is designed for working professionals who have industrial experience and/or training in the materials science field and who wish to study current technologies applied to laboratory practice and other materials-related endeavors.

Completion of this program will enhance students’ abilities to meet the needs of current and changing industrial technologies in metallurgical and materials science applications, processing, and control environments. It will also provide support background for managerial and technical personnel who have direct responsibilities in industrial materials operations and planning. These courses are also intended to meet requirements for current and future professional certification.

Prior to admission students must have earned a minimum of an accredited associate degree in applied science. All courses are not offered each semester. Students should work with an academic advisor or counselor to set up a schedule that will work for them. The post-associate certificate is awarded upon successful completion of 16 credit hours (exact number may vary slightly due to credit value or content of courses).

**SAMPLE SCHEDULE OF COURSES**

**First Year—Fall Semester**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MET 211*</td>
<td>Physical Metallurgy Structures</td>
<td>3</td>
</tr>
<tr>
<td>MET 215*</td>
<td>Mechanical Properties of Metals</td>
<td>3</td>
</tr>
<tr>
<td>Elective</td>
<td><strong>Select any applicable MET 200-level course</strong></td>
<td>3–4</td>
</tr>
<tr>
<td><strong>Total Credits</strong></td>
<td></td>
<td><strong>9–10</strong></td>
</tr>
</tbody>
</table>

**First Year—Winter Semester**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MET 280*</td>
<td>Special Problems in Materials Science</td>
<td>4</td>
</tr>
<tr>
<td>Elective</td>
<td><strong>Select any applicable MET 200-level course</strong></td>
<td>3–4</td>
</tr>
<tr>
<td><strong>Total Credits</strong></td>
<td></td>
<td><strong>7–8</strong></td>
</tr>
</tbody>
</table>

**Completion of a minimum of 16 credit hours is required.**

Courses can be taken through independent study.

* These classes are offered on a rotational basis. Contact Metallurgy faculty for current and projected offerings.
MANUFACTURING: PLASTICS TECHNOLOGY

Credentials
Plastic Technology skills certificate

Major Description
The plastics technology skills certificate prepares learners for employment in the plastics industry. The curriculum is designed to help students acquire knowledge, skills and behaviors necessary to become a competent molding machine operator or technician. The program explores plastic materials, processes, equipment and tooling, troubleshooting, maintenance, quality and safety. This unique program includes a combination of lecture and lab courses, and assignments at local plastic manufacturing companies. Our instructors are very well recognized plastics industry professionals and know how to teach from the employer’s perspective.

- Protective shop clothing and eye protection supplies are required to be purchased.

Job Titles & Median Salaries or Hourly Rates
- Plastics Technicians: $14.87 - $16.81/hour or $33,620 annually

US BLS

<table>
<thead>
<tr>
<th>Plastic Technology Skills Certificate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Schoolcraft program code # CRT.00340</td>
</tr>
<tr>
<td>The plastic technology skills certificate prepares learners for employment in the plastics industry. The curriculum is designed to help the student acquire knowledge, skills and behaviors necessary for a competent molding operator or technician. The program explores plastic materials, processes, equipment and tooling, troubleshooting, maintenance, quality and safety. This unique program is taught by industry experts, and includes a combination of lecture and lab courses, and assignments at local plastic manufacturing companies.</td>
</tr>
<tr>
<td>Protective shop clothing and eye protection supplies required for the program will be purchased by the student.</td>
</tr>
<tr>
<td>All courses are not offered each semester. Students should work with an academic advisor or counselor to develop a schedule that will work for them. Students who satisfactorily complete the program requirements qualify for a certificate of program completion. All program required courses must have been completed with a grade of 2.0 or better.</td>
</tr>
</tbody>
</table>

SAMPLE SCHEDULE OF COURSES
First Year—Fall Semester
MFG 130 Introduction to Plastic Materials . . . . . . . . . . 3
MATH 102 Technical Mathematics . . . . . . . . . . . . . . . . 4
Total Credits 7

First Year—Winter Semester
MFG 131 Introduction to Plastic Processing . . . . . . . . . . 3
MFG 102 Basic Machining Processes . . . . . . . . . . . . . . . . 3
QM 107 Quality Planning and Team Building . . . . . . . . . 3
Total Credits 9

PROGRAM TOTAL 16 CREDITS

Note: For more information on financial aid eligibility, contact 734-462-4530.
WELDING TECHNOLOGY

Credentials
Welding Sculpture skills certificate .......................... 19 cr.
Fabrication certificate .............................................. 33 cr.
Joining Technology AAS degree ................................. 60–62 cr.

Major Description
Schoolcraft’s welding program provides students with both hands-on welding skills and knowledge of metallurgy and other materials. Class sizes are limited so instructors can work closely with students to provide hands-on training and relay knowledge of analytical skills required by modern industrial technology.

• The welding fabrication certificate prepares students for jobs involving metal inert gas and tungsten inert gas welding, as well as providing knowledge of plasma, arc and oxygas cutting technologies.
• Schoolcraft’s welding joining technology associate in applied science degree prepares students for a job in industrial, prototype and machine tool building, heavy equipment, construction and emerging green and sustainable technologies.
• The welding sculpture skills certificate helps professional sculptors and aspiring welders gain knowledge and skills applicable in today’s art world and welding industry.

National Median Salaries for Welding Technology Positions
• Welders: $36,300

(US BLS)

Welding: Fabrication Certificate

Schoolcraft program code # 1YC.00127

The welding fabrication program prepares students for employment under classifications such as welders and/or industrial fabricators. The program includes joining materials, using weldments, special techniques, equipment and other recognized fastening methods. Students acquire skills in the broad categories of welding and fabrication with added emphasis upon support technical subjects.

Students are required to purchase protective clothing, protective (safety) shoes and eye protection equipment.

All courses are not offered each semester. Students should work with an academic advisor or counselor to develop a schedule that will work for them. Students who satisfactorily complete the program requirements qualify for a certificate of program completion.

SAMPLE SCHEDULE OF COURSES

First Year—Fall Semester
WELD 113 Shielded Metallic Arc Welding (S.M.A.W.) .... 3
WELD 115 Gas Metallic Arc Welding (G.M.A.W./M.I.G.) .... 3
WELD 119 Gas Tungsten Inert Arc Welding
(G.T.A.W./T.I.G.) ............................................. 3

Total Credits 9

First Year—Winter Semester
Mathematics  Select any General Education
Mathematics Course ........................................... 3–4
MATH 102 Technical Mathematics (recommended)
WELD 120 Advanced Processes—Stick Electrode and M.I.G. Welding ............................................. 3
WELD 130 Advanced Processes—Gas Tungsten .......... 3
MET 102 Introduction to Materials Science ................ 3

Total Credits 12–13

First Year—Spring Session
WELD 205 Welder’s Print Reading .............................. 2
WELD 210-214** Exam Preparation—Select from the list below . 3

Total Credits 5

First Year—Summer Session
WELD 206 Welding Inspection and Qualification ........... 2
WELD 223 Fabrication ........................................... 4

Total Credits 6

PROGRAM TOTAL 32–33 CREDITS

** Exam Preparation: (Select one)
WELD 210 Preparation for Welder Certification in Shielded Metallic Arc Welding (S.M.A.W.) .... 3
WELD 211 Preparation for Welder Certification in Gas Metallic Arc Welding (G.M.A.W./M.I.G.) .... 3
WELD 212 Preparation for Welder Certification in G.T.A.W./T.I.G. ............................................. 3
WELD 214 Preparation for Welder Certification in Pipe Welding ..................................................... 3

Exams for above certificate will also be provided on an individual basis.

** Number of credits may vary depending on the General Education course selection.
Welding: Joining Technology AAS Degree

Schoolcraft program code #AAS.00082

There is an ever increasing need for persons today that possess skills, both in welding and metallurgy. Materials of industry and new technology require highly skilled persons that understand material sciences, metallurgy, and the joining processes used to produce optimum quality fabrications. The quality conscience industry of today demands certified people that can perform tasks from the simplest, to more complex technical applications. The courses selected in this program will give the student the required skills needed to perform, both hands on and analytical tasks required by modern industrial technology.

All courses are not offered each semester. Students should work with an academic advisor or counselor to develop a schedule that will work for them. Students who satisfactorily complete all college and program requirements qualify for an associate in applied science degree.

Students seeking transfer to a baccalaureate program should complete the program requirements qualify for a certificate.

SAMPLE SCHEDULE OF COURSES

First Year—Fall Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENG 100</td>
<td>Communication Skills</td>
<td>3</td>
</tr>
<tr>
<td>MET 102</td>
<td>Introduction to Materials Science</td>
<td></td>
</tr>
<tr>
<td>WELD 113</td>
<td>Shielded Metallic Arc Welding (S,M,A,W)</td>
<td>3</td>
</tr>
<tr>
<td>WELD 115</td>
<td>Gas Metallic Arc Welding (G,M,A,W,M,G.)</td>
<td>3</td>
</tr>
<tr>
<td>HUM 106</td>
<td>Introduction to Art and Music</td>
<td>1</td>
</tr>
</tbody>
</table>

Total Credits 13

First Year—Winter Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENG 106</td>
<td>Business English</td>
<td>3</td>
</tr>
<tr>
<td>Mathematics*</td>
<td>Select any General Education</td>
<td>3–4</td>
</tr>
<tr>
<td>MATH 102</td>
<td>Technical Mathematics (recommended)</td>
<td></td>
</tr>
<tr>
<td>WELD 119</td>
<td>Gas Tungsten Inert Arc Welding (G.T.A.W./T.I.G.)</td>
<td>3</td>
</tr>
<tr>
<td>WELD 120</td>
<td>Advanced Processes—Stick Electrode and M.I.G. Welding</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 12–13

First Year—Spring Session

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>WELD 205</td>
<td>Welder's Print Reading</td>
<td>2</td>
</tr>
<tr>
<td>Social Science</td>
<td>Select 1</td>
<td>3</td>
</tr>
<tr>
<td>PSYCH 153</td>
<td>Human Relations (recommended)</td>
<td></td>
</tr>
<tr>
<td>POLS 105</td>
<td>Survey of American Government</td>
<td></td>
</tr>
<tr>
<td>SOC 201</td>
<td>Principles of Sociology</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 5

First Year—Summer Session

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>WELD 206</td>
<td>Welding Inspection and Qualification</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 2

Second Year—Fall Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MFG 102</td>
<td>Basic Machining Processes</td>
<td>3</td>
</tr>
<tr>
<td>MET 114</td>
<td>Engineering Materials</td>
<td>3</td>
</tr>
<tr>
<td>MET 152</td>
<td>Structure and Properties Laboratory</td>
<td>3</td>
</tr>
<tr>
<td>WELD 130</td>
<td>Advanced Processes—Gas Tungsten</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 12

Second Year—Winter Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>WELD 118</td>
<td>Adhesive Joining Technology</td>
<td>4</td>
</tr>
<tr>
<td>WELD 262</td>
<td>Welding Metallurgy</td>
<td>3</td>
</tr>
<tr>
<td>Science*</td>
<td>Select any General Education Science</td>
<td>3–5</td>
</tr>
<tr>
<td>MET 211</td>
<td>Physical Metallurgy Structures</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 13–15

Second Year—Spring Session

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>WELD 210-214**</td>
<td>Exam Preparation— Select from the list below</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 3

Total Credits 4

PROGRAM TOTAL 64–67 CREDITS

* Number of credits may vary depending on the General Education course selection.

** Exam Preparation: (Select One)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>WELD 210</td>
<td>Preparation for Welder Certification in Shielded Metallic Arc Welding (S,M,A,W)</td>
<td>3</td>
</tr>
<tr>
<td>WELD 211</td>
<td>Preparation for Welder Certification in Gas Metallic Arc Welding (G,M,A,W,M,G.)</td>
<td>3</td>
</tr>
<tr>
<td>WELD 212</td>
<td>Preparation for Welder Certification in G.T.A.W./T.I.G.</td>
<td>3</td>
</tr>
<tr>
<td>WELD 214</td>
<td>Preparation for Welder Certification in Pipe Welding</td>
<td>3</td>
</tr>
</tbody>
</table>

Exams will also be provided on an individual basis.

Students planning to transfer should check the transfer institution's requirements/guides or discuss their options with a counselor or advisor. Number of credits may vary depending on the course selection.

Welding Sculpture Skills Certificate

Schoolcraft program code #CRT.00327

The focus of both the welding industry and sculpture is fabrication. Because sculpture requires artists to use materials, tools, and skills, it is natural for artists and the welding industry to merge. This welding sculpture skills certificate helps the professional sculptor or the aspiring welder gain the knowledge and skills needed in today's art world and welding industry.

Students learn basic and advanced skills in welding with the MIG and TIG welding processes as well as many fabrication techniques used in today's industry. They learn how to think and work creatively with these processes and how to conceptually and objectively discuss their work. New fabrication processes are explored to give the student an understanding of how alternative methods of fabrication satisfy different needs. This certificate creates an artistic option for entry into the welding fabrication certificate and the welding joining technology associate degree.

Students are required to purchase protective clothing, protective (safety) shoes and eye protection equipment.

All courses are not offered each semester. Students should work with an academic advisor or counselor to develop a schedule that will work for them. Students who satisfactorily complete the program requirements qualify for a certificate of program completion. All program required courses must have been completed with a grade of 2.0 or better.

SAMPLE SCHEDULE OF COURSES

First Year—Fall Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>WELD 112</td>
<td>Contemporary Metal Sculpture</td>
<td>3</td>
</tr>
<tr>
<td>WELD 115</td>
<td>Gas Metallic Arc Welding (G,M,A,W,M,G.)</td>
<td>3</td>
</tr>
<tr>
<td>WELD 119</td>
<td>Gas Tungsten Inert Arc Welding (G,T.A.W./T.I.G.)</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 9

First Year—Winter Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>WELD 120</td>
<td>Advanced Processes—Stick Electrode and M.I.G. Welding</td>
<td>3</td>
</tr>
<tr>
<td>WELD 130</td>
<td>Advanced Processes—Gas Tungsten</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 6

First Year—Spring Session

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>WELD 208</td>
<td>Advanced Metal Sculpture</td>
<td>4</td>
</tr>
</tbody>
</table>

Total Credits 4

PROGRAM TOTAL 19 CREDITS

** Sheldon's Print Reading

* Mathematics

# CRT.00327

### Manufacturing & Technology

Areas of Study | Schoolcraft College 2015–2016 Catalog
MANUFACTURING & TECHNOLOGY ADDITIONAL AREAS OF STUDY

**ENGINEERING**

Credentials
Associate in Engineering (AE) degree .................. 60 cr.

Major Description
This program is designed for students who intend to pursue a bachelor’s degree in engineering. It allows the student to establish a strong academic foundation in mathematics and science, complete courses to fulfill general education requirements, and enroll in engineering courses—all before moving on to a bachelor’s degree program at another college or university.

- Civil, chemical, computer systems, electrical, environmental, industrial, and mechanical engineering are among the most popular bachelor’s degrees, although there are more than 25 recognized specialties.
- Schoolcraft’s program can prepare the student for transfer into any engineering specialty.
- The specific courses required will be determined by the destination college or university and/or the student’s intended major.
- Students must work with an academic advisor or counselor to ensure that their courses transfer.

Courses are offered in the following subject areas for which there is not a certificate or degree program available. However, many of these courses can be applied toward a Schoolcraft certificate or degree in another area of study. These courses can also be taken for personal or professional interest or for transfer to a four-year college or university.

**DESIGN**

Schoolcraft offers several courses that allow students to explore various design aspects, such as descriptive geometry, geometric dimensioning and tolerancing, and tool, die and fixture design. Credits may apply toward an associate in applied science degree in computer aided design/mechanical.

**QUALITY MANAGEMENT**

With the importance of quality planning and team building for the manufacturing process, Schoolcraft offers a course in management that explores quality systems, quality planning and team building, statistical methods, Six Sigma Methods, and new programs used in process and product development validation.
Schoolcraft College offers seven different areas of study in the natural sciences that provides students with the knowledge and insight to think analytically, develop original hypotheses and make new discoveries that impact our world.

All courses are not offered each semester. Please work with an academic advisor or counselor to develop a schedule that will work for you. Students who complete all required courses can earn the associate degree or certificate noted in the following Areas of Study descriptions.

Unless otherwise specified, salary data is sourced from the Bureau of Labor Statistics (www.bls.gov), Glassdoor.com or Career Cruising, an online resource available through our Career Services office (www.schoolcraft.edu/career services). Earnings may vary based on experience, education and location.
CONTACT US

FACULTY

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  - Thomas O’Connor
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  - Michael Orick
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  - Bonnita Taylor
    - 734-462-4400 ext. 5681 | btaylor@schoolcraft.edu

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  - Cheryl Snyder
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  - Paula Schmansky
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  - Randy Schwartz
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  - Bradley Stetson
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  - Lisa Zaccone
    - 734-462-4400 ext. 5178 | lzaccone@schoolcraft.edu

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    - 734-462-4400 ext. 5242 | pholody@schoolcraft.edu
  - Christopher Wood
    - 734-462-4400 ext. 5684 | cwood@schoolcraft.edu

INSTRUCTIONAL ADMINISTRATOR

- **Environmental Studies**
  - Diane O’Connell
    - 734-462-4400 ext. 5238 | doconnel@schoolcraft.edu

- **Dean of Occupational Programs and Economic Development**
  - Robert J. Leadley
    - 734-462-4530 | rleadley@schoolcraft.edu
ENVIRONMENTAL STUDIES

Environmental Studies AAS Degree

Schoolcraft program code # AAS.00176

The environmental studies program is an interdisciplinary program that concentrates on the identification of environmental problems and the analysis of the complex interactions of human populations with the earth. The program includes discussions of technology and how it impacts the environment. Program courses incorporate the concept of sustainable development, a form of economic development that encourages economic growth while at the same time improving quality of life and preserving the environment. The capstone course is a Field Experience course where students apply classroom knowledge to a field environmental issue. Students in the environmental studies program can transfer to a four-year environmental studies or environmental science program, or complete an environmental technician certificate.

All courses are not offered each semester. Students should work with an academic advisor or counselor to develop a schedule that will work for them. Students who satisfactorily complete all college and program requirements qualify for an associate in applied science degree.

Students seeking transfer to a baccalaureate program should request transfer guides provided by the department.

SAMPLE SCHEDULE OF COURSES

First Year—Fall Semester
ENG 101 English Composition 1 .................................. 3
COMA 103 Fundamentals of Speech .................................. 3
MATH 113 Intermediate Algebra for College Students .... 4
GEOG 135 Earth Systems ............................................. 4

Total Credits 14

First Year—Winter Semester
ENG 102 English Composition 2 .................................. 3
GEOG 212 Environmental Science .................................. 3
ENVR 107 Soil Mechanics ............................................. 4
ART 115 Art History 1 .................................................. 4

Total Credits 14

Second Year—Fall Semester
POLS 105 Survey of American Government ................. 3
CIS 225 Database Management Systems .................. 3
ENVR 230 Energy Resources ....................................... 3
GEOG 225 Introduction to Geographic Information Systems—GIS ........................................ 4

Total Credits 13

Second Year—Winter Semester
CHEM 111 General Chemistry .................................... 4
GEOG 217 Water Resources ....................................... 3
ENVR 206 Environmental Law .................................... 3
GEOG 203 Weather and Climate .................................. 3
ENVR 235 Geographic Methods Applied to Environmental Problems ........................................ 3

Total Credits 16

Second Year—Spring Session
ENVR 232 Field Experience ....................................... 3

Total Credits 3

PROGRAM TOTAL 60 CREDITS

Students planning to transfer should check the transfer institution’s requirements/guides or discuss their options with a counselor or advisor. Number of credits may vary depending on the course selection.

Credentials
Environmental Science Technician certificate .................. 31 cr.
Environmental Studies AAS degree .................................. 60 cr.

Major Description
With more focus on “green” energy, technology and sustainability, Schoolcraft’s environmental studies program prepares students for entry into this fast-growing field. Through the study of the environment, related sciences, communication and geographic information systems, students can pursue either an environmental science technician certificate or an associate in applied science degree. Students can also complete a spring co-op experience in the final semester of the certificate and degree program to apply the knowledge and skills learned at Schoolcraft in a real-world situation.

National Median Salaries for Environmental Studies Positions
• Environment Science Technician: $41,240 (BLS)
Environmental Science Technician Certificate

Schoolcraft program code #1YC.00276

Environmental science technicians provide technical assistance to engineers and scientists by performing tasks such as sample collection, laboratory tests, monitoring, and data management. The environmental science technician applies scientific and technical skills and knowledge to specific tasks. Technicians have strong written and oral communication skills, computer skills, and practical hands on training in the field and laboratory. Technicians can problem solve quickly and apply their classroom knowledge to real world situations. The environmental science technician program provides students with the necessary background to be successful technicians.

Upon completion of this certificate program, it is highly recommended that students complete the 40 hour Hazardous Waste Operations and Emergency Response (Hazwoper) training from any certified location.

All courses are not offered each semester. Students should work with an academic advisor or counselor to develop a schedule that will work for them. Students who satisfactorily complete the program requirements qualify for a certificate of program completion.

SAMPLE SCHEDULE OF COURSES

<table>
<thead>
<tr>
<th>First Year—Fall Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOG 135  Earth Systems</td>
</tr>
<tr>
<td>MATH 113  Intermediate Algebra for College Students</td>
</tr>
<tr>
<td>GEOG 225  Introduction to Geographic Information Systems—GIS</td>
</tr>
<tr>
<td><strong>Total Credits 12</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>First Year—Winter Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENVR 107  Soil Mechanics</td>
</tr>
<tr>
<td>ENVR 206  Environmental Law</td>
</tr>
<tr>
<td>GEOG 212  Environmental Science</td>
</tr>
<tr>
<td>GEOG 217  Water Resources</td>
</tr>
<tr>
<td>ENVR 235  Geographic Methods Applied to</td>
</tr>
<tr>
<td>Environmental Problems</td>
</tr>
<tr>
<td><strong>Total Credits 16</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>First Year—Spring Session</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENVR 232  Environmental Field Experience</td>
</tr>
<tr>
<td><strong>Total Credits 3</strong></td>
</tr>
</tbody>
</table>

**PROGRAM TOTAL 31 CREDITS**
Courses are offered in the following subject areas for which there is not a certificate or degree program available. However, many of these courses can be applied toward a Schoolcraft certificate or degree in another area of study. These courses can also be taken for personal or professional interest or for transfer to a four-year college or university.

**BIOLOGY**
Schoolcraft offers courses in biology, conservation, health education, human anatomy, natural resources, microbiology and nutrition. Students can learn in state-of-the-art facilities at the Biomedical Technology Center on campus, including the Anatomy and Physiology Lab, the Cellular and Molecular Biology Lab and the Imaging and Analysis Lab, which houses Schoolcraft’s Scanning Electron Microscope. Students can also get valuable lab experience with DNA biotechnology equipment, protocols, field research and the use of plastinated cadavers and organs.

**CHEMISTRY**
Schoolcraft offers courses in chemistry, organic chemistry, biochemistry and food chemistry, and students learn in state-of-the-art chemistry labs, which include chemical preparation areas and balance and instrument rooms. Students also have access to lab instrumentation, including gas chromatography, infrared and UV-visible spectroscopy, and in-lab computers for experimental data acquisition.

**GEOGRAPHY**
Schoolcraft offers a variety of courses in this discipline, including environmental science, physical and world geography and geographic information systems to give students a better understanding of climates, cultures, ecology, economics and population studies. Course topics range from the study of human impact on the natural environment to the study of water resources and economic policies around the world.

**MATHEMATICS**
Students interested in mathematics will find the array of courses available at Schoolcraft covering basic math, intermediate algebra, trigonometry, statistics, pre-calculus, calculus, calculus with analytic geometry, linear algebra and differential equations.

Students can also expand their mathematics educational opportunities through a variety of activities:
- Join the Math and Physics club, which offers challenging activities and an annual competition.
- Compete for the Pythagorean Prize, which honors two top winners each year with cash prizes and recognition.
- Publish student-authored articles and research in The Right Angle.

**PHYSICS**
Schoolcraft offers courses in basic, applied, general and engineering physics, including courses that range from the introduction to astronomy to physics for scientists and engineers. In addition, through lab work and lectures students will learn about other aspects of physics, including optics, harmonics, magnetism and momentum.
Public safety is a vital part of our society, and Schoolcraft offers four areas of study to prepare students for a variety of careers in this field, ranging from police officers and security personnel to emergency medical technicians and fire fighters.

All courses are not offered each semester. Please work with an academic advisor or counselor to develop a schedule that will work for you. Students who complete all required courses can earn the associate degree or certificate noted in the following Areas of Study descriptions.

Unless otherwise specified, salary data is sourced from the Bureau of Labor Statistics (www.bls.gov), Glassdoor.com or Career Cruising, an online resource available through our Career Services office (www.schoolcraft.edu/career services). Earnings may vary based on experience, education and location.

Emergency Medical Technology/Paramedics
Please see "EMERGENCY MEDICAL TECHNOLOGY" on page 71 for more information about our emergency medical technology certificate and associate degree programs.

CONTACT US

FACULTY

Criminal Justice
John Courie
734-462-4400 ext. 5654 | jcourie@schoolcraft.edu

Fire Technology
734-462-4400 ext. 5237

Homeland Security
Contact the Associate Dean of Public Safety Programs

INSTRUCTIONAL ADMINISTRATOR

Robert J. Leadley
Dean of Occupational Programs and Economic Development
734-462-4530 | rleadley@schoolcraft.edu

Gerald M. Champagne
Associate Dean of Public Safety Programs
734-462-4302 | gchampag@schoolcraft.edu
Criminal Justice AAS Degree

The criminal justice system is a complex system of thousands of federal, state, and local agencies interconnected by the individuals that work in this field. Employment at any level in criminal justice requires an understanding of the sociological, psychological, biological, and environmental factors that may influence deviant or criminal behavior. Employees of the criminal justice system use developed skills to investigate human behaviors and take the appropriate measures to ensure the safety of society. The criminal justice associate in applied science degree program objectives assists existing employees of the criminal justice system and prepares students for full employment in this field.

All courses are not offered each semester. Students should work with an academic advisor or counselor to develop a schedule that will work for them. Students who satisfactorily complete all college and program requirements qualify for an associate in applied science degree.

SAMPLE SCHEDULE OF COURSES

First Year—Fall Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CJ 113</td>
<td>Introduction to Criminal Justice System</td>
<td>3</td>
</tr>
<tr>
<td>CJ 102</td>
<td>Organization and Administration of Law</td>
<td>3</td>
</tr>
<tr>
<td>EN 101</td>
<td>English Composition 1</td>
<td>3</td>
</tr>
<tr>
<td>POLS 105</td>
<td>Survey of American Government</td>
<td>3</td>
</tr>
<tr>
<td>COMA 103</td>
<td>Fundamentals of Speech</td>
<td>3</td>
</tr>
<tr>
<td>ENG 101</td>
<td>English Composition 2</td>
<td>3</td>
</tr>
</tbody>
</table>

First Year—Winter Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HUM 106</td>
<td>Introduction to Art and Music</td>
<td>1</td>
</tr>
<tr>
<td>COR 110</td>
<td>Introduction to Corrections</td>
<td>3</td>
</tr>
<tr>
<td>CJ 104</td>
<td>Introduction to Security</td>
<td>3</td>
</tr>
<tr>
<td>PSYCH 153</td>
<td>Human Relations</td>
<td>3</td>
</tr>
<tr>
<td>EN 116</td>
<td>Technical Writing</td>
<td>3</td>
</tr>
<tr>
<td>ENG 102</td>
<td>English Composition 2</td>
<td>3</td>
</tr>
<tr>
<td>CJ 107</td>
<td>Police Field Operations</td>
<td>3</td>
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</tbody>
</table>

Second Year—Fall Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CJ 209</td>
<td>Basic Criminalistics</td>
<td>3</td>
</tr>
<tr>
<td>CJ 211</td>
<td>Criminal Law and Procedure</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 103</td>
<td>Health Education</td>
<td>3</td>
</tr>
<tr>
<td>CIS 105*</td>
<td>Computer Orientation</td>
<td>1</td>
</tr>
<tr>
<td>MATH 101</td>
<td>Business Mathematics</td>
<td>3</td>
</tr>
<tr>
<td>Elective**</td>
<td></td>
<td>3</td>
</tr>
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</table>

Second Year—Winter Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CJ 201</td>
<td>Criminal Investigation</td>
<td>3</td>
</tr>
<tr>
<td>CJ 212</td>
<td>Criminology</td>
<td>3</td>
</tr>
<tr>
<td>CJ 221</td>
<td>Juvenile Justice</td>
<td>3</td>
</tr>
<tr>
<td>SOC 201</td>
<td>Principles of Sociology</td>
<td>3</td>
</tr>
<tr>
<td>CIS 115</td>
<td>Introduction to Computer Based Systems</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 15

*CIS 105 may be waived if student has successfully completed a high school computer course or equivalent within the past five years.

**Any 100- or 200-level course not previously taken.

Students planning to transfer should check the transfer institution’s requirements/guides or discuss their options with a counselor or advisor. Number of credits may vary depending on the course selection.

For more information about certification please contact:
Michigan Commission on Law Enforcement Standards (MCOLES)
106 W. Allegan Street, Suite #600,
Lansing, MI 48933
517-322-1417
www.michigan.gov/mcoles

Public Safety
Schoolcraft program code # AAS.00086

In this program, the criminal justice courses are restricted to students who are officially admitted to this program.

The criminal justice system is a highly specialized field. Law enforcement officers are employed by 40,000 local police agencies nationwide as well as county sheriffs’ departments. Law enforcement officers must be prepared to interact with the public in a position of responsibility and authority.

Knowledge of the criminal justice system, including criminal law, police field operations, criminal investigation, and human relations enhances the professionalism of the criminal justice system.

Candidates for employment as law enforcement officers must be certified by the Michigan Commission on Law Enforcement Standards (MCOLES). After completing the Police Academy (CJ 287), students may become certifiable by passing the MCOLES Certification Exam. Certification is valid for one year. Pre-service students, who are not employed by a law enforcement agency, must complete 41 credit hours of course work for the associate degree before taking CJ 287.

All courses are not offered each semester. Students should work with an academic advisor or counselor to develop a schedule that will work for them. Students who satisfactorily complete all college and program requirements qualify for an associate in applied science degree.

Becoming a law enforcement officer requires candidates to meet certain psychological and physical requirements. Please review “Employment Standards for Michigan Law Enforcement Officers” available at www.michigan.gov/mcoles prior to beginning this area of study.

### SAMPLE SCHEDULE OF COURSES

#### First Year—Fall Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CJ 102</td>
<td>Organization and Administration of Law Enforcement Agencies</td>
<td>3</td>
</tr>
<tr>
<td>POLS 105</td>
<td>Survey of American Government</td>
<td>3</td>
</tr>
<tr>
<td>COMA 103</td>
<td>Fundamentals of Speech</td>
<td>3</td>
</tr>
<tr>
<td>EN 101</td>
<td>English Composition 1</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 103</td>
<td>Health Education</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total Credits</strong></td>
<td></td>
<td><strong>15</strong></td>
</tr>
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</table>

#### First Year—Winter Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>COR 110</td>
<td>Introduction to Corrections</td>
<td>3</td>
</tr>
<tr>
<td>CJ 211</td>
<td>Criminal Law and Procedure</td>
<td>3</td>
</tr>
<tr>
<td>PSYCH 153</td>
<td>Human Relations</td>
<td>3</td>
</tr>
<tr>
<td>English</td>
<td>Select 1</td>
<td>3</td>
</tr>
<tr>
<td>ENG 116</td>
<td>Technical Writing</td>
<td>3</td>
</tr>
<tr>
<td>ENG 120</td>
<td>English Composition 2</td>
<td>3</td>
</tr>
<tr>
<td>CIS 105*</td>
<td>Computer Orientation</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total Credits</strong></td>
<td></td>
<td><strong>13</strong></td>
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</tbody>
</table>

#### Second Year—Fall Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 101</td>
<td>Business Mathematics</td>
<td>3</td>
</tr>
<tr>
<td>CJ 209</td>
<td>Basic Criminalistics</td>
<td>3</td>
</tr>
<tr>
<td>CJ 212</td>
<td>Criminology</td>
<td>3</td>
</tr>
<tr>
<td>CJ 221</td>
<td>Juvenile Justice</td>
<td>3</td>
</tr>
<tr>
<td>SOC 201</td>
<td>Principles of Sociology</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total Credits</strong></td>
<td></td>
<td><strong>15</strong></td>
</tr>
</tbody>
</table>

#### Second Year—Winter Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CJ 287**</td>
<td>Police Academy</td>
<td>21</td>
</tr>
<tr>
<td><strong>Total Credits</strong></td>
<td></td>
<td><strong>21</strong></td>
</tr>
</tbody>
</table>

### PROGRAM TOTAL 64 CREDITS

* CIS 105 may be waived if student has successfully completed a high school computer course or equivalent within the past five years.

** CJ 287 requires a special admissions process. Contact the Public Safety Education office at 734-462-4306 for application requirements.

Students planning to transfer should check the transfer institution’s requirements/guides or discuss their options with a counselor or advisor. Number of credits may vary depending on the course selection.
FIRE TECHNOLOGY

Fire Technology AAS Degree

Recognizing the need for more highly skilled fire fighters, many municipalities now require additional education for their employees. The curriculum developed for the associate in applied science degree program combines lecture with hands-on activities to prepare the student to respond to a variety of emergencies. Specialists in the field provide valuable input on both content and methodology.

The fire technology associate degree program is designed for students who wish to attend part time. All courses are not offered each semester. Students should work with an academic advisor or counselor to develop a schedule that will work for them. Students who satisfactorily complete all college and program requirements qualify for an associate in applied science degree.

Contact the Fire Technology office at 734-462-4305 for additional information.

SAMPLE SCHEDULE OF COURSES

First Year—Fall Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>FIRE 112</td>
<td>Fire Fighter 1—Basic Fire Suppression</td>
<td>10</td>
</tr>
<tr>
<td>ENG 100</td>
<td>Communication Skills</td>
<td>3</td>
</tr>
<tr>
<td>MATH 101</td>
<td>Business Mathematics</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 16

First Year—Winter Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>FIRE 119</td>
<td>Fire Fighter 2—Advanced Fire Suppression</td>
<td>10</td>
</tr>
<tr>
<td>BIOL 101</td>
<td>General Biology</td>
<td>4</td>
</tr>
<tr>
<td>PE 202</td>
<td>Lifestyle Fitness—Wellness</td>
<td>2</td>
</tr>
</tbody>
</table>

Total Credits 16

First Year—Spring/Summer Session

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>FIRE 125</td>
<td>Building Construction for the Fire Service</td>
<td>3</td>
</tr>
<tr>
<td>HUM 106</td>
<td>Introduction to Art and Music</td>
<td>1</td>
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</tbody>
</table>

Total Credits 4

Second Year—Fall Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENG 116</td>
<td>Technical Writing</td>
<td>3</td>
</tr>
<tr>
<td>EMT 115</td>
<td>Emergency Medical Technology—Basic</td>
<td>10</td>
</tr>
<tr>
<td>FIRE 130</td>
<td>Fire Fighting—Tactics and Strategy</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 16

Second Year—Winter Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>FIRE 128</td>
<td>Fire Fighting—Hydraulics and Water Supply</td>
<td>4</td>
</tr>
<tr>
<td>PSYCH 153</td>
<td>Human Relations</td>
<td>3</td>
</tr>
<tr>
<td>FIRE 200</td>
<td>Fire and Arson Investigation</td>
<td>4</td>
</tr>
<tr>
<td>Elective</td>
<td>Select from the list below</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 14

PROGRAM TOTAL 66 CREDITS

Students planning to transfer should check the transfer institution’s requirements/guides or discuss their options with a counselor or advisor. Number of credits may vary depending on the course selection.

Electives

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>FIRE 135</td>
<td>Fire Protection Systems</td>
<td>3</td>
</tr>
<tr>
<td>FIRE 205</td>
<td>Fire Department Organization and Administration</td>
<td>3</td>
</tr>
<tr>
<td>FIRE 207</td>
<td>Fire Company Officer</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 236</td>
<td>Human Anatomy and Physiology</td>
<td>5</td>
</tr>
</tbody>
</table>

Total Credits 14

The Fire Technology Fire Fighter 1, 2 and fire academy programs are certified by the Michigan Office of Fire Fighter Training. For more information regarding certification please contact:

Bureau of Fire Services/OFFT
PO Box 30700
Lansing, MI 48909
616-447-2689
www.michigan.gov

National Median Salaries for Fire Technology Positions

- Firefighter: $45,250 (US BLS)

Programs are certified by the Michigan Office of Fire Fighter Training. For more information regarding certification please contact:

Bureau of Fire Services/OFFT
PO Box 30700
Lansing, MI 48909
616-447-2689
www.michigan.gov

Public Safety
The fire technology associate degree with academy is designed for students who wish to attend full time. All courses are not offered each semester. Students should work with an academic advisor or counselor to develop a schedule that will work for them. Students who satisfactorily complete all college and program requirements qualify for an associate in applied science degree.

Contact the Fire Technology office at 734-462-4305 for additional information.

**SAMPLE SCHEDULE OF COURSES**

<table>
<thead>
<tr>
<th>First Year—Fall Semester</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>FIRE 124 Fire Academy</td>
<td>20</td>
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</table>

**Total Credits 20**

<table>
<thead>
<tr>
<th>First Year—Winter Semester</th>
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</thead>
<tbody>
<tr>
<td>ENG 100 Communication Skills</td>
<td>3</td>
</tr>
<tr>
<td>MATH 101 Business Mathematics</td>
<td>3</td>
</tr>
<tr>
<td>FIRE 200 Fire and Arson Investigation</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 101 General Biology</td>
<td>4</td>
</tr>
</tbody>
</table>

**Total Credits 14**

The Fire Technology Fire Fighter 1, 2 and fire academy programs are certified by the Michigan Office of Fire Fighter Training. For more information regarding certification please contact: Bureau of Fire Services/FFFT PO Box 30700 Lansing, MI 48909 616-447-2689 www.michigan.gov

## Fire Technology AAS Degree with Academy

<table>
<thead>
<tr>
<th>First Year—Spring/Summer Session</th>
<th></th>
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</thead>
<tbody>
<tr>
<td>FIRE 125 Building Construction for the Fire Service</td>
<td>3</td>
</tr>
<tr>
<td>HUM 106 Introduction to Art and Music</td>
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</table>

**Total Credits 4**

<table>
<thead>
<tr>
<th>Second Year—Fall Semester</th>
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</thead>
<tbody>
<tr>
<td>ENG 116 Technical Writing</td>
<td>3</td>
</tr>
<tr>
<td>EMT 115 Emergency Medical Technology—Basic</td>
<td>10</td>
</tr>
<tr>
<td>FIRE 130 Fire Fighting—Tactics and Strategy</td>
<td>3</td>
</tr>
</tbody>
</table>

**Total Credits 16**

<table>
<thead>
<tr>
<th>Second Year—Winter Semester</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>FIRE 128 Fire Fighting—Hydraulics and Water Supply</td>
<td>4</td>
</tr>
<tr>
<td>PSYCH 153 Human Relations</td>
<td>3</td>
</tr>
<tr>
<td>PE 202 Lifestyle Fitness—Wellness</td>
<td>2</td>
</tr>
<tr>
<td>Elective</td>
<td>3</td>
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</table>

**Total Credits 12**

**PROGRAM 66 CREDITS**

## Fire Fighter Technology Certificate

<table>
<thead>
<tr>
<th>First Year—Fall Semester</th>
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</thead>
<tbody>
<tr>
<td>FIRE 124 Fire Academy</td>
<td>20</td>
</tr>
</tbody>
</table>

**Total Credits 10**

<table>
<thead>
<tr>
<th>First Year—Winter Semester</th>
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</tr>
</thead>
<tbody>
<tr>
<td>EMT 115 Emergency Medical Technology—Basic</td>
<td>10</td>
</tr>
</tbody>
</table>

**Total Credits 10**

The Fire Technology Fire Fighter 1, 2 and fire academy programs are certified by the Michigan Office of Fire Fighter Training. For more information regarding certification please contact: Bureau of Fire Services/FFFT PO Box 30700 Lansing, MI 48909 616-447-2689 www.michigan.gov

**PROGRAM TOTAL 30 CREDITS**
## Homeland Security

### Homeland Security AAS Degree

<table>
<thead>
<tr>
<th>Schoolcraft program code # AAS.00252</th>
</tr>
</thead>
<tbody>
<tr>
<td>Since September 11, 2001, the security industry has expanded rapidly. The United States Department of Homeland Security employs more than 180,000 individuals. Coupled with that, the private security industry employs nearly 1.5 million security personnel. The homeland security degree program is focused on providing students with a foundation of private and homeland security knowledge to build upon as a transfer to a specialty degree. The objectives of the homeland security associate degree program are to upgrade personnel employed in the security industry and to prepare students for full-time employment in this field. All courses are not offered each semester. Students should work with an academic advisor or counselor to develop a schedule that will work for them. Students who satisfactorily complete all college and program requirements qualify for an associate in applied science degree. Contact the Public Safety Education office at 734-462-4747 for more information.</td>
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<table>
<thead>
<tr>
<th>Sample Schedule of Courses</th>
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<tbody>
<tr>
<td><strong>First Year—Fall Semester</strong></td>
</tr>
<tr>
<td>CJ 102</td>
</tr>
<tr>
<td>HS 101</td>
</tr>
<tr>
<td>ENGL 101</td>
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<tr>
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<tr>
<td>POLS 105</td>
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<tr>
<td>PSYCH 153</td>
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<tr>
<td><strong>Total Credits</strong> 15</td>
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<tr>
<td><strong>First Year—Winter Semester</strong></td>
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<tr>
<td>MATH 101</td>
</tr>
<tr>
<td>English</td>
</tr>
<tr>
<td>ENG 116</td>
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<tr>
<td>HS 102</td>
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<tr>
<td><strong>Total Credits</strong> 15</td>
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<tr>
<td><strong>Second Year—Fall Semester</strong></td>
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<tr>
<td>BIOL 103</td>
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<td>CJ 201</td>
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<tr>
<td>HS 103</td>
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<tr>
<td>HS 202</td>
</tr>
<tr>
<td>SOC 201</td>
</tr>
<tr>
<td><strong>Total Credits</strong> 15</td>
</tr>
<tr>
<td><strong>Second Year—Winter Semester</strong></td>
</tr>
<tr>
<td>CIS 115</td>
</tr>
<tr>
<td>CJ 211</td>
</tr>
<tr>
<td>HS 201</td>
</tr>
<tr>
<td>HS 203</td>
</tr>
<tr>
<td>Humanities</td>
</tr>
<tr>
<td>Any 100 or 200 Foreign Language course (recommended)</td>
</tr>
<tr>
<td><strong>Total Credits</strong> 16</td>
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**Program Total** 62 Credits

Students planning to transfer should check the transfer institution’s requirements/guides or discuss their options with a counselor or advisor. Number of credits may vary depending on the course selection.
SOCIAL SCIENCES

Courses dealing with various aspects of the social sciences help students learn more about society and the way humans interact with each other and provide a solid foundation for a wide variety of careers, including social work, business management, forensics, law, psychology and education. Through student clubs and activities, service learning, internships and class projects, Schoolcraft students also get the opportunity to apply their classroom learning in the real world.

All courses are not offered each semester. Please work with an academic advisor or counselor to develop a schedule that will work for you.

AREAS OF STUDY

- Anthropology courses (ANTH) ................. 112, 117
- Political Science courses (POLS) ............... 112, 171
- Psychology courses (PSYCH) .................... 112, 172
- Sociology courses (SOC) ......................... 112, 173

CONTACT US

FACULTY

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Charles R. Hayes
Associate Dean of Sciences
734-462-4400 ext. 5650 | chayes@schoolcraft.edu
Courses are offered in the following subject areas for which there is not a certificate or degree program available. However, many of these courses can be applied toward a Schoolcraft certificate or degree in another area of study. These courses can also be taken for personal or professional interest or for transfer to a four-year college or university.

### ANTHROPOLOGY

Anthropology courses provide students with an understanding of other cultures and an opportunity to study human-kind around the world and throughout the ages. Schoolcraft offers courses in archaeology, world religions, Native American traditions, linguistics, cultural diversity and prehistoric cultures that could lead to careers as a crime scene investigator, teacher, museum curator or archaeologist. In addition, students can:

- Participate in lab work that includes working directly with skeletal material, fossil casts and stone tool replicas.
- Get involved with campus events like the Multicultural Fair and Global Roundtables.

### POLITICAL SCIENCE

Courses in political science help students understand the fundamentals of American government on the local, state and federal levels, comparative government, the role of political parties and international relations. Students explore current political events as an important component of the coursework and can take the Honors Political Science course that offers firsthand experience with political projects. Many political science majors work for elected officials or have careers as community organizers, lobbyists, non-profit leaders, pollsters, professors and attorneys.

### PSYCHOLOGY

Studying psychology offers insight into the fascinating area of human behavior and provides a better understanding of why people act and think like they do. Schoolcraft offers courses in human relations, general psychology, child psychology, psychology of aging and the psychology of adjusting to the personal and social environment. Students also have the opportunity to get involved in on campus events and activities focused on raising awareness of mental health issues and promoting awareness of mental health resources and services.

Psychologists apply this insight to their work in fields as diverse as education, nursing, medicine, law, advertising, public relations and communications.

### SOCIOLOGY

The basis of sociology is about understanding and helping people and communities. Schoolcraft offers a variety of courses in this discipline, including the principles of sociology, social problems, marriage and family, cultural diversity, urban sociology and the individual that give students insight into what rules govern our behavior in group situations. These courses help students understand economic, social, political and religious customs as well as societal issues like racism, sexism and crime.

Students can also get hands-on experience by getting involved with campus events and organization as part of their coursework, or by engaging in service-learning and social work job shadowing. Courses in sociology can help prepare students for careers in social work, criminal justice, child welfare, international relations, healthcare or gerontology.
LEARNING SUPPORT

Students need a specific set of skills to succeed in a college class, and learning support courses can teach those skills and provide the tools needed to be successful college students. Learning support services first assesses a student’s readiness for college-level work, then uses that assessment to direct them to courses that are most likely to improve their ability to succeed, whether it is a Learning Support course or a Foundation course.

All courses are not offered each semester. Please work with an academic advisor or counselor to develop a schedule that will work for you.

AREAS OF STUDY

- College and Beyond courses (CAB) ..................... 123
- Collegiate Skills courses (COLLS) ..................... 136–137
- Human Development Services course (HDS) ........ 149
- Learning Resources course (LR) ......................... 154

CONTACT US

INSTRUCTIONAL ADMINISTRATOR
Deborah B. Daiek
Dean of Education Programs and Learning Support
734-462-4555 | ddaiek@schoolcraft.edu

COLLEGE AND BEYOND

A CAB course is required for most new students.
- Teaches students college terminology and keys to success in the college classroom.
- Helps students discover their personal learning style.
- Teaches techniques for time management, effective studying, and critical thinking.
- CAB courses award college credit.

HUMAN DEVELOPMENT SERVICES

The HDS 110 course focuses on career decision making.
- Students use self-assessment instruments to explore their interests and occupational choices.
- Students gain personal awareness, career awareness and information on how to create a career plan.
- This course awards college credit.

COLLEGIATE SKILLS

These courses help students develop college-level reading, vocabulary, and learning skills.
- Critical reading, reading comprehension, critical thinking, and learning techniques are emphasized.
- Electronic portfolio course enables students to create a digital portfolio that captures their skills and knowledge.
- The applied learning theory for nursing majors course prepares nursing students for the Test of Essential Academic Skills (TEAS) exam.
- COLLS courses with a course number under 100 do not award college credit; COLLS courses numbered 100 and higher do award college credit.

LEARNING RESOURCES

The LR 135 course focuses on digital literacy.
- Students learn how to locate and critically evaluate digital information necessary for the completion of academic assignments.
- This course awards college credit.
Courses

Course Formats

Schoolcraft College provides students a variety of choices for earning credit. In addition to traditional in-class instruction, students can register for online courses, Open Entry/Open Exit courses or hybrid courses. Independent learning is another option. Most courses are offered in a seven-, twelve- or 15-week format with some courses starting later in a semester.

Online Courses
734-462-4532 dl@schoolcraft.edu www.schoolcraft.edu/online

Students can take an online course when and where it is convenient for them and still have opportunities to interact with an instructor and other students. Online learning may be appropriate for students who are independent learners, highly self-motivated and interested in accelerating their course of study. Since the coursework can be completed any time of the day or night, it is ideal for those who are unable to attend on-campus classes. These classes expand learning opportunities while allowing students to balance educational demands with work and family. Students are expected to keep up with weekly assignments and participate in online discussions.

Online courses are offered through the Internet; some may require a proctored exam. Refer to www.schoolcraft.edu/sysreq for system hardware and software requirements.

You may be able to earn your entire associate degree online or select from an array of individual online courses in numerous academic disciplines.

Hybrid Courses
734-462-4525 hybrid@schoolcraft.edu www.schoolcraft.edu/hybrid

Hybrid courses combine some in-class instruction with flexible online learning. Students attend classes on campus for presentations, laboratory work and discussions, while reading assignments, research, and some projects are completed online. Students benefit from the flexibility of online delivery along with the personal interactions of a classroom setting.

On-campus classroom sessions for each semester are found at www.schoolcraft.edu/hybrid. Refer to www.schoolcraft.edu/sysreq for system hardware and software requirements.

Open Entry/Open Exit Courses
734-462-4588 oeoe@schoolcraft.edu www.schoolcraft.edu/oeoe

Open Entry/Open Exit (OE/OE) courses provide an alternative to traditional classroom learning. OE/OE students have greater control over their learning schedules and can complete a course in several weeks, a month or a semester. Students do not attend regular classes or lectures. Students can complete these self-paced courses at home, in the college’s computer labs, or in the OE/OE lab where instructors are available for help during posted hours. OE/OE learning may be appropriate for students who are independent learners, highly self-motivated and interested in accelerating their course of study.

All students registering for the OE/OE program must attend a mandatory on-campus orientation with their instructor before beginning coursework. During orientation students will be provided information regarding course requirements, important dates, and how coursework is to be submitted. Orientation information for each semester can be found online.

Students may register for OE/OE classes up to the seventh week of the fall and winter semesters. Spring and Summer courses are offered in a seven- or twelve-week format. All coursework must be completed by semester's end.

OE/OE courses are offered through the Internet; however, at least one on-campus assessment is required. Refer to www.schoolcraft.edu/sysreq for system hardware and software requirements.

Independent Learning

Schoolcraft College provides students an opportunity to earn credit for certain courses through independent study. Students are expected to master the competencies the course requires. Students work independently under the direction of the assigned faculty member and are expected to meet with the faculty member at designated times during the semester. Contact the appropriate instructional administrator for more information. Students must obtain approval from an instructor and administrator to take an independent learning course.

Foundation Courses

Some students need to build up their academic skills in order to be ready for college-level courses. Schoolcraft serves these students by offering foundation courses.

• For new students, courses are recommended to them by their academic advisor or counselor based on the student's ACT score or, if a recent ACT score is not available, the student's score on a placement test administered by the college.
• The ACT or placement test score might prompt the counselor to recommend one or more foundation courses to the student.
• Foundation courses can be identified by their course number, which is always less than 100 (BIOL 050 Basic Biology, ENG 050 Modern English Grammar, PHYS 051 Basic Physics, etc.).
• This numbering distinguishes foundation courses from freshman courses numbered in the 100s and sophomore courses numbered in the 200s.
• The purpose of a foundation course is to get the student ready to succeed in 100- and 200-level courses. By completing 100- and 200-level courses, students can make progress toward earning a degree or certificate, transferring to another college, or achieving some other educational goal.
### COURSES
Schoolcraft College 2015–2016 Catalog | Courses

**Courses are numbered as follows:**

1. Courses numbered from 001 to 099 are foundation or pre-college courses that may not be transferable and do not apply toward an associate degree.
2. Courses numbered from 100 to 199 are primarily freshman-level courses.
3. Courses numbered 200 to 299 are primarily sophomore-level courses.
4. Final exams and/or final assessments are required in all credit courses.
5. Many courses have a prerequisite skill or lower level course necessary to complete before attempting more complex material. For maximum success, complete prerequisites before taking the actual course.
6. Some courses also list a corequisite course that should be taken in the same semester.

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**Course offerings are subject to change. See www.schoolcraft.edu for updates.**

In this course, students will learn to provide a smooth and flowing full body therapeutic massage. Adaptations and modifications of massage for diverse client populations will be examined and practiced. Specialty techniques such as myofascial release and reflexology will be used to build upon the primary massage strokes taught in the foundational course.

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#### Sample Course Listing:

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<thead>
<tr>
<th>Department</th>
<th>Course Number</th>
<th>Credit Hours</th>
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</thead>
<tbody>
<tr>
<td>Design</td>
<td>DSGN</td>
<td>138</td>
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<tr>
<td>Economics</td>
<td>ECON</td>
<td>138</td>
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<tr>
<td>Education</td>
<td>EDUC</td>
<td>138–139</td>
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<tr>
<td>Electronic Technology</td>
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<td>Emergency Medical Technology</td>
<td>EMT</td>
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<tr>
<td>Engineering</td>
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<td>English</td>
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<td>English as a Second Language</td>
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<td>Environmental Studies</td>
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<td>Fire Technology</td>
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<td>French</td>
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<tr>
<td>Massage Therapy</td>
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#### Department Page

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#### Department Page

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<td>COURSES</td>
<td>Schoolcraft College 2015–2016 Catalog</td>
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</table>
| **ACCT 103** | **Introduction to Accounting (4-0) 4 Cr. Hrs.**  
**Prerequisite:** None.  
In this course you will learn about the basic accounting cycle for a sole proprietor in the service or merchandising industry. You will account for cash, sales, purchases, payroll and payroll taxes. |
| **ACCT 138** | **Income Tax Preparation (2-0) 2 Cr. Hrs.**  
**Prerequisite:** None.  
This is an introductory course in Federal and Michigan individual income tax laws and return preparation. Special emphasis will be given to Federal Tax Form 1040 with accompanying Schedule A (itemized deductions). In addition, the course will include preparation of Michigan Tax Form MI-1040 and City of Detroit returns. |
| **ACCT 139** | **Michigan Taxes (2-0) 2 Cr. Hrs.**  
**Prerequisite:** None.  
This is an introductory course in Michigan personal and business taxes. In addition, the individual income taxes of several Michigan cities will be covered. The course provides both non-accounting and accounting majors with knowledge of the Michigan tax structure. Special emphasis will be on regulations and tax requirements for income taxes, sales and use taxes, unemployment taxes, business tax and real and personal property taxes. Students will prepare tax returns while reviewing tax planning strategies. |
| **ACCT 201** | **Principles of Accounting 1 (4-0) 4 Cr. Hrs.**  
**Prerequisite:** None.  
In this course, you will learn the principles of accounting with emphasis on the accounting cycle for a sole proprietorship in the service and merchandising business. You will apply internal controls to an accounting system, account for cash, accounts receivable, bad debts, inventories, long lived assets, current liabilities and payroll. In addition, you will demonstrate how to account for partnerships. This course will integrate a Web-based learning system which requires the use of a computer to complete some of the learning activities and assessments. This course MAY also include the use of Excel. |
| **ACCT 202** | **Principles of Accounting 2 (4-0) 4 Cr. Hrs.**  
**Prerequisite:** ACCT 201.  
This course is a continuation of Accounting 201 expanding your exposure to accounting principles, financial statements, methods and applications. In this course you will focus on accounting for corporations, stockholder’s equity, liabilities and investments. You will prepare the statement of cash flows. You will analyze and interpret financial statements and other accounting information used in making decisions. You will also explore managerial accounting and its applications in planning and controlling costs. This course will integrate a Web-based learning system which requires the use of a computer to complete some of the learning activities and assessments. This course MAY also include the use of Excel. |
| **ACCT 205** | **Accounting Internship (1-12/40) 3 Cr. Hrs.**  
**Prerequisite:** ACCT 201 with a minimum grade of 3.0 and consent of department and an overall GPA of 2.5.  
This is an applied course within Occupational Programs specializing in the field of accounting and is a cooperative assignment for students who have completed the prerequisites for this course. Employment will be approximately 12 to 40 hours per week off-campus at the employer's location within an accounting department. The final grade will be based on a joint evaluation by the college and the employer. Students registered in this internship course are considered Schoolcraft College students with all rights, responsibilities and privileges of a student. Internships may be paid or unpaid based upon placement. Department permission is required before registering for this course. The selection of eligible students to register for the course is a competitive process that includes testing, submission of a resume with a cover letter and interviews. |
| **ACCT 221** | **Intermediate Accounting 1 (4-0) 4 Cr. Hrs.**  
**Prerequisite:** ACCT 202.  
This course further explores these accounting principles used by publicly traded companies, including the methods used to measure and report the financial transactions of corporations. The course focuses on the valuation of assets, such as cash and receivables, investments, inventory and operational assets, but will also include preparation of financial statements, review of financial disclosures and measurement of income and time value of money concepts. |
| **ACCT 222** | **Intermediate Accounting 2 (4-0) 4 Cr. Hrs.**  
**Prerequisite:** ACCT 202 required.  
In this course you will learn the current accounting methods for liabilities, bond amortization, leases, pensions, income taxes, shareholders' equity and stock based compensation. You will prepare the statement of cash flows and statement of shareholders' equity. In addition, you will learn to allocate income tax expense and compute earnings per share information. |
| **ACCT 226** | **Cost Accounting (4-0) 4 Cr. Hrs.**  
**Prerequisite:** ACCT 202 and CIS 180. ACCT 260 recommended.  
Concepts of cost accounting as a management tool for control and planning will be introduced. Actual and standard cost methods as applied to job and process cost systems; accounting for materials, labor and manufacturing overhead; direct costing method; and cost accounting projects will be covered. |
| **ACCT 238** | **Federal Tax Accounting (4-0) 4 Cr. Hrs.**  
**Prerequisite:** ACCT 201 recommended by accounting faculty.  
Federal income tax laws with emphasis on the regulations that relate to individuals and small business including state and local tax implications will be addressed. Preparation of tax forms and introduction to tax research are also addressed in this course. |
ACCT 260  Computerized Accounting Using Sage 50 Complete Accounting (3-0) 3 Cr. Hrs.  
*Prerequisite:* ACCT 201. 
In this course, you will gain hands on experience in setting up an accounting information system for a service, merchandising and manufacturing business using Sage 50 Complete Accounting software (formerly Peachtree). This course will apply the financial accounting concepts learned in your previous courses using Sage 50 Complete Accounting software. Using the software you will create vendor, customer and employee accounts, record transactions in special purpose journals and the general ledger, create invoices, process payroll, create and print reports and perform bank reconciliations.

ACCT 262  Payroll Accounting (3-0) 3 Cr. Hrs.  
*Prerequisite:* ACCT 201 and CIS 120 or knowledge of Excel and Word. 
In this course you will gain first-hand experience in calculating payroll, completing payroll taxes, and preparing payroll records and reports. You will cover the various phases of the Social Security Taxes, Federal Income Taxes, State Income Taxes and Unemployment Compensation Insurance. You will complete a manual and computerized payroll simulation.

ACCT 263  Computerized Accounting Using QuickBooks (3-0) 3 Cr. Hrs.  
*Prerequisite:* ACCT 103 or ACCT 201 and CIS 120.  
The student will complete a comprehensive computerized software package for a small business company. This package shall include setting up a company, entering transactions which include accounts receivables, sales accounts payable, purchases, cash receipts and cash disbursements. The student will prepare bank reconciliations and financial statements. The student will generate payroll entries and print payroll tax returns and payroll reports. Outside lab time is required.  

ANTH 117  Introduction to Archaeology (3-0) 3 Cr. Hrs.  
*Prerequisite:* None.  
This course is a general survey of archaeology and includes an overview of the history of the field and the basic theories and methods employed in the study of archaeological cultures. Cultures from around the world are used as examples.

ANTH 201  Cultural Anthropology (3-0) 3 Cr. Hrs.  
*Prerequisite:* None.  
A comparison of the ways of life for societies worldwide using anthropological theory and methods is provided in this course. Basic institutions of human society such as kinship, religion, law, politics and economics are examined to provide a better understanding of the diversity of contemporary societies. Course focuses on non-Western societies.

ANTH 211  Myth, Magic, World Religions (3-0) 3 Cr. Hrs.  
*Prerequisite:* ANTH 112 or ANTH 201 recommended.  
This course will take an anthropological perspective to the study of religions which will include indigenous religions and religions that originated in Asia, India and the Middle East. The role of contemporary religious movements in a rapidly changing world will be examined.

ANTH 214  Native American Traditions (3-0) 3 Cr. Hrs.  
*Prerequisite:* ANTH 112 or ANTH 201 recommended.  
This course provides a survey of Native American cultures from both Native and non-Native perspectives. Social, economic, religious and artistic traditions will be examined. Course content includes a review of prehistoric origins as well as an evaluation of the effects of centuries of contact with people from Europe, Africa and Asia.

### ARABIC

ARB 101  Elementary Arabic 1 (4-0) 4 Cr. Hrs.  
*Prerequisite:* None.  
This course is intended for students who have no previous education in Arabic. The course will cover basic grammar patterns and build competence in all four skill areas: speaking, listening, reading and writing. Through activities, emphasis will be placed on oral proficiency and communication. An appreciation of the cultures of the Middle East will be an integral part of the course.

ARB 102  Elementary Arabic 2 (4-0) 4 Cr. Hrs.  
*Prerequisite:* ARB 101 with a grade of 2.0 or better or one year of high school Arabic or consent of instructor.  
This course is a continuation of ARB 101 and continues to review the basic Arabic grammar patterns and build competence in all four skill areas: speaking, listening, reading and writing. Through varied activities, emphasis will be placed on oral proficiency and communication. An appreciation of the cultures of the Middle East will be an integral part of the course.
ART 105  Basic Drawing (3-0)  3 Cr. Hrs.
Prerequisite: None.
This course provides an introduction to recording observed spatial and value relationships and basic approaches to drawing and media.

ART 106  Basic Design 1 (3-0)  3 Cr. Hrs.
Prerequisite: None.
This course provides an introduction to the elements and principles of design.

ART 109  Three-Dimensional Design (3-0)  3 Cr. Hrs.
Prerequisite: None.
This course provides an introduction to the elements and principles of design as applied to the construction of three-dimensional form.

ART 110  Illustration (3-0)  3 Cr. Hrs.
Prerequisite: ART 105 or approval from instructor.
Illustration is an art form intended to be used in various publications such as textbooks, books, magazines and for product advertisements. This course introduces the student to a variety of art techniques and applications used by professional illustrators to create art that tells a story or expresses an idea. The exploration of media, subject matter and development of a concept will be the focus of each assignment. The student will learn the step by step processes, demands and deadlines expected of a professional illustrator.

ART 113  Art Education (3-0)  3 Cr. Hrs.
Prerequisite: PSYCH 249 recommended.
This course is a study of child growth and development through creativity. Students will study techniques and materials appropriate for use at various elementary grade levels. Emphasis will be placed on methods to stimulate children's creative interests.

ART 201  Life Drawing 1 (3-0)  3 Cr. Hrs.
Prerequisite: ART 106.
This course is a continuation of ART 106 with emphasis on further development of elements and principles of design concepts and skills. In addition to strengthening their own visual communication skills, students also learn to evaluate work of other artists and designers in terms of design cohesiveness.

ART 205  Life Drawing 2 (3-0)  3 Cr. Hrs.
Prerequisite: ART 125 recommended or consent of instructor.
This course is a continuation of ART 125 with emphasis on further development of concepts related to superficial muscular and skeletal systems which affect the surface topography of the human form.

ART 115  Art History 1 (4-0)  4 Cr. Hrs.
Prerequisite: None.
This art history course examines the development of western art from pre-history through the 14th century with emphasis on various societies, artists and art forms including painting, sculpture and architecture.

ART 116  Art History 2 (4-0)  4 Cr. Hrs.
Prerequisite: None.
This art history course examines the development of western art from the early Renaissance through contemporary art with emphasis on various societies, artists and art forms including painting, sculpture and architecture.

ART 118  Ceramics 1 (3-0)  3 Cr. Hrs.
Prerequisite: None.
This course explores the theories embodied in ceramics as an art form. Basic techniques of renowned artists are examined.

ART 119  Ceramics 2 (3-0)  3 Cr. Hrs.
Prerequisite: ART 118.
This course is a continuation of ART 118 where theories embodied in ceramics as an art form are interpreted. Advanced techniques utilized by renowned artists on ceramic form and their use of various types of ceramic materials are studied.

ART 125  Life Drawing 1 (3-0)  3 Cr. Hrs.
Prerequisite: ART 105 or consent of instructor.
The emphasis of this course is direct observation and expression of the human form. Design and value relationships are studied, as are the superficial muscular and skeletal systems which affect the surface conformations of the human figure. Sessions on portraiture using an anatomical approach are included. Basic drawing concepts are reinforced through exploration of classic technique.

ART 126  Basic Design 2 (3-0)  3 Cr. Hrs.
Prerequisite: ART 106.
This course is a continuation of ART 106 with emphasis on further development of elements and principles of design concepts and skills. In addition to strengthening their own visual communication skills, students also learn to evaluate work of other artists and designers in terms of design cohesiveness.

ART 120  Art Appreciation (3-0)  3 Cr. Hrs.
Prerequisite: None.
This course provides an introduction to the vast subject of visual art, including the effect of culture and history on the lives, aesthetics and creations of artists, and an exploration of technique and media employed by artists throughout time.

ART 121  Watercolor Painting 1 (3-0)  3 Cr. Hrs.
Prerequisite: ART 105 recommended or consent of instructor.
This course introduces the student to fundamental theories related to techniques and processes utilized in Watercolor and Water-Based Media (W/C /WBM).
ART 212 Watercolor Painting 2 (3-0) 3 Cr. Hrs.
Prerequisite: ART 211.
This course is a continuation of ART 211 providing opportunities for analysis of watercolor and water-based media, (WC/WBM) techniques and processes used in Art History sources.

ART 216 Women in Art (4-0) 4 Cr. Hrs.
Prerequisite: None.
This course explores the role of women in the history of Western art with emphasis on art forms including painting, sculpture and architecture. Special consideration is given to women as patrons, artists and subjects and their impact in each of these realms.

ART 218 Ceramics 3 (3-0) 3 Cr. Hrs.
Prerequisite: ART 119.
This course is a continuation of ART 119 where theories embodied in ceramics as an art form are critiqued. Techniques used by renowned ceramic artists to create complex pieces are studied.

ART 219 Ceramics 4 (3-0) 3 Cr. Hrs.
Prerequisite: ART 218.
This course is a continuation of ART 218 where theories embodied in ceramics as an art form are integrated. Emphasis is on complex ceramic techniques, processes and applications.

ART 236 Painting 1 (3-0) 3 Cr. Hrs.
Prerequisite: ART 105 required and ART 125 recommended.
This course introduces the student to fundamental painting theories related to techniques and processes utilized in abstract, conceptual and representational compositions.

ART 239 Painting 2 (3-0) 3 Cr. Hrs.
Prerequisite: ART 236.
This course is a continuation of Painting 1, providing for further investigation of the painting media and processes utilized in abstract, conceptual and representational compositions. Students will work toward developing a focused approach both thematically and technically.

ART 243 Sculpture 1 (3-0) 3 Cr. Hrs.
Prerequisite: None.
Through the exploration of established Art History references on sculpture, students learn to emulate important sculptural works, utilizing both traditional and experimental methods.

ART 244 Sculpture 2 (3-0) 3 Cr. Hrs.
Prerequisite: ART 243.
This course is a continuation of ART 243 providing for further exploration and application of the role of sculpture in art. In addition, knowledge and application of sculptural media and advanced techniques used in various forms are examined.

ART 248 Portfolio Preparation (1-0) 1 Cr. Hr.
Prerequisite: ART 105, ART 106 and one of the following: ART 118, ART 125, ART 211, ART 236 or ART 243 or consent of instructor.
This class enables the student to prepare a portfolio tailored to the specific entrance requirements of art schools and Bachelor of Fine Art Programs offered at four-year colleges or universities. Strengths and weaknesses of existing student work will be addressed along with suggestions for possible further study to improve the content of the portfolio.

BIOLOGY

BIOL 050 Basic Biology (4-0) 4 Cr. Hrs.
Prerequisite: None.
This course is offered to students who seek to acquire the necessary background and skills to successfully complete a college-level biology course such as General Biology (BIOL 101). Emphasis is placed on basic terminology and concepts that contribute to an understanding of the scientific process and biological principles such as the scientific method, basic chemistry, cell biology, metabolism, genetics, evolution, biological classification and ecology.

BIOL 100 Introduction to Biology (4-3) 4 Cr. Hrs.
Prerequisite: None.
This course introduces the non-science major to the concepts of modern biology and to the principles of scientific inquiry. Major concepts such as the scientific method, biological chemistry, organization of cells, energy transformation in living systems, DNA and inheritance, evolution, the diversity of life and ecology are examined. Emphasis is placed on processes common to all organisms, with special reference to humans. Related topics such as human evolution and human impacts on the environment will also be explored. This course provides the framework for making informed decisions regarding pertinent biological issues in society. Students participate in four hours of instruction and three hours of laboratory each week. Students going into allied health fields or majoring in science are required to take BIOL 101 or BIOL 120.

BIOL 101 General Biology (4-3) 4 Cr. Hrs.
Prerequisite: BIOL 050 or successful completion (2.0+) of introductory high school biology within the last five years.
This course is a one-semester introductory course. This course introduces students to the scientific study of living organisms. Students will investigate biological concepts including the chemical basis of life, cell structure and function, metabolism, reproduction, genetics, evolution, biological diversity and classification, plant structure and function, animal structure and function and ecology. Students attend four hours of lecture and three hours of laboratory each week. Science majors seeking to fulfill a two-semester introductory biology sequence should enroll in BIOL 120 and BIOL 130.

BIOL 103 Health Education (3-0) 3 Cr. Hrs.
Prerequisite: None.
This course explores health and wellness including the effects of stress, physical fitness, nutrition, body weight, substance abuse, infectious diseases and environmental factors. Other topics will include sexuality, cardiovascular health, cancer, chronic health conditions and how to make informed decisions related to health.
BIOL 104  Conservation and Natural Resources (3-0) 3 Cr. Hrs.
Prerequisite: None.
This course introduces the basic principles of conservation biology as they relate to our critical need as global citizens to preserve and protect biodiversity and natural resources. In addition to studying the causes of extinction; habitat loss and restoration; management of populations, communities and ecosystems; students also explore philosophical issues in conservation values and ethics. This interdisciplinary course integrates contributions from the fields of law, political science, economics, history and sociology into the fundamental biological principles of conservation. Practical applications, personal stewardship and globally sustainable solutions are emphasized.

BIOL 105  Basic Human Anatomy and Physiology (4-0) 4 Cr. Hrs.
Prerequisite: Successful completion of, BIOL 050 or high school introductory general biology within the last five years.
This course introduces fundamental terminology and concepts that will enable students to acquire a basic understanding of the structure and function of the human body. The anatomy and physiology of the major human organ systems and their association with health and disease is explored. BIOL 105 is intended for students in allied health programs that do not require a laboratory course in human anatomy and physiology.

BIOL 114  Basic Human Nutrition (1-0) 1 Cr. Hr.
Prerequisite: None.
This course provides a basic study of human nutrition with emphasis on scientific principles, metabolism and the requirements for nutrients. The role of nutrition in optimizing health throughout the human lifecycle will be explored. Disease processes that require special nutritional support are studied.

BIOL 115  Nutrition (3-0) 3 Cr. Hrs.
Prerequisite: None.
This course provides a study of the nature and role of nutrition with emphasis on the changing needs in the human life cycle. The relationship between nutrition and health will be explored. Topics such as vegetarianism, food fads and fallacies, obesity, weight control and food additives are studied.

BIOL 120  Principles of Biology 1 (4-3) 5 Cr. Hrs.
Prerequisite: CHEM 111 recommended. Successful completion of high school biology and chemistry within last five years.
This is the first course of a two-semester introductory biology sequence for students interested in transferring to a four-year institution to pursue a degree in biology or other science-related discipline. Together, BIOL 120 and BIOL 130 provide science majors with a comprehensive introduction to biology. In this course, students will attend four hours of lecture and three hours of lab each week to study the evolution and diversity of living organisms, plant and animal anatomy and physiology, animal behavior, and ecology.

BIOL 130  Principles of Biology 2 (4-3) 5 Cr. Hrs.
Prerequisite: BIOL 120 with 2.0+ grade point or consent of department.
This is the second course of a two-semester introductory biology sequence for students interested in transferring to a four-year institution to pursue a degree in biology or other science-related discipline. Together, BIOL 120 and BIOL 130 provide science majors with a comprehensive introduction to biology. In this course, students will attend four hours of lecture and three hours of lab each week to study the evolution and diversity of living organisms, plant and animal anatomy and physiology, animal behavior, and ecology.

BIOL 140  Scanning Electron Microscopy (1-3) 4 Cr. Hrs.
Prerequisite: None.
This course emphasizes the principles and modes of operation of the scanning electron microscope and X-ray analysis systems, electron-specimen interactions, elemental analysis, effects of microscope variables on images, image processing, routine maintenance, the use of microscope accessories and digital outputs. In the laboratory, students will prepare and examine inorganic and organic specimens using the secondary, backscatter and variable pressure detectors of the SEM. Students complete a project consisting of the preparation, imaging and analysis of a biological specimen.

BIOL 236  Human Anatomy and Physiology (4-3) 5 Cr. Hrs.
Prerequisite: BIOL 120.
This one-semester course covers the gross and microscopic anatomy and physiology of the integumentary, skeletal, muscular, nervous, special senses, endocrine, circulatory, lymphatic, immune, respiratory, digestive, urinary and reproductive systems of the human body. Weekly instruction includes four hours of lecture and three hours of laboratory. The laboratory portion includes the use of prepared histological slides, anatomical models, bones, dissection of preserved specimens, blood typing, spirometry, urinalysis and blood pressure measurement. Students will also have an opportunity to examine a dissected cadaver.

BIOL 237  Principles of Human Anatomy and Physiology 1 (3-2) 4 Cr. Hrs.
Prerequisite: BIOL 101.
This is the first course in a two-semester sequence in the comprehensive study of the structure and function of the human body. Emphasis will be placed upon the anatomy and physiology of the integumentary, skeletal, muscular, nervous and endocrine systems. Labs reinforce units of study and include the use of prepared histological slides, anatomical models, bones, dissection of preserved specimens and computer simulations. In addition, students will have the opportunity to examine a dissected cadaver to enhance anatomical studies. BIOL 237 and BIOL 238 are designed for the student who plans to pursue a career in the health or biomedical field. Students attend three hours of lecture and two hours of lab each week.
**COURSES**

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**BMET 116**  
**Prerequisites:** BIOL 237.  
This is the second course in a two-semester sequence (continuation of BIOL 237) in the comprehensive study of the structure and function of the human body. Emphasis will be placed upon the anatomy and physiology of the circulatory, lymphatic, respiratory, digestive, urinary and reproductive systems. Labs reinforce units of study and include the use of prepared histological slides, anatomical models, dissection of preserved specimens, blood pressure measurement, spirometry, urinalysis and computer simulations. In addition, students will have the opportunity to examine a dissected cadaver to enhance anatomical studies. Students attend three hours of lecture and two hours of lab each week.

**BIOL 243**  
**Prerequisite:** BIOL 101.  
This course covers the world of microbes including microbial structures and function, biochemistry, metabolism, genetics, control of microbial growth, infectious diseases, immunity, classification and epidemiology. Laboratory techniques commonly utilized in microbiology are introduced, including microscope use, bacterial smears, staining methods, aseptic techniques, isolation of pure cultures, identification of unknown microorganisms and antibiotic testing.

**BIOMEDICAL ENGINEERING TECHNOLOGY**

**BMET 254**  
**Prerequisites:** Acceptance into the Biomedical Engineering Technology Program (BMET) and BMET 116 with a grade of 3.0 or better.  
This is the first cooperative assignment for a Biomedical Engineering Technology student who has completed the prerequisites for this course. Employment will be approximately 24 to 40 hours per week off campus in a technical capacity with a hospital or an employer in the biomedical field. The college and the employer will jointly evaluate the student, which will then serve as a basis for a final grade. A student on a BMET internship is considered a full time student with Schoolcraft College with all rights and privileges of a full time student. (Usually 15 weeks)

**BMET 255**  
**Prerequisites:** Acceptance into the Biomedical Engineering Technology Program (BMET) and BMET 116, BMET 204 and BMET 254 with a grade of 3.0 or better.  
This is the second cooperative assignment for a Biomedical Engineering Technology student who has completed one semester of internship. The conditions for assignment and evaluation are the same as for Biomedical Internship 1. The student is expected to handle an increased level of technical responsibility, and may possibly serve the internship at a hospital, medical equipment manufacturer or a medical equipment service company. The college and the employer will jointly evaluate the student, which will then serve as a basis for a final grade. (Usually 15 weeks)

**BMET 125**  
**Prerequisite:** MATH 053 or equivalent and BMET 116.  
This course has been designed as a basic introduction to medical applications in laser fundamentals and safety. Students will study the three properties of laser light: monochromatic, directionality, and coherency. Biomedical concerns of laser hazards involving the eye, skin, toxicity, electrical and fire will be covered. Types of site and skin damages that can occur when exposed to laser wavelength will be explored. Laser system hazards classifications and safety standards will be reviewed in addressing potential hazards, necessary safety restrictions, and specified laser classifications based on American National Standards Institute (ANSI) Z136.3 Standard along with relevant Federal Center for Devices and Radiological Health (CDRH), Occupational Safety and Health Administration (OSHA) as well as relevant State of Michigan requirements.

**BIOL 240**  
**Prerequisites:** BIOL 237 and BIOL 238 or BIOL 236 or equivalent or BIOL 105 or consent of instructor.  
This course is a review of the anatomy and physiology of the human body with special emphasis on the physiology of the integumentary, skeletal, muscular, nervous, endocrine, cardiovascular, lymphatic, respiratory, digestive, urinary and reproductive systems. This course is designed for students entering biomedical programs that require a review of the basic anatomy and physiology of the human body.

**BIOL 237**  
**Prerequisite:** BIOL 238 or BIOL 236 or equivalent or BIOL 105 or consent of instructor.  
This is the second course in a two-semester sequence (continuation of BIOL 237) in the comprehensive study of the structure and function of the human body. Emphasis will be placed upon the anatomy and physiology of the circulatory, lymphatic, respiratory, digestive, urinary and reproductive systems. Labs reinforce units of study and include the use of prepared histological slides, anatomical models, dissection of preserved specimens, blood pressure measurement, spirometry, urinalysis and computer simulations. In addition, students will have the opportunity to examine a dissected cadaver to enhance anatomical studies. Students attend three hours of lecture and two hours of lab each week.

**BIOL 241**  
**Prerequisite:** BIOL 101.  
This is the second course in a two-semester sequence (continuation of BIOL 237) in the comprehensive study of the structure and function of the human body. Emphasis will be placed upon the anatomy and physiology of the circulatory, lymphatic, respiratory, digestive, urinary and reproductive systems. Labs reinforce units of study and include the use of prepared histological slides, anatomical models, dissection of preserved specimens, blood pressure measurement, spirometry, urinalysis and computer simulations. In addition, students will have the opportunity to examine a dissected cadaver to enhance anatomical studies. Students attend three hours of lecture and two hours of lab each week.

**BIOL 238**  
**Principles of Human Anatomy and Physiology 2 (3-2) 4 Cr. Hrs.**  
**Prerequisite:** BIOL 237.  
This is the second course in a two-semester sequence (continuation of BIOL 237) in the comprehensive study of the structure and function of the human body. Emphasis will be placed upon the anatomy and physiology of the circulatory, lymphatic, respiratory, digestive, urinary and reproductive systems. Labs reinforce units of study and include the use of prepared histological slides, anatomical models, dissection of preserved specimens, blood pressure measurement, spirometry, urinalysis and computer simulations. In addition, students will have the opportunity to examine a dissected cadaver to enhance anatomical studies. Students attend three hours of lecture and two hours of lab each week.

**BIOL 243**  
**Microbiology (3-4) 4 Cr. Hrs.**  
**Prerequisite:** BIOL 101.  
This course covers the world of microbes including microbial structures and function, biochemistry, metabolism, genetics, control of microbial growth, infectious diseases, immunity, classification and epidemiology. Laboratory techniques commonly utilized in microbiology are introduced, including microscope use, bacterial smears, staining methods, aseptic techniques, isolation of pure cultures, identification of unknown microorganisms and antibiotic testing.

**BMET 204**  
**Biomedical Instrumentation Terminology and Safety 2 (2-2) 4 Cr. Hrs.**  
**Prerequisite:** Acceptance into the Biomedical Engineering Technology Program (BMET) and BMET 116 with a grade of 3.0 or better.  
This course is intended to provide students with knowledge of medical equipment in the hospital setting, equipment management, equipment maintenance and other fundamental principals related to Biomedical Engineering Technology.

**BMET 255**  
**Biomedical Equipment Internship 2 (0-24/40) 3 Cr. Hrs.**  
**Prerequisite:** Acceptance into the Biomedical Engineering Technology Program (BMET) and BMET 116 with a grade of 3.0 or better.  
This course is intended to provide students with knowledge of medical equipment in the hospital setting, equipment management, equipment maintenance and other fundamental principals related to Biomedical Engineering Technology.

**BMET 116**  
**Biomedical Instrumentation Terminology and Safety 1 (2-1) 3 Cr. Hrs.**  
**Prerequisite:** Acceptance into the Biomedical Engineering Technology Program (BMET).  
Students will acquire a knowledge of the language common to electronics and the medical profession based on spelling, pronunciation and definition of words and terms related to anatomy, medical equipment, electronic test equipment and safety. They will become acquainted with the fundamentals of medical equipment and testing concepts. Students will be introduced to the field of Biomedical Engineering Technology as a career.

**BMET 254**  
**Biomedical Equipment Internship 1 (0-24/40) 3 Cr. Hrs.**  
**Prerequisite:** Acceptance into the Biomedical Engineering Technology Program (BMET) and BMET 116 with a grade of 3.0 or better.  
This course is intended to provide students with knowledge of medical equipment in the hospital setting, equipment management, equipment maintenance and other fundamental principals related to Biomedical Engineering Technology.

**BMET 255**  
**Biomedical Equipment Internship 2 (0-24/40) 3 Cr. Hrs.**  
**Prerequisite:** Acceptance into the Biomedical Engineering Technology Program (BMET) and BMET 116 with a grade of 3.0 or better.  
This course is intended to provide students with knowledge of medical equipment in the hospital setting, equipment management, equipment maintenance and other fundamental principals related to Biomedical Engineering Technology.
## BUSINESS

### BUS 101  Introduction to Business (3-0) 3 Cr. Hrs.
**Prerequisite:** None.
This course introduces principles, problems and practices of business in areas of organization, management, information related management and e-business, labor, production, human relations, marketing, finance, insurance, regulation and government.

### BUS 103  Organizing a Small Business (3-0) 3 Cr. Hrs.
**Prerequisite:** None.
This course is designed to explore the advantages and disadvantages of entrepreneurship for those who may be considering starting, operating or seeking employment in a small business. The course will emphasize the organization of the small business including the various forms of business ownership, business planning, starting the business, location, cash flow and marketing concepts.

### BUS 104  Operating a Small Business (3-0) 3 Cr. Hrs.
**Prerequisite:** None.
This course is designed to explore the many considerations involved in owning and operating a small business. The course will emphasize the operation of a small business including insurance, employee relations, inventory control, purchasing, E-commerce, succession planning, financing, international business, legal and ethical issues.

### BUS 120  Strategic Selling (3-0) 3 Cr. Hrs.
**Prerequisite:** None.
Both the novice and the professional salesperson can benefit from this course. The personal selling process will be studied in detail, emphasizing topics ranging from prospecting and qualifying to closing the sale and after sale follow-up. Territory management, selling to organizational buyers and the techniques of ethical salesmanship will also be explored. Students will gain valuable experience with the selling process through case studies, role playing exercises and by creating a sales presentation for demonstration.

### BUS 122  Advertising (3-0) 3 Cr. Hrs.
**Prerequisite:** None.
This course focuses on the information and skills required to create effective advertising. The student will learn to recognize effective advertising and gain an appreciation for the challenges advertisers face in trying to reach target audiences. The course also concentrates on market research, media strategy, integrated marketing communication and the impact of advertising on consumer behavior.

### BUS 123  Consumer Behavior (3-0) 3 Cr. Hrs.
**Prerequisite:** None.
This course explores the background of consumer behavior from the viewpoint of the individual, households, society and culture. Insights to individual behavior like personality, motivation and perception are covered. An exploration of social-cultural influences like economics, ethics and multiculturalism will provide an understanding of local, regional, national and global approaches to understanding consumers. In addition to consumer purchasing decisions, creating promotional strategies for customer retention and consumerism and public policy issues will be discussed.

### BUS 161  Retail Principles and Practices (3-0) 3 Cr. Hrs.
**Prerequisite:** None.
This course introduces basic elements of retail organization and operation. Problem situations related to retailing are identified along with specific applications of retail procedures.

### BUS 202  Business Ethics (3-0) 3 Cr. Hrs.
**Prerequisite:** None.
This course provides an overview of business ethics including its importance and its impact on stakeholders and society. The course will explore emerging ethical issues, the institutionalization of business ethics, the decision-making process and implementing business ethics in a global economy.

### BUS 204  Personal Finance (3-0) 3 Cr. Hrs.
**Prerequisite:** None.
This course is a practical study of problems and solutions facing the consumer in today’s society. The major areas that are covered in this course include personal budgeting, bank and financial institution comparison, strategies in the use and application of credit, insurance alternatives, housing alternatives, large item purchasing (such as automobiles) and occupational choices.

### BUS 205  Personal Investing (3-0) 3 Cr. Hrs.
**Prerequisite:** None.
This course provides an overview of the opportunities and strategies available to the personal investor. The major areas covered include the types of investors and investments, securities markets, macroeconomic and industry variables, investment analysis and management and international investment strategies.

### BUS 207  Business Law 1 (3-0) 3 Cr. Hrs.
**Prerequisite:** None.
In this course you will learn how a business is impacted by the legal environment. You will be introduced to the key principles of business law including contracts, sales transactions, legal processes of crimes and torts, consumer rights and real-world cases showing these principles in action.

### BUS 208  Business Law 2 (3-0) 3 Cr. Hrs.
**Prerequisite:** BUS 207 recommended.
This course is a continuation of BUS 207 with emphasis on negotiable instruments, real and personal property, agency, partnerships, corporations, employment, and wills and estates.

### BUS 215  Business on the Web (3-0) 3 Cr. Hrs.
**Prerequisite:** BUS 101 or equivalent.
This course introduces the student to the key business and technology elements of electronic commerce. Both the theory and practice of conducting business over the Internet and World Wide Web are presented. The major topics include planning and building a Web presence, marketing on the Web, business-to-business strategies, online auctions, legal/ethical/tax issues, Web server hardware/software, security, payment systems and technology infrastructure.
BUS 217  Business Management (3-0) 3 Cr. Hrs.  
Prerequisite: BUS 101 or consent of department.  
This course provides an overview of the skills and processes used in business management. The major focus will be on the management process which includes the following functions: planning and decision making, organizing, leading and controlling. We will explore topics including historical management perspectives, business structures and environments and organizational communication. We will also discuss the various levels at which managers operate and examine the skills necessary to accomplish the related tasks.

BUS 220  Supervision (3-0) 3 Cr. Hrs.  
Prerequisite: None.  
In this course you will discover how to become a successful and respected supervisor in the current contemporary workplace. Besides assessing your current supervisory traits, you will develop new skills addressing leadership, staff motivation, effective communication methods, problem-solving techniques, time management, multitasking and human relations. You will explore real-world situations and learn strategies to overcome a variety of challenges facing supervisors in a global and diverse workplace.

BUS 226  Principles of Marketing (3-0) 3 Cr. Hrs.  
Prerequisite: BUS 101 or consent of department.  
In this course you will learn an integrated analytical approach to the marketing process and essential economic principles as they apply to the marketing process. You will also be introduced to the relationships of marketing decisions, marketing research, consumer behavior, product strategy, channels of distribution, promotion and pricing.

BUS 230  Human Resource Management (3-0) 3 Cr. Hrs.  
Prerequisite: BUS 101 or consent of department.  
In this course, you will be introduced to the dynamic role of human resource management in supporting an organization's mission and objectives. You will explore the legal influences on selecting, managing and retaining human resources. You will prepare valid selection instruments to conduct effective interviews and performance reviews. We will discuss contemporary employment issues and global human resource concerns. You will become knowledgeable about the various systems and practices to help build a skilled and motivated workforce.

BUS 240  International Business (3-0) 3 Cr. Hrs.  
Prerequisite: None.  
This course focuses on the latest theories and concepts in international business while emphasizing the leading role culture plays in global commerce. The issues and challenges confronting international companies are explored along with the various strategies companies may pursue.

COLLEGE AND BEYOND

CAB 100  Student Success Seminar (1-0) 1 Cr. Hr.  
Prerequisite: None.  
This course is designed to introduce you to strategies and attitudes that will help you to maximize your potential for success in both college and the workplace. You will explore your personal learning style and develop skills aimed at improving your classroom performance and future employability. Topics covered include college terminology and resources, technology, time management, goal setting, critical thinking and study techniques.

CAB 101  Student Success (3-0) 3 Cr. Hrs.  
Prerequisite: None.  
This course is designed to increase students’ learning potential and success in college and beyond. Each student will actively explore learning strategies and attitudes that lead to improved grades and employability. Topics covered in the course include college language and resources, time/task planning, critical thinking, study techniques, uses of the e-portfolio, self-reflection, and exploring attitudes and dispositions successful students bring to a learning environment. Each student will learn to apply the principles covered in this course to other college course work.

COMPUTER AIDED DESIGN

CAD 101  Introduction to Computer Aided Drafting (2-2) 3 Cr. Hrs.  
Prerequisite: Drafting experience and consent of department.  
This course is designed for the experienced drafter who wants to obtain some CAD skills. Topics to be covered will include 2D drawing creation, drawing, editing, and plotting as well as view manipulation. In addition, the student will learn the basics about file saving, retrieving and copying.

CAD 103  Engineering Graphics (2-2) 3 Cr. Hrs.  
Prerequisite: None.  
This course is designed to introduce the student to the basic concepts and standard practices necessary for the graphical communication of technical data which includes the reading, interpretation and creation of engineering drawings, technical sketching and introduction to computer-aided drafting (CAD). Topics introduced include orthographic projection, pictorials, sectioning, auxiliary views, dimensioning, tolerancing, surface finish and fasteners. This course is designed for the transfer Engineering student and as an introductory course for those who are considering a career as a mechanical or tool designer.

CAD 106  Advanced Drawing Views and Descriptive Geometry (3-2) 4 Cr. Hrs.  
Prerequisite: CAD 103 or equivalent.  
This course is designed to teach the student advanced skills in drawing view creation. Sketching and computer aided drafting (CAD) will be the tools for communicating mechanical product information. Topics to be covered will include projection methods for creating orthographic, auxiliary and section views. Descriptive Geometry will be used to solve advanced drawing problems. This course is designed for those who have chosen a career as a mechanical or tool designer.
COURSES

CAP 102

Culinary Sanitation (2-0) 2 Cr. Hrs.
Prerequisite: None.
This course introduces the theory and practice of sanitation and safety and their relationship to the hospitality industry. Topics include the study of food-borne illnesses; biological, chemical and physical hazards; and cross-contamination as they may occur during the flow of food, personal hygiene, sanitation and safety regulations and the use and care of equipment. Hazard Analysis Critical Control Point (HACCP) and OSHA (Occupational Safety and Health Administration) guidelines and standards as they apply to the hospitality industry will be introduced. The student will be prepared to take the National Restaurant Association Sanitation Certification exam upon completion of this course.

CAP 103

Introduction to Professional Cooking Skills and Technique (5-0) 5 Cr. Hrs.
Prerequisite: CAP 102 or current ServSafe certification.
This course will provide aspiring chefs a broad orientation to the culinary industry so that they will better understand what is required to succeed. Emphasis for discussion will be on professionalism, safety and sanitation standards, equipment identification, identification of food products, knife handling skills and a basic understanding of stock making and basic cooking techniques. Students will be required to purchase an initial set of hand tools for skills development. Students must receive an overall GPA of 2.5 to pass the class, as well as pass the final practical with a minimum of 2.5.

CAP 124

Breakfast and Pantry (4-0) 4 Cr. Hrs.
Prerequisite: CAP 103.
This course will teach students all the necessary procedures and principles in basic cooking skills as related to breakfast and pantry cookery. Topics covered are egg, potato, meat and cereal cookery. Buffet setups and recipe procedures will be taught. Pantry cookery skills will include basic pantry operation, simple and composite salads, salad dressings, fruit trays and cold sandwich preparation.

CAP 125

Pastries 1 (4-0) 4 Cr. Hrs.
Prerequisite: CAP 103.
This course will teach students all the necessary procedures and principles in the art of creating and producing many variations of beginning pastries. Upon successful completion of the course, the student will be able to use measuring equipment and understand equivalents and conversions; understand and know proper usage of baking and pastry terminology; properly use hand tools and machinery; regulate and use an oven properly; understand health, safety and sanitation of work areas; make pies, puddings, pastries, cakes and tortes.

CAP 128

Introduction to Food Techniques (4-0) 4 Cr. Hrs.
Prerequisite: CAP 103.
This course will teach the basic fundamentals of cooking techniques. The student will understand the methods of basic sauces, stocks, coulis and soup preparation. The student will also learn to apply the appropriate cooking methods for specific cuts of meat, fish, poultry and game. Vegetable and starch cookery will also be included. Specialty cuisines will also be explored, which will include nutritional, vegetarian, vegan and live foods.

CAP 142

Butchery (4-0) 4 Cr. Hrs.
Prerequisite: CAP 103.
Students will learn commercial meat preparation, its fabrication, portion control and the importance of safe sanitary butchery practice. Students will select and prepare quality meats, fish and poultry for industry consumption and retail use. Students will be prepared to perform these important tasks in a safe and sanitary environment.

CAP 143

Dining Room Service (4-0) 4 Cr. Hrs.
Prerequisite: CAP 103.
Upon successful completion of the course, the student will be able to apply dining room procedures which include identifying the seven service types, basic hot and cold beverage services, professional ethics, good self image, dependability, attitude, dedication, understanding the art and science of employee relationships and the value of customer relationships.
CAP 144  Baking (4-0) 4 Cr. Hrs.  
Prerequisite: CAP 103. 
This course explores the concepts of the different varieties of flour, the purpose and chemical reaction of other ingredients in yeast doughs and quick breads, the nutritional value of baked goods, how to use equipment for baking, proofing and fermentation of yeast products, the different mixing methods, how to increase standard recipes and costing out a recipe. In addition, students will develop hands on practical experience with bakery products by producing French breads, rolls, pan breads, rye breads, whole wheat breads, corn bread, Danish pastry, coffee cakes, muffins, biscuits, quick breads and cookies.

CAP 191  Externship (1-15) 3 Cr. Hrs.  
Prerequisite: This is an elective course and requires departmental approval for enrollment. 
This course is designed to give the student additional work experience in a first hand quality run establishment. This will be done by rotating through various work stations. A weekly log book will be generated and reviewed to track the students’ progress. The instructor will do a skill assessment based on the written project at the end of the semester.

CAP 215  Charcuterie (4-0) 4 Cr. Hrs.  
Prerequisite: CAP 103 and all core CAP 100 level courses. 
Students in this course will acquire professional skills in variations of hors d'oeuvres and savories, seasonings, condiments, stuffed meats, curing, pickling, and smoking of meat, fish and poultry. Proficiencies in sausage-making, garde manger, pâtés, terrines, galantines and stuffed meats are also taught.

CAP 227  Restaurant Cooking and Preparation (4-0) 4 Cr. Hrs.  
Prerequisite: CAP 103 and all core CAP 100 level courses. 
Students will participate in four workstations: Roast—Grill, Sauté, Entremetier (middle station) and Garde Manger—Pantry. Students will learn classical and modern cooking techniques, recipe development, importance of consistency and clean work methods.

CAP 240  Pastries 2 (4-0) 4 Cr. Hrs.  
Prerequisite: CAP 103 and all core CAP 100 level courses. 
This course will cover the more intricate methods of producing fine pastries, mousses, cakes, tortes, ice cream desserts and chocolate work. The instruction covers recipe expansion and plate presentations.

CAP 241  Culinary Nutrition (2-0) 2 Cr. Hrs.  
Prerequisite: None. 
Lectures on nutrition and nutrition's relationship to heart disease, cholesterol levels and body metabolism are supported by actual meal preparation. Students will learn how to apply sound nutritional theories. The course stresses preparation of healthful foods that are pleasing to both the eye and the palate in order to cater to the growing number of health-minded customers.

CAP 242  À la Carte (4-0) 4 Cr. Hrs.  
Prerequisite: CAP 103 and all core CAP 100 level courses. 
Upon successful completion of this course, the student will be able to apply modern techniques in the preparation and presentation of food using sauté and grill techniques. Students will gain an understanding of the entremetier, garde manger and food storage stations. Proper lock-down and clean up procedure will be taught. Preparation and presentation of salads, cold meats, sandwiches as well as plate presentation will also be taught.

CAP 243  Storeroom Operations (3-0) 3 Cr. Hrs.  
Prerequisite: CAP 103 and all core CAP 100 level courses. 
Upon successful completion of this course, the student will have a basic knowledge of purchasing, receiving and inventory control through the use of the computer and the application of computer software which will enhance his/her ability to run a more effective and profitable kitchen operation.

CAP 244  International and American Cuisine (8-0) 8 Cr. Hrs.  
Prerequisite: CAP 103 and all core CAP 100 level courses. 
Students will learn the culture, history and terminology of various American regional and international cuisines. In addition, they will study traditional and contemporary cooking techniques. Students will prepare à la carte service entrees, salads, appetizers, soups and desserts based on industry trends as well as preparing buffet presentations. The menu items will be offered to the public and served in the American Harvest Restaurant.

CAP 247  Banquets and Catering (2-2) 3 Cr. Hrs.  
Prerequisite: CAP 103. 
Upon successful completion of this course, the student will demonstrate knowledge of a variety of catering operations including planning, organizing, marketing and executing receptions, parties and special events. Students must participate in two events. This is an elective course.

CAP 248  Professional Development (2-2) 3 Cr. Hrs.  
This course may form the College Culinary Team. A number of field trips and training sessions will be accomplished. This is an elective course.

CAP 249  Competitive Ice Carving (2-2) 3 Cr. Hrs.  
Prerequisite: None. 
This course will present safety procedures related to ice handling, tools and equipment used in ice carving. Qualities of carving ice, proper care and sharpening of tools are also covered. Use of templates and production of basic carving will be accomplished. This is an elective course.

CAP 250  Advanced Competitive Ice Carving (1-3) 3 Cr. Hrs.  
Prerequisite: CAP 248 or consent of department. 
Advanced carving ability incorporating joining, assembling and multi block will be covered. This course is for students who wish to further their culinary artistry by entering individual or team competitive ice carving events. This is an elective course.

CAP 251  Chocolatier (4-0) 4 Cr. Hrs.  
Prerequisite: CAP 103 and CAP 125 or consent of department. 
This course is designed to introduce the student to the handling techniques of chocolate. Students will learn to use artistic pieces to decorate cakes and adorn pastry buffets. Students will also be exposed to modeling and sculpting of chocolate. Students will learn the culture, history and terminology of various American regional and international cuisines. In addition, they will study traditional and contemporary cooking techniques. Students will prepare à la carte service entrees, salads, appetizers, soups and desserts based on industry trends as well as preparing buffet presentations. The menu items will be offered to the public and served in the American Harvest Restaurant.

CAP 252  Salon Competition 1 (2-2) 3 Cr. Hrs.  
Prerequisite: Selection to participate is approved by the Chef Instructors. 
Students will participate in a class which will build and refine their culinary skills. This first course will introduce the students to the requirements necessary to successfully compete in culinary competition. Students selected for this class may form the College Culinary Team. A number of field trips and training sessions, off campus, will be scheduled. This is an elective course.
### CULINARY BAKING AND PASTRY ARTS

**CBPA 103 Introduction to Baking and Pastry Skills and Techniques (2-0) 2 Cr. Hrs.**  
*Prerequisite: CAP 102.*  
This course will provide a broad orientation to aspiring bakers and pastry chefs in order to offer a better understanding of the specialized fields of baking and pastry. Discussions will include professionalism, safety and sanitation, equipment identification, function and maintenance. The fundamental baking processes, handling and function of ingredients will also be covered.

**CBPA 125 Pastries (5-15) 20 Cr. Hrs.**  
*Prerequisite: CBPA 103.*  
Upon successful completion of this course, students will have acquired professional skills in the art of pastry including recipe expansion and costing, use of hand tools and equipment, safety, sanitation and organization skills. Products introduced to the aspiring students include pies and tarts; French pastry; individual pastries; classical and contemporary tortes; warm, cold and frozen desserts; contemporary plated desserts; miniature pastries; chocolates; cake decoration; and decorative centerpieces.

**CBPA 144 Baking (3.75-11.25) 15 Cr. Hrs.**  
*Prerequisite: CBPA 103.*  
Upon successful completion of this course, students will have acquired professional skills in the art of baking. This course will cover basic elements including costing out recipes, expanding and reducing recipe sizes, proper usage of bakery equipment, using straight dough methods to produce French baguettes, soft and hard rolls, pan breads and many hearth breads, as well as production of various cookies, quick breads, muffins and biscuits. Advanced techniques will be taught including fermentation processes and how they contribute to flavor, mixing methods, the functionality of ingredients, and the study of various flours, as well as chemical reactions that take place while baking. The production of artisan breads, laminated doughs, savory baked goods, specialty baked goods, breakfast pastries, high ratio cakes and decorative centerpieces will be important aspects of this course.

### CHILD AND FAMILY SERVICES

**CCD 100 Introduction to Child Welfare Services (3-0) 3 Cr. Hrs.**  
*Prerequisite: None.*  
Students will receive wide exposure to community agencies and resources available to children and youth. There will be focus on identifying needs of children and methods through which those needs are met by the community when parents are unable to do so or need assistance.

**CCD 101 Preschool Child Care (3-0) 3 Cr. Hrs.**  
*Prerequisite: CCD 116 or consent of department. Corequisite: CCD 150 if not previously taken.*  
This course is designed to assist students in understanding the needs of the preschool child and methods by which they are met. There will be a focus on stages of development, typical behaviors, curriculum development and implementation. Observational skills will be sharpened, with concentration on signals alerting students to the children's levels of functioning.

**CCD 102 Foundations of Early Childhood Education (3-0) 3 Cr. Hrs.**  
*Prerequisite: None.*  
Students will be provided a general overview of Early Childhood Education. This review includes an introduction to early childhood education, theories of child development, information on key organizations, relevant laws and regulations, discussion on opportunities within this field, the NAEYC code of ethical conduct, core competencies for the field and developmentally appropriate practices. Students will spend time observing a variety of early childhood programs.

**CCD 105 Introduction to Developmental Disabilities (3-0) 3 Cr. Hrs.**  
*Prerequisite: CCD 217. Corequisite: CCD 217 if not previously taken.*  
This course is designed to introduce students to the health and developmental problems of persons with cognitive impairment (CI). Emphasis is placed on gaining knowledge of the various syndromes typical in CI populations and learning to recognize medical symptoms. Attention will also be given to developing an understanding of prescribed drugs and their side effects, as well as infectious diseases.

**CCD 113 Special Educational Programs and Supported Living (3-0) 3 Cr. Hrs.**  
*Prerequisite: CCD 217. Corequisite: CCD 217 if not previously taken.*  
Students will become familiar with considerations of placement and training of persons with cognitive impairments, emotional impairments, learning impairments and physical handicaps. Attention will be given to the theory and principles of normalization and appropriate community support. The course will cover the operation and maintenance of supportive living environments. In addition, current laws and regulations regarding licensing, equipping and maintaining the physical plant, staffing, food services, health and social services, budgeting and program development will also be addressed.
COURSES

CCD 115  School-Age Child Care (3-0) 3 Cr. Hrs.
Prerequisite: CCD 116 or consent of department.
Corequisite: CCD 150 if not previously taken.
This course is designed to prepare students to provide care for infants and toddlers in group care settings. Students will learn the essential ingredients in infant and toddler care and will learn to match caregiving strategies to very young children as they develop. A holistic emphasis focuses on the development of a curriculum which provides for the physical, emotional, social and cognitive development of infants and toddlers.

CCD 116  Child Development (3-0) 3 Cr. Hrs.
Prerequisite: None.
This course is designed to provide students an overview of life from its beginning through emerging adulthood. The course will concentrate on physical, cognitive, social and emotional development in the prenatal, infancy, toddler, preschool, middle childhood and adolescent periods.

CCD 118  Infant and Toddler Care (3-0) 3 Cr. Hrs.
Prerequisite: CCD 116 or consent of department, and CCD 150.
Corequisite: CCD 150 if not previously taken.
This course is designed to prepare students to provide care for infants and toddlers in group care settings. Students will learn the essential ingredients in infant and toddler care and will learn to match caregiving strategies to very young children as they develop. A holistic emphasis focuses on the development of a curriculum which provides for the physical, emotional, social and cognitive development of infants and toddlers.

CCD 121  The Adolescent (3-0) 3 Cr. Hrs.
Prerequisite: CCD 116 or consent of department.
In this course the student will explore major theories in adolescent development and use the theoretical constructs to understand adolescent behavior. Students will recognize the contributing factors which lead to the development of a stable identity hierarchy and the development of responsibility in adolescence.

CCD 126  Creative Activities (3-0) 3 Cr. Hrs.
Prerequisite: None.
The purpose of this course is to introduce students to the stages of creativity development in children. Open-ended process art and creative activities will be emphasized that are appropriate for young children and persons with developmental challenges. Lab experiences are incorporated into this course.

CCD 130  Learning Disabilities (3-0) 3 Cr. Hrs.
Prerequisite: CCD 217 if not previously taken.
Corequisite: CCD 217 if not previously taken.
This course is designed to acquaint the student with the perceptual and learning issues of learning disabled children and special education programs in the public school which provide specialized learning situations for them. The diagnosis of disorders of visual and auditory perception, language, motor coordination, cognition, and attention deficit related to the learning processes are discussed as well as specific recommendations for remediation and implications for school planning.

CCD 140  Emotional Impairment (3-0) 3 Cr. Hrs.
Prerequisite: CCD 217.
Corequisite: CCD 217 if not previously taken.
The purpose of this course is to acquaint students with concepts and materials related to the education of children with emotional impairments. The major theories related to causes and treatment of emotional and behavior problems will be covered.

CCD 150  Child Care Practicum 1 (3-0) 3 Cr. Hrs.
Prerequisite: CCD 116 or consent of department.
Students will have a supervised practicum experience working directly with children in an early childhood or special needs setting. Students will spend 150 hours over the semester in their practicum placement. Students will have the opportunity to integrate classroom material with on-the-job experience and evaluate the experiences of children in light of the concepts they have learned. Emphasis will be placed on observing and reporting activities of the children.

CCD 155  CDA Assessment Preparation (1-0) 1 Cr. Hr.
Prerequisite: CCD 150 if not previously taken.
To be awarded the CDA credential a Candidate must present evidence to The Council for Early Childhood Professional Recognition of his/her competence as a child care provider/educator. This course is designed to support the CDA Candidate in preparation for the final assessment process.

CCD 200  Child Care Practicum 2 (3-0) 3 Cr. Hrs.
Prerequisite: CCD 101 or CCD 118, CCD 102, CCD 116, and CCD 221. CCD 150 with a grade of 2.5 or higher.
Students will have a supervised practicum experience working directly with children in an early childhood setting. Students will spend 150 hours over the semester in their practicum placement. Students will have increased responsibility planning and implementing activities for children. Emphasis will be placed on working as a contributing member of a teaching team. Students will spend 150 hours over the course of the semester in their practicum placement.

CCD 211  Children and Youth in Groups (3-0) 3 Cr. Hrs.
Prerequisite: CCD 150.
Corequisite: CCD 150 if not previously taken.
The course is designed to introduce students to the role of social competence in the lives of children. Students are introduced to the principles of group functioning and techniques of helping children become accepted members of peer groups. Behavior modification principles and strategies are examined. Emphasis is placed on respecting children and understanding influences on their behavior.

CCD 214  Operation and Maintenance of a Child Care Facility (3-0) 3 Cr. Hrs.
Prerequisite: None.
This course will cover methods of operating and maintaining a child care facility. Included will be current laws and regulations regarding licensing, accreditation, equipping and maintaining the physical plant, staffing, food services, health and human services, budgeting and program development.

CCD 215  Methods and Curricula for Persons With Developmental Disabilities (3-0) 3 Cr. Hrs.
Prerequisite: None.
This course will familiarize the student with the theoretical approaches of education for persons with special needs including a survey of various curricula.
COURSES

CCD 217  Children With Special Needs (3-0) 3 Cr. Hrs.
Prerequisite: College-level reading and writing.
This course is designed to introduce students to the topic of children/students with special needs. Included is the exploration of cognitive impairments, emotional impairments, learning impairments, visual and hearing impairments, orthopedic and/or other health impairments, giftedness and instructional strategies for these special needs.

CCD 218  Practicum 2—Special Education Focus (3-0) 3 Cr. Hrs.
Prerequisite: CCD 215 and CCD 217, CCD 150 with a grade of 2.5 or higher.
Continued supervised experience working directly with children and adults with special needs in educational and group settings. Students will have increased responsibility providing and implementing activities for children and adults with special needs. Emphasis will be placed on working as a contributing member of a teaching team. Students will spend 150 hours over the course of the semester in their approved practicum placement.

CCD 221  Early Literacy and Numerical Thinking (3-0) 3 Cr. Hrs.
Prerequisite: None.
This course explores literacy and numerical thinking in early childhood. An emphasis will be placed on constructivist and sociolinguistic views of learning. Experiential exercises and reading will provide students with opportunities to plan developmentally appropriate learning activities, to record observations of children and to generate developmental analyses that support literacy and numerical thinking development.

CCD 224  Emerging Educator (1-0) 1 Cr. Hr.
Prerequisite: Consent of department. CCD 224 is the final CCD course taken by students in their program of study. Students are to contact the Child and Family Services department for confirmation of eligibility for taking CCD 224 prior to registering for the class.
A required conclusion to the Schoolcraft College Child and Family Services Associate Degree Programs. This capstone course is designed for students to demonstrate competencies in their designated program of study of early childhood or special education. In the Emerging Educator course students will present evidence of skills and knowledge gained through the program.

COMPUTER GRAPHICS TECHNOLOGY

CGT 109  Design Concepts and Technology (3-0) 3 Cr. Hrs.
Prerequisite: None.
In order to succeed in any discipline within the Computer Graphics field students must have a strong sense of design. This course covers both the theoretical and the practical aspects of design theory, design process and software application. This course includes an introduction to design elements and principles - how they work together to create effective communication. It includes an understanding of typography, grid systems and color theory including physiological, emotional and cultural variations. Materials include a look at human perception and Gestalt theory to foster an understanding for visual communication. A variety of application programs are introduced in order to explore proper file types and tools and the strengths and limitations of a variety of digital media. The computer graphics industry is explored and resources are provided for concept development and job search along with a brief introduction to intellectual property rights. This course provides foundation skills for all classes within the CGT curriculum. In this course students will use software at an introductory level, exploring vector and bitmapped images, page-layout, animation and interactive Web site development. Projects and exercises are designed to allow students to do both short skill building exercises and more complex larger works.

CGT 123  Illustration—Illustrator (3-0) 3 Cr. Hrs.
Prerequisite: CGT 109 (may be taken concurrently).
This course is intended to introduce students to the field of graphic design and illustration using professional computer drawing software. Emphasis is on learning the software and on applying basic design skills to the computer generated image. Students are instructed in the fundamentals of drawing on the computer, working with color, working with type and combining type and image for effective communication. Students are expected to be familiar with basic functions of the computer before beginning the class.

CGT 125  Digital Imaging 1—Photoshop (3-0) 3 Cr. Hrs.
Prerequisite: CGT 109 (may be taken concurrently).
This course introduces students to the field of digital imaging and electronic photographic manipulation using Adobe Photoshop. Emphasis is placed on developing strong software and digital imaging skills plus reinforcement of design and creative skills. This will be accomplished through a series of progressively challenging assignments, which mirror professional studio projects. The class will progress the student's skills from basic application knowledge to advanced image manipulation techniques. The assignments will be applicable for both print and screen based imagery. Students are expected to have some computer experience and be familiar with basic functions of the computer before beginning the class.
### CGT 127 Publishing—inDesign (3-0) 3 Cr. Hrs.
**Prerequisite:** Computer experience highly recommended.
This course introduces students to the field of publishing design using Adobe InDesign. Emphasis is on learning the software and on applying basic design skills to computer generated design. Students will have the opportunity to learn the fundamentals of page-layout, typography, working with color and color separations and preparing documents for printing. Students are expected to have some computer experience and be familiar with basic functions of the computer before beginning the class.

### CGT 136 Web Design and Development 1 (3-0) 3 Cr. Hrs.
**Prerequisite:** Computer experience highly recommended.
This course introduces the student to the unique design principles and World Wide Web Consortium (W3C) standards for creating effective Web sites. Web design process will be introduced to aid in the basic planning, wireframing, and construction of a project. Web graphic understanding will be integrated with its technical build. Students will design and code basic Web sites utilizing HTML and Cascading Style Sheets (CSS); with emphasis on access and semantic markup. Basic Web authoring tools and image editing software will be used.

### CGT 141 Introduction to Interactive Media (3-0) 3 Cr. Hrs.
**Prerequisite:** CGT 125 (may be taken concurrently).
This course is an introduction to the creation of interactive media. Students will learn how to make basic 2D animations and use basic scripting techniques to make interactive projects for CD-ROM and kiosk based projects. Emphasis will be on solving the special design and production problems encountered when creating non-linear projects, along with animation techniques, basic scripting, memory management, importing/exporting considerations, basic sound and video, project management and production planning.

### CGT 149 Typography (3-0) 3 Cr. Hrs.
**Prerequisite:** CGT 123 (may be taken concurrently).
This course introduces the graphic design student to the principles of typography by investigating letter forms as both an element of design and as a medium of communication. Concentration is on typeface identification, effective use of type to convey information, measuring systems and application of typography to computer graphics.

### CGT 154 Sound Editing for Graphic Artists (2-0) 2 Cr. Hrs.
**Prerequisite:** None.
This course provides an introduction to the basic concepts of sound production for computer and video based delivery systems. Also emphasized are the necessary hardware/software, sound recording and editing, file management and transfer and aesthetic considerations.

### CGT 157 Prepress (2-0) 2 Cr. Hrs.
**Prerequisite:** A grade of 2.0 or higher in the following courses: CGT 123, CGT 125 and CGT 127.
Every successful piece of graphic design succeeds on both the technical and conceptual level. This course focuses solely on the technical—or execution—part of graphic design as it relates to printed material. Students will have the opportunity to learn how commercial printing is done and how the printing process imposes limits on graphic design. Students will learn how to work with printers to achieve the best possible results.

### CGT 161 History of Graphic Design (3-0) 3 Cr. Hrs.
**Prerequisite:** None.
This course introduces the student to the history of graphic design and its application as a form of mass communication. Students examine how social, cultural and technical considerations have influenced the way information is designed for publication. Students learn how an understanding of historical, cultural and social influences leads to more effective graphic design in the modern world.

### CGT 163 Web Design and Development 2 (3-0) 3 Cr. Hrs.
**Prerequisite:** A grade of 2.0 or higher in the following course: CGT 136.
This course emphasizes the integration of design principles and software skills to create effective Web sites using advanced web design process. Students will explore design and development features; such as, User Interface and User Experience Design, HTML (5+), Cascading Style Sheets (3+) (CSS), tables (for tabular data display), forms, and embedding various media types; such as, Flash and video. Students will construct valuable solutions to the needs and goals of the client with attentive focus on project descriptions, design compositions, site maps, wireframes, usability testing, project management, and optimization. Students will study how the Web works, its design and development challenges, current industry standards specified by World Wide Web Consortium (W3C), and the transferring of local files to a remote live Web server. Adobe Dreamweaver and other current Web software will be used.

### CGT 166 Photography (3-0) 3 Cr. Hrs.
**Prerequisite:** Computer experience highly recommended.
This course is designed to instruct the student on photographic principles that affect exposure, image structure, composition, printing and the interface with digital media. Students will experience hands-on photography sessions that demonstrate lighting, visual effects and composition development based on contrast and focal point awareness. In conjunction with the camera, the student will explore advanced digital imaging options, the zone system and creative merging techniques. Course materials are designed for the student pursuing a graphic design career. The student will be required to have a 35mm camera and is responsible for film and processing costs or digital equivalent.

### CGT 168 Storyboarding (3-0) 3 Cr. Hrs.
**Prerequisite:** A grade of 2.0 or higher in the following course: CGT 125.
This course provides the student a working knowledge of storyboarding. It integrates creative expressions, emotional impressions and production processes into a cohesive conclusion. It provides the student an opportunity to expand a creative understanding of audio, cinematography, lighting and staging. Storyboarding is a basic need for the student pursuing careers in multimedia, interactive and performance arts.

### CGT 208 Digital Video Production (3-0) 3 Cr. Hrs.
**Prerequisite:** A grade of 2.0 or higher in the following courses: CGT 123, CGT 125 and CGT 168.
This course is an overview of skills required to create digital video productions. Students will develop video productions using pre-production planning, practical skills in camera usage, efficiencies in directing and production skills and refined non-linear editing. The productions developed during the semester will include informational, marketing and promotional materials.
CGT 210  Visual Effects Production (1-2) 3 Cr. Hrs.
*Prerequisite:* CGT 208 (may be taken concurrently).
This course is designed to integrate video production techniques. 3D model building and computer graphics compositing. Students will develop the practical skills to coordinate the merger of these techniques into a consistent visual effects production. This course will enable the students to effectively calculate shooting angles, monitor film speeds, develop mattes and scale 3D models or miniatures into a final scene. Safe Practical Effects will be developed that can be used on a set to accomplish dramatic effects while maintaining visual continuity of composited digital images.

CGT 211  Flash (3-0) 3 Cr. Hrs.
*Prerequisite:* Experience with a vector-art drawing program. CGT 123 may be taken concurrently.
This course provides the student with an introductory knowledge of working with Flash. Flash is a vector-based design program for the creation of animation, games and interactive components for use on the internet. Students will focus on the creation of basic animation and navigation components for use on the internet as well as for stand-alone projects.

CGT 212  Flash Action Scripting (3-0) 3 Cr. Hrs.
*Prerequisite:* A grade of 2.0 or higher in the following course: CGT 211 or equivalent experience with Flash.
This course provides an in-depth exposure to the Flash Action Scripting language. Students will learn to write scripts which extend and enhance the capabilities of the Adobe Flash software. During the semester, each student will design and produce a complex, highly interactive project such as a Web site, computer game or computer-based training module. Students should have a working knowledge of Flash before beginning this class.

CGT 215  Motion Graphics 1—After Effects (3-0) 3 Cr. Hrs.
*Prerequisite:* A grade of 2.0 or higher in the following courses: CGT 109, CGT 123, CGT 125 and CGT 168.
This course develops creative freedom and control for designing sophisticated motion graphics and visual effects for film, video, multimedia and the Web. Students will integrate previously learned applications into motion-graphics using Adobe After Effects and/or related applications. Students will develop an understanding of motion control and keying capabilities plus audio and visual effects.

CGT 226  Digital Imaging 2—Photoshop (3-0) 3 Cr. Hrs.
*Prerequisite:* A grade of 2.0 or higher in the following courses: CGT 109, CGT 123 and CGT 125.
This course will further explore the uses of photography and the digital image in the field of graphic design. Students will learn how object oriented graphics and design can be enhanced with the dynamic range of Photoshop options. Students will develop advanced compositing skills, sensitivity to the selection of color modes plus channel and masking options, restoration and repair processes and an understanding of usable effects.

CGT 231  Electronic Publishing (3-0) 3 Cr. Hrs.
*Prerequisite:* A grade of 2.0 or higher in the following courses: CGT 109, CGT 123, CGT 125 and CGT 127. CGT 226 may be taken concurrently.
This course emphasizes the integration of design and software skills to create more effective layouts for print media. Students will explore photography and digital imaging, illustration, graphic design and page layout. Students learn to use type effectively, create and integrate images and type, set up projects for printing and apply design principles to create effective and readable documents. Instruction in advanced software techniques and in the use of a variety of peripherals is featured. Emphasis will be on the application of software and design skills to a variety of realistic graphic design projects.

CGT 234  Web Design and Development 3 (3-0) 3 Cr. Hrs.
*Prerequisite:* A grade of 2.0 or higher in the following course: CGT 163.
This course emphasizes the integration of front-end design and development principles and software skills to architect effective user-friendly Web sites. Students will focus on advanced design and development features; such as, JavaScript, DOM (Document Object Model) Scripting, and the utilization of industry standard JavaScript frameworks. Students will apply software and development skills to realistic Web development projects. Students will explore common browsers compatibilities, developing Web sites and publishing local files to a remote live Web server. Adobe Dreamweaver or other current Web authoring and editor software will be used. The student will look at user experience considerations; such as, user interface architecture, usability, 508 compliance, and the standards specified by the World Wide Web Consortium (W3C) to produce an engaging end user Web experience.

CGT 244  History of Animation (3-0) 3 Cr. Hrs.
*Prerequisite:* None.
This class will give students a context for understanding the rich and unique history of animation and graphic design. In addition to learning important milestones in these fields, students will develop their eye and their aesthetic appreciation of this kind of art. Students will be exposed to the historical contingencies that lead to different developments as well as to animations and graphic design from all over the world. This course will also stimulate students in their own creative endeavors in their chosen field.

CGT 246  Motion Graphics 2—After Effects (3-0) 3 Cr. Hrs.
*Prerequisite:* CGT 127. CGT 226 may be taken concurrently.
This course will further explore the uses of audio, graphics and video in the field of motion graphics. Students will learn how object motion graphics programs can interrelate to develop informational and promotional media. Students will make extensive use of two- and three-dimensional motion and still graphics to design and create projects for video and/or multimedia applications.

CGT 247  3D Animation—Introduction (3-0) 3 Cr. Hrs.
*Prerequisite:* CGT 123 and CGT 125 (may be taken concurrently).
This course is designed to increase the student's familiarity with the 3D interface, concepts of 3D space and animation. It will provide an introduction to primitives, some modifiers and box-modeling techniques. Students will be exposed to lighting, texture mapping concepts and basic animation techniques. Students will also develop skill sets to create simple animations.
CGT 250  Practical Application (3-0) 3 Cr. Hrs.
Prerequisite: Must take one of the following courses either before or with this course: CGT 231, CGT 234, CGT 246, CGT 252 or ART 205.
Students will work in teams to develop and execute graphic design media for professional organizations, internal promotions and information media. They will function within work groups based on production skills. The groups are defined by track structures - Print Graphics, Web Design, Motion Graphics and Interactive Media. Emphasis is on applying skills to real world projects and on developing a professional portfolio. Students are instructed in team building, project management, research and interviewing techniques.

CGT 252  3D Animation—Animating (3-0) 3 Cr. Hrs.
Prerequisite: A grade of 2.0 or higher in the following course: CGT 254.
This class adds to the skill sets that students were exposed to in CGT 247 Introduction to 3D Animation and CGT 254 Advanced Models and Textures. In this class students will improve their understanding of the aesthetics and software technology involved in creating effective and convincing animation.

CGT 254  3D Animation—Advanced Models and Textures (3-0) 3 Cr. Hrs.
Prerequisite: A grade of 2.0 or higher in the following course: CGT 247.
This class follows up on the skill sets that students were exposed to in CGT 247 Introduction to 3D Animation. In this class students will learn modeling, texturing and lighting techniques at a more sophisticated level. These techniques will include polygon, patch, NURBS and subdivision surface modeling, creating custom textures, lighting and atmospheric effects. They will also learn the techniques of intelligent model building and issues in creating projects for a variety of delivery platforms.

CGT 256  Portfolio 3D—Reel Development (3-0) 3 Cr. Hrs.
Prerequisite: CGT 246 (may be taken concurrently).
This class prepares the student for finding a job in the field of 3D Animation or Video Production. In this course students will assemble their previous work into a professional presentation. In doing so, the student's strengths and weaknesses will be discovered and discussed. At least one project will be assigned to specifically address the individual student's portfolio needs. During the course students will create a traditional resume.

CGT 257  Portfolio Preparation (3-0) 3 Cr. Hrs.
Prerequisite: Must take one of the following courses either before or with this course: CGT 231, CGT 234 or CGT 246.
This class prepares the student for finding a job in the field of graphic design. In this course students will assemble their previous work into a professional portfolio/presentation. This is both a print-based and an electronic portfolio. Students will also create an identity logo, implementing it on their business card, resume and portfolio packaging. Students will explore job resources, interviewing skills and professional resources such as contracts and pricing guides.

CGT 270  Internship (3-0) 3 Cr. Hrs.
Prerequisite: Consent of department.
This internship is designed for the exceptional Computer Graphic Technology student. This course consists of work as an intern Graphic Designer, Media Developer or similar position with an approved business or company. CGT Internships will be administrated by a faculty member and approved by the CGT Department. The instructor and the business partner will jointly evaluate the student.
An additional project will be developed for the client outside the normal working hours. This project will be managed by the CGT faculty member.

CGT 298  Honors Studies (3-0) 3 Cr. Hrs.
Prerequisite: Completed (12) twelve hours of course work. Dean's List status (GPA 3.5) and consent of instructor.
An opportunity for the talented student to explore individually, in depth, under the guidance of a faculty member, a topic, issue or problem related to the field of Computer Graphics Technology. Available to Dean's List level students or equivalent and with the consent of the instructor. This course will not be listed in the schedule of classes. To enroll in this course, a candidate must submit a project plan to an instructor. The instructor will review the plan with the candidate and may recommend changes. When the project is approved, a course section will be created and the student will be given permission to enroll.

CHEMISTRY

CHEM 051  Basic Chemistry (4-2)  4 Cr. Hrs.
Prerequisite: MATH 053 or equivalent.
This is an elementary course in chemistry for students who have not had high school chemistry or who wish to review basic chemical concepts. This course provides an introduction to chemical measurement, basic definitions and laws, chemical nomenclature and equations, calculations based on chemical equations, atomic theory, the Periodic Table, solutions, acids, bases, gases and organic chemistry.

CHEM 100  Introduction to the Chemistry of Food for Culinary Arts (3-2)  4 Cr. Hrs.
Prerequisite: None.
Corequisite: Students must be enrolled in 100 level or above core culinary classes.
This course is designed to familiarize the culinary arts student with a basic understanding of scientific principles as they apply to foods and culinary processes. The course will include a basic introduction to various aspects of chemistry. Classes of foodstuffs will be examined on a molecular level to ascertain an understanding of the interactions that occur in culinary applications. The laboratory portion of the course will emphasize the relationships between chemical principles/techniques and food preparation.
CHEM 104  Fundamentals of Chemistry (4-3) 4 Cr. Hrs.
Prerequisite: MATH 053.
This course is a conceptual based, ‘real life’ application, chemistry lab science course. The course provides an introduction to basic chemical principles including classifications of matter and characteristic properties, atomic and molecular theories, chemical symbolism and nomenclature, periodic table analysis, bonding models, thermodynamics, acid/base concepts, solutions, oxidation/reduction and fundamental organic chemistry, as well as the application of general mathematical principles to chemical systems.

CHEM 111  General Chemistry 1 (4-3) 4 Cr. Hrs.
Prerequisite: CHEM 051, CHEM 104, or equivalent with a grade of 2.0 or better. MATH 113 or equivalent. Math may be concurrent.
This course is designed as a first course in a traditional one-year program in general college chemistry and includes fundamental concepts such as chemical formulas, chemical equations, laws of chemical combination and physical, chemical and nuclear properties. Atomic and molecular structure, bonding, stoichiometry, periodicity, gases, solutions, acids, bases, oxidation-reduction and nuclear chemistry are also covered in this course. Laboratory work correlates with lecture and stresses the major concepts in this course.

CHEM 117  General Chemistry 2 and Qualitative Analysis (4-4) 5 Cr. Hrs.
This course is the second course in a traditional one-year general college chemistry program and includes the study of kinetics, solution equilibria, solubility equilibria, hydrolysis, electrochemistry, coordination compounds, thermodynamics and qualitative analysis. A brief introduction to organic chemistry and quantitative analysis is also included. Laboratory work correlates with lecture and stresses the identification of common cations and anions by semi-micro methods.

CHEM 120  Organic and Biochemistry (3-3) 4 Cr. Hrs.
Prerequisite: CHEM 104 or CHEM 111.
This course is an introduction to both organic chemistry and biochemistry. Major topics covered include structures, functions and reactions of organic and biological compounds; the chemistry of metabolic processes; enzymatic processes; and related topics. The laboratory portion of the course includes exercises in organic and biochemistry designed to reinforce lecture topics.

CHEM 213  Organic Chemistry 1 (4-4) 5 Cr. Hrs.
Prerequisite: CHEM 117 with a grade of 2.0 or better or consent of department.
This is the first semester of the two-semester sequence of Organic Chemistry. Course content emphasizes bonding and structure of carbon compounds, as well as a mechanistic understanding of organic reactions. Other topics include standardized nomenclature, acid-base behavior of organic molecules, classification of compounds based on functional groups and their characteristic reactions and structure/properties relationships. The laboratory portion of the course covers a range of techniques fundamental to the practice of organic chemistry. Students are also introduced to the use of modern spectroscopy for structural determination.

CHEM 214  Organic Chemistry 2 (4-4) 5 Cr. Hrs.
Prerequisite: CHEM 213 with a grade of 2.0 or better or consent of department.
This is the second semester of the two-semester sequence of Organic Chemistry. Course content emphasizes characteristic reactions of aromatic compounds and a wide variety of more complex functional groups, including carbonyl compounds, carbonyl-derivatives and amines. Practical application of functional-group transformation reactions to organic synthesis is addressed, as is utilization of a number of spectroscopic methods for structural determination. The laboratory portion of the course continues development of practical skills in organic transformations using more complex reaction techniques with application to organic synthesis.

CHIN 101  Elementary Chinese 1 (4-0) 4 Cr. Hrs.
Prerequisite: None.
This course is intended for students who have no previous education in Chinese. The course will cover basic grammar patterns and build competence in all four skill areas: speaking, listening, reading and writing. Through varied activities, emphasis will be placed on oral proficiency and communication. An appreciation of Chinese culture will be an integral part of the course.

CHIN 102  Elementary Chinese 2 (4-0) 4 Cr. Hrs.
Prerequisite: CHIN 101 with a grade of 2.0 or better or one year of high school Chinese or consent of instructor.
This course is a continuation of CHIN 101 and continues to review the basic grammar patterns and build competence in all four skill areas: speaking, listening, reading and writing. Through varied activities, emphasis will be placed on oral proficiency and communication. An appreciation of Chinese culture will be an integral part of the course.

CIS 105  Computer Orientation (1-0) 1 Cr. Hr.
Prerequisite: None.
This course is designed for students who have had little or no experience with computers. Topics covered in this course include introduction to the Windows-based operating systems and some word processing concepts. Basic word processing concepts will be introduced using the hands-on approach. Successful completion of this course meets the minimum requirement needed to qualify a student to use one of the college’s computers during open lab hours.

CIS 115  Introduction to Computer-Based Systems (3-0) 3 Cr. Hrs.
Prerequisite: None.
Recommended: Computer and keyboarding experience.
In today’s world of rapid technological advances, the prevalence of computers in the home and the office increases the demand for computer literacy and competency. The intent of this course is to help you become competent and comfortable in using computers to achieve professionalism in your chosen field of endeavor. A variety of topics will be addressed, such as computer hardware and software, the internet and Web resources, networking and security and mobile computing.
CIS 120  Software Applications (3-0) 3 Cr. Hrs.
Prerequisite: None.
Recommended: Computer and keyboarding experience.
This course is designed to provide hands-on experience with a current office software package for the computer. Emphasis is in the area of word processing, spreadsheets, database management and a presentation software program.

CIS 122  Microsoft Outlook (2-0) 2 Cr. Hrs.
Prerequisite: CIS 120.
This course is designed to provide practical, hands-on experience with Microsoft Outlook. Microsoft Outlook is a flexible messaging and personal information management program used to send and receive email, as well as to manage messages, appointments, contacts and tasks.

CIS 125  Principles of Information Security (3-0) 3 Cr. Hrs.
Prerequisite: None.
This course examines the field of information security to prepare individuals for their future roles as business decision makers. This course provides the foundation for understanding the key issues associated with protecting information assets, determining the levels of protection and response to security incidents, and designing a consistent, reasonable information security system with appropriate intrusion detection and reporting features. In addition, the course also covers both the managerial and the technical aspects of this exciting discipline and addresses knowledge areas of CISSP (Certified Information Systems Security Professional) certification.

CIS 129  Introduction to Programming Logic (3-0) 3 Cr. Hrs.
Prerequisite: None.
This is an introductory programming course where students will learn the fundamentals of program logic and design. Heavy emphasis is placed on program design techniques. Students will develop programs using top-down design, structured programming and modular development methods.

CIS 170  Microsoft Windows (3-0) 3 Cr. Hrs.
Prerequisite: None.
Recommended: Computer experience.
This course is designed to explore the features of the latest Windows desktop operating system which includes modules such as digital media, electronic messaging, networking, remote assistance, etc. In addition to studying the features that are included in Windows, the class will also emphasize customizing Windows to meet the user's needs. The students will learn to work with the desktop environment, documents and folders, toolbars and taskbar, control panel, file and Web searching tools, help files and computer maintenance and performance optimization tools. It is recommended that students have experience using computers and have proficiency in keyboard and mouse usage.

CIS 171  Introduction to Networking (3-0) 3 Cr. Hrs.
Prerequisite: None.
Recommended: Computer experience.
This course introduces students to the key concepts of data communications, telecommunications and networking. The course provides a solid introduction to networking fundamentals including key acronyms, protocols and components that are essential to understanding how networks operate today. Upon completion, the student will have a solid understanding of how information travels from a source computer to a destination computer across a complex network.

CIS 172  Network Security Fundamentals (3-0) 3 Cr. Hrs.
Prerequisite: CIS 171.
This course is designed to provide students a fundamental understanding of network security principles and implementation. A variety of activities will reinforce the technologies used and principles involved in creating a secure computer network environment.

CIS 173  Wireless Local Area Networks (3-0) 3 Cr. Hrs.
Prerequisite: CIS 171.
This course is designed to provide students a fundamental understanding of wireless data communication standards and technologies. It will also provide an overview of various opportunities and markets in the industry. Security aspects of each wireless technology are also explored.

CIS 176  Visual Basic.NET (3-0) 3 Cr. Hrs.
Prerequisite: CIS 129.
Recommended: Windows experience.
This course is designed to provide students with the knowledge and skills needed to develop applications in Microsoft Visual Basic.NET for the Microsoft .NET platform. The course focuses on user interfaces, program structure, language syntax and implementation details. It is recommended that students have experience using Microsoft Windows before taking this course.

CIS 178  Technical Microsoft Windows (3-0) 3 Cr. Hrs.
Prerequisite: None.
Recommended: Computer experience.
This course is designed to serve the needs of students and information systems professionals who are interested in learning more about the features of the Windows Professional operating system, as well as individuals who are interested in obtaining Microsoft certification on this topic. This course includes real world examples, interactive activities and hands-on projects that reinforce key concepts in preparing for Microsoft certification. It is recommended that students have experience using computers and have proficiency in keyboard and mouse usage.

CIS 180  Spreadsheet Applications—Current Software (3-0) 3 Cr. Hrs.
Prerequisite: CIS 120.
This course addresses the use of spreadsheet applications as a means to solve problems. Students will analyze comprehensive problems and design a worksheet solution that conforms to established criteria and goals. Emphasis is placed on thinking through problems and using a comprehensive host of tools and features in a popular spreadsheet software package to develop logical solutions.
CIS 185  Introduction to HTML (3-0) 3 Cr. Hrs.
Prerequisite: None.
This course provides advanced instruction in the most important topics of HTML. The course begins with the basics of creating Web pages with graphics and links, using tables and controlling page layout with frames. Advanced topics covered include cascading style sheets, an introduction to programming with JavaScript and working with JavaScript objects and events. The student is instructed in elements of Web page design. Each student will produce a large-scale multimedia Web page as a semester project.

CIS 211  Introduction to C++ (2-0) 2 Cr. Hrs.
Prerequisite: CIS 129.
This course is an introduction to the C++ programming language. The student will learn the basics of the C++ language up through and including control structures, functions and pointers. This course is intended for those who want a general knowledge of the C++ language.

CIS 215  Advanced Software Applications (3-0) 3 Cr. Hrs.
Prerequisite: CIS 120 or consent of department.
This course is designed for students who have a working knowledge of the computer and word processing, spreadsheet and database packages. Advanced features of the software are developed building on a foundation of a beginning software applications course.

CIS 221  Advanced C++ (2-0) 2 Cr. Hrs.
Prerequisite: CIS 211.
This course is a continuation of the Introduction to C++ programming language course. The student will learn the advanced concepts of the C++ language up through and including operator and function overloading, inheritance, virtual functions, polymorphism, stream I/O, templates, exception handling, file processing and data structures. This course is intended for those who desire an advanced knowledge of the C++ language.

CIS 223  Introduction to C# (3-0) 3 Cr. Hrs.
Prerequisite: CIS 129.
This course is an introduction to the C# programming language. The student will learn the basics of the C# language up through Windows programming and including creating Web server form controls. This course is intended for those who want a general knowledge of the C# language, part of the Microsoft VisualStudio.NET.

CIS 225  Database Management Systems (3-0) 3 Cr. Hrs.
Prerequisite: None.
This course covers a popular relational database, Microsoft Access, in depth. Emphasis is on creating, editing, sorting, linking and querying databases. Forms, switchboards and custom reports will be created. Advanced topics include designing and creating a complete application system, as well as programming in SQL. Emphasis will also be on understanding the concepts behind database management system design to prepare students to be both users and developers.

CIS 231  Managing and Troubleshooting PCs (3-0) 3 Cr. Hrs.
Prerequisite: None.
Recommended: Windows experience.
Personal computer servicing and support will be covered within the following topics: physical and electrical concepts of motherboards, power supplies, BIOS and expansion buses; definitions and uses of microprocessors (CPUs), memory system resources and input/output devices; data storage devices and interfaces; cables, connectors and ports; basic networking fundamentals; and operating system fundamentals and DOS.

CIS 235  JavaScript (3-0) 3 Cr. Hrs.
Prerequisite: CIS 185 or CGT 136 or a basic knowledge of HTML.
JavaScript is a powerful, object-based scripting language that can be embedded directly into HTML pages. JavaScript allows you to create dynamic, interactive Web-based applications that run completely within a Web browser. This course covers JavaScript as a client-side scripting language.

CIS 238  System Development and Design (4-0) 4 Cr. Hrs.
Prerequisite: Completed (24) twenty-four credit hours of CIS courses or consent of department.
The student will be made aware of various tools available to the systems analyst in solving business problems. Basic tools are used by the student in the design of a system for a practical business application. Emphasis is placed on the communication between the systems analyst and the other levels of management. “Selling” of new systems and methods is stressed. Detailed steps of each phase of systems design are shown in their relationship to the overall study.

CIS 250  IT Project Management (3-0) 3 Cr. Hrs.
Prerequisite: None.
Recommended: Basic knowledge and/or experience in the field of IT.
This course presents the fundamental principles, practices and tools necessary to effectively manage Information Technology projects. Nine project management knowledge areas will be applied including integration, scope, time, cost, quality, human resources, communications, risk and procurement. The five process groups - initiating, planning, executing, controlling and closing - will be employed in IT projects. Examples of various Microsoft projects will be utilized to help reinforce some of the concepts.

CIS 255  Introduction to LINUX (3-0) 3 Cr. Hrs.
Prerequisite: CIS 170.
This course is designed for students pursuing careers in computer information systems or who are currently in the industry. This is an introductory course that provides an overview of the LINUX operating system. A hands-on approach to common LINUX applications is used. Topics discussed include the LINUX operating system, basic LINUX desktop and terminology, LINUX utilities and basic bash programs.

CIS 265  Networking 1 (3-0) 3 Cr. Hrs.
Prerequisite: CIS 235.
This course is designed to introduce the student to basic computer networking protocols, standards and systems applicable to Local Area Networks (LAN) and Wide Area Networks (WAN).
CIS 267  Home Technology Integration (4-0) 4 Cr. Hrs.  
Prerequisite: Computer experience recommended.  
This course is designed to introduce the student to networking technologies, audio visual systems, automation methods and telecommunication techniques that converge in integrated home technology. The student will practice installing and maintaining a home networking system.

CIS 271  Local Area Networks (3-0) 3 Cr. Hrs.  
Prerequisite: CIS 171.  
This course begins with the basics of Local Area Networks (LAN) concepts, technologies, components and protocols inherent in today’s local area networking environments. Students will see how computers are connected together to form peer-to-peer and server-based networks and discover the functionality and uses of a router, bridge, switch, hub and repeater. The two most commonly used network operating systems today, Microsoft’s NT and Novell’s NetWare, are also introduced in this course. VLANs and the various forms of Ethernet technology such as Fast Ethernet are also explained.

CIS 273  TCP/IP and Network Architectures (3-0) 3 Cr. Hrs.  
Prerequisite: CIS 171.  
This course introduces students to the key concepts of Transmission Control Protocol/Internet Protocol (TCP/IP). The world’s largest network, the Internet, is also one of the world’s most powerful communication tools. Students learn the underlying applications, components and protocols of TCP/IP and its necessary link to the Internet and how to identify TCP/IP layers, components and functions. Navigation tools, TCP/IP services and troubleshooting methodologies are also reviewed.

CIS 276  Networking 2 (3-0) 3 Cr. Hrs.  
Prerequisite: CIS 265.  
This course is designed to follow the introduction to networking (Networking 1) course. Students will learn LAN configurations and protocols. Installation, management and troubleshooting Microsoft Windows server on a local area network will be covered. Additional topics on hardware, clients, domains, user accounts and printers will be covered.

CIS 290  Object-Oriented Programming With Java (3-0) 3 Cr. Hrs.  
Prerequisite: CIS 129.  
This course provides an introduction to object-oriented programming using Java. Students will develop real world application programs and Web-based applets based on object-oriented programming concepts including encapsulation, inheritance and polymorphism.

CJ 102  Organization and Administration of Law Enforcement Agencies (3-0) 3 Cr. Hrs.  
Prerequisite: None.  
This course will provide the student with an overview and understanding of law enforcement management and supervision to include an historical perspective and appropriate applications. Students will be exposed to managerial processes with regard to communication, decision making and problem solving that enable managers to effectively train and motivate subordinates. This course will identify how law enforcement managers effectively handle discipline, complaints, grievances, conflict and stress. This course will further identify how managers deploy resources, improve productivity and utilize performance appraisals and evaluations. Students will analyze challenges in managing law enforcement agencies in a changing environment.

CJ 104  Introduction to Security (3-0) 3 Cr. Hrs.  
Prerequisite: None.  
This course examines the systems and organization of security with primary emphasis on the private sector. You will learn about the role of security, contemporary issues in security including legal authority, enhancing forms of physical security and security in multiple industries and institutional settings. Finally, we will evaluate the challenges and standards of the security profession and its expanding responsibilities.

CJ 107  Police Field Operations (3-0) 3 Cr. Hrs.  
Prerequisite: None.  
This course is a practical study of purposes, methods, types and means of law enforcement patrol, accident prevention and effective traffic control interviewing techniques. Students will learn about crimes in progress, stress survival and use of force. Training will be received on proper methods of conducting preliminary investigations, unlawful assembly and riot control.

CJ 113  Introduction to Criminal Justice System (3-0) 3 Cr. Hrs.  
Prerequisite: None.  
This course covers the overall system of criminal justice from crime detection to the release and revocation of prisoners. The student will examine the role of law enforcement officers, corrections officers, probation officers, defense attorneys, prosecutors and judges as they relate to the defendant. The student will analyze the components of the system (law enforcement, courts and corrections) with emphasis on their interrelationships and expectations.

CJ 201  Criminal Investigation (3-0) 3 Cr. Hrs.  
Prerequisite: None.  
This course is a study of criminal investigation techniques of surveillance, collection, recording and preservation of evidence. Students will study the analysis of evidence and use of science laboratories. This course will be conducted in cooperation with other law enforcement agencies.

CJ 209  Basic Criminalistics (2-2) 3 Cr. Hrs.  
Prerequisite: None.  
This course acquaints students with proper techniques of criminalistics. Students will have an opportunity to perform investigations in simulated crime scene situations using scientific investigative techniques involving collection, presentation and interpretation of physical evidence.
COURSES

COURSES

CM 109  Hospitality Law (3-0) 3 Cr. Hrs.
Prerequisite: None.
This course provides students with an overview of the general concepts of law as it relates to the hospitality industry. Contract, property, employee, guest, insurance, food and beverage responsibility and business operating structure issues will be covered. The emphasis will be on restaurant law, but applicability to other aspects of hospitality law, such as catering and hotel management, will be explored.

CM 203  Restaurant Concepts and Design (3-0) 3 Cr. Hrs.
Prerequisite: None.
This course will explore new concepts for the entrepreneur in the restaurant industry. New trends and restaurant décor along with facility layout and design will be emphasized.

CM 210  Wine and Spirits (3-0) 3 Cr. Hrs.
Prerequisite: Students must be at least 18 years of age to take this course [MCL 436.1703 Section 703, (10)].
This course will provide comprehensive, detailed information about the origins, production and characteristics of all types of alcoholic beverages, including beer, wine and distilled spirits, such as whiskies and brandies. Attention will be given to table, sparkling and dessert wines. The student will gain an understanding of regional beverage styles of North America, the British Isles, France, Italy, Germany, the Iberian Peninsula and the Southern Hemisphere. Production practices and regulations, climatic and political influences, beverage characteristics and deductive evaluation methods will be studied. This is an elective course.

COLLEGIATE SKILLS

COLLS 050  College Reading (4-0) 4 Cr. Hrs.
Prerequisite: Reading Placement Score ACT 11 – 14 / CPT 32 - 56.
This course focuses on developing vocabulary and comprehension skills in group and lab settings. Students will explore and develop reading strategies to improve reading and vocabulary fluency.

COLLS 053  Critical Reading and Thinking Applications (4-0) 4 Cr. Hrs.
Prerequisite: COLLS 050 or Reading Placement Score ACT 15 - 17 / CPT 57 - 69.
This course focuses on developing brain-based comprehension strategies to actively read and process information from a variety of texts. Students will study test taking, including proper question/answer techniques. They will learn a variety of vocabulary strategies as well as strategies to critically analyze, synthesize and evaluate argumentative and expository essays.

COLLS 105  Learning Skills (1-0) 1 Cr. Hr.
Prerequisite: 30 credit hours and consent of the Department.
This course is designed to provide students with the learning skills and support necessary to successfully balance academic and other life demands. Students will apply techniques to their personal situations and course load requirements.

COLLS 111  Electronic Portfolio (1-0) 1 Cr. Hr.
Prerequisite: None.
This course introduces the Schoolcraft College Electronic Portfolio. Students will engage the college learning experience by 1) growing an awareness of the college's expectations that they will acquire the attitudes, skills, knowledge and ability characteristic of generally educated persons, 2) understanding the changing nature of the college learning focus from acquisition of courses and credits to providing demonstrable evidence of their learning outcomes and 3) starting the process of creating their personal electronic portfolios as the primary vehicle for showcasing their demonstrable evidence. Students will leave the course with some experience in the college learning environment, knowing the kind of expectations they will meet in their courses and programs and the beginnings of their own Schoolcraft College Electronic Portfolio on electronic media.
COMA 210 Communication for Leaders (3-0) 3 Cr. Hrs.
Prerequisite: COMA 103.
This course is an exploratory examination of the leadership role within today's professional arena. The course is designed as an overview to develop communication awareness and effectiveness in teams of leaders within the community, corporate interviews, small group discussions and problem-solving in staff meetings and presentations as well as an examination of communication barriers.

COMA 200 Interpersonal Communications (3-0) 3 Cr. Hrs.
Prerequisite: COMA 103 or consent of instructor.
This course provides study and practical application exercises in the basic elements of interpersonal communication with emphasis on self-concept, perception, meanings, listening, feedback, defensive communication barriers and nonverbal communication. Special attention will be given to improving interpersonal communication skills.

COMA 201 Discussion (3-0) 3 Cr. Hrs.
Prerequisite: COMA 103 or equivalent.
This course conveys a better understanding of human affairs. The student will review attitudes and skills for effective participation in discussion including cooperative thinking, exchange of ideas and problem solving.

COMA 103 Fundamentals of Speech (3-0) 3 Cr. Hrs.
Prerequisite: None.
This course develops essential skills through directed practice in a variety of speech situations and furnishes basic knowledge necessary for intelligent speech improvement; stress is on speaker's ideas, attitudes and audience adjustment.

COLLS 211 Electronic Portfolio—Exit Course (1-0) 1 Cr. Hr.
Prerequisite: COLLS 111.
This course concludes the process of building the Schoolcraft College Electronic Portfolio begun in COLLS 111. Students will review their college learning experience as well as collect, organize and reflect upon evidence that they have developed attitudes, skills, knowledge and abilities associated with a generally educated person during that experience. Students will create personal program-level portfolios following the college's specified guidelines that demonstrate their academic achievements and showcase what they have to offer as Schoolcraft College graduates. The college may select a sample of the portfolios produced for assessment of institutional or program outcomes.

COMMS 210 Communication for Leaders (3-0) 3 Cr. Hrs.
Prerequisite: COMA 103.
This course is an exploratory examination of the leadership role within today's professional arena. The course is designed as an overview to develop communication awareness and effectiveness in teams of leaders within the community, corporate interviews, small group discussions and problem-solving in staff meetings and presentations as well as an examination of communication barriers.

COMA 230 Introduction to Mass Communication (3-0) 3 Cr. Hrs.
Prerequisite: COMA 103.
Understanding media in today's world is more than a scholarly exercise; it is a necessary survival skill in a world that has been utterly changed by mass communication. All students, whether they will be practitioners, critics or consumers, have to be able to analyze the ways in which mass media is being used to change the world. This course provides the tools needed to accomplish this analysis.

COMPS 124 Introduction to Personal Computers and Software (3-0) 3 Cr. Hrs.
Prerequisite: None.
This course is designed to introduce the student to the hardware and software aspects of the personal computer. The student will learn to identify the key components of the computer. Numbering systems, digital logic, memory devices, digital circuits and systems will be introduced to the student. An introduction to operating systems will be covered. The student will learn how a computer operates and how data is organized on a hard drive, how to format disks and how to transfer data.

COMPS 126 Technical Programming (3-0) 3 Cr. Hrs.
Prerequisite: Computer and keyboarding experience highly recommended.
This course will introduce the student to the steps involved in writing a Windows program using the Visual Basic programming language. The course focuses on user interfaces, program structure, language syntax and implementation details. The student will also use the computer as a tool in problem solving.

COMPS 125 Introduction to Mass Communication (3-0) 3 Cr. Hrs.
Prerequisite: COMA 103.
Understanding media in today's world is more than a scholarly exercise; it is a necessary survival skill in a world that has been utterly changed by mass communication. All students, whether they will be practitioners, critics or consumers, have to be able to analyze the ways in which mass media is being used to change the world. This course provides the tools needed to accomplish this analysis.
DESIGN

DSGN 180 Machine Elements and Design (3-2) 4 Cr. Hrs.
Prerequisite: CAD 106 and MATH 113. CAD 211 or CAD 221.
This course is designed to introduce the student to the various machine elements and the mechanical/working relationship between elements that make up a mechanism. The machine element concepts covered include fasteners, gears, cams, linkages and bearings. The introduction to the design process includes problem definition, needs analysis, design/performance objectives, cost analysis, design alternatives, feasibility analysis and design selection. Simulation is used to test design proposals for strength and reliability.

DSGN 250 Tool, Die and Fixture Design (2-4) 4 Cr. Hrs.
Prerequisite: CAD 107, DSGN 180 and CAD 211 or CAD 221.
Tool, Die and Fixture Design is a specialized phase of mechanical or manufacturing engineering. This course will cover the development of jigs and fixtures, work holding devices and press working tools such as cutting dies, piercing dies, forming dies and drawing dies. Emphasis is placed on the types of tools, supporting and locating principles, clamping methods, construction methods, theory of metal cutting and metal forming. Design projects are used to reinforce theory and to provide an opportunity to gain practical experience. Sketching and CAD will be used to develop, create and design customs jigs, fixtures, dies and die types. ANSI/ASME Standards are followed for the creation of solid models, multi views, drawings, tolerances and dimensioning practices.

DSGN 280 Capstone Project (3-2) 4 Cr. Hrs.
Prerequisite: MET 102, MET 114, MFG 105, CAD 107 and DSGN 180 or consent of instructor.
This course utilizes a multidiscipline capstone project to integrate the concepts of design, manufacturing and material science. Working as a team, a design problem will be presented requiring solutions which involve the management of the design process using the systematic engineering design process. The steps include project planning, research, modeling, analysis, prototype building, process mapping and material selection. The results of the project will be reported in written and oral format and presented to a panel for evaluation. Faculty directed study will be provided.

ECONOMICS

ECON 103 Introductory Economics (3-0) 3 Cr. Hrs.
Prerequisite: None.
This course is a survey of the macroeconomic concerns of national income determinations, business cycles, unemployment, inflation and both fiscal and monetary policies to stabilize the aggregate economy. In addition, this course explores the microeconomic fundamentals of demand, supply, elasticity, consumer choice, the production costs of output and resource allocation of firms operating under various market structures and the international economy.

ECON 201 Principles of Macroeconomics (4-0) 4 Cr. Hrs.
Prerequisite: MATH 053 or equivalent.
Macroeconomics refers to that portion of economic analysis which is concerned with behavior of economy-wide issues, e.g., inflation, unemployment, etc. By means of theoretical reasoning and empirical research, economists have identified a number of relationships or principles which are useful in explaining and predicting macroeconomics, their application to an understanding of current economic problems and their implication for economic policy. The intent of the course is to provide the student with a basic level of economic literacy essential for a well-informed citizenship in the years ahead. In economics, perhaps more than any other comparable discipline, things are not always what they appear to be. Indeed, many economic problems both past and present have resulted from the misunderstanding of fundamental economic relationships.

ECON 202 Principles of Microeconomics (4-0) 4 Cr. Hrs.
Prerequisite: MATH 053 or equivalent.
This course provides students with an introduction to the theory of consumer behavior, production theory, market structure in product and resource/factor markets and microeconomic policy.

EDUCATION

EDUC 101 Introduction to Education (3-0) 3 Cr. Hrs.
Prerequisite: Reading: CPT 70 or above or ACT 18 or above. English: CPT 71 or above, ACT 18 or above.
This is an introductory course for prospective education majors, designed to explore the teaching profession. Students will gain insight into the practical elements of becoming an educator through an overview of the foundational philosophies of education, best practices, classroom management, education law and policies and trends. Students will be introduced to Michigan standards and requirements for teacher certification. Students will complete 15 hours of relevant field work.

EDUC 110 Child Development (3-0) 3 Cr. Hrs.
Prerequisite: None.
This course is designed to provide students an overview of life from its beginning through emerging adulthood. The course will concentrate on physical, cognitive, social and emotional development in the prenatal, infancy, toddler, preschool, middle childhood and adolescent periods.

EDUC 200 Children With Special Needs (3-0) 3 Cr. Hrs.
Prerequisite: College-level reading and writing.
This course is designed to introduce students to the topic of children/students with special needs. Included is the exploration of cognitive impairments, emotional impairments, learning impairments, visual and hearing impairments, orthopedic and/or other health impairments, giftedness and instructional strategies for these special needs.
EDUC 205  Promoting Learning in a Diverse Society, Using Family, School and Community Partnerships (3-0) 3 Cr. Hrs.
Prerequisite: EDUC 101.
Students will learn about the relationship between schools and society within the context of the culturally diverse American society, in addition to the role of the teacher in promoting educational equity and quality for all students. Emphasis will be placed on the theory and practice of supporting families, connecting with community resources, and building partnerships in schools to promote student learning. Students will complete 15 hours of relevant field work.

EDUC 210  Elementary Instructional Strategies (3-0) 3 Cr. Hrs.
Prerequisite: Admission to the Alternative Route to Interim Teacher Certification Program.
This course is designed to provide in-depth exploration of and practice with essential elements associated with being a professional elementary educator. Students will gain knowledge of and practical experience with lesson planning, classroom management strategies, student motivation and learning, using technology to enhance learning and collaboration in the learning environment. Students will review current best practices in elementary instruction, assessment, curriculum design and community relationships. Students will complete 10 hours of relevant field work.

EDUC 220  Secondary Instructional Strategies (3-0) 3 Cr. Hrs.
Prerequisite: Admission to the Alternative Route to Interim Teacher Certification Program.
This course is designed to provide in-depth exploration of and practice with essential knowledge, skills and disposition for secondary educators. Students will review current best practices in secondary instruction, assessment and curriculum design. Students will gain knowledge and skills to effectively plan and teach secondary lessons. Students will also study and observe the roles and attributes of successful secondary education teachers. Students will complete 10 hours of relevant field work.

EDUC 230  Teaching Literacy in the Elementary Classroom 1 (3-0) 3 Cr. Hrs.
Prerequisite: Admission to the Alternative Route to Interim Teacher Certification Program.
This course will focus on research-based, instructional strategies that foster literacy in the elementary classroom. Strategies include identifying and assisting struggling readers and writers, creating instructional activities that meet the needs of individual learners, developing authentic assessments to monitor on-going student progress and ultimate skill mastery and utilizing technology to augment reading and writing. Knowledge of the stages of literacy development and its elements will be reinforced. Students will review current literature on literacy and, in collaboration with other students, synthesize ideas of theory and practice.

EDUC 240  Teaching Literacy in the Elementary Classroom 2 (3-0) 3 Cr. Hrs.
Prerequisite: EDUC 230.
This course will focus on research-based, instructional strategies that foster literacy in the elementary classroom. Strategies include identifying and assisting struggling readers and writers, creating instructional activities that meet the needs of individual learners, developing authentic assessments to monitor on-going student progress and ultimate skill mastery and utilizing technology to augment reading and writing. Knowledge of the stages of literacy development and its elements will be reinforced. Students will review current literature on literacy and, in collaboration with other students, synthesize ideas of theory and practice.

EDUC 250  Teaching Literacy in the Secondary School (3-0) 3 Cr. Hrs.
Prerequisite: Admission to the Alternative Route to Interim Teacher Certification Program.
This course is designed to provide in-depth exploration of literacy instruction in the secondary classroom. Students will explore strategies for teaching literacy in the secondary content areas for all learners, including those from diverse backgrounds and ESL learners, as well as struggling readers and writers. Factors impacting and strategies for supporting secondary literacy instruction will be discussed and demonstrated. Current best practices in the field will be reviewed. Students will complete 10 hours of relevant field work.

EDUC 260  The Professional Educator (1-0) 1 Cr. Hr.
Prerequisite: Consent of Department.
This course will address the knowledge, skills and dispositions which are demonstrated by a highly qualified, effective teacher. Students will collect, organize and reflect upon evidence that demonstrates their attitudes, skills, knowledge and abilities as an effective educator. This is the capstone course for the Alternative Route for Interim Teacher Certification Program.

EDUC 270  Instructional Technology (1-2) 3 Cr. Hrs.
Prerequisite: EDUC 101, EDUC 200, EDUC 205 and either EDUC 110 or PSYCH 249.
Students will examine and apply the effective use of technology to student learning in grades K-12. They will evaluate instructional media materials, courseware and software for classroom use and develop materials using various software applications to support classroom instruction and professional communications. Students will create a professional learning portfolio. This is the capstone course for the Teacher Education Transfer Program.

EDUC 290  Fieldwork Practicum (0-2) 2 Cr. Hrs.
Prerequisite: Consent of Department.
Students will spend a minimum of 60 clock hours observing, assisting and teaching in a classroom under the supervision of a certified classroom teacher. Students will also participate in four scheduled seminars.
ELECTRONIC TECHNOLOGY

ELECT 131 Basic Measurement and Reporting Skills (1-2) 3 Cr. Hrs.
Prerequisite: None.
This course is designed for students who are pursuing a career in electronics or electronic related fields. The student will receive instruction on how to conduct career research and in the proper use of basic measuring instruments, such as the Digital Multimeter (DMM), the Volt-Ohm Meter (VOM), the sine wave generator and the oscilloscope. In the electronics laboratory, the student will make measurements, record data, maintain a logbook and develop conclusions based on the results. In the computer laboratory, students will learn how to organize and report their findings utilizing word processing, spreadsheet and presentation software.

ELECT 133 Introduction to Battery Technology (3-0) 3 Cr. Hrs.
Prerequisite: None.
Understanding batteries in today's commercial applications is becoming increasingly important. Batteries provide a means of storing energy for use in portable electronic devices ranging from personal entertainment to advanced medical, industrial applications, as well as a means to reduce emissions in electric and hybrid electric vehicles. The need to derive energy from solar, wind and other renewable forms of energy and store it underscores the importance of advanced energy storage solutions to the emerging global economy. This course will cover the principles and operation of batteries. The contrast between secondary and primary batteries will be studied. Specialized battery systems as well as fuel cells will also be covered.

ELECT 137 DC Circuits and Mathematical Modeling (2-3) 5 Cr. Hrs.
Prerequisite: MATH 053 or one year of high school algebra.
Corequisite: ELECT 131.
This course is the study of basic DC Fundamentals and mathematical modeling for the electronics careers which includes Ohm's law, power law and Kirchhoff's laws with application to solving series, parallel and series-parallel combination circuits. Other topics will include resistors, color code, magnetism, electromagnetism and test equipment. The mathematics skills needed for an electronics career will also be covered in this course. The student will be prepared to enter the second semester course of ELECT 138 AC Fundamentals and Mathematical Modeling. Laboratory experiments and project(s) are utilized to teach the use of test equipment and to demonstrate the principals taught in lecture.

ELECT 138 AC Circuits and Mathematical Modeling (2-3) 5 Cr. Hrs.
Prerequisite: ELECT 137.
This course is designed to explore the theory and application of AC Fundamentals. Sine wave generation and analysis will be studied. The theory of Kirchhoff's laws will be used to solve AC series, parallel and series-parallel circuits using the method of phasors. Other topics covered include capacitors, inductors, transformers, resonance, passive filters, RC and RL circuits. Laboratory experiments are utilized to teach the use of common test equipment and to demonstrate the principals taught in lecture.

ELECT 139 Diodes and Transistors (1-2) 3 Cr. Hrs.
Prerequisite: None.
Corequisite: ELECT 138.
This course will introduce the students to various semiconductor devices starting with a discussion of internal construction, followed by circuit configurations, applications and troubleshooting techniques. Diodes will be discussed first and will include signal, rectifier, Zener and light emitting types. Transistor material will cover NPN and PNP bipolar types, J type FETs, enhancement and depletion MOSFETs. Finally, transistor switching circuits will be examined.

ELECT 144 Introduction to Microcontrollers (1-2) 3 Cr. Hrs.
Prerequisite: Computer and keyboarding experience are highly recommended.
This course will introduce the student to the concepts of microcontroller architecture, block components, numbering systems and microprocessor program editing software. Representative microcontroller commands and elementary programming of a microcontroller will be studied. Students will work with hands-on experiments, which they will learn to expand and customize for their personal needs.

ELECT 145 Fluid Power (2-2) 4 Cr. Hrs.
Prerequisite: MATH 053 or equivalent.
This course emphasizes the understanding of the fundamentals of hydraulics and pneumatics. In this course, students will design, analyze, operate and maintain fluid power systems. Emphasis is placed on understanding the physics of fluids and how energy, power and force affect the devices that make up a hydraulic and pneumatic system.

ELECT 180 LabVIEW Programming CORE 1 and 2 (2-3) 5 Cr. Hrs.
Prerequisite: Computer and keyboarding experience highly recommended.
This course will introduce the student to the programming concepts, techniques, features and functions involved in writing a LabVIEW program. The student will learn to create programs used in test and measurements, data acquisition, instruments control and data logging. The course focuses on user interfaces, program structure, language syntax and implementation details.

ELECT 215 Operational Amplifiers and Linear Integrated Circuits (2-2) 4 Cr. Hrs.
Prerequisite: ELECT 139.
This course will introduce the student to operational amplifiers (op amp) and linear integrated circuits. Op-amp circuit configurations, applications and troubleshooting techniques will be presented. Operational amplifiers will be presented with emphasis on applications and circuits such as inverting and non-inverting amplifiers, integrators, differentiators and filters. The coverage of linear integrated circuits includes voltage comparators, timers, oscillators, voltage regulators special purpose amplifiers, communication circuits and data conversion circuits.

ELECT 218 AC/DC Motors (1-2) 3 Cr. Hrs.
Prerequisite: ELECT 137.
Corequisite: ELECT 138.
This course is designed to provide the student with a comprehensive understanding of motors used in industry. Principles and theories of magnetic fields and mechanical rotation will be covered. Basic through complex theories of rotor phase angles and effects on torque will be discussed. Magnetic and inductive theories, characteristics of various types of motors and speed control used in DC and AC type motors will be studied.
ELECT 219  Digital Logic Circuits (2-2) 4 Cr. Hrs.  
Prerequisite: ELECT 139.  
This course introduces students to Boolean algebra (emphasizing NAND and NOR) and various medium scale integrated circuits like exclusive or, encoders, decoders, multiplexers, adders, counters and shift registers. Also explored are memory (core, RAM and ROM) and bidirectional line drivers. The laboratory work coincides with experiments utilizing digital integrated circuits.

ELECT 228  Electronic Troubleshooting (1-2) 3 Cr. Hrs.  
Prerequisite: ELECT 215 and ELECT 219.  
This course is a capstone which will apply the theory and practical application of the preceding electronics courses. The techniques of fault isolation and troubleshooting in solid state, analog, digital, motors and biomedical equipment and systems will be explored.

ELECT 251  Programmable Logic and Industrial Controls (2-2) 4 Cr. Hrs.  
Prerequisite: Windows experience highly recommended.  
The student will use Programmable Logic Controller (PLC) and Allen-Bradley RSLogix software to convert typical hardwired electrically controlled circuitry used in industry to a computer-controlled system. Emphasis will be placed on understanding the purpose and operating features of a PLC including input/output addressing and associated commands used in the PLC program. A computer will be used to write and download a program to be tested for logical control. The student will use Linx software and networking to learn communication procedures for downloading a PLC program to the controller as well as the types of cable connections used. PanelView will be reviewed to understand its real-time monitoring capability of the software. Various PLC commands will be used including internal relays, ON and OFF timers, UP and DOWN counters, subroutines, program control and math instructions.

ELECT 252  Programmable Logic System Design (2-2) 4 Cr. Hrs.  
Prerequisite: ELECT 251 or equivalent PLC experience.  
The student will use Allen-Bradley RSLogix 500 software to be interfaced with RSLogix communication software and PanelView for control panel applications. Data Highway Plus will be used for network communications with other Programmable Logic Controllers (PLC) components. Emphasis will be placed on incorporating and combining programming commands, timers, counters, subroutines, data manipulation and mathematics into control process systems. Installing, wiring and networking PLC systems will be covered. Students will learn how to use troubleshooting features of the PLC software to find and diagnose hardware, configuration and programming problems.

ELECT 253  Individual Student Projects (1-2) 3 Cr. Hrs.  
Prerequisite: By midterm of the previous semester, the student must submit a written proposal for approval by department.  
Students will plan, organize, assemble or fabricate and test the project of their choice or one suggested by the instructor. Under guidance of the instructor, the electronic laboratory will be made available three hours a week in which time the student may perform tests.
EMT 220  Paramedic Technology—Module 2 (8-5) 10.5 Cr. Hrs.
Prerequisite: EMT 115, EMT 210, BIOL 236, and the student must show current valid State of Michigan Basic EMT license.
This course provides the information and experience to prepare the student for EMT 230. In addition, the EMT 220 course is designed to give students extensive practical application that builds upon knowledge and skills acquired in the EMT 210 course. This course includes advanced practice with a focus on patient assessment, cardiac, and medical emergencies. Content will be presented in the form of lectures and practical skills, which are practiced in a laboratory/simulation setting along with observations and hands-on experiences in the clinical environment. This course has been approved by the State of Michigan, Department of Community Health, EMS and Trauma Systems section. The program follows both the State of Michigan and the National EMS Education standards for the Paramedic level. Upon successful completion of all three semesters of the Paramedic Program and the Field Internship, the student will be eligible to take the National Registry Cognitive and Psychomotor Examinations. When the candidate successfully passes both the Cognitive and the Psychomotor exams, the candidate will be eligible for State licensing.

EMT 230  Paramedic Technology—Module 3 (6-6) 9 Cr. Hrs.
Prerequisite: EMT 220 and a valid State of Michigan Basic EMT License.
This course provides the information and experience to prepare the student for the National Registry Examination. In addition, the EMT 230 course is designed to give students extensive practical application along with the knowledge and skills acquired in EMT 210 and 220. This course includes advanced practice with a focus on patient assessment and traumatic emergencies in addition to EMS operations. Content will be presented in the form of lectures and practical skills, which are practiced in a laboratory/simulation setting, along with observations and hands-on experience in the clinical environment. This course has been approved by the State of Michigan, Department of Community Health, EMS and Trauma Systems section. The program follows both the State of Michigan and the National EMS Education standards for the Paramedic level. Upon successful completion of all three semesters of the Paramedic Program and the Field Internship, the student will be eligible to take the National Registry Cognitive and Psychomotor Examinations. When the candidate successfully passes both the cognitive and the psychomotor exams, the candidate will be eligible for State Licensing.

ENGLISH

ENG 050  Modern English Grammar (3-0) 3 Cr. Hrs.
Prerequisite: Minimum placement test score of 10 ACT or 35 CPT.
This is the first of a two-part sequence (ENG 050/055) designed to prepare students for composition courses. The course content focuses on major grammatical concepts and writing. A grade of 2.0 or better in ENG 050 is necessary to enter ENG 055.

ENG 055  Building Writing Skills (3-0) 3 Cr. Hrs.
Prerequisite: ENG 050 with a minimum grade of 2.0 or minimum placement test score of 15 ACT or 51 CPT.
This is the second of a two-part sequence (ENG 050/055) designed to prepare students for composition courses. The course focuses on the writing process, paragraph development, revision and grammar.

ENG 100  Communication Skills (3-0) 3 Cr. Hrs.
Prerequisite: Minimum placement test score of 15 ACT or 51 CPT.
This course deals with a variety of written and oral communication skills. Students learn about the application of interpersonal and intrapersonal communication, including but not limited to presentations, interviews, collaborative work and technological tools as used in personal, social and career communications.

ENG 101  English Composition 1 (3-0) 3 Cr. Hrs.
Prerequisite: ENG 055 with a minimum grade of 2.0 or minimum placement test scores of 18 ACT or 71 CPT.
This course teaches students to prepare and write a number of clear, well-developed essays using exposition and other rhetorical modes. This process assists students to build writing strategies and methodologies for college and professional writing.

ENG 102  English Composition 2 (3-0) 3 Cr. Hrs.
Prerequisite: ENG 101 with a minimum grade of 2.0 or minimum placement test score of 22 ACT or 108 CPT.
This course teaches students to conduct and integrate research and write the research paper. This process assists students in developing research and writing strategies to use in a variety of college and professional contexts.

ENG 106  Business English (3-0) 3 Cr. Hrs.
Prerequisite: ENG 055 with a minimum grade of 2.0 or minimum placement test score of 18 ACT or 71 CPT.
This course examines verbal and nonverbal communication theories and methods relating to business. Students write business documents and apply a variety of methods for collecting and presenting data.

ENG 107  Introduction to Journalism (3-0) 3 Cr. Hrs.
Prerequisite: ENG 101 with a minimum grade of 2.0 or minimum placement test score of 22 ACT or 108 CPT.
Recommended: ENG 102.
This course is an introductory survey of mass media such as newspapers, magazines (print and online), radio, TV, advertising, public relations and the World Wide Web. The course will emphasize newspapers and magazines while recognizing news and feature values, discovering audience, reporting, writing and planning content and format.

ENG 116  Technical Writing (3-0) 3 Cr. Hrs.
Prerequisite: ENG 055 with a minimum grade of 2.0 or minimum placement test score of 18 ACT or 71 CPT.
This course provides practical instruction in speaking, listening and technical writing for business and industry. Students learn to apply the principles of organizational structure, resume writing, job hunting, interviewing and technical reporting.

ENG 170  Modern Literature By and About Women (3-0) 3 Cr. Hrs.
Prerequisite: ENG 055 with a minimum grade of 2.0 or minimum placement test score of 18 ACT or 71 CPT.
Reading and discussion of fiction, poetry, drama and prose by women writers of the 20th and 21st centuries. Students use literary analysis to explore women’s literature as well as the experiences, roles, and art of modern women and women writers.
ENG 200  Introduction to Film (4-0) 4 Cr. Hrs.  
Prerequisite: ENG 101 with a minimum grade of 2.0 or minimum placement test score of 22 ACT or 108 CPT.  
Recommended: ENG 102 and college-level reading.  
This course studies how film accomplishes its purposes, whether as simple entertainment, social commentary or complex art. Students will view and discuss selected films and explore the history, criticism, aesthetics and technique of film.

ENG 203  Children’s Literature (3-0) 3 Cr. Hrs.  
Prerequisite: ENG 101 with a minimum grade of 2.0 or minimum placement test score of 22 ACT or 108 CPT.  
Recommended: ENG 102.  
This course surveys literature for children and adolescents in K-12 curriculum. By reading, analyzing and researching various genres of children’s literature throughout the world, students gain a historical perspective and establish standards of critical evaluation.

ENG 205  Creative Writing (3-0) 3 Cr. Hrs.  
Prerequisite: ENG 101 with a minimum grade of 2.0 or minimum placement test score of 22 ACT or 108 CPT.  
Recommended: ENG 102 and college-level reading.  
Student creative writing may include work in poetry, short stories and drama. Some assignments will reflect student interests and abilities, while others may encourage students to expand their skills and discover new topics. Class activities will include critical evaluation of student work in individual conferences and writing workshops.

ENG 206  Creative Writing (3-0) 3 Cr. Hrs.  
Prerequisite: ENG 101 with a minimum grade of 2.0 or minimum placement test score of 22 ACT or 108 CPT.  
Recommended: ENG 102 and college-level reading.  
Student creative writing may include work in poetry, short stories and drama. Some assignments will reflect student interests and abilities, while others may encourage students to expand their skills and discover new topics. Class activities will include critical evaluation of student work in individual conferences and writing workshops. The course may include work on individual writing projects.

ENG 221  Advanced Composition (3-0) 3 Cr. Hrs.  
Prerequisite: ENG 101 with a minimum grade of 2.0 or minimum placement test score of 22 ACT or 108 CPT.  
Recommended: ENG 102 and college-level reading.  
This course provides advanced composition theory and practice for students to develop writing skills beyond ENG 101 and ENG 102. It emphasizes the writing process, revision strategies and standard research techniques. It also encourages peer collaboration and evaluation to reflect professional writing.

ENG 243  Introduction to Literature—Short Fiction (3-0) 3 Cr. Hrs.  
Prerequisite: ENG 101 with a minimum grade of 2.0 or minimum placement test score of 22 ACT or 108 CPT.  
Recommended: ENG 102 and college-level reading.  
Using elements of fiction, this course develops standards for critical evaluation to increase understanding and appreciation of short stories. Students read and analyze short fiction and its forms from early to modern times.
ENGR 203

This course is an investigation of the historical background and current status of the English language, including problems such as the changing nature of language, dialect differences, origins of standards for correctness and attempts to describe the language grammatically.

ENGR 202

This course is designed to introduce students to the fields of engineering and engineering technology. Students will learn about the different engineering disciplines and will participate in projects related to engineering. Electronic portfolios will be introduced in this course.

ENGR 201

This course is designed to teach the student vector analysis of forces and moments in two- and three-dimensions. Equilibrium of particles and rigid bodies will be determined. Beams and trusses will be analyzed. Problems involving friction, center of gravity, moments of inertia and virtual work will be solved. This course is designed as an engineering transfer course. Transferability of this course into the desired engineering program should be confirmed with the transfer office.

ENGR 200

This course is designed to teach the students the fundamental concepts related to stress and strain of deformable bodies and their application to mechanical structures. This course is designed as an engineering transfer course. Transferability of this course into the desired engineering program should be confirmed with the transfer office.

ENGR 100

This course is designed to teach the student kinematics and kinetics of particles and rigid bodies including methods of motion relative to translating and rotating reference frames, force and acceleration, work and energy, impulse and momentum and vibrations. This course is designed as an engineering transfer course. Transferability of this course into the desired engineering program should be confirmed with the transfer office.

ENVR 230

Prerequisite: MATH 113.

This course provides an introduction to soil mechanics and foundations and emphasizes practical applications that are supported by theory. The course concentrates on analytical techniques currently used by the environmental industry to understand the behavior of soils and to classify soils. Soil characteristics are explored by means of laboratory examination and testing techniques. Soils are classified using the US Department of Agriculture Classification System, the Unified Soil Classification System, and the American Association of State Highway and Transportation Officials System. Other topics include the fundamentals of groundwater, sanitary landfills and remediation and soil erosion.

ENVR 206

Prerequisite: None.

This course provides an introduction to federal environmental laws. Topics include common law, toxic torts, federalism, statutory law, regulatory strategies, private property and takings, public trust and international environmental law. Federal environmental laws include National Environmental Policy Act; Clean Air Act; Clean Water Act; Resource Conservation and Recovery Act; and Comprehensive Environmental Response, Compensation and Liability Act. Regulatory strategies, such as technology based standards, road block statute, harm based standards and pollution trading are examined.

ENVR 232

Prerequisite: Completion of at least three courses in the Environmental Studies Program or the Environmental Science Certificate Program.

The field experience class provides students with an opportunity to apply the skills and knowledge learned in the Environmental Studies Program to off-campus work experience in government, private industry or nonprofit organization. Students can also meet the course requirements by completing a service learning project that incorporates an environmental issue. Class discussions include sources of employment in the environmental profession, job applications and interviews and preparing resumes.
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<th>COURSES</th>
<th>Schoolcraft College 2015–2016 Catalog</th>
<th>Courses</th>
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<tbody>
<tr>
<td><strong>ENVR 235</strong></td>
<td>Geographic Methods Applied to Environmental Problems (3-0) 3 Cr. Hrs.</td>
<td><strong>ESL 074</strong></td>
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<td><em>Prerequisite:</em> GEOG 135, GEOG 225 and ENVR 107.</td>
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<td>This course is a capstone course for the Environmental Studies Program and applies geographic research methods and geotechnology to solve environmental problems. Development of a project topic, construction of a hypothesis and selection of a research strategy will be accomplished through consultation and faculty-directed study. Synthesis of geotechnology (geographic information systems, global positioning systems, aerial photography and remote sensing) with research methodology is the focus of this course.</td>
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### ENGLISH AS A SECOND LANGUAGE

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<th>COURSES</th>
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<th>Courses</th>
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<tbody>
<tr>
<td><strong>ESL 060</strong></td>
<td>Reading and Vocabulary 1 (3-1) 4 Cr. Hrs.</td>
<td><strong>ESL 077</strong></td>
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<td></td>
<td><em>Prerequisite:</em> Placement score of 25 to 40 on the ESL Reading Skills Test using the CPT English as a Second Language Accuplacer Test.</td>
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<td>This course for English-language learners is the first in a guided series of ESL reading and vocabulary skills classes. This course, taught in group and language lab settings, concentrates on reading and vocabulary development to foster adaptation to a new culture for personal, academic and professional purposes. Students will develop fundamental reading and vocabulary building strategies to build basic comprehension, efficiency and fluency.</td>
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<tr>
<td><strong>ESL 064</strong></td>
<td>Listening and Speaking 1 (3-1) 4 Cr. Hrs.</td>
<td><strong>ESL 080</strong></td>
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<td><em>Prerequisite:</em> Placement score of 25 to 40 on the ESL Listening Test using the CPT Accuplacer English as a Second Language Test. Students also may be required to complete a speaking skills assessment.</td>
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<td>This course for English-language learners is the first in a guided series of ESL listening and speaking skills classes. The content of this course, taught in group and language lab settings, builds listening and speaking skills in personal and social contexts. Students will learn and practice short conversations on personal and daily topics. Students develop vocabulary, grammar and improve fluency.</td>
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<tr>
<td><strong>ESL 067</strong></td>
<td>Grammar and Writing 1 (3-1) 4 Cr. Hrs.</td>
<td><strong>ESL 084</strong></td>
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<tr>
<td></td>
<td><em>Prerequisite:</em> Placement score of 25 to 40 on the ESL Language Use Test and the ESL Sentence Meaning Test using the CPT Accuplacer English as a Second Language Test.</td>
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<td></td>
<td>This course for English-language learners is the first in a guided series of ESL grammar and writing classes. The content of this course, taught in group and language lab settings, focuses on the understanding and use of basic grammatical concepts, in both oral and written forms, including the parts of speech, basic tenses and sentence patterns. Students will be able to develop simple paragraphs demonstrating basic structure and pre-writing techniques.</td>
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<tr>
<td><strong>ESL 070</strong></td>
<td>Reading and Vocabulary 2 (3-1) 4 Cr. Hrs.</td>
<td><strong>ESL 087</strong></td>
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<td><em>Prerequisite:</em> Placement score of 41 to 59 on the ESL Reading Skills Test using the CPT English as a Second Language Accuplacer Test or a minimum grade of 2.0 in ESL 060.</td>
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<td>This course for English-language learners is the second in a guided series of ESL reading and vocabulary skills classes. This course, taught in group and language lab settings, continues to prepare students for reading success through cultural awareness and increasing fluency in English. Students develop additional strategies using the reading process to improve comprehension and fluency. Students expand their word power base through additional guided vocabulary building skills.</td>
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</table>
This course for English-language learners is the fourth in a guided series of ESL reading and vocabulary skills classes. This course, taught in group and language lab settings, prepares students to successfully handle the necessary types of college level reading assignments. Students will refine reading comprehension strategies and second language vocabulary development skills using a variety of authentic materials to critically analyze and compare argumentative and expository authentic materials. Students will apply culturally appropriate techniques to selected projects and materials, test-taking tasks and textbooks.

This course for English-language learners is the fourth in a guided series of ESL listening and speaking skills classes. The content of this course, taught in group and language lab settings, focuses on communication skills for active participation in academic and social contexts. Students develop listening and speaking skills for classroom presentations and discussions, learn note-taking skills and practice using academic vocabulary and grammar forms appropriately in context.

This course for English-language learners is the fourth in a guided series of ESL grammar and writing skills classes. In this class, taught in group and language lab settings, students will develop academic essays which integrate limited research.

This capstone course for English-language learners will provide ESL students with support as they simultaneously take non-ESL college level classes. As the culmination of ESL studies, this course, taught in group and language lab settings, will reinforce the precise English skills required for college success, including writing with research, specialized vocabulary, reading strategies, pronunciation and test-taking techniques.

This course provides an introduction to basic fire suppression, prevention procedures and skill development. FIRE 112 is provided as the first of two courses, which constitute the equivalent of the Basic Fire Academy and are offered for students who prefer to attend on a part-time basis. This course is for students who are currently employed by a Michigan Fire Marshal recognized fire department or currently seeking employment and/or volunteer in a recognized fire district. This course meets the state-mandated requirements for preparing students to take the exam for state certification for entry-level on-call or volunteer fire fighters.

Fire Fighter 2 is the second of two courses which together make up the equivalent of the Basic Fire Academy and is offered for students who prefer to attend on a part-time basis. This course deals with advanced fire suppression techniques, including prevention procedures and skill development. This course is for students who are currently employed by a Michigan Fire Marshal recognized fire department or currently seeking employment and/or volunteer in a recognized fire district. This course meets the state mandated requirements for preparing students to take the exam for state certification for entry-level career fire fighters.

The Fire Academy combines FIRE 112 and FIRE 119, providing comprehensive training in fire suppression, prevention procedures and skill development. This course is for students who are currently employed by a Michigan Fire Marshal recognized fire department, are currently seeking employment and/or are a volunteer in a recognized fire district. Students must be able to attend on a full-time basis. This course meets the state-mandated requirements for preparing students who intend to become professional Michigan fire fighters to take the state certification exam for entry-level career fire fighters.

This course emphasizes the impact that an understanding of the principles of building construction has on fire fighting strategy. It explains building materials and the processes that are involved in the construction of structures and how they react to fire conditions. It will provide students with the knowledge required to operate safely and effectively within residential or commercial buildings. The course will also discuss actual incidents and case studies containing critical thinking questions that give students a better understanding of what is to be expected in the field.
FIRE 128  Fire Fighting—Hydraulics and Water Supply (4-0) 4 Cr. Hrs.
Prerequisite: None.
This course is a study of the principles of fluid in motion. More specifically, it concentrates on water and its use as a fire extinguishing agent. It is a course of solving problems of water delivery application for fire fighting situations, along with the theory that is necessary in finding correct solutions. Studies will include the physical laws of liquids as they apply to water for fire fighting, the characteristics of water and its controlled delivery through highly technical machinery and equipment. It will include a study of the safe and efficient operation of that equipment during training and/or actual fire fighting operations. Students will be required to solve sample problems in writing. They will also be required to complete a brief study of a local water system.

FIRE 130  Fire Fighting—Tactics and Strategy (3-0) 3 Cr. Hrs.
Prerequisite: FIRE 112 or FIRE 124 is recommended.
This course examines new technology, fire fighting techniques and improved equipment as well as provides a guide for fire fighters and fire officers who need methods for handling specific situations. The course also covers general principles of fire fighting, engine company operations, search and rescue, structure fires and fire related emergencies.

FIRE 135  Fire Protection Systems (3-0) 3 Cr. Hrs.
Prerequisite: None.
This course is designed to provide the student with an understanding of the basic principles involved in the design and operation of existing suppression and detection systems found in most structures. Specific topics of discussion include portable extinguishers, dry chemical systems, extinguishing foams, fire detection systems, smoke detection systems and other related topics.

FIRE 200  Fire and Arson Investigation (4-0) 4 Cr. Hrs.
Prerequisite: FIRE 112 or FIRE 124.
This course is designed to acquaint students with data on fire dynamics, explosions and fire behavior. The course is for students interested in learning fundamentals of collection, preservation and analysis of physical evidence. Also covered as part of the course are new laws and court decisions controlling investigator's access to scene and admission of evidence. This course prepares students for on-scene investigation as well as in-service or promotional exams.

FIRE 205  Fire Department Organization and Administration (3-0) 3 Cr. Hrs.
Prerequisite: None.
This course is designed to equip the student with knowledge to effectively tackle challenging management problems and deliver practical solutions for managing today's fire departments. This course provides guidance on leadership skills: motivating and disciplining personnel and accepting cultural diversity and unity. Also covered in this course is managing human resources, the use of computer technology for information management and strategic planning and budgeting.

FIRE 207  Fire Company Officer (3-0) 3 Cr. Hrs.
Prerequisite: None.
It is essential that Fire Company Officers be well versed in the areas of management, leadership and human relations. This course will examine the skills required to function as a Fire Company Officer. Students will cover both traditional and contemporary methods of supervision, planning, staffing and training. The course objectives will parallel NFPA 1021, Fire Officer Professional Qualifications. Combined with the knowledge of essential fire fighting skills, this course provides students with the competencies required for a first-line fire company officer.

FRENCH

FR 101  Elementary French 1 (4-0) 4 Cr. Hrs.
Prerequisite: None.
This course is intended for students with no previous education in French. You will learn basic grammar patterns and build competence in all four skill areas: speaking, listening, reading and writing. Through varied activities, emphasis will be placed on oral proficiency and communication. You will also gain an appreciation for the French and Francophone culture.

FR 102  Elementary French 2 (4-0) 4 Cr. Hrs.
Prerequisite: FR 101 with a grade of 2.0 or better or one year of high school French or consent of instructor.
This course is a continuation of FR 101 and continues to review the basic French grammar patterns and build competence in all four skill areas: speaking, listening, reading and writing. Through varied activities, emphasis will be placed on oral proficiency and communication. An appreciation of the French and Francophone culture will be an integral part of the course.

FR 201  Intermediate French 1 (4-0) 4 Cr. Hrs.
Prerequisite: FR 102 with a grade of 2.0 or better or two years of high school French or consent of instructor.
This course is a continuation of FR 102 and continues to cover grammar patterns and build competence in all four skill areas: speaking, listening, reading and writing. Through varied activities, emphasis will be placed on oral proficiency and communication. An appreciation of the French and Francophone culture will be an integral part of the course.

FR 202  Intermediate French 2 (4-0) 4 Cr. Hrs.
Prerequisite: FR 201 with a grade of 2.0 or better or three years of high school French or consent of instructor.
This course is a continuation of FR 201 with a broader emphasis on speaking (present-day spoken French), listening comprehension and reading. Through varied activities, the main focus will be on oral proficiency and communication as the course will be entirely conducted in French. An appreciation of the French and Francophone culture will be an integral part of the course.
**GEOGRAPHY**

**GEOG 105  Earth Science for Elementary Teachers (3-2) 4 Cr. Hrs.**  
*Prerequisite: None.*  
This course introduces earth science topics and integrates pedagogical methods appropriate for elementary school teachers. The course will help prospective teachers create a resource base of knowledge and activities for teaching earth science and develop teaching strategies based on how children learn science. Teaching strategies include inquiry-based strategies and active, cooperative and collaborative learning strategies. The course includes lecture, peer teaching, demonstrations and lesson plan development.

**GEOG 133  World Regional Geography (4-0) 4 Cr. Hrs.**  
*Prerequisite: None.*  
World Regional Geography includes a systematic study of the world’s geographic realms, including Europe, United States-Canada, Russia, Middle America, South America, Southwest Asia, Southeast Asia, East Asia, Subsaharan Africa and Australia-New Zealand. Geographic concepts, such as map reading and spatial analysis, are first introduced. Then, the world is classified into geographic realms using both physical and social criteria. Each realm results from a unique interaction between the human societies and the physical and biological environment. The physical, cultural, political and social features of each realm are studied, along with any special regional concerns or problems.

**GEOG 135  Earth Systems (3-2) 4 Cr. Hrs.**  
*Prerequisite: None.*  
Earth Systems is an introductory physical geography lab course. Earth Systems utilizes a systems approach to analyze the earth’s dynamic systems: energy, atmosphere, water resources, weather and climate, tectonic processes, landforms, soil, vegetation and ecosystems. Introductory geographic concepts including absolute and relative location, spatial analysis and geographic approach are covered. Fundamentals of map reading, remote sensing and geographic information systems are included.

**GEOG 203  Weather and Climate (3-0) 3 Cr. Hrs.**  
*Prerequisite: None.*  
This course provides an overview of the earth’s atmospheric system. Topics include energy, temperatures, atmospheric moisture, cloud formation, precipitation, atmospheric pressure, weather systems, weather forecasting, severe weather and global climate patterns. Discussions include global climate change and air pollution.

**GEOG 212  Environmental Science (3-0) 3 Cr. Hrs.**  
*Prerequisite: None.*  
This course is an introductory environmental science course with no prerequisites. The course offers an in-depth examination of a variety of local, regional and global environmental concerns. The course focuses on the effects that human societies have on the physical environment and the global biosphere. Topics include human population distribution, growth rates and population explosion, erosion and contamination of soil resources, degradation of water resources, air pollution, global climate change, waste management, biodiversity and deforestation.

**GEOG 217  Water Resources (3-0) 3 Cr. Hrs.**  
*Prerequisite: None.*  
This course is a survey of water resources which includes a study of the occurrence, movement, and behavior of water in the hydrologic cycle. Discussions on the ways in which these resources can be contaminated and remediated will be held. The course includes a study of watershed management, which is a holistic, integrated method of managing all water resources located within a naturally occurring watershed. Data and hydrologic studies completed for the Rouge River Watershed provide a model for watershed management. The course offers demonstrations of hydrologic computer models and limited field experience.

**GEOG 225  Introduction to Geographic Information Systems—GIS (4-0) 4 Cr. Hrs.**  
*Prerequisite: None.*  
This course provides an introduction to basic Geographic Information Systems (GIS) concepts through in-class discussions and hands-on assignments using ArcGIS. The course includes theory, mapping techniques, data collection and compilation and data analysis. Topics include implementation of a GIS, current applications, legal issues and the future of GIS.

**GEOLOGY**

**GEOL 133  Historical Geology (3-3) 4 Cr. Hrs.**  
*Prerequisite: GEOL 133.*  
Historical Geology is the study of the geologic development of the earth as a planet from its creation to the present time. The first half of the course is a study of the methods and techniques that the science of geology uses to unravel the history of the earth. The second half applies these techniques to present the geologic history of the continent of North America as a case study.

**GEOL 237  Mineralogy (3-2) 4 Cr. Hrs.**  
*Prerequisite: GEOL 133.*  
Mineralogy teaches the basics of crystal formation, crystal symmetry and crystal chemical of the most important rock forming and economic minerals of the earth’s crust. The course also includes the formation of minerals and mineral occurrences and associations. Laboratory periods concentrate on the methods used in the identification of about 100 minerals.
GERMAN

GER 101  Elementary German 1 (4-0) 4 Cr. Hrs.
Prerequisite: None.
This course is intended for students who have no previous education in German. The course will cover basic grammar patterns and build competence in all four skill areas: speaking, listening, reading and writing. Through varied activities, emphasis will be placed on oral proficiency and communication. An appreciation of German culture will be an integral part of the course.

GER 102  Elementary German 2 (4-0) 4 Cr. Hrs.
Prerequisite: GER 101 with a grade of 2.0 or better or one year of high school German or consent of instructor.
This course is a continuation of GER 101 and continues to review the basic grammar patterns and builds competence in all four skill areas: speaking, listening, reading and writing. Through varied activities, emphasis will be placed on oral proficiency and communication. An appreciation of German culture will be an integral part of the course.

GER 201  Intermediate German 1 (4-0) 4 Cr. Hrs.
Prerequisite: GER 102 with a grade of 2.0 or better or two years of high school German or consent of instructor.
This course is a continuation of GER 102 and continues to cover grammar patterns and build competence in all four skill areas: speaking, listening, reading and writing. Through varied activities, emphasis will be placed on oral proficiency and communication. An appreciation of German culture will be an integral part of the course.

GER 202  Intermediate German 2 (4-0) 4 Cr. Hrs.
Prerequisite: GER 201 with a grade of 2.0 or better or three years of high school German or consent of instructor.
This course is a continuation of GER 201 with a broader emphasis on speaking (present-day spoken German), listening comprehension and reading. Through varied activities, the main focus will be on oral proficiency and communication as the course will be entirely conducted in German. An appreciation of German culture will be an integral part of the course.

HUMAN DEVELOPMENT SERVICES

HDS 110  Career Decision Making (2-0) 2 Cr. Hrs.
Prerequisite: None.
This course assists students in examining the components of career/job choice. The focus is on career awareness, personal awareness and education/training awareness as they relate to the process of occupational choice. Self-assessment instruments will help identify tentative career options, decision-making strategies, obstacles and planning skills.

HISTORY

HIST 134  Ancient World (4-0) 4 Cr. Hrs.
Prerequisite: None.
This course is a survey of prehistoric and ancient times: origins of human nature and culture; early gathering-hunting and planting-herding societies; origins of civilization in the Middle East, India, China, the Mediterranean and elsewhere; civilized-barbarian interaction and the rise of early Old World empires; rise of classical civilizations, especially Greece and Rome; rise of the higher religions, especially the Judeo-Christian traditions; and decline of classical civilizations with emphasis on the fall of Rome and the rise of medieval Europe, Byzantium and Islam.

HIST 137  Early Modern World (4-0) 4 Cr. Hrs.
Prerequisite: None.
This course is a survey of the balance of world civilizations in medieval and early modern times: American and African peripheral regions; major civilizations of Asia and Europe in the Middle Ages; 14th-16th century crisis and renewal; expansion of Europe in the age of Renaissance, Reformation and discovery; rise of the Great Power system; the scientific revolution and Enlightenment; the democratic and industrial revolutions; emergence of modern ideologies and nations; and climax of European expansion in the age of imperialism to the late 19th century.

HIST 138  Contemporary World (3-0) 3 Cr. Hrs.
Prerequisite: None.
This course is a survey of the main themes in the history of the world in the last hundred years: the Eurocentric world order of 1900; World War I, communist revolution and fascist counter-revolution; the settlements of the 1920s and the renewal of world crisis in the 1930s; World War II and the onset of the Cold War in the 1940s-1960s; erosion and collapse of the postwar order in the 1970s-1980s; and the contemporary world order in historical context.

HIST 141  History of Michigan and the Great Lakes (3-0) 3 Cr. Hrs.
Prerequisite: None.
This course is a general survey of the historical development of Michigan from the primitive wilderness to the present; growth of certain political, economic, social and cultural institutions which contribute to understanding Michigan and the Great Lakes area today; and emphasis on relating the history of the state to that of both the area and the nation.

HIST 151  Early America—U.S. History (3-0) 3 Cr. Hrs.
Prerequisite: None.
This course is a survey of the origins of American civilization: native American societies in pre-Columbian and colonial times; European discovery, exploration, conquest and settlement of the Americas; Iberian, French and African elements in the early Americas; 17th and 18th century English colonial development; the Revolutionary era and the founding of the U.S.; and Federalist and Jeffersonian America to the early 19th century.
HIST 152 19th Century America—U.S. History (3-0) 3 Cr. Hrs.  
Prerequisite: None.  
This course is a survey of the expansion, crisis and renewal of the U.S. in the 19th century: demographic, economic, social and cultural change in Jacksonian America; the North and ante-bellum reform movements; the South and slavery; the West and territorial conquest and settlement; sectional struggle, the Civil War and Reconstruction; and emergence of modern, urban, industrial America to the beginning of the 20th century.

HIST 153 Contemporary America—U.S. History (3-0) 3 Cr. Hrs.  
Prerequisite: None.  
This course is a survey of American civilization within the last hundred years: turn-of-the-century growth and crisis; the Progressive Era and World War I; the 1920s, the Great Depression and the New Deal; World War II and the emergence of the U.S. as a superpower; affluence, consensus and confrontation in the 1950s-1960s; malaise, drift and fragmentation in the 1970s-1980s; and the U.S. in the world of the late 20th century.

HIST 230 U.S. Business History—1865 to Present (3-0) 3 Cr. Hrs.  
Prerequisite: None.  
This course will provide students with an examination of major business and economic development in the U.S. from the Civil War to the present. Emphasis will be placed on the ideas, forces and personalities in the ever-changing role of business and economics and their impact on the nation and its citizens. This course is recommended for students majoring in business, economics and history.

HEALTH INFORMATION TECHNOLOGY

HIT 100 Introduction to Medical Terminology (2-0) 2 Cr. Hrs.  
Prerequisite: None.  
This course is a basic overview of medical terminology. The students will be introduced to medical terminology used in healthcare. The topics in the course provide activities to allow the student to spell, define and pronounce medical terminology.

HIT 104 Medical Terminology (4-0) 4 Cr. Hrs.  
Prerequisite: None.  
This course introduces the student to the fundamentals of the language of medicine. Definitions, pronunciations, spelling and abbreviations of anatomic, symptomatic, diagnostic and operative terms pertaining to each anatomical system of the body will be reviewed. Terms pertaining to pharmacology, clinical laboratory, radiology and pathology will also be explored.

HIT 109 Principles of Health Information Management (2-2) 3 Cr. Hrs.  
Prerequisite: None.  
This course provides the student an introduction to the health information management profession. Educational and certification requirements are examined along with potential employment opportunities in the health information profession. The health information management department, its functions and the relationship to other departments is explored. Health record content, documentation requirements and the accrediting and licensing agencies that govern health information will be reviewed. Hands-on laboratory activities will help the student to gain proficiency in basic health information functions.

HIT 111 ICD-9-CM Classification (2-2) 3 Cr. Hrs.  
Prerequisite: HIT 104, HIT 109, HIT 113 and BIOL 236.  
This course is an introduction to basic coding theory and computer laboratory practice applying ICD-9-CM to hospital medical/health records. This course is designed for the classification of patient morbidity and mortality information for statistical purposes and for the indexing of health/medical records by disease and operation for data storage and retrieval. Diagnostic coding and reporting guidelines for hospital inpatient and outpatient services will be utilized.

HIT 112 Basic Laboratory and Diagnostic Tests (2-0) 2 Cr. Hrs.  
Prerequisite: HIT 100 or HIT 104.  
This course is designed to prepare an allied health student to identify clinical laboratory and diagnostic tests. The student will develop an understanding of what the laboratory and diagnostic test is used for as it relates to diseases, diagnoses or disorders associated with the test and the normal range or results of the test. Students will complete case studies to demonstrate a working knowledge of laboratory and diagnostic tests.

HIT 113 Human Diseases (3-0) 3 Cr. Hrs.  
Prerequisite: BIOL 105 or BIOL 236 or BIOL 237 and BIOL 238 and HIT 104.  
This course is designed to build on the knowledge of anatomy and physiology and medical terminology. It will introduce the student to the disease processes and their effect on the individual body systems. The student will develop an understanding of the types of treatments for diseases which may include pharmacology, surgery and other therapies.

HIT 114 Pharmacology for Health Professionals (2-0) 2 Cr. Hrs.  
Prerequisite: HIT 100 or HIT 104.  
This course is designed to provide an overview of principles of pharmacology pertaining to treatment of diseases, physiological processes of the body related to drug therapy, legislation, classification and names of medications. Students will learn about medications through activities using medical documentation and internet resources.

HIT 116 Legal Aspects of Health Information (1-2) 2 Cr. Hrs.  
Prerequisite: HIT 109.  
This course provides the Health Information Technology student with an understanding of the American legal system and the legal requirements concerning the compilation and maintenance of health information. Additional topics include how health information is used and when it can be disclosed, state and federal regulations and statutes, including the privacy and security rules resulting from the Health Insurance Portability and Accountability Act (HIPAA) and the American Recovery and Reinvestment Act (ARRA).

HIT 117 ICD-10-CM/PCS (2-2) 3 Cr. Hrs.  
Prerequisite: HIT 109 and HIT 113.  
This course is an introduction to basic coding theory and computer laboratory practice applying ICD-10-CM/PCS to hospital medical/health records. This course is designed for the classification of patient morbidity and mortality information for statistical purposes, for the indexing of health/medical records by disease and operation for data storage and retrieval and for reimbursement purposes. Diagnostic coding and reporting guidelines for hospital inpatient and outpatient services will be utilized.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Hours</th>
<th>Prerequisite(s)</th>
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<tbody>
<tr>
<td>HIT 158</td>
<td>Clinical Affiliation 1 (0-8) 2 Cr. Hrs.</td>
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<td>HIT 104, HIT 109, HIT 112, HIT 113, HIT 114, MATH 101, BIOL 236 and CIS 120.</td>
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<td>Prerequisite: HIT 104, HIT 109, HIT 112, HIT 113, HIT 114, MATH 101, BIOL 236 and CIS 120.</td>
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<td>Corequisite: HIT 111 or HIT 117.</td>
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<td>HIT 210</td>
<td>Healthcare Statistics for Health Information Management (2-2) 3 Cr. Hrs.</td>
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<td>HIT 111 or HIT 117 and HIT 158.</td>
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<td>This course introduces students to terminology, definitions and computational methodology of the basic and most frequently used health statistics. Topics examined include healthcare data collection, preparation, analysis and interpretation, cancer program requirements and vital statistics reporting.</td>
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<td>HIT 213</td>
<td>Health Information Technology Seminar (1-0) 1 Cr. Hr.</td>
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<td>Prerequisite: None.</td>
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<td>This course will assist the student in preparation for the registered health information technician certification examination. The student will develop a study plan to be utilized on an individual and/or group basis. The student will complete a mock certification examination. The student will also begin preparation for a job search. A research of job opportunities that are currently available will be identified. The impact of continuing education upon the health information management profession will be discussed and a plan for maintaining certification will be developed.</td>
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<td>HIT 216</td>
<td>Healthcare Delivery Systems (2-0) 2 Cr. Hrs.</td>
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<td>HIT 111 or HIT 117 and HIT 158.</td>
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<td>This course provides a comprehensive review of the healthcare industry. Trends and changes related to healthcare facilities such as acute care hospitals, specialty hospitals, long term care facilities, managed care organizations, ambulatory care, behavioral care, hospice and home healthcare are investigated. The course will also deal with the impact and use of technology in the delivery and documentation of healthcare and the role of the health information professional within the healthcare delivery system.</td>
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<td>HIT 217</td>
<td>Quality Management in Healthcare (2-0) 2 Cr. Hrs.</td>
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<td>HIT 158.</td>
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<td>This course is designed for the health information technology student to review methods by which a healthcare organization measures, assesses and improves the quality of healthcare services. Topics explored include traditional quality assessment, performance improvement methodologies, utilization/resource management, risk management, infection control, credentialing and the role of oversight agencies.</td>
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<tr>
<td>HIT 219</td>
<td>Organization and Management (1-2) 2 Cr. Hrs.</td>
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<td>HIT 210, HIT 216 and HIT 217.</td>
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<td>Health information professionals make decisions that demand effective planning, organization, motivation and communication skills. Effective supervision of human and other resources is also essential in today's changing world of healthcare. This course provides the Health Information Technology student with basic management concepts and theories that are applied in the Health Information Services/Management environment.</td>
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<tr>
<td>HIT 222</td>
<td>Basic Ambulatory Coding (2-2) 3 Cr. Hrs.</td>
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<td>HIT 109 and HIT 113.</td>
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<td>This course is an introduction to basic coding theory and computer laboratory practice applying CPT to ambulatory medical/health records. This course is designed to prepare a student to code in the ambulatory setting using Current Procedural Terminology (CPT). The course will emphasize the reporting requirements for codes and rules that apply to the reimbursement systems used by government payers and other health plans. The student will be introduced to computerized coding systems utilized in healthcare. The emphasis of the course will be coding for facility services and procedures.</td>
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<tr>
<td>HIT 231</td>
<td>Ambulatory Coding Practicum (1-1) 2 Cr. Hrs.</td>
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<td>HIT 234 and HIT 233 or HIT 235.</td>
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<td>This course will provide practical hands-on experience with Current Procedural Terminology (CPT) coding of health/medical records. The student will apply official coding guidelines to a variety of clinical cases and record types such as ambulatory, emergency, outpatient and physician office or service. The student will utilize the computerized encoding systems for ambulatory and procedure/services coding. The student will research references in solving coding problems.</td>
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<tr>
<td>HIT 232</td>
<td>Computer Applications in Healthcare (2-0) 2 Cr. Hrs.</td>
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<td>HIT 158.</td>
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<td>This course is an introduction to the theory and practical methodology of healthcare information systems utilized in a health information management (medical record) department. The course will introduce the student to information systems used in healthcare organizations. The student will develop an understanding of the role of the health information technician in information systems planning and development. The student will be introduced to emerging technologies in healthcare information systems.</td>
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<tr>
<td>HIT 233</td>
<td>Intermediate ICD-9-CM Coding (2-2) 3 Cr. Hrs.</td>
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<td></td>
<td>HIT 111, HIT 113 and BIOL 236.</td>
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<td>This course is designed to prepare a student to code in the hospital setting using ICD-9-CM. The course will emphasize reporting requirements for codes and rules that apply to reimbursement systems used by government payers and other health plans. The student will be introduced to computerized coding systems utilized in healthcare. The emphasis of the course will be development of intermediate skills to code accurately and ethically. Students will assign codes for diagnoses, services and procedures that are documented in the health/medical record. This course is the theory and practice of coding medical records in the hospital setting using ICD-9-CM. The student will use the encoding software in the laboratory to apply coding to charts.</td>
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HIT 234 Intermediate Ambulatory Coding (2-2) 3 Cr. Hrs.
Prerequisite: HIT 111 or HIT 117 and HIT 222.
This course includes theory and practice in coding medical/health records in the hospital/ambulatory setting using Current Procedural Terminology (CPT) and Healthcare Financing Administration Common Procedure Coding System (HCPCS). The student will use encoding software in the laboratory to code medical/health records. The student will analyze clinical data for the purpose of coding and reimbursement in the ambulatory setting including the physician office.

HIT 235 Intermediate ICD-10-CM/PCS (2-2) 3 Cr. Hrs.
Prerequisite: HIT 117, HIT 112 and HIT 114.
This course is designed to prepare a student to code in the hospital setting using ICD-10-CM/PCS. The course will emphasize reporting requirements for codes and rules that apply to reimbursement systems used by government payers and other health plans. The student will be introduced to computerized coding systems utilized in healthcare. The emphasis of the course will be development of intermediate skills to code accurately and ethically. Students will assign codes for diagnoses, services and procedures that are documented in the health/medical record. The student will use the encoding software in the laboratory to apply coding to health records.

HIT 236 ICD Coding Practicum (1-1) 2 Cr. Hrs.
Prerequisite: HIT 234 and HIT 235 or HIT 293.
This course will provide practical hands-on experience with ICD coding of health/medical records. The student will apply official coding guidelines to a variety of clinical cases and record types such as hospital inpatient, outpatient and physician office or service. The student will utilize computerized encoding systems for diagnosis and procedure coding. The student will research references in solving coding problems.

HIT 240 Healthcare Reimbursement Methodologies (2-0) 2 Cr. Hrs.
Prerequisite: HIT 111 or HIT 117 and HIT 222.
The course is designed to provide the student knowledge of the diverse reimbursement methodologies utilized by governmental and private insurance entities in the payment for healthcare delivery services. The course will present third-party payer compliance and auditing issues, correct coding policy and government prospective payment systems. The terminology and principles for managed care, revenue cycle management and other healthcare plans will be covered.

HIT 255 Health Information Technology Practicum (0-4) 2 Cr. Hrs.
Prerequisite: HIT 116, HIT 216 and HIT 111 or HIT 117.
This course emphasizes application of health information process and critical thinking skills in performing advanced health information technology functions. Theoretical content will focus on electronic health records, paper records and hybrid records. Health information technology software applications will include chart tracking, deficiency analysis, coding and abstracting, master patient index, release of information and data analysis. Health information technology skills will be performed in a laboratory setting.

HIT 256 Clinical Affiliation 2 (0-8) 2 Cr. Hrs.
Prerequisite: HIT 111 or HIT 117, HIT 116 and HIT 158.
This course provides practical experience for the student in a Health Information Management/Services department under the supervision of health information management professionals. The student will have an opportunity to observe and interact with health information management professionals in a variety of healthcare facilities at off-campus sites. The student will observe, perform and report on the functions necessary to support health information services.

HOMELAND SECURITY

HS 101 Introduction to Homeland Security (3-0) 3 Cr. Hrs.
Prerequisite: None.
This course is an introduction to the concept of homeland security. The course will define and explain homeland security. The U.S. Department of Homeland Security will be thoroughly analyzed and its mission will be investigated. This course will also address chemical, biological, radiological, nuclear and explosive devices and the use of these weapons of mass destruction. The importance and basic elements of a planned response, methods used to prevent the importation of weapons of mass destruction into the U.S. and what can and is being done to prevent another large-scale terrorist incident in the United States will be covered.

HS 102 Understanding Terrorism (3-0) 3 Cr. Hrs.
Prerequisite: None.
This course will introduce students to the phenomena of contemporary terrorism and extremism. Students will see special emphasis on extremism as the foundation for terrorist behavior, types of terrorism and how governments and law enforcement agencies respond to terrorism. The first steps are to understand the mindset, the groups, the aims and the tools terrorists use.

HS 103 Transportation and Border Security (3-0) 3 Cr. Hrs.
Prerequisite: None.
This course addresses concerns associated with border and transportation security to include the potential threats to the passenger and cargo transportation systems. The course will cover the essential characteristics of national and international terrorism, with emphasis placed on significant transportation related terrorist threats and events. Emphasis will also be placed on the importance of technology and the interdependency of local, state, federal and international agencies to protect global trade. Students will be expected to solve problems as an individual and in a coordinated team setting.

HS 201 Organizational and Facility Security (3-0) 3 Cr. Hrs.
Prerequisite: None.
The focus of this course will be on traditional methods of physical security hardware, risk assessments and business continuity. The course will also explore and assess developing security technology and its application to reduce internal and external threats to business.
HUM 106 Introduction to Art and Music (1-0) 1 Cr. Hr.
Prerequisite: None.
This course will cover the basic mechanical and aesthetic elements underlying the visual and aural arts. It will also include an overview of major periods, styles, composers and artists. The course also prepares students to develop an understanding of how to perceive music and art. This course provides an introductory, fundamental, audience-related approach to art and music. Definitions and concepts will be approached in a very basic manner. No prior knowledge or experience in music or arts is necessary.

HUM 150 World Masterpieces (3-0) 3 Cr. Hrs.
Prerequisite: None.
This course serves as an introduction to some of the great works of art and music in the Western world, from Greek civilization to the present. The course will cover the major periods/styles in art and music history: Greek, Roman/Early Christian, Romanesque, Gothic, Renaissance, Baroque, Classical, Romantic, Modern (1900-1945) and Post-Modern (1945-present). Art and music masterpieces to be studied will be selected from the main repertoire of significant works of the Western world. The course will also cover fundamentals of integrative art and music appreciation. A background in art and/or music is not required.

HUM 190 Individual Humanism—An Honors Colloquium (3-0) 3 Cr. Hrs.
Prerequisite: Acceptance to the Schoolcraft Scholars Honors Program.
A required introduction to the Schoolcraft Scholars Honors Program, this colloquium studies the individual and the community through multiple disciplines. Topics of the colloquium may include, but are not limited to, the human condition; individual Renaissance and enlightenment; the role of individuals in a society of change, transition and revolution; the unanswered question; and taking an active role on the social stage. Additionally, students in this course collaborate, practice critical thinking and explore both community issues and community-based organizations.

HUM 201 Art and Music in Western Civilization: Field Study—England (3-0) 3 Cr. Hrs.
Prerequisite: None.
Corequisite: Sign up for the international tour.
This course is a humanistic study of the arts, culture and history in concentrated form through field study. Course includes art forms and functional styles of historical periods as they relate to universal principles. This course will include studies in English history, culture and geography. The course will conclude with a ten-day trip to London, England with day trips to Cambridge, Canterbury, Bath, Stonehenge, Ely and other satellite locations. The tour will include visits to the National Gallery and the British Museum as well as other museums and will include visits to several palaces, castles, cathedrals and performing arts centers to facilitate a live, first-hand encounter with English arts and culture.

HUM 202 Art and Music in Western Civilization: Field Study—France (3-0) 3 Cr. Hrs.
Prerequisite: None.
Corequisite: Sign up for the international tour.
This course is a humanistic study of the arts, culture and history in concentrated form through field study. Course includes art forms and functional styles of historical periods as they relate to universal principles. The course will include studies in French history, culture and geography. The course will conclude with a ten-day trip to Paris, France which will include visits to the Louvre Museum, Musee d’Orsee (and other museums/galleries), Notre Dame Cathedral (and other cathedrals), day trips to Versailles, Giverny, St. Germain, St. Denis and other culturally and historically significant centers to facilitate a live, first-hand encounter with French arts and culture.

HUM 203 Art and Music in Western Civilization: Field Study—Italy (3-0) 3 Cr. Hrs.
Prerequisite: None.
Corequisite: Sign up for the international tour.
This course is a humanistic study of the arts, culture and history in concentrated form through field study. Course includes art forms and functional styles of historical periods as they relate to universal principles. The course will include studies in Italian history, culture and geography. The course will conclude with a ten-day trip to Italy which will include visits to Venice, Ravenna, Florence, Assisi, Rome and other culturally and historically significant centers to facilitate a live, first-hand encounter with Italian arts and culture.

HUM 204 Art and Music in Western Civilization: Field Study—Spain (3-0) 3 Cr. Hrs.
Prerequisite: None.
Corequisite: Sign up for the international tour.
This course is a humanistic study of the arts, culture and history in concentrated form through field study. Course includes art forms and functional styles of historical periods as they relate to universal principles. The course will include studies in Spanish history, culture and geography. The course will conclude with a ten-day trip to Spain which will include visits to Madrid, Toledo, Segovia, El Escorial and other culturally and historically significant centers to facilitate a live, first-hand encounter with Spanish arts and culture.

HUM 210 The Art of Being Human (3-0) 3 Cr. Hrs.
Prerequisite: None.
This course is an interdisciplinary introduction to the humanities as an overall approach to living. The course involves the student in the philosophies, religions and arts as avenues of human inquiry and expression.
### COURSES

<table>
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<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>HUM 212</td>
<td>Mass Media and Popular Culture (3-0) 3 Cr. Hrs.</td>
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<td>Prerequisite: None.</td>
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<td>This course is an introduction into the nature of mass communication and their relationship with the public. The course will analyze, assess and evaluate popular culture and mass media. Focus will be on the various forms of media to include radio, television, film, newspaper and advertising to determine how they influence and manipulate the ways you relate to yourself and others. Examination will include the history, economics, power and ethical consideration of media outlets.</td>
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| HUM 215     | Humanities through the Arts (3-0) 3 Cr. Hrs. |
|             | Prerequisite: None. |
|             | This course represents an exploratory approach to the humanities that focuses on the special role of the arts. The relation of the humanities to values is central to the purpose of the course. This approach provides a self-contained program for studying values as revealed in the arts. |

### ITALIAN

<table>
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<tr>
<th>Course Code</th>
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<tr>
<td>ITAL 101</td>
<td>Elementary Italian 1 (4-0) 4 Cr. Hrs.</td>
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<td>Prerequisite: None.</td>
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<td>This course is intended for students who have no previous education in Italian. The course will cover basic grammar patterns and build competence in all four skill areas: speaking, listening, reading and writing. Through varied activities, emphasis will be placed on oral proficiency and communication. An appreciation of the Italian culture will be an integral part of the course.</td>
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| ITAL 102    | Elementary Italian 2 (4-0) 4 Cr. Hrs. |
|             | Prerequisite: ITAL 101 with grade 2.0 or better or one year of high school Italian or consent of instructor. |
|             | This course is a continuation of ITAL 101 and continues to review the basic Italian grammar patterns and to build competence in all four skill areas: speaking, listening, reading and writing. Through varied activities, emphasis will be placed on oral proficiency and communication. An appreciation of the Italian culture will be an integral part of the course. |

### LEARNING RESOURCES

<table>
<thead>
<tr>
<th>Course Code</th>
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<tr>
<td>LR 135</td>
<td>Strategies for Digital Research: Introduction to Information Literacy (1-0) 1 Cr. Hr.</td>
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<td>Prerequisite: None.</td>
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<td>This course provides students with the technical skills needed to locate, access and critically evaluate electronic (digital) information. Additionally, it will teach students information management strategies once they have learned how to access appropriate information sources.</td>
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### MEDICAL ASSISTING

<table>
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<tr>
<th>Course Code</th>
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<tbody>
<tr>
<td>MA 110</td>
<td>Phlebotomy (4-0) 4 Cr. Hrs.</td>
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<td>Prerequisite: None.</td>
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<tr>
<td></td>
<td>This course teaches basic technical skills necessary for a phlebotomist to draw blood in various healthcare settings such as hospital labs, doctors’ offices and clinics. Proper procedures are stressed for the safe collection and handling of clinical specimens obtained by venipuncture or capillary puncture from adults, children and infants. This course also defines the role of the phlebotomist in the healthcare setting.</td>
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</table>

| MA 134      | Medical Insurance Coding (3-0) 3 Cr. Hrs. |
|             | Prerequisite: None. |
|             | Corequisite: HIT 104. |
|             | This course introduces the student to insurance coding guidelines developed for use with the International Classification of Diseases (ICD-10-CM/PCS) and Current Procedural Terminology (CPT-4). The course is designed to develop coding skills to record the services and procedures that are provided for the patient. The importance of accurate coding will be discussed as it is an essential part of reimbursement. |

| MA 140      | Medical Office Procedures (3-0) 3 Cr. Hrs. |
|             | Prerequisite: None. |
|             | This course will focus on the basic concepts in the professional practice of medicine and the role and function of the medical assistant. The course introduces personal and professional characteristics and legal and ethical standards for the medical assistant. Professional and personal therapeutic communications, time management and workplace dynamics will be studied. This course addresses administrative skills necessary for the medical assistant. |

| MA 155      | Medical Insurance Billing (3-0) 3 Cr. Hrs. |
|             | Prerequisite: MA 134 and HIT 104. |
|             | This course introduces the student to the various types of medical insurance including Blue Cross/Blue Shield, Medicare, Medicaid, Workers’ Compensation and other third-party payers. The student will perform the tasks necessary to process claim forms for each type of medical insurance. Manual and computerized billing methodologies are included. |

| MA 160      | Phlebotomy Internship (1-1/30) 2 Cr. Hrs. |
|             | Prerequisite: HIT 104, BIOL 105 and MA 110 (3.0 + GPA and completion within the last two months or consent of department). |
|             | The internship will be structured to provide students experience in performing the duties of a Phlebotomist and prepare the student to be eligible to take the certification exam with the National Center for Competency Testing. |

| MA 174      | Medical Laboratory Techniques (4-0) 4 Cr. Hrs. |
|             | Prerequisite: BIOL 105, HIT 104, MA 140 and MA 110. |
|             | This course will provide an opportunity for the student to practice techniques to perform laboratory procedures. The student will practice preparing the patient for tests, collecting samples, completing the tests and reporting the results to the physician. The student will practice laboratory procedures such as urinalysis, hematology, bacteriology, chemistries, blood typing and patient preps. |
MA 180  Medical Office Clinical Procedures (3-3) 4 Cr. Hrs. 
**Prerequisite:** BIOL 105, HIT 104 and MA 140.
This course is designed to introduce the student to examination techniques, injections, minor surgery, medications and pharmacology, sterilization procedures and autoclave.

MA 195  Office Practicum (1-15) 3 Cr. Hrs. 
**Prerequisite:** Successful completion of all academic and medical assisting courses.
The student will participate in a non-paid externship under the direction of a physician and the office manager or supervisor. The externship is structured to provide experience in performing administrative and clinical procedures in a physician office, clinic or ambulatory healthcare setting. The student will interact with other healthcare professionals performing and observing skills of a medical assistant. It is an opportunity that will allow a student to apply theory to practice.

### MASSAGE THERAPY

MAS 104  Intermediate Massage Applications (2-6) 5 Cr. Hrs. 
**Prerequisite:** MAS 101, MAS 102 and MAS 103. 
**Corequisite:** MAS 109 and MAS 110.
The course covers both complementary bodywork systems and applications of massage for individuals with special needs. The course also presents business considerations for the practice of massage therapy as an employee or independent contractor. Wellness education as it relates to self-help and client activities will be studied. Applications of massage therapy in healthcare facilities and hospice/comfort care will be explored.

MAS 109  Systems of Support and Movement (4-2) 5 Cr. Hrs. 
**Prerequisite:** MAS 101, MAS 102 and MAS 103. 
**Corequisite:** MAS 104 and MAS 110.
The skeletal, muscular and peripheral nervous systems are explored in detail in this course. They are the systems primarily addressed by massage therapists and the focus will be on identifying structures, normal functions, characteristics and common disease processes. A study of pharmacologic agents will be related to physiologic effects that require modification in massage sessions.

MAS 110  Massage Therapy Student Clinic (0-4) 2 Cr. Hrs. 
**Prerequisite:** MAS 101, MAS 102 and MAS 103. 
**Corequisite:** MAS 104 and MAS 109.
Students will experience a total of 60 hours of supervised practice using the skills they have learned in class. To prepare them for a professional massage work environment, all students will perform practical applications of massage, front desk activities, clinic supervision and management at the Radcliff campus clinic site. Some additional off-site opportunities may be available.

MAS 112  Massage Techniques 1 (3-5) 5.5 Cr. Hrs. 
**Prerequisite:** None. 
**Corequisite:** MAS 113, MAS 114 and MAS 115.
This is the introductory course that provides students with a solid foundation in the knowledge and skills necessary to perform massage. Students will learn to apply traditional massage strokes with purpose and effect while using efficient body mechanics. Issues of hygiene, sanitation and self-care will be emphasized throughout.

MAS 113  Comprehensive Study of Human Body Systems 1 (2-2) 3 Cr. Hrs. 
**Prerequisite:** None. 
**Corequisite:** MAS 112, MAS 114, and MAS 115.
This is the first of three courses on the human body systems as they relate to the practice of massage therapy. The foundational course presents the principles of anatomy, physiology, kinesiology, pathology and pharmacology. A combination of lecture and lab, students are presented with a decision making model for critical thinking. Students will learn about the integumentary, skeletal, articular, muscular and fascial systems in a theoretical and hands-on manner. Students will also begin the exploration of concepts, terminology and structures of movement.

MAS 114  Clinical Foundations (1-1) 1.5 Cr. Hrs. 
**Prerequisite:** None. 
**Corequisite:** MAS 112, MAS 113 and MAS 115.
This is the foundational course for the skills needed to practice massage therapy in the student clinic and a professional clinical setting. Students will discuss and practice client interviewing, health histories and SOAP note charting. Issues of safety, client accommodations and identifying common contraindications will be addressed.

MAS 115  Business and Professional Skills 1 (2-0) 2 Cr. Hrs. 
**Prerequisite:** None. 
**Corequisite:** MAS 112, MAS 113 and MAS 114.
This is the first of three courses on the non-technical skills necessary for success in the workplace. The foundational course presents the history of massage, ethical principles and scope of practice. Students will practice communication skills and explore the role of boundaries in a professional setting.

MAS 122  Massage Techniques 2 (2-4) 4 Cr. Hrs. 
**Prerequisite:** MAS 112, MAS 113, MAS 114 and MAS 115. 
**Corequisite:** MAS 123, MAS 124 and MAS 125.
In this course, students will learn to provide a smooth and flowing full body therapeutic massage. Adaptations and modifications of massage for diverse client populations will be examined and practiced. Specialty techniques such as myofascial release and reflexology will be used to build upon the primary massage strokes taught in the foundational course.

MAS 123  Comprehensive Study of Human Body Systems 2 (3-2) 4 Cr. Hrs. 
**Prerequisite:** MAS 112, MAS 113, MAS 114 and MAS 115. 
**Corequisite:** MAS 122, MAS 124 and MAS 125.
This is the second of three courses on the human body systems as they relate to the practice of massage therapy. It continues with the principles of anatomy, physiology, kinesiology, pathology and pharmacology. A combination of lecture and lab, students are presented with a decision making model for critical thinking. Students will learn about the nervous, cardiovascular and endocrine systems in a theoretical and hands-on manner. Students will also continue the exploration of concepts, terminology and structures of movement.
Students will experience 30 hours of supervised practice at the Radcliff Campus student clinic. All students will perform practical applications of massage and front desk activities to prepare them for the workplace. Some additional off-site opportunities may be available.

MAS 125 Business and Professional Skills 2 (3-0) 3 Cr. Hrs.
Prerequisite: MAS 112, MAS 113, MAS 114 and MAS 115.
Corequisite: MAS 122, MAS 123 and MAS 124.
The second of three courses on the non-technical skills necessary for success in the workplace addresses the ethics of touch, ethical dilemmas and professional relationships. Through discussions and activities students will learn therapeutic relationship dynamics and how to work with awareness, empathy and compassion. Emphasis will be placed upon the ability of students to manage client relationships in a professional manner.

MAS 132 Massage Techniques 3 (2-2) 3 Cr. Hrs.
Prerequisite: MAS 112, MAS 113, MAS 114, MAS 115, MAS 122, MAS 123, MAS 124 and MAS 125.
Corequisite: MAS 133, MAS 134 and MAS 135.
In this course students will learn to assess soft-tissue tension, restricted range of motion and trigger points. Students will learn a variety of neuromuscular techniques to address these conditions. Applications of techniques for musculoskeletal injuries will be integrated into the role of massage in chronic pain.

MAS 133 Comprehensive Study of Human Body Systems 3 (4-2) 5 Cr. Hrs.
Prerequisite: MAS 112, MAS 113, MAS 114, MAS 115, MAS 122, MAS 123, MAS 124 and MAS 125.
Corequisite: MAS 132, MAS 134 and MAS 135.
This is the third of three courses on the human body systems as they relate to the practice of massage therapy. It continues with the principles of anatomy, physiology, kinesiology, pathology and pharmacology. A combination of lecture and lab, students are presented with a decision making model for critical thinking. Students will learn about the digestive, immune, lymphatic, reproductive, respiratory and urinary systems in a theoretical and hands-on manner. Students will continue the exploration of concepts, terminology and structures of movement. Whole body principles, stages of development, metabolism, nutrition and stress management as they relate to principles of health and wellness will be addressed.

MAS 134 Student Clinic 2 (0-3) 1.5 Cr. Hr.
Prerequisite: MAS 112, MAS 113, MAS 114, MAS 115, MAS 122, MAS 123, MAS 124 and MAS 125.
Corequisite: MAS 132, MAS 133 and MAS 135.
Students will experience a total of 45 hours of supervised practice using the skills they have learned in pre/co-requisite courses. All students will perform practical applications of massage and front desk activities at the Radcliff Campus student clinic. Some additional off-site opportunities may be available.

MAS 135 Business and Professional Skills 3 (3-0) 3 Cr. Hrs.
Prerequisite: MAS 112, MAS 113, MAS 114, MAS 115, MAS 122, MAS 123, MAS 124 and MAS 125.
Corequisite: MAS 132, MAS 133 and MAS 134.
The third of three courses, this is the capstone course for the non-technical skills necessary for success in the workplace. In this interactive course, students will identify personal and professional goals as well as clarify visions and values for their massage practice. Students will explore career options and concepts as they enhance customer service principles. Students will acquire an understanding of ethical business procedures and employment structures. Research literacy and the impact of scientific research on the massage profession will also be addressed.

MATH 045 Basic Mathematics (4-0) 4 Cr. Hrs.
Prerequisite: Minimum test score of 11 ACT or 23 CPT (Arithmetic). Competence with addition, subtraction, multiplication and division of whole numbers without the aid of a calculator.
The topics covered in this course include arithmetic with whole numbers, fractions, decimals, percents and proportions. In addition, several topics from geometry are included.

MATH 047 Prealgebra (3-0) 3 Cr. Hrs.
Prerequisite: MATH 045 with a minimum grade of 2.0. Competence in arithmetic without the aid of a calculator.
The topics covered in this course include an introduction to variables, integers and algebraic expressions; simplifying algebraic expressions involving integers, fractions and decimals; solving algebraic equations involving integers, fractions, decimals and percents; ratio and proportions; applications using basic concepts from geometry; and introduction to graphing via point-plotting.

MATH 053 Beginning Algebra (4-0) 4 Cr. Hrs.
Prerequisite: MATH 047 with a minimum grade of 2.0.
This course will explore the real number system, fundamental operations with real numbers, graphing, linear equations, factoring polynomials, rational expressions, exponents, quadratic equations, applications and introduction to the function concept.

MATH 055 Plane Geometry (3-0) 3 Cr. Hrs.
Prerequisite: MATH 053 with a minimum grade of 2.0 or minimum placement test score of 19 ACT or 78 CPT (Elementary Algebra). MATH 113 may be taken concurrently with MATH 055.
This course includes the basic elements of geometry including deductive reasoning, formal proofs and elementary construction with straight edge and compass.

MATH 101 Business Mathematics (3-0) 3 Cr. Hrs.
Prerequisite: MATH 045 with a minimum grade of 2.0 or minimum placement test score of 16 ACT or 60 CPT (Arithmetic).
This course offers a review of fundamentals of arithmetic along with coverage of percentage, simple and compound interest, taxes, insurance, bonds and their applications to business practice.
MATH 102 Technical Mathematics (4-0) 4 Cr. Hrs.
Prerequisite: MATH 047 with a minimum grade of 2.0.
Technical Mathematics provides the practical mathematics skills needed in a wide variety of occupational programs. Students in this course will address topics including measurement, basic algebra, geometry, right triangle trigonometry, graphing and statistics.

MATH 105 Mathematics for Elementary Teachers 1 (4-0) 4 Cr. Hrs.
Prerequisite: MATH 053 with a minimum grade of 2.5 or minimum placement test score of 19 ACT or 100 CPT (Elementary Algebra).
This is the first of a two-course sequence designed for students who plan to enter elementary school teaching. The course examines elementary school math topics and mathematics curriculum from an advanced standpoint with an emphasis on conceptual understanding and problem solving. The course covers problem solving, number theory, sets, algebraic concepts and functions, numeration, the real numbers and their properties and operations.

MATH 106 Mathematics for Elementary Teachers 2 (4-0) 4 Cr. Hrs.
Prerequisite: MATH 105 with a minimum grade of 2.0.
This is the second of a two-course sequence designed for students who plan to enter elementary school teaching. The course covers geometry, measurement, statistics and probability.

MATH 111 Applications—Utility of Math (4-0) 4 Cr. Hrs.
Prerequisite: MATH 047 or equivalent with grade of 2.0 or better.
This course is intended for students who do not wish to pursue the study of mathematics by following the standard sequence of courses, but who need to develop some competency in mathematics for an Associate of Arts degree. This course includes the practical application of mathematics. Topics covered in the course include geometry, managing money, interest, installment buying, credit cards, loans, probability, statistics and graphing.

MATH 113 Intermediate Algebra for College Students (4-0) 4 Cr. Hrs.
Prerequisite: MATH 053 with a minimum grade of 2.0 or minimum placement test score of 19 ACT or 78 CPT (Elementary Algebra).
Review of algebraic operations; problem solving strategies; integer and rational exponents; complex numbers; solving equations; function concept; graphs and applications of linear, quadratic, exponential and logarithmic functions; and systems of equations are the topics covered in this course.

MATH 119 Trigonometry (3-0) 3 Cr. Hrs.
Prerequisite: MATH 055 and MATH 113 both with a minimum grade of 2.0 or minimum placement test score of 23 ACT or 63 CPT (College-Level Math).
Trigonometric functions and their graphs, identities, equations and inverse functions and solutions of right and oblique triangles are the topics included in this course.

MATH 122 Elementary Statistics (4-0) 4 Cr. Hrs.
Prerequisite: MATH 113 with a minimum grade of 2.0 or minimum placement test score of 23 ACT or 63 CPT (College-Level Math).
This course includes an introduction to statistics, statistical descriptions, frequency distributions, possibilities and probabilities, probability distributions, sampling and sampling distributions, testing hypotheses based on measurements, count data, paired data and use of nonparametric tests.

MATH 126 College Algebra (4-0) 4 Cr. Hrs.
Prerequisite: MATH 113 with a minimum grade of 2.0 or minimum placement test score of 23 ACT or 63 CPT (College-Level Math).
The function concept, polynomial, rational, exponential and logarithmic functions, curve sketching, systems of linear equations and inequalities, graphical solutions and business applications are the topics included in this course.

MATH 129 Precalculus (5-0) 5 Cr. Hrs.
Recommend: Engineering, science and math majors should take MATH 129.
Prerequisite: MATH 113 and MATH 119 both with a minimum grade of 2.0 or minimum placement test score of 23 ACT or 63 CPT (College-Level Math)
Topics covered in this course include the function concept, polynomial, rational, exponential, logarithmic, rapid review of trigonometric and inverse trigonometric functions, solving equations and systems of equations, curve sketching, complex numbers, coordinate geometry and conic sections. The prevailing theme is applications and graphical solutions.

MATH 135 Finite Mathematics (4-0) 4 Cr. Hrs.
Prerequisite: MATH 126 with a minimum grade of 2.0 or a minimum placement test score of 23 ACT or 103 CPT (College-Level Math).
Matrices and their applications to linear equations and linear programming, the simplex method, elementary probability and mathematics of finance are the topics included in this course.

MATH 145 Calculus for Business and Social Science (4-0) 4 Cr. Hrs.
Prerequisite: MATH 126 with a minimum grade of 2.0 or minimum placement test score of 23 ACT or 103 CPT (College-Level Math).
The main topics of this course are differentiation of algebraic, exponential and logarithmic functions; curve sketching; optimization; constrained optimization; integration; introduction to functions of several variables; and applications.

MATH 150 Calculus With Analytic Geometry 1 (5-0) 5 Cr. Hrs.
Prerequisite: MATH 129 with a minimum grade of 2.0 or minimum placement test score of 23 ACT or 103 CPT (College-Level Math).
This course is oriented to engineering, science and mathematics majors. Limits and continuity, derivatives and integrals of algebraic and some trigonometric functions, curve sketching with the aid of the graphing calculator and applications are the topics covered in this course.

MATH 151 Calculus With Analytic Geometry 2 (5-0) 5 Cr. Hrs.
Prerequisite: MATH 150 with a minimum grade of 2.0. MATH 151 may be taken concurrently with MATH 230.
This course includes the study of derivatives and integrals of transcendental functions, techniques of integration, indeterminate forms, improper integrals, infinite series, conics, polar coordinates and applications.

MATH 230 Linear Algebra (4-0) 4 Cr. Hrs.
Prerequisite: MATH 150 with a minimum grade of 2.0.
Topics covered in this course include systems of linear equations, matrices, determinants, Euclidean vector spaces, general vector spaces, inner product spaces, eigenvalues and eigenvectors, diagonalization, linear transformations and applications.
MATH 252 Differential Equations (5-0) 5 Cr. Hrs.
Prerequisite: MATH 240 with a minimum grade of 2.0.
Topics covered in this course include first order differential equations, second order linear equations, series solutions of second order linear equations, higher order linear equations, Laplace transform, systems of first order linear equations, numerical methods and qualitative theory of differential equations.

METALLURGY AND MATERIALS SCIENCE

MET 102 Introduction to Materials Science (2-2) 3 Cr. Hrs.
Prerequisite: None.
This course provides students with a basic introduction to materials science using the principles of science to study the nature of metallic and non-metallic materials used in most industries. Topics covered in the course include atomic structure; elements; states of matter; bonding; crystallization; and mechanical, chemical and physical properties of metallic, polymeric, ceramic and composite materials.

MET 114 Engineering Materials (3-0) 3 Cr. Hrs.
Prerequisite: MET 102.
This course in materials applications covers ferrous and non-ferrous alloys, powdered metals, ceramics and glass, rubber and polymers. Each material is examined with respect to their advantages and disadvantages, methods of fabrication and joining and specific industrial applications, both current and future.

MET 120 Hazardous Materials Management (2-0) 2 Cr. Hrs.
Prerequisite: None.
This course provides instruction in the nature of hazardous materials and their interaction with the health and safety of individuals as they relate to industrial metallurgical practices. Topics covered in the course include proper handling of hazardous substances; chemical, physical and biological influences on health; human response to toxins; target organ effects; and regulatory controls used in hazard prevention in the laboratory and materials process workplace.

MET 152 Structure and Properties Laboratory (2-2) 3 Cr. Hrs.
Prerequisite: MET 102 or may be taken concurrently.
An experience oriented course with emphasis on lab techniques and equipment required for the macro and microstructural evaluation of metals produced by industrial processes. Topics covered in the course include optical systems, sectioning and polishing, mounting techniques, etching, specialized measurement technology and photo-microscopy.

MET 158 Composite Materials (2-2) 3 Cr. Hrs.
Prerequisite: MET 102.
An introduction to plastic and composite materials used in industry. Emphasis is placed on chemical, physical and mechanical properties of thermoplastic, thermosetting plastics and matrix reinforced composites. Topics covered in the course include the nature of polymeric materials, reinforcements, coatings and adhesives. Industrial forming techniques and applications are also examined.

MET 211 Physical Metallurgy Structures (3-1) 3 Cr. Hrs.
Prerequisite: MET 102 and MET 152.
An interpretative study incorporating phase equilibria, diffusion, nucleation and growth, solid state transformation, strengthening mechanisms; effects of alloying, deformation, precipitation, recrystallization and grain growth on microstructure. Microstructural interpretation of ferrous and non-ferrous metal is emphasized.

MET 215 Mechanical Properties of Metals (3-1) 3 Cr. Hrs.
Prerequisite: MET 114.
Students will explore basic elastic and plastic behavior, deformation and dislocations; brittle, ductile and transitional fractures; fatigue, tensile, hardness, impact and stress testing. Course will include a review of industry methods and testing standards. Mechanical forming processes used in the industry including rolling, forging, drawing and other forming techniques will be introduced.

MET 217 Computer Applications in Materials Science (2-2) 3 Cr. Hrs.
Prerequisite: MET 114 or consent of department and computer experience highly recommended.
An experience-oriented course in specialized computer applications for advanced study in experimentation techniques and analysis, metallurgically-based computer aided engineering tools and statistical methods. Topics covered in the course include an introduction to basic statistics, graphics, experimentation, designed experiments, ANOVA and regression analysis and CAE tools including Stecal.

MET 248 Electron Microscopy and Image Analysis (2-2) 3 Cr. Hrs.
Prerequisite: MET 152 and BIOL 140 or consent of department.
This course introduces the fundamentals of Scanning Electron Microscopy (SEM) and quantitative Image Analysis (IA) currently used in support of effective materials, characterization and evaluations. Topics covered in the course include microscopy systems and components, applications in fractography and quantifiable measurements used in process and surface failure analysis, materials characterization and product development studies. The course is recommended for students specifically interested in specialized laboratory practices.

MET 271 Corrosion and Corrosion Analysis (2-2) 4 Cr. Hrs.
Prerequisite: MET 102, MET 114 or consent of department.
Corrosive processes including electrochemical reactions in metals and the chemical degradation of polymeric materials are emphasized. Topics covered in the course include basic electrochemical reactions, nature of corrosive environments, types of corrosion, laboratory corrosion testing, data analysis, interaction with mechanical behavior and fabricated dissimilar materials.
MFG 101  Geometric Dimensioning and Tolerance with Inspection (2-1) 3 Cr. Hrs.
Prerequisite: None.
The student will learn to interpret blueprints with emphasis placed on Geometric Dimensioning and Tolerance with Inspection. This course will introduce national and international geometric standards of form, profile, orientation, runout and location tolerances used in the manufacturing processes. The student will utilize various instruments to check the accuracy of parts. Curriculum includes emphasis on print reading and measurements.

MFG 102  Basic Machining Processes (2-4) 3 Cr. Hrs.
Prerequisite: None.
This course will cover fundamental manufacturing processes. The student will be exposed to manual machine operator skills. Particular course emphasis will be on machines, tools and measurements to produce an end product. This is a hands-on class with two-thirds of the time in the manufacturing lab.

MFG 103  Basic Computer Numerical Control (CNC) (2-4) 3 Cr. Hrs.
Prerequisite: MFG 102.
Students will be introduced to the operation of the CNC Mill through the use of the basic fundamental of “G” codes and “M” codes. Machine and tool setup will also be covered. As part of the class, students will make several small projects on the CNC machines. These machines are used in today's industrial manufacturing plants.

MFG 105  Manufacturing Processes (4-0) 4 Cr. Hrs.
Prerequisite: None.
This course will serve as an introduction to a variety of manufacturing processes, such as casting, forming, plastics, machining and joining. It is meant to be an overview and will concentrate on the uniqueness of each process as it applies to materials and production capabilities. In addition, the student will have a brief exposure to the properties of materials as they relate to particular manufacturing processes and the concepts of measurement, inspection and tolerances.

MFG 106  Basic Mastercam (2-2) 3 Cr. Hrs.
Prerequisite: MFG 102 or basic knowledge of machines (mill and lathe).
Students will further their CNC skills by using a CAD/CAM Mastercam software to generate CNC coding for mills and lathes. Using Mastercam involves three steps: First, the student will use Mastercam's CAD program to create the part geometry; secondly, the CAM program will be used to program machine information (feed rate, spindle speed, coolant control command, etc.); and finally, a postprocessor will be used to generate CNC coding. Also, tool paths will be verified by using a graphical animation of the tool path verification to detect potential machining errors. The students will also study drilling, solid modeling, pocketing and circle boring.

MFG 130  Introduction to Plastic Materials (CNC) (2-1) 3 Cr. Hrs.
Prerequisite: None.
This course provides an introduction to plastic materials selection and testing. Students will gain an understanding of plastic selection criteria based upon chemical and physical properties of thermoplastic and thermoset materials and how this choice relates to part performance. In addition, students will be introduced to basic physical, analytical and mechanical tests that are critical in the selection process. Finally, there will be a brief overview of the common techniques used in polymer processing.

MFG 131  Introduction to Plastic Processing (2-1) 3 Cr. Hrs.
Prerequisite: None.
This course provides an introduction to the different processing technologies associated with producing a finished part from plastic materials. The student will learn about the different molding processes, including injection, compression, blow molding, extrusion, thermoforming and composite manufacturing.

MFG 203  Advanced Computer Numerical Control (CNC) (2-4) 3 Cr. Hrs.
Prerequisite: MFG 103.
This course will cover CNC machining as well as the advanced functions of the controller. All machine-based operational aspects of the CNC machine used in industrial manufacturing plants will be covered. This course will provide a more advanced machining experience.

MFG 206  Advanced Mastercam (0-4) 3 Cr. Hrs.
Prerequisite: MFG 106 or extensive knowledge in 2D Mastercam Design.
The student will use CNC Mastercam software program. This course will address the following machining variables: machining parameters, constructing wire frame models, generating surface models with tool paths, engraving artworks and solid modeling. Operational parameters will be calculated to determine operating capacity of a cutting tool, spindle horsepower, the affects of different types of work piece material, and rigidity of the part and respective fixture. The student will learn how to generate coding for 3D wire frame and multi-axis composite surfaces using various modeling techniques.

MFG 211  3D Computer Numerical Control (CNC) Machining (0-3) 3 Cr. Hrs.
Prerequisite: MFG 203 and MFG 206.
Students will use the computer to develop the tool path for cut 3D surfaces on CNC machines. This method is used in mold shops in the industrial operation. Students must have a very good understanding of Mastercam and CNC machining.
MEDICAL TRANSCRIPTION

MT 108  Physician Office Transcription (2-0) 2 Cr. Hrs.
Prerequisite: HIT 104 and BIOL 105.
This course is designed to introduce the student to transcription practices utilized in the physician/medical office practice/setting. The importance of accurate transcription will be an essential aspect for this course. Report format and general transcription guidelines will be explored. The student will gain experience by transcribing office, clinic and hospital dictation from many medical specialties.

MUSIC

MUSIC 104  Basic Materials in Music Theory (3-0) 3 Cr. Hrs.
Prerequisite: None.
This course provides a step by step approach to the fundamentals of music including notation, scales, intervals and triads.

MUSIC 105  Music Appreciation (3-0) 3 Cr. Hrs.
Prerequisite: None.
An introduction to music, designed especially to increase understanding and enjoyment of music through intelligent listening. No technical knowledge required, but outside listening and attendance at live performances are required.

MUSIC 107  Music for Elementary Teachers (3-2) 4 Cr. Hrs.
Prerequisite: None.
This course will provide students with knowledge about fundamental concepts in music such as rhythm, harmony and form through participation in musical behaviors such as playing instruments, moving and singing. It also will provide opportunities for students to develop and execute lessons that address these concepts as well as employing music to facilitate learning in other academic areas such as math, science and language arts. The course is recommended for elementary education majors.

MUSIC 114  Voice Class 1 Elements—Beginners (2-0) 2 Cr. Hrs.
Prerequisite: None.
This is the first in a series of four voice classes for students interested in developing their vocal skills. This class is designed for young or beginning singers or for singers wishing to refresh their focus on the elements upon which the cultivation of the singing voice is built.

MUSIC 116  Voice Class 2 Cultivation—Intermediate (2-0) 2 Cr. Hrs.
Prerequisite: Consent of instructor.
This is the second in a series of four voice classes for students interested in developing their vocal skills. This is a voice class for singers of intermediate level or for singers wishing to refresh their understanding of the study and cultivation of the singing voice.

MUSIC 117  Choir 1 (2-1) 2 Cr. Hrs.
Prerequisite: Consent of instructor.
This is the first course in which students will explore the principles of choral singing and musicianship. Music of all styles and periods will be included. Choir is an elective for all students, regardless of major field. Additional Choir credits may be earned in future semesters by enrolling in the following course sequence (one course per semester): MUSIC 118, 217 and 218.

MUSIC 118  Choir 2 (2-1) 2 Cr. Hrs.
Prerequisite: MUSIC 117 or consent of instructor.
This is the second course in which students will explore the principles of choral singing and musicianship. Music of all styles and periods will be included. Choir is an elective for all students, regardless of major field. Additional Choir credits may be earned in future semesters by enrolling in the following course sequence (one course per semester): MUSIC 217 and 218.

MUSIC 121  Class Piano 1 (2-0) 2 Cr. Hrs.
Prerequisite: None.
This is the first in a two course sequence of group piano instruction designed for students with little or no formal piano training. Instruction is given on both electronic and acoustic instruments.

MUSIC 122  Class Piano 2 (2-0) 2 Cr. Hrs.
Prerequisite: MUSIC 121 or equivalent.
This is the second in a two course sequence of group piano instruction designed for students with little or no formal piano training. Instruction is given on both electronic and acoustic instruments.

MUSIC 124  Chamber Singers 1 (1-1) 1 Cr. Hr.
Prerequisite: Consent of instructor.
This is the first course in which students will explore the concepts of singing and musicianship involved in performing choral music composed for chamber ensemble as well as vocal music composed for chamber ensemble. Music of all styles and periods historically appropriate for a choral chamber ensemble will be included. Chamber Singers is an elective for all students, regardless of major field. Additional Chamber Singers credits may be earned in future semesters by enrolling in the following course sequence (one course per semester): MUSIC 127, 224 and 227.

MUSIC 127  Chamber Singers 2 (1-1) 1 Cr. Hr.
Prerequisite: MUSIC 124 or consent of instructor.
This is the second course in which students will explore the concepts of singing and musicianship involved in performing choral music composed for chamber ensemble as well as vocal music composed for chamber ensemble. Music of all styles and periods historically appropriate for a choral chamber ensemble will be included. Chamber Singers is an elective for all students, regardless of major field. Additional Chamber Singers credits may be earned in future semesters by enrolling in the following course sequence (one course per semester): MUSIC 224 and 227.
MUSIC 131  Applied Music—Piano 1 (1-1) 2 Cr. Hrs.
Prerequisite: None.
Every student studying piano at Schoolcraft College begins with MUSIC 131. This course includes one 45-minute private lesson weekly, a two-hour weekly studio class and required practice (minimum of six hours for non-majors and varies according to specific major and transfer requirements for music majors). Students will be advised about appropriate daily practice time requirements, repertoire, skills, (for music majors) transfer requirements and required courses related to music curriculum. Performance examinations will be held at the end of each semester. This course is for music and non-music majors.

MUSIC 132  Applied Music—Piano 2 (1-1) 2 Cr. Hrs.
Prerequisite: MUSIC 131.
This is the second in the sequence of piano classes offered at Schoolcraft College. This course includes one 45-minute private lesson weekly, a two-hour weekly studio class and required practice (minimum of six hours for non-majors and varies according to specific major and transfer requirements for music majors). Students will be advised about appropriate daily practice time requirements, repertoire, skills, (for music majors) transfer requirements and required courses related to music curriculum. Performance examinations will be held at the end of each semester. This course is for music and non-music majors.

MUSIC 133  Applied Music—Voice 1 (1-1) 2 Cr. Hrs.
Prerequisite: None.
Every student studying voice at Schoolcraft College begins with MUSIC 133. This course includes one weekly private lesson, a one-hour weekly studio class and required daily practice as assigned by the instructor. Students will be advised about appropriate daily practice time requirements, repertoire, skills, (for music majors) transfer requirements and required courses related to music curriculum. Performance examinations will be held at the end of each semester. This course is for music and non-music majors.

MUSIC 134  Applied Music—Voice 2 (1-1) 2 Cr. Hrs.
Prerequisite: MUSIC 133.
This is the second in the sequence of voice classes at Schoolcraft College. This course includes one weekly private lesson, a one-hour weekly studio class and required daily practice as assigned by the instructor. Students will be advised about appropriate daily practice time requirements, repertoire, skills, (for music majors) transfer requirements and required courses related to music curriculum. Performance examinations will be held at the end of each semester. This course is for music and non-music majors.

MUSIC 135  Applied Music—Instrumental 1 (1-1) 2 Cr. Hrs.
Prerequisite: None.
Every student studying instruments of the band and orchestra, including classical guitar, at Schoolcraft College begins with MUSIC 135. This course includes one weekly private lesson, a one-hour weekly studio class and required practice (minimum of six hours for non-majors and varies according to specific major and transfer requirements for music majors). Students will be advised about appropriate daily practice time requirements, repertoire, skills, (for music majors) transfer requirements and required courses related to music curriculum. Performance examinations will be held at the end of each semester. This course is for music and non-music majors.

MUSIC 136  Applied Music—Instrumental 2 (1-1) 2 Cr. Hrs.
Prerequisite: MUSIC 135.
This is the second class in the sequence of courses for students studying instruments of the band and orchestra, including classical guitar, at Schoolcraft College. This course includes one weekly private lesson, a one-hour weekly studio class and required practice (minimum of six hours for non-majors and varies according to specific major and transfer requirements for music majors). Students will be advised about appropriate daily practice time requirements, repertoire, skills, (for music majors) transfer requirements and required courses related to music curriculum. Performance examinations will be held at the end of each semester. This course is for music and non-music majors.

MUSIC 137  Sight Singing and Ear Training 1 (2-0) 2 Cr. Hrs.
Prerequisite: A basic knowledge of scales, key signatures, intervals and triads.
This course will focus on sight singing melodies outlining the intervals of I and V chords of first and second inversion and non-harmonic tones. The course will include simple rhythmic, melodic and harmonic dictations.

MUSIC 138  Sight Singing and Ear Training 2 (2-0) 2 Cr. Hrs.
Prerequisite: MUSIC 137.
This is the second course in the Sight Singing and Ear Training sequence. It will cover sight singing melodies, outlining intervals of all triads and dominant seventh chords. In addition, harmonic, melodic, rhythmic dictation, altered non-harmonic tones, secondary dominants, modulation to closely related keys and borrowed altered harmonies will be explored.

MUSIC 140  Jazz Lab Band—Improvisation 1 (2-1) 2 Cr. Hrs.
Prerequisite: Consent of instructor.
This group is geared to the less experienced jazz player interested in performing contemporary jazz music in the big band setting, but with some emphasis on improvisation. The Lab Band will perform at concerts during the school year. The class is open to all students, high school and college, and members of the community. An audition at the beginning of each semester is required. Additional Jazz Lab Band Improvisation credits may be earned in future semesters by enrolling in the following course sequence (one course per semester): MUSIC 240, 258 and 259.

MUSIC 141  Wind Ensemble 1 (2-1) 2 Cr. Hrs.
Prerequisite: Consent of instructor.
The Schoolcraft Wind Ensemble is open to all brass, woodwind and percussion instrumentalists regardless of major field. The ensemble performs several concerts during the semester as well as at all college commencements. Additional Wind Ensemble credits may be earned in future semesters by enrolling in the following course sequence (one course per semester): MUSIC 241, 245 and 246.

MUSIC 142  Jazz Band 1 (2-1) 2 Cr. Hrs.
Prerequisite: Consent of instructor.
The Schoolcraft Jazz Band is open to all aspiring jazz performers regardless of major field. The ensemble studies literature from the big band era up through modern jazz arrangements and performs several concerts during the semester. Additional Jazz Band credits may be earned in future semesters by enrolling in the following course sequence (one course per semester): MUSIC 242, 248 and 249.
MUSIC 143  Practice Teaching and Practicum in Piano Teaching 1 (1-1) 2 Cr. Hrs.  
**Prerequisite:** Consent of Department.  
Piano teachers will learn to create and present effective lesson plans that include repertoire, theory concepts, rhythm, tone, touch and hand position through the first semester of piano study.

MUSIC 144  Practice Teaching and Practicum in Piano Teaching 2 (1-1) 2 Cr. Hrs.  
**Prerequisite:** MUSIC 143.  
Piano teachers will learn to create and present effective lesson plans that include repertoire, theory concepts, rhythm, tone, touch and hand position through the second semester of piano study.

MUSIC 149  Popular Music Culture in America (3-0) 3 Cr. Hrs.  
**Prerequisite:** None.  
This course serves as an introduction to some of the great works of popular music in the United States, from the songs of colonial America to the present. The course will cover the major periods/styles in popular American music history including but not limited to music of the Westward movement, ragtime and blues, the roots and growth of jazz, country music, folk music, music of Broadway and Tin Pan Alley, the roots and development of rock music and late 20th century developments in popular music, as well as historical, political and sociological background of the United States as pertinent to music history. A background in music is not required.

MUSIC 153  Music Theory 1 (3-0) 3 Cr. Hrs.  
**Prerequisite:** A basic knowledge of scales, key signatures, intervals and triads.  
Harmonic progression; chords of 1st and 2nd inversion will be the format of this course. Phrase structure and cadences will be introduced. Technique of harmonization and non-harmonic tones will be explored.

MUSIC 154  Music Theory 2 (3-0) 3 Cr. Hrs.  
**Prerequisite:** MUSIC 153.  
This is the second course in the Music Theory sequence. Students will be introduced to chord progressions, harmonization, non-dominant seventh chords, altered non-harmonic tones, secondary dominants and modulation to closely related keys. Students will be introduced to music notation software. Students will create an original composition.

MUSIC 155  History of Broadway (3-0) 3 Cr. Hrs.  
**Prerequisite:** None.  
This course will look at the history and development of the Broadway musical, from its roots in early American musical entertainment and classical European opera, its heyday in the post-modern era and its evolution in the late 20th century as a result of the music publishing and recording industry. In addition, the course will take an in-depth look at the music and structure of several Broadway masterpieces and how they affected and were affected by American popular culture.

MUSIC 156  Music History 1—17th and 18th Centuries (3-0) 3 Cr. Hrs.  
**Prerequisite:** None.  
This course will be a detailed survey of literature, history and musical materials of the Baroque and Classical eras.

MUSIC 157  Practice Teaching and Practicum in Piano Teaching 3 (1-1) 2 Cr. Hrs.  
**Prerequisite:** Consent of Department.  
Piano teachers will learn to create and present effective lesson plans that include repertoire, theory concepts, rhythm, tone, touch and hand position through the third semester of piano study.

MUSIC 158  Practice Teaching and Practicum in Piano Teaching 4 (1-1) 2 Cr. Hrs.  
**Prerequisite:** MUSIC 157.  
Piano teachers will learn to create and present effective lesson plans that include repertoire, theory concepts, rhythm, tone, touch and hand position through the fourth semester of piano study.

MUSIC 162  Theory of Compositions (3-0) 3 Cr. Hrs.  
This course will deal with advanced functions of digital audio workstation (DAW) software as well as hardware and software synthesizers through hands-on experience and experimentation. The course will also introduce the student to current software applications that emphasize music performance and composition with the assistance of MIDI hardware and a desktop computer.

MUSIC 165  Music History 2—19th and 20th Centuries (3-0) 3 Cr. Hrs.  
**Prerequisite:** None.  
This course is a detailed survey of history and literature of music of the Romantic and 20th century eras.

MUSIC 168  Synthesizer Ensemble 1 (2-1) 3 Cr. Hrs.  
**Prerequisite:** MUSIC 121 or consent of instructor.  
The Schoolcraft Synthesizer Ensemble is open to all musicians with keyboard skills, regardless of major field. The ensemble performs original music and transcribed literature of many genres on electronic musical instruments. The group performs several concerts during the semester. Additional Synthesizer credits may be earned in future semesters by enrolling in the following course sequence (one course per semester): MUSIC 169, 268 and 269.

MUSIC 169  Synthesizer Ensemble 2 (2-1) 3 Cr. Hrs.  
**Prerequisite:** MUSIC 168 or consent of instructor.  
This is the second Schoolcraft Synthesizer Ensemble course which is open to all musicians with keyboard skills, regardless of major field. The ensemble performs original music and transcribed literature of many genres on electronic musical instruments. The group performs several concerts during the semester. Additional Synthesizer credits may be earned in future semesters by enrolling in the following course sequence (one course per semester): MUSIC 268 and 269.

MUSIC 171  Music Technology 1 (3-0) 3 Cr. Hrs.  
**Prerequisite:** MUSIC 121, MUSIC 104 and or equivalent.  
This course is an introduction to the fundamentals of music-making using computer hardware and software. The course will examine the basic functions of digital audio workstation (DAW) software as well as hardware and software synthesizers through hands-on experience and experimentation. The course will also introduce the student to current software applications that emphasize music performance and composition with the assistance of MIDI hardware and a desktop computer.

MUSIC 172  Music Technology 2 (3-0) 3 Cr. Hrs.  
**Prerequisite:** MUSIC 171.  
This course will deal with advanced functions of Digital Audio Workstation (DAW) software and synthesis with the assistance of MIDI hardware and a desktop computer.

MUSIC 201  Keyboard Skills for Piano Teachers 1 (2-0) 2 Cr. Hrs.  
**Prerequisite:** Consent of Department.  
This is the first course in the Keyboard Skills for Piano Teachers sequence; it is designed to give piano teachers the necessary keyboard skills for teaching beginning through early intermediate level students. The course will cover technical exercises, harmonization, transposition and sight-reading material using the standards of the Michigan Music Teachers Association, the National Piano Guild and other recognized testing organizations.

MUSIC 202  Keyboard Skills for Piano Teachers 2 (2-0) 2 Cr. Hrs.  
**Prerequisite:** MUSIC 201.  
This is the second course in the Keyboard Skills for Piano Teachers sequence; it is designed to give piano teachers the necessary keyboard skills for teaching intermediate through late intermediate level students. The course will cover technical exercises, harmonization, transposition and sight-reading material using the standards of the Michigan Music Teachers Association, the National Piano Guild and other recognized testing organizations.
MUSIC 204  Keyboard Skills for Piano Teachers 3 (2-0) 2 Cr. Hrs.  
Prerequisite: MUSIC 202.  
This is the third course in the Keyboard Skills for Piano Teachers sequence; it is designed to give piano teachers the necessary keyboard skills for teaching late intermediate through early advanced level students. The course will cover technical exercises, harmonization, transposition and sight-reading material using the standards of the Michigan Music Teachers Association, the National Piano Guild and other recognized testing organizations.

MUSIC 205  Keyboard Skills for Piano Teachers 4 (2-0) 2 Cr. Hrs.  
Prerequisite: MUSIC 204.  
This is the fourth course in the Keyboard Skills for Piano Teachers sequence; it is designed to give piano teachers the necessary keyboard skills for teaching advanced level students. The course will cover technical exercises, harmonization, transposition and sight-reading material using the standards of the Michigan Music Teachers Association, the National Piano Guild and other recognized testing organizations.

MUSIC 214  Voice Class 3 Performance—Advanced (2-0) 2 Cr. Hrs.  
Prerequisite: Consent of instructor.  
This is the third in a series of four voice classes for students interested in developing their vocal skills. It is a voice class for singers preparing for a career in singing or for advanced singers wishing to learn the art of performance before an audience.

MUSIC 216  Voice Class 4 Performance—Advanced (2-0) 2 Cr. Hrs.  
Prerequisite: Consent of instructor.  
This is the final course in a series of four voice classes for students interested in developing their vocal skills. This is a voice class for singers preparing for a career in singing or for advanced singers wishing to learn the art of performance before an audience.

MUSIC 217  Choir 3 (2-1) 2 Cr. Hrs.  
Prerequisite: MUSIC 118 or consent of instructor.  
This is the third course in which students will explore the principles of choral singing and musicianship. Music of all styles and periods will be included. Choir is an elective for all students, regardless of major field. Additional Choir credits may be earned in a future semester by enrolling in MUSIC 218.

MUSIC 218  Choir 4 (2-1) 2 Cr. Hrs.  
Prerequisite: MUSIC 217 or consent of instructor.  
This is the fourth and last course in which students will explore the principles of choral singing and musicianship. Music of all styles and periods will be included. Choir is an elective for all students, regardless of major field.

MUSIC 224  Chamber Singers 3 (1-1) 1 Cr. Hr.  
Prerequisite: MUSIC 127 or consent of instructor.  
This is the third course in which students will explore the concepts of singing and musicianship involved in performing choral music composed for chamber ensemble as well as vocal music composed for chamber ensemble. Music of all styles and periods historically appropriate for a choral chamber ensemble will be included. Chamber Singers is an elective for all students, regardless of major field. Additional Chamber Singers credits may be earned in future semesters by enrolling in the following course: MUSIC 227.

MUSIC 227  Chamber Singers 4 (1-1) 1 Cr. Hr.  
Prerequisite: MUSIC 224 or consent of instructor.  
This is the last course in which students will explore the principles of singing and musicianship involved in performing choral music composed for chamber ensemble as well as vocal music composed for chamber ensemble. Music of all styles and periods historically appropriate for a choral chamber ensemble will be included. Chamber Singers is an elective for all students, regardless of major field.

MUSIC 231  Applied Music—Piano 3 (1-1) 2 Cr. Hrs.  
Prerequisite: MUSIC 132.  
This is the third course in the sequence of piano classes offered at Schoolcraft College. This course includes one 45-minute private lesson weekly, a two-hour weekly studio class and required practice (minimum of six hours for non-majors and varies according to specific major and transfer requirements for music majors). Students will be advised about appropriate daily practice time requirements, repertoire, skills, (for music majors) transfer requirements and required courses related to music curriculum. Performance examinations will be held at the end of each semester. This course is for music and non-music majors.

MUSIC 232  Applied Music—Piano 4 (1-1) 2 Cr. Hrs.  
Prerequisite: MUSIC 231.  
This is the fourth course in the sequence of piano classes offered at Schoolcraft College. This course includes one 45-minute private lesson weekly, a two-hour weekly studio class and required practice (minimum of six hours for non-majors and varies according to specific major and transfer requirements for music majors). Students will be advised about appropriate daily practice time requirements, repertoire, skills, (for music majors) transfer requirements and required courses related to music curriculum. Performance examinations will be held at the end of each semester. This course is for music and non-music majors.

MUSIC 233  Applied Music—Voice 3 (1-1) 2 Cr. Hrs.  
Prerequisite: MUSIC 134.  
This is the third in the sequence of voice classes at Schoolcraft College. This course includes one weekly private lesson, a one-hour weekly studio class and required daily practice as assigned by the instructor. Students will be advised about appropriate daily practice time requirements, repertoire, skills, (for music majors) transfer requirements and required courses related to music curriculum. Performance examinations will be held at the end of each semester. This course is for music and non-music majors.

MUSIC 234  Applied Music—Voice 4 (1-1) 2 Cr. Hrs.  
Prerequisite: MUSIC 233.  
This is the fourth in the sequence of voice classes at Schoolcraft College. This course includes one weekly private lesson, a one-hour weekly studio class and required daily practice as assigned by the instructor. Students will be advised about appropriate daily practice time requirements, repertoire, skills, (for music majors) transfer requirements and required courses related to music curriculum. Performance examinations will be held at the end of each semester. This course is for music and non-music majors.
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<td><strong>MUSIC 243</strong></td>
<td>Practice Teaching and Practicum in Piano Teaching 3 (1-1) 2 Cr. Hrs.</td>
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<td><strong>Prerequisite:</strong> MUSIC 144.</td>
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<tr>
<td>Piano teachers will learn to create and present effective lesson plans that include repertoire, theory concepts, rhythm, tone, touch and hand position through the third semester of piano study.</td>
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| **MUSIC 244** | Practice Teaching and Practicum in Piano Teaching 4 (1-1) 2 Cr. Hrs.  |
| **Prerequisite:** MUSIC 243.  |
| Piano teachers will learn to create and present effective lesson plans that include repertoire, theory concepts, rhythm, tone, touch and hand position through the fourth semester of piano study.  |

| **MUSIC 245** | Wind Ensemble 2 (2-1) 2 Cr. Hrs.  |
| **Prerequisite:** MUSIC 241 or consent of instructor.  |
| This is the third Schoolcraft Wind Ensemble course which is open to all brass, woodwind and percussion instrumentalists regardless of major field. The ensemble performs several concerts during the semester as well as at all college commencements. Additional Wind Ensemble credits may be earned in future semesters by enrolling in the following course sequence (one course per semester): MUSIC 246.  |

| **MUSIC 246** | Wind Ensemble 4 (2-1) 2 Cr. Hrs.  |
| **Prerequisite:** MUSIC 245 or consent of instructor.  |
| This is the fourth Schoolcraft Wind Ensemble course which is open to all brass, woodwind and percussion instrumentalists regardless of major field. The ensemble performs several concerts during the semester as well as at all college commencements.  |

| **MUSIC 247** | Piano Teaching Techniques and Materials 1 (3-0) 3 Cr. Hrs.  |
| **Prerequisite:** Consent of Department.  |
| This course is designed for teachers enrolled in the Piano Teaching Certificate Program or students who have special permission from the Director of the Piano Department. This introductory level course focuses on the following topics: developing a professional piano student, setting up a small business, elementary methods and materials, supplemental materials in sight reading, harmonization, transposition and knowledge of professional organizations.  |

| **MUSIC 248** | Jazz Band 3 (2-1) 2 Cr. Hrs.  |
| **Prerequisite:** MUSIC 242 or consent of instructor.  |
| This is the third Schoolcraft Jazz Band course which is open to all aspiring jazz performers regardless of major field. The ensemble studies literature from the big band era up through modern jazz arrangements and performs several concerts during the semester. Additional Jazz Band credits may be earned in future semesters by enrolling in the following course sequence (one course per semester): MUSIC 249.  |

| **MUSIC 249** | Jazz Band 4 (2-1) 2 Cr. Hrs.  |
| **Prerequisite:** MUSIC 248 or consent of instructor.  |
| This is the fourth Schoolcraft Jazz Band course which is open to all aspiring jazz performers regardless of major field. The ensemble studies literature from the big band era up through modern jazz arrangements and performs several concerts during the semester.  |

| **MUSIC 235** | Applied Music—Instrumental 3 (1-1) 2 Cr. Hrs.  |
| **Prerequisite:** MUSIC 136.  |
| This is the third class in the sequence of courses for students studying instruments of the band and orchestra, including classical guitar, at Schoolcraft College. This course includes one weekly private lesson, a one-hour weekly studio class and required practice (minimum of six hours for non-majors and varies according to specific major and transfer requirements for music majors). Students will be advised about appropriate daily practice time requirements, repertoire, skills, (for music majors) transfer requirements and required courses related to music curriculum. Performance examinations will be held at the end of each semester. This course is for music and non-music majors.  |

| **MUSIC 236** | Applied Music—Instrumental 4 (1-1) 2 Cr. Hrs.  |
| **Prerequisite:** MUSIC 235.  |
| This is the fourth class in the sequence of courses for students studying instruments of the band and orchestra, including classical guitar, at Schoolcraft College. This course includes one weekly private lesson, a one-hour weekly studio class and required practice (minimum of six hours for non-majors and varies according to specific major and transfer requirements for music majors). Students will be advised about appropriate daily practice time requirements, repertoire, skills, (for music majors) transfer requirements and required courses related to music curriculum. Performance examinations will be held at the end of each semester. This course is for music and non-music majors.  |

| **MUSIC 240** | Jazz Lab Band—Improvisation 2 (2-1) 2 Cr. Hrs.  |
| **Prerequisite:** MUSIC 140 or consent of instructor.  |
| This group is geared to the less experienced jazz player interested in performing contemporary jazz music in the big band setting, but with some emphasis on improvisation. The Lab Band will perform at concerts during the school year. This is the second course in a series and the class is open to all students, high school and college, and members of the community. An audition at the beginning of each semester is required. Additional Jazz Lab Band Improvisation credits may be earned in future semesters by enrolling in the following course sequence (one course per semester): MUSIC 258 and 259.  |

| **MUSIC 241** | Wind Ensemble 2 (2-1) 2 Cr. Hrs.  |
| **Prerequisite:** MUSIC 141 or consent of instructor.  |
| This is the second Schoolcraft Wind Ensemble course which is open to all brass, woodwind and percussion instrumentalists regardless of major field. The ensemble performs several concerts during the semester as well as at all college commencements. Additional Wind Ensemble credits may be earned in future semesters by enrolling in the following course sequence (one course per semester): MUSIC 245 and 246.  |

| **MUSIC 242** | Jazz Band 2 (2-1) 2 Cr. Hrs.  |
| **Prerequisite:** MUSIC 142 or consent of instructor.  |
| This is the second Schoolcraft Jazz Band course which is open to all aspiring jazz performers regardless of major field. The ensemble studies literature from the big band era up through modern jazz arrangements and performs several concerts during the semester. Additional Jazz Band credits may be earned in future semesters by enrolling in the following course sequence (one course per semester): MUSIC 248 and 249.  |
MUSIC 250  Music Theory 3 (3-0) 3 Cr. Hrs.  
Prerequisite: MUSIC 154.
This is the third course in the Music Theory sequence. Students will be introduced to borrowed chords, augmented and Neapolitan sixth chords, diminished seventh chords, chromatic mediant and modulation to foreign keys. Students will also analyze 18th and 19th century compositions.

MUSIC 252  Music Theory 4 (4-0) 4 Cr. Hrs.  
Prerequisite: MUSIC 250.  
This is the last course in the Music Theory sequence. Students will be introduced to 18th century counterpoint: the study, analysis and composition of two-voice invention and three-voice fugue. The student will also be introduced to 20th century forms and harmonic tendencies: study, analysis and composition of work utilizing the 12-tone system will be among the techniques explored.

MUSIC 253  Practice Teaching and Practicum in Piano Teaching 5 (1-1) 2 Cr. Hrs.  
Prerequisite: MUSIC 244.  
Piano teachers will learn to create and present effective lesson plans that include repertoire, theory concepts, rhythm, tone, touch and hand position through the sixth semester of piano study.

MUSIC 256  Practice Teaching and Practicum in Piano Teaching 6 (1-1) 2 Cr. Hrs.  
Prerequisite: MUSIC 253.  
Piano teachers will learn to create and present effective lesson plans that include repertoire, theory concepts, rhythm, tone, touch and hand position through the fifth semester of piano study.

MUSIC 257  Piano Teaching Techniques and Materials 2 (3-0) 3 Cr. Hrs.  
Prerequisite: MUSIC 247 or consent of department.  
This course is designed for teachers enrolled in the Piano Teaching Certificate Program. It is the second course in a series and emphasizes techniques and methods for teaching the intermediate piano student.

MUSIC 258  Jazz Lab Band—Improvisation 3 (2-1) 2 Cr. Hrs.  
Prerequisite: MUSIC 240 or consent of instructor.  
This group is geared to the less experienced jazz player interested in performing contemporary jazz music in the big band setting, but with some emphasis on improvisation. The Lab Band will perform at concerts during the school year. This is the third course in a series and the class is open to all students, high school and college, and members of the community. An audition at the beginning of each semester is required. Additional Jazz Lab Band Improvisation credits may be earned in future semesters by enrolling in MUSIC 259.

MUSIC 259  Jazz Lab Band—Improvisation 4 (2-1) 2 Cr. Hrs.  
Prerequisite: MUSIC 258 or consent of instructor.  
This group is geared to the less experienced jazz player interested in performing contemporary jazz music in the big band setting, but with some emphasis on improvisation. The Lab Band will perform at concerts during the school year. This is the fourth course in a series and the class is open to all students, high school and college, and members of the community. An audition at the beginning of each semester is required.

MUSIC 263  Practice Teaching and Practicum in Piano Teaching 7 (1-1) 2 Cr. Hrs.  
Prerequisite: MUSIC 256.  
Piano teachers will learn to create and present effective lesson plans that include repertoire, theory concepts, rhythm, tone, touch and hand position through the seventh semester of piano study.

MUSIC 264  Practice Teaching and Practicum in Piano Teaching 8 (1-1) 2 Cr. Hrs.  
Prerequisite: MUSIC 263.  
Piano teachers will learn to create and present effective lesson plans that include repertoire, theory concepts, rhythm, tone, touch and hand position through the eighth semester of piano study.

MUSIC 268  Synthesizer Ensemble 3 (2-1) 3 Cr. Hrs.  
Prerequisite: MUSIC 169 or consent of instructor.  
This is the third Schoolcraft Synthesizer Ensemble course which is open to all musicians with keyboard skills, regardless of major field. The ensemble performs original music and transcribed literature of many genres on electronic musical instruments. The group performs several concerts during the semester. Additional Synthesizer credits may be earned in future semesters by enrolling in the following course sequence (one course per semester): MUSIC 269.

MUSIC 269  Synthesizer Ensemble 4 (2-1) 3 Cr. Hrs.  
Prerequisite: MUSIC 268 or consent of instructor.  
This is the fourth Schoolcraft Synthesizer Ensemble class which is open to all musicians with keyboard skills, regardless of major field. The ensemble performs original music and transcribed literature of many genres on electronic musical instruments. The group performs several concerts during the semester.

MUSIC 277  Piano Teaching Techniques and Materials 3 (3-0) 3 Cr. Hrs.  
Prerequisite: MUSIC 257 or consent of department.  
This course is designed for teachers enrolled in the Piano Teaching Certificate Program. It is the third course in a series and emphasizes techniques and methods for teaching the late intermediate and early advanced piano student.

MUSIC 282  Applied Music—Piano 5 (1-1) 2 Cr. Hrs.  
Prerequisite: MUSIC 232.  
This course is in the sequence of piano classes offered at Schoolcraft College. This course includes one 45-minute private lesson weekly, a two-hour weekly studio class and required practice (minimum of six hours for non-majors and varies according to specific major and transfer requirements for music majors). Students will be advised about appropriate daily practice time requirements, repertoire, skills, (for music majors) transfer requirements and required courses related to music curriculum. Performance examinations will be held at the end of each semester. This course is for music and non-music majors.
MUSIC 283  Applied Music—Piano 6 (1-1) 2 Cr. Hrs.
Prerequisite: MUSIC 282.
This is the sixth course in the sequence of piano classes offered at Schoolcraft College. This course includes one 45-minute private lesson weekly, a two-hour weekly studio class and required practice (minimum of six hours for non-majors and varies according to specific major and transfer requirements for music majors). Students will be advised about appropriate daily practice time requirements, repertoire, skills, (for music majors) transfer requirements and required courses related to music curriculum. Performance examinations will be held at the end of each semester. This course is for music and non-music majors.

MUSIC 284  Applied Music—Piano 7 (1-1) 2 Cr. Hrs.
Prerequisite: MUSIC 283.
This is the seventh course in the sequence of piano classes offered at Schoolcraft College. This course includes one 45-minute private lesson weekly, a two-hour weekly studio class and required practice (minimum of six hours for non-majors and varies according to specific major and transfer requirements for music majors). Students will be advised about appropriate daily practice time requirements, repertoire, skills, (for music majors) transfer requirements and required courses related to music curriculum. Performance examinations will be held at the end of each semester. This course is for music and non-music majors.

MUSIC 285  Applied Music—Piano 8 (1-1) 2 Cr. Hrs.
Prerequisite: MUSIC 284.
This is the eighth course in the sequence of piano classes offered at Schoolcraft College. This course includes one 45-minute private lesson weekly, a two-hour weekly studio class and required practice (minimum of six hours for non-majors and varies according to specific major and transfer requirements for music majors). Students will be advised about appropriate daily practice time requirements, repertoire, skills, (for music majors) transfer requirements and required courses related to music curriculum. Performance examinations will be held at the end of each semester. This course is for music and non-music majors.

MUSIC 286  Applied Music—Voice 5 (1-1) 2 Cr. Hrs.
Prerequisite: MUSIC 234.
This is the fifth in the sequence of voice classes at Schoolcraft College. This course includes one weekly private lesson, a one-hour weekly studio class and required daily practice as assigned by the instructor. Students will be advised about appropriate daily practice time requirements, repertoire, skills, (for music majors) transfer requirements and required courses related to music curriculum. Performance examinations will be held at the end of each semester. This course is for music and non-music majors.

MUSIC 287  Applied Music—Voice 6 (1-1) 2 Cr. Hrs.
Prerequisite: MUSIC 286.
This is the sixth in the sequence of voice classes at Schoolcraft College. This course includes one weekly private lesson, a one-hour weekly studio class and required daily practice as assigned by the instructor. Students will be advised about appropriate daily practice time requirements, repertoire, skills, (for music majors) transfer requirements and required courses related to music curriculum. Performance examinations will be held at the end of each semester. This course is for music and non-music majors.

MUSIC 288  Applied Music—Voice 7 (1-1) 2 Cr. Hrs.
Prerequisite: MUSIC 287.
This is the seventh in the sequence of voice classes at Schoolcraft College. This course includes one weekly private lesson, a one-hour weekly studio class and required daily practice as assigned by the instructor. Students will be advised about appropriate daily practice time requirements, repertoire, skills, (for music majors) transfer requirements and required courses related to music curriculum. Performance examinations will be held at the end of each semester. This course is for music and non-music majors.

MUSIC 289  Applied Music—Voice 8 (1-1) 2 Cr. Hrs.
Prerequisite: MUSIC 288.
This is the eighth in the sequence of voice classes at Schoolcraft College. This course includes one weekly private lesson, a one-hour weekly studio class and required daily practice as assigned by the instructor. Students will be advised about appropriate daily practice time requirements, repertoire, skills, (for music majors) transfer requirements and required courses related to music curriculum. Performance examinations will be held at the end of each semester. This course is for music and non-music majors.

MUSIC 290  Applied Music—Instrumental 5 (1-1) 2 Cr. Hrs.
Prerequisite: MUSIC 236.
This is the fifth in the sequence of courses for students studying instruments of the band and orchestra, including classical guitar, at Schoolcraft College. This course includes one weekly private lesson, a one-hour weekly studio class and required practice (minimum of six hours for non-majors and varies according to specific major and transfer requirements for music majors). Students will be advised about appropriate daily practice time requirements, repertoire, skills, (for music majors) transfer requirements and required courses related to music curriculum. Performance examinations will be held at the end of each semester. This course is for music and non-music majors.

MUSIC 291  Applied Music—Instrumental 6 (1-1) 2 Cr. Hrs.
Prerequisite: MUSIC 290.
This is the sixth in the sequence of courses for students studying instruments of the band and orchestra, including classical guitar, at Schoolcraft College. This course includes one weekly private lesson, a one-hour weekly studio class and required practice (minimum of six hours for non-majors and varies according to specific major and transfer requirements for music majors). Students will be advised about appropriate daily practice time requirements, repertoire, skills, (for music majors) transfer requirements and required courses related to music curriculum. Performance examinations will be held at the end of each semester. This course is for music and non-music majors.
MUSIC 292  Applied Music—Instrumental 7 (1-1) 2 Cr. Hrs.  
*Prerequisite:* MUSIC 291.  
This is the seventh class in the sequence of courses for students studying instruments of the band and orchestra, including classical guitar, at Schoolcraft College. This course includes one weekly private lesson, a one-hour weekly studio class and required practice (minimum of six hours for non-majors and varies according to specific major and transfer requirements for music majors). Students will be advised about appropriate daily practice time requirements, repertoire, skills, (for music majors) transfer requirements and required courses related to music curriculum. Performance examinations will be held at the end of each semester. This course is for music and non-music majors.

MUSIC 293  Applied Music—Instrumental 8 (1-1) 2 Cr. Hrs.  
*Prerequisite:* MUSIC 292.  
This is the eighth class in the sequence of courses for students studying instruments of the band and orchestra, including classical guitar, at Schoolcraft College. This course includes one weekly private lesson, a one-hour weekly studio class and required practice (minimum of six hours for non-majors and varies according to specific major and transfer requirements for music majors). Students will be advised about appropriate daily practice time requirements, repertoire, skills, (for music majors) transfer requirements and required courses related to music curriculum. Performance examinations will be held at the end of each semester. This course is for music and non-music majors.

MUSIC 298  Special Music Projects for Honors Studies—Performance/Composition/Research (2-0) 2 Cr. Hrs.  
*Prerequisite:* A minimum of 45 credit hours completed toward a Music AFA degree or consent of department.  
This course provides an opportunity for the talented student to explore individually, in depth, under the direction of a faculty member, a performance, composition or research related project. This course provides an opportunity to present traditional musical events such as a recital or a concert or to learn a new technology.

MUSIC 299  Special Music Projects for Honors Studies—Performance/Composition/Research (2-0) 2 Cr. Hrs.  
*Prerequisite:* A minimum of 45 credit hours completed toward a Music AFA degree or consent of department.  
This course provides an opportunity for the talented student to explore individually, in depth, under the direction of a faculty member, a performance, composition or research related project. This course provides an opportunity to present traditional musical events such as a recital or a concert or to learn a new technology.

NURSING ASSISTANT TRAINING PROGRAM

NATP 110  Nursing Assistant Preparation (3-7) 10 Cr. Hrs.  
The Nursing Assistant Preparation course is open only to students who are officially admitted to the Nursing Assistant Training Program. This course is designed to prepare an individual in the role of the nursing assistant. Students will explore communication and interpersonal skills, infection control, safety/emergency procedures, promotion of resident's independence/rights, basic nursing skills, personal and restorative care skills, care of mental health and social services needs, care of cognitively impaired residents and documentation. Basic nursing assistant skills will be performed in laboratory and geriatric-focused clinical facilities.

NURSING

NURS 102  Nursing Informatics (1-0) 1 Cr. Hr.  
*Prerequisite:* Acceptance into the Nursing Career Ladder Curriculum for the forthcoming or current year.  
This course emphasizes application of healthcare informatics and medical terminology. Theoretical content will focus on healthcare technology, internet applications and evidence-based principles of nursing within the practical and registered nurse scope of practice as a member of the interdisciplinary healthcare team.

NURS 104  Pharmacology for Nurses (3-0) 3 Cr. Hrs.  
*Prerequisite:* Acceptance into the Nursing Career Ladder Curriculum for the forthcoming or current year.  
This course introduces pharmacological concepts and major drug classifications. Drug information includes mechanism of action, drug effects, therapeutic uses, side effects, adverse effects, toxicity, drug interactions, medication calculations and dosage, example drugs and patient teaching for specified drug classifications. The nursing process and evidence-based principles of nursing within the practical and registered nurse scope of practice are utilized as a framework for safe medication administration as a member of the interdisciplinary healthcare team.

NURS 110  Fundamentals of Nursing (5-12) 9 Cr. Hrs.  
*Prerequisite:* Acceptance into the Nursing Career Ladder Curriculum for the current year.  
This course provides an introduction to the theory and practice of nursing. It emphasizes application of the nursing process and critical thinking skills while utilizing evidence-based principles of nursing in providing basic care for chronically ill and elderly clients within the practical and registered nurse scope of practice. Theoretical content focuses on fundamental nursing concepts and skills. Clinical experiences occur in laboratory, clinical and community settings utilizing an interdisciplinary collaborative approach.
NURS 124 Medical Nursing (2.5-7.5) 5 Cr. Hrs.
Prerequisite: NURS 102, NURS 104, NURS 110 and BIOL 114.
This course emphasizes application of the nursing process and critical thinking skills while utilizing evidence-based principles of nursing in caring for adult clients experiencing medical alterations within the practical and registered nurse scope of practice. Theoretical content focuses on cardiovascular, renal, endocrine and immune system alterations as well as fluid/electrolyte and acid base balance. Clinical experiences are provided in acute and community settings utilizing an interdisciplinary collaborative approach.

NURS 125 Surgical Nursing (2.5-7.5) 5 Cr. Hrs.
Prerequisite: NURS 102, NURS 104, NURS 110 and BIOL 114.
This course emphasizes application of the nursing process and critical thinking skills while utilizing evidence-based principles of nursing in caring for adult clients experiencing surgical alterations within the practical and registered nurse scope of practice. Theoretical content focuses on musculoskeletal, neurological, respiratory and gastrointestinal system alterations as well as peri-operative care. Clinical experiences are provided in acute and community settings utilizing an interdisciplinary collaborative approach.

NURS 128 Maternal-Child Nursing 1 (2.5-7.5) 5 Cr. Hrs.
Prerequisite: NURS 102, NURS 104, NURS 110 and BIOL 114.
This course emphasizes application of the nursing process and critical thinking skills while utilizing evidence-based principles of nursing in caring for the childbearing family and pediatric clients. Theoretical content focuses on human sexuality, normal pregnancy, labor, delivery, post-partum, normal newborn, growth and development and common uncomplicated pediatric health disorders within the practical and registered nurse scope of practice. Clinical experiences with the childbearing family and pediatric clients are provided in acute and community settings utilizing an interdisciplinary collaborative approach.

NURS 139 Advanced Concepts in Practical Nursing (1.5-4.5) 3 Cr. Hrs.
Prerequisite: NURS 124, NURS 125 and NURS 128. PSYCH 229 or PSYCH 239.
This capstone course emphasizes comprehensive application of the nursing process and critical thinking skills while utilizing evidence-based principles of nursing to care for groups of clients within the practical nurse scope of practice. Theoretical content focuses on advanced-medical surgical topics as well as issues related to licensure and employment for the practical nurse. Clinical experiences are provided in acute and community settings utilizing an interdisciplinary collaborative approach.

NURS 245 Advanced Medical-Surgical Nursing (2.5-7.5) 5 Cr. Hrs.
Prerequisite: NURS 124, NURS 125 and NURS 128.
This course emphasizes comprehensive application of the nursing process and critical thinking skills while utilizing evidence-based principles of nursing in caring for adult clients experiencing complex medical and surgical alterations within the registered nurse scope of practice. Theoretical content focuses on advanced concepts of intravenous therapy, dysrhythmias, oncology, end-of-life care, alternative therapies and emergency/critical care nursing in addition to select neurological, ear/eye, integumentary and reproductive system alterations. Clinical experiences are provided in acute and community settings utilizing an interdisciplinary collaborative approach.

NURS 246 Psychiatric Mental Health Nursing (2-6) 4 Cr. Hrs.
Prerequisite: NURS 124, NURS 125 and NURS 128. PSYCH 229 or PSYCH 239.
This course emphasizes application of the nursing process and critical thinking skills while utilizing evidence-based principles of nursing in caring for adult, child and adolescent clients with mental illness within the registered nurse scope of practice. Theoretical content focuses on clients experiencing mental health alterations. Clinical experiences are provided in acute, chronic and community mental health care facilities utilizing an interdisciplinary collaborative approach.

NURS 248 Maternal-Child Nursing 2 (2.5-7.5) 5 Cr. Hrs.
Prerequisite: NURS 124, NURS 125 and NURS 128.
This course emphasizes application of the nursing process and critical thinking skills while utilizing evidence-based principles of nursing in caring for the childbearing family and pediatric clients. Theoretical content focuses on complex obstetrical and pediatric health disorders within the registered nurse scope of practice. Clinical experiences with the childbearing family and pediatric clients are provided in acute and community settings utilizing an interdisciplinary collaborative approach.

NURS 259 Advanced Concepts in Registered Nursing (2-9) 5 Cr. Hrs.
Prerequisite: NURS 245, NURS 246 and NURS 248.
This capstone course emphasizes comprehensive application of the nursing process and critical thinking skills while utilizing evidence-based principles of nursing to care for groups of complex clients within the registered nurse scope of practice. Theoretical content focuses on community health nursing, disaster preparedness/terrorism, health policy, principles of leadership, management, quality improvement and delegation as well as issues related to licensure and employment for the registered nurse. Clinical experiences are provided in acute and community settings utilizing an interdisciplinary collaborative approach.

OFFICE INFORMATION SYSTEMS

OIS 100 Keyboarding 1 (2-0) 2 Cr. Hrs.
Prerequisite: None.
Students will learn how to keyboard using the touch control method. Development of proper keying techniques while building basic accuracy and speed will be emphasized. Today's technology-driven environment makes keyboarding one of the most widely used skills as we utilize computers for work, school and in our personal lives.

OIS 102 Keyboarding 2 (2-0) 2 Cr. Hrs.
Prerequisite: OIS 100 or equivalent.
This course continues the development of accuracy and speed in keyboarding. Students will enhance their keyboarding skills and incorporate them into the formatting of various business documents, reports and tables.

OIS 105 Office Communication—Editing Skills (3-0) 3 Cr. Hrs.
Prerequisite: A skill level of ENG 050 or higher on the placement test. OIS 102 strongly recommended.
The ability to communicate clearly and accurately has been identified by employers as their number one priority. This course is designed to review and incorporate the principles of grammar, punctuation, vocabulary and spelling into the writing of or proofreading and editing of business documents.
OIS 165  Microsoft Word for Windows (3-0) 3 Cr. Hrs.  
**Prerequisite:** OIS 105 or equivalent.  
This course is designed to provide practical hands-on experience using Microsoft Word for Windows. Students will create, format, and edit business documents. In addition, students will work with tables, charts, graphs, diagrams, templates and wizards, AutoText, Web pages and hyperlinks. While manipulating text, students will learn to add visual appeal to documents as well as how to use writing tools and special features.

OIS 185  Business Presentation 1—Fundamental Concepts (3-0) 3 Cr. Hrs.  
**Prerequisite:** OIS 165 or equivalent.  
This course will introduce students to the fundamental concepts of business presentations using Microsoft's PowerPoint software. PowerPoint presentations are one of the most widely used communication tools in today's workplace. Students will create basic business presentations, charts, graphs and flyers. Students will learn to link and embed objects and files as well as work with drawing tools, icons, various fonts and color to create a powerful presentation.

OIS 195  Time and Project Management (1-0) 1 Cr. Hr.  
**Prerequisite:** None.  
In today's busy world, time management is an essential skill needed both professionally and personally. This course will assist students in gaining control of their office activities by showing them how to set and prioritize goals and events around individual values using a day planner.

OIS 255  Office Procedures (2-0) 2 Cr. Hrs.  
**Prerequisite:** OIS 100 or equivalent.  
This course is designed to enhance the students’ knowledge regarding basic office skills. Students will learn office functions such as reprographics, records management, telephone techniques and etiquette, mailing and shipping services, meeting and conference planning, travel arrangements, as well as the importance of written communication and public relations.

OIS 260  Office Administration (3-0) 3 Cr. Hrs.  
**Prerequisite:** OIS 255 recommended.  
Today's administrative office manager must be an effective communicator who possesses strong skills in problem solving, time management, multi-tasking and human relations. This course concentrates on the principles of administrative office management, the importance of managing administrative services and operations and the skills and attitudes needed to be successful in today's office.

OIS 265  Advanced Microsoft Word for Windows (3-0) 3 Cr. Hrs.  
**Prerequisite:** OIS 165.  
This course is a continuation of OIS 165 and will focus on the advanced functions of Microsoft Word for Windows. Students will create and modify styles, macros, footnotes and endnotes. In addition, students will work with sorting and selecting text, merging and managing documents, preparing forms, applying special features, adding visual effects and using WordArt.

**PHYSICAL EDUCATION**

PE 104  Physical Fitness and Conditioning (1-1) 2 Cr. Hrs.  
**Prerequisite:** None.  
This course stresses vigorous body conditioning through progressive exercises, stretching, weight machine and free weight use. Cardiovascular fitness will be emphasized.

PE 105  Beginning Resistance Training (1-1) 2 Cr. Hrs.  
**Prerequisite:** None.  
Instruction will stress the development of strong muscle growth and bone health, as well as improvement of cardiovascular function through the use of resistance bands, X-er tubes, stability balls and free weights.

PE 106  Beginning Swimming (1-1) 2 Cr. Hrs.  
**Prerequisite:** None.  
This course is for the student who has little or no skill and knowledge of swimming techniques. Fundamental instruction in the basic swimming strokes, including front crawl, back crawl, elementary back stroke, side stroke, elementary diving and water safety skills will be introduced.

PE 114  Pilates Mat Work (1-1) 2 Cr. Hrs.  
**Prerequisite:** None.  
This course offers students an effective conditioning program for the entire body using a series of floor exercises to increase mobility, strength, flexibility and concentration. The exercise program is designed for those who want to improve core strength to maintain a healthy back, to ease into exercise and to improve posture and balance; it provides challenge with little to no impact to joints. Proper breathing and correct spinal alignment will be emphasized.

PE 115  Aerobic Dance Fitness (1-1) 2 Cr. Hrs.  
**Prerequisite:** None.  
Instruction will stress the development of an individual's aerobic capacity and cardiovascular endurance through aerobic dance and dance exercise.

PE 116  Intermediate Swimming (1-1) 2 Cr. Hrs.  
**Prerequisite:** None.  
For students who have the ability to swim two lengths of the pool and stay afloat for three minutes. Designed to increase skill and knowledge in the basic swimming strokes, diving and water safety skills. Some stroke variations and synchronized swimming techniques may be covered.

PE 121  First Aid and Personal Safety (2-0) 2 Cr. Hrs.  
**Prerequisite:** None.  
This course introduces accident prevention and care of victims using emergency-skill procedures. Cardiopulmonary resuscitation (CPR) for infant, child and adult and Automated External Defibrillator (A.E.D.) use will be presented. American Red Cross Certification Cards will be awarded to those successfully completing the requirements.

PE 132  Beginning Tennis (1-1) 2 Cr. Hrs.  
**Prerequisite:** None.  
This course provides students with a basic history of tennis, techniques, fundamental skills, strategy, rules and the opportunity to participate in a competitive situation.
### COURSES

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Description</th>
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<tr>
<td>PE 141</td>
<td>Basketball (1-1) 2 Cr. Hrs.</td>
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<td>This course covers the history of the sport, basic techniques, fundamental skills, strategy and rules and gives students the opportunity to participate in a competitive situation.</td>
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<td>PE 157</td>
<td>Paddleball/Racquetball (1-1) 2 Cr. Hrs.</td>
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<td>This course provides instruction in rules, safety practices, etiquette, strategy and skills of paddleball and racquetball. Tournament play in singles, doubles and cut-throat is included.</td>
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<td>PE 194</td>
<td>Weight Training (1-1) 2 Cr. Hrs.</td>
<td></td>
<td>Various methods of weight training for both men and women are taught. Proper lifting techniques learned. The concept of “total fitness and body awareness” is stressed.</td>
</tr>
<tr>
<td>PE 202</td>
<td>Lifestyle Fitness—Wellness (1-1) 2 Cr. Hrs.</td>
<td></td>
<td>This course will introduce the student through lecture and practical demonstration to the various methods and benefits of physical and emotional fitness/wellness activities. A wide variety of topics pertinent to the physical and mental health and well-being of the individual will be presented and practiced, providing the framework for the student to make sound health choices.</td>
</tr>
<tr>
<td>PE 240</td>
<td>Physical Education for Elementary Teachers (3-0) 3 Cr. Hrs.</td>
<td></td>
<td>Students will receive instruction in the use of basic movement, games, relays, stunts and organization for the early and later elementary grades. Emphasis is on the organization for PE at these levels. Students are required to make arrangements for observation of elementary classes during the latter part of the semester.</td>
</tr>
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### PHARMACY

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHARM 101</td>
<td>Introduction to Pharmacy (3-0) 3 Cr. Hrs.</td>
<td></td>
<td>This course will provide students with an overview of pharmacy and possible careers within the pharmacy field. Students will be presented a survey of the profession including its history, development, career opportunities, educational requirements, professional organizations, scope of practice, regulation, ethical foundations, contemporary issues and prospects for the future. In this course, students will self-assess their career compatibility within the field of pharmacy.</td>
</tr>
<tr>
<td>PHARM 201</td>
<td>Capstone—Portfolio Preparation (1-0) 1 Cr. Hr.</td>
<td></td>
<td>This course concludes the Pre-Pharmacy Program with the student's development of his/her admission portfolio for a prospective transfer university. Students will review their college learning experience as they collect, organize, and reflect upon evidence that demonstrates their attitudes, skills, knowledge and abilities in the sciences, mathematics and general education areas, according to the requirements of the transfer institution. In addition, students are required to take the PCAT (Pharmacy College Admission Test) for inclusion of results in the admission portfolio.</td>
</tr>
<tr>
<td>PHIL 243</td>
<td>An Introduction to Philosophy (3-0) 3 Cr. Hrs.</td>
<td></td>
<td>Designed to familiarize the student with philosophy as a foundation for life, this course provides an introduction to questions in metaphysics, epistemology, ethics, social and political philosophy and the philosophy of religion. Classical and modern philosophers from Western, Asian, African and Native American traditions are presented. Critical thinking and an application of theory to contemporary issues are emphasized.</td>
</tr>
<tr>
<td>PHIL 247</td>
<td>Logic (4-0) 4 Cr. Hrs.</td>
<td></td>
<td>This course is designed to assist the student in distinguishing good and bad reasoning. The course will address both informal logic which focuses on arguments in everyday language and how to evaluate them and formal logic which focuses on symbolic language and the formal methods for determining the validity of arguments. Common logical fallacies will be outlined and attention given to arguments on contemporary issues in the public forum.</td>
</tr>
<tr>
<td>PHIL 257</td>
<td>Bioethics (3-0) 3 Cr. Hrs.</td>
<td></td>
<td>This course introduces students to a variety of ethical issues having to do with biology, health, and medicine. Students will be introduced to ethical theories and will critically examine various central issues in bioethics. Topics may include: end of life treatment, abortion, allocation of scarce materials, organ donation, the vaccine debate, animal rights, informed consent, justice and health care, genetic engineering and the meaning of life/death and technology.</td>
</tr>
<tr>
<td>PHIL 277</td>
<td>Ethical Problems (3-0) 3 Cr. Hrs.</td>
<td></td>
<td>In this course the student will be introduced to a variety of ethical theories as discussed by classical and contemporary moralists. The course experience also provides for an application of these theories to modern moral questions through a process of critical thinking to explore alternate solutions to present day moral problems.</td>
</tr>
</tbody>
</table>
PHYSICS

PHYS 051  Basic Physics (4-1) 4 Cr. Hrs.
Prerequisite: MATH 053 or one year of high school algebra.
This course is designed for students who have had no previous course in physics or need a review of the subject to prepare for college physics. Basic concepts in mechanics, sound, heat, electricity, light and modern physics are explored through lecture demonstrations, interactive activities and laboratory work.

PHYS 104  Introduction to Astronomy (3-2) 4 Cr. Hrs.
Prerequisite: MATH 053 or one year of high school algebra.
PHYS 104 is a one-semester introduction to astronomy that utilizes laboratories and basic mathematics to assist in, and expand upon, the exploration of the course topics. Earth-sky relationships, the solar system, stellar astronomy, cosmology and astrobiology will be covered. Several space exploration missions will also be featured. This course is not intended for science majors.

PHYS 123  Applied Physics (4-2) 5 Cr. Hrs.
Prerequisite: MATH 113.
This course in applied physics is designed for technical, business and applied health programs. Using trigonometry, the traditional topics of kinematics, dynamics, mechanics, heat, acoustics, electricity and magnetism, optics, modern physics and nuclear physics are treated in a practical and applied fashion with emphasis on laboratory work and scientific procedures. (This course may be used in place of PHYS 051.)

PHYS 181  General Physics 1 (4-2) 4 Cr. Hrs.
Prerequisite: PHYS 051 or one year of high school physics or PHYS 123 and MATH 119.
This first semester course in general physics is designed for pre-professional students. Using algebra and trigonometry, the traditional topics of mechanics, fluids, energy, heat and sound are explored through lecture demonstrations, interactive activities and laboratory work. This course is not for engineering students or physics majors.

PHYS 182  General Physics 2 (4-2) 4 Cr. Hrs.
Prerequisite: PHYS 181.
This second semester course is a continuation of PHYS 181. Using algebra and trigonometry, the more advanced topics of electricity, magnetism, light and modern physics are explored through lecture demonstrations, interactive activities and laboratory work. This course is not for engineering students or physics majors.

PHYS 211  Physics for Scientists and Engineers 1 (5-2) 5 Cr. Hrs.
Prerequisite: PHYS 051 or high school physics and MATH 150.
This first semester, calculus-based course is designed for engineering students and science majors. Traditional topics of kinematics, dynamics, energy, fluids, heat, and sound are investigated through lecture demonstrations, simulations and laboratory work.

PHYS 212  Physics for Scientists and Engineers 2 (5-2) 5 Cr. Hrs.
Prerequisite: PHYS 211 with grade of 2.0 or better.
This second semester, calculus-based course is a continuation of PHYS 211. Advanced topics such as electricity, magnetism, light and modern physics are investigated through lecture demonstration, simulations and laboratory work. This course is designed for engineering students and science majors.

POLITICAL SCIENCE

POLS 105  Survey of American Government (3-0) 3 Cr. Hrs.
Prerequisite: None.
This course is an introductory study of the American political system. Emphasis is placed on historical and contemporary political theories and ideologies as well as on political institutions, parties and interest groups. You will engage in analysis of decision-makers, power and controversial issues.

POLS 109  State and Local Government (3-0) 3 Cr. Hrs.
Prerequisite: None.
This course is an introductory study of America's state and local governments. Emphasis is placed on the nature of state constitutions, the structure and operation of state executive/legislative/judicial branches, and the organization and functioning of local governments. State/federal and state/local relations will also be covered in this course. Students will engage in analysis of decision-makers, power and controversial issues.

POLS 205  Political Parties (3-0) 3 Cr. Hrs.
Prerequisite: None.
This course examines the organization and functions of American political parties. Emphasis is placed on the nature of political campaigns, party conventions, the organization and functioning of political parties and citizen participation in politics. A historical review of parties and their ideological developments is also included.

POLS 207  Comparative Government (3-0) 3 Cr. Hrs.
Prerequisite: None.
This course is a comparative study of political communities. The course examines the development and spread of varied political ideologies (communism, fascism and liberalism) and their impact on crafting different approaches to governmental organization. A global approach to this topic will involve examining individual countries and regions from around the world.

POLS 209  International Relations (3-0) 3 Cr. Hrs.
Prerequisite: None.
This course provides an examination of the social, economic and political forces that define international relations. Using the major theoretical approaches of the discipline, students will examine the major issues, actors and governmental structures that shape the political landscape of the world.

POLS 298  Political Science Honors Studies (1.5-2.5) 3 Cr. Hrs.
Prerequisite: Successful completion of POLS 105 and written approval from the instructor and department representative.
An opportunity for a student to explore individually, in depth, under the guidance of a faculty member, a topic, issue, problem or fieldwork experience pertaining to or within a government office, political party, interest group or other organization that allows them to relate their experiences to the study of political science. This study arrangement will take place under the guidance of a departmental faculty member.
PSYCHOLOGY

PSYCH 153 Human Relations (3-0) 3 Cr. Hrs.
Prerequisite: None.
This course is designed particularly for students in the career curricula. The course focuses upon a better understanding of human behavior as related to interpersonal relations on the job. Foundations of human behavior; strategies for effective human relations; fundamental skills of working as a team leader and team member; and ways of anticipating, preventing and coping with challenges of human relations are major areas of study.

PSYCH 201 Introductory Psychology (4-0) 4 Cr. Hrs.
Prerequisite: None.
Recommended: Successful completion of courses in Biology and Social Science at the 100 level.
Principles of human thought and action with emphasis on individuals in their environment; individual differences in intelligence and personality; effects of heredity and environment on the organism; and the nervous system, perception, learning, intelligence, motivation and emotion and social relationships will be explored.

PSYCH 205 Psychology of Adjustment (3-0) 3 Cr. Hrs.
Prerequisite: PSYCH 201 with a minimum grade of 2.0.
Factors and processes involved in the adjustment of the individual to personal and social environment are the main focus of this course. Essentials for the development of an effective and mentally healthy individual are emphasized. Foundations for adjustment, personal lifestyle adjustment, interpersonal relationships, adjustment throughout life and coping with maladjustment are major areas of study.

PSYCH 206 Human Sexuality (3-0) 3 Cr. Hrs.
Prerequisite: PSYCH 201 with a minimum grade of 2.0.
This course examines a variety of facets of human sexuality from the biological, psychological and social perspectives. We will investigate the intersections of sexuality and gender and survey the biological and psychological research concerned with constructs such as: anatomy, normative function, dysfunction and treatment, family planning methods, sexual communication, sexually transmitted diseases, sexual variation and attitudes toward one's body. Critical issues directly and indirectly associated with sexual behavior will also be addressed.

PSYCH 207 Social Psychology (4-0) 4 Cr. Hrs.
Prerequisite: PSYCH 201 with a minimum grade of 2.0.
Regarded as a core area in psychology, social psychology examines the influence of social factors on human behavior. Particular topics include aggression, prejudice, group processes, attitude formation, the law, prosocial behavior, interpersonal attraction and social cognition.

PSYCH 209 Child Psychology (3-0) 3 Cr. Hrs.
Prerequisite: PSYCH 201 with a minimum grade of 2.0.
This course examines the general characteristics of development, development of social behavior, feelings, emotions, language, growth of understanding and interests, with emphasis on personality and problems of adjustment.

PSYCH 219 Adult Development (3-0) 3 Cr. Hrs.
Prerequisite: PSYCH 201 with a minimum grade of 2.0.
This course studies adult development and aging. It focuses on the developmental changes related to biological, psychological and social processes. Coping strategies and intervention techniques will be examined.

PSYCH 229 Life-Span Developmental Psychology (4-0) 4 Cr. Hrs.
Prerequisite: PSYCH 201 with a minimum grade of 2.0.
Human development from conception through death is examined. Biological, cognitive and psychosocial development topics are explored with an understanding of the theories and research findings across the life-span.

PSYCH 239 Abnormal Psychology (3-0) 3 Cr. Hrs.
Prerequisite: PSYCH 201 with a minimum grade of 2.0.
This course examines various psychological disorders from a contemporary perspective, specifically exploring anxiety disorders (phobias, obsessive compulsive disorder and post-traumatic stress disorder), categories of personality disorders (bi-polar and depressive disorders), schizophrenia and several others. The underlying pathology and treatments of each disorder will be covered. Legal, ethical and other current health psychology will also be explored.

PSYCH 249 Educational Psychology (3-0) 3 Cr. Hrs.
Prerequisite: PSYCH 201 with a minimum grade of 2.0.
Principles of human thought and action with emphasis on individuals in their environment; individual differences in intelligence and personality; effects of heredity and environment on the organism; the nervous system, perception, learning, intelligence, motivation and emotion and social relationships will be explored.

QUALITY MANAGEMENT

QM 107 Quality Planning and Team Building (3-0) 3 Cr. Hrs.
Prerequisite: None.
Planning effective quality systems including error prevention through team building to support both recommended procedures and customer satisfaction is emphasized. Students will be introduced to planning methods, Six Sigma Methods, Quality Function Deployment (QFD), Failure Mode and Effects Analysis (FMEA) and new quality related programs used in process/product development validation. Control plans and teamwork will be used to demonstrate the dynamics of synergism in groups.
SOCIOLOGY

SOC 101 Introduction to Social Work (3-0) 3 Cr. Hrs.
Prerequisite: None.
Introduction to Social Work is an introductory course to the social work field designed to provide students with an overview of the profession. Content will include an analysis of the profession, its scope, methods, values and the organization of services. Attention will be paid to presenting information on policy and practice in a variety of social work settings with particular target populations. The course orientates students to the roles of the generalist social worker practitioner within a theoretical framework that consists of systems theory, the ecological perspective and a problem solving model. Attention will be paid to the kinds of needs and problems that bring clients to the attention of social workers. The term “client” is defined as an individual, family, group, neighborhood, organization or large social system. The course stresses self-assessment in determining suitability for a career in social work.

SOC 201 Principles of Sociology (3-0) 3 Cr. Hrs.
Prerequisite: None.
This course provides a survey of the major theoretical perspectives, concepts and methods of sociology. Topics covered include social organization, culture, socialization, stratification systems, social institutions and social change.

SOC 205 Social Problems (3-0) 3 Cr. Hrs.
Prerequisite: SOC 201 recommended.
Consideration of current social problems, such as family stability, racism, sexism, poverty, crime, globalization and ecological problems using sociological theory and empirical studies. Analysis of structural factors underlying these problems and potential solutions will be explored.

SOC 209 Marriage and Family (3-0) 3 Cr. Hrs.
Prerequisite: None.
This course offers a study of the impact that social changes have had on gender roles, relationships, marriage and family life. Topics covered in the course include diversity in family patterns, gender roles, intimate behavior, mate selection, problems of marital adjustment, family stability and crisis, divorce and parenting.

SOC 210 Cultural Diversity (3-0) 3 Cr. Hrs.
Prerequisite: SOC 201 or ANTH 112 recommended.
This course is an analysis of racial and ethnic diversity in the U.S. in relation to evolving social, economic and cultural factors. Various American minority cultures are studied with an emphasis on education, politics, religion and the resulting cultural effects. Sociological and psychological concepts and theories will be explored. The impact of the current wave of immigrants to the U.S. will be discussed and the incidents of hate crimes will be explored.

SOC 220 Urban Sociology (3-0) 3 Cr. Hrs.
Prerequisite: SOC 201 or ANTH 112 recommended.
This course provides a survey of the origin and development of cities and the processes of urbanization which includes a discussion of the ecology and social organization of urban life. The special problems and realities of urban society will be covered as well as perspectives for the future.

SOC 290 The Individual and Community—An Honors Capstone Course (3-0) 3 Cr. Hrs.
Prerequisite: HUM 190 and 75 Service Hours.
A required conclusion to the Schoolcraft Scholars Honors Program, this capstone course examines individual, social structural and social institutional relationships through multiple disciplines. Students will identify and analyze social and cultural trends and issues. During the course, students will complete and present results of service-learning projects.

SPANISH

SPAN 101 Elementary Spanish 1 (4-0) 4 Cr. Hrs.
Prerequisite: None.
This course is intended for students who have no previous education in Spanish. The course will cover basic grammar patterns and build competence in all four skill areas: speaking, listening, reading and writing. Through varied activities, emphasis will be placed on oral proficiency and communication. An appreciation of Hispanic culture will be an integral part of the course.

SPAN 102 Elementary Spanish 2 (4-0) 4 Cr. Hrs.
Prerequisite: SPAN 101 with grade of 2.0 or better or one year of high school Spanish or consent of instructor.
This course is a continuation of SPAN 101 and continues to review the basic Spanish grammar patterns and build competence in all four skill areas: speaking, listening, reading and writing. Through varied activities, emphasis will be placed on oral proficiency and communication. An appreciation of Hispanic culture will be an integral part of the course.

SPAN 201 Intermediate Spanish 1 (4-0) 4 Cr. Hrs.
Prerequisite: SPAN 102 with grade of 2.0 or better or two years of high school Spanish or consent of instructor.
This course is a continuation of SPAN 102 and continues to cover grammar patterns and build competence in all four skill areas: speaking, listening, reading and writing. Through varied activities, emphasis will be placed on oral proficiency and communication. An appreciation of Hispanic culture will be an integral part of the course.

SPAN 202 Intermediate Spanish 2 (4-0) 4 Cr. Hrs.
Prerequisite: SPAN 201 with grade of 2.0 or better or three years of high school Spanish or consent of instructor.
This course is a continuation of SPAN 201 and continues to cover grammar patterns and build competence in all four skill areas: speaking, listening, reading and writing. Through varied activities, emphasis will be placed on oral proficiency and communication. An appreciation of Hispanic culture will be an integral part of the course.
SOUND RECORDING TECHNOLOGY

SRT 110  Keyboard Skills for Recording Engineers (1-0) 1 Cr. Hr.  
Prerequisite: MUSIC 121.  
Students will apply knowledge gained in MUSIC 121 to use with electronic keyboard instruments used in the modern recording studio. Emphasis is on the operation of modern electronic keyboard instruments, MIDI and developing the fundamental musical skills used in contemporary music production. These skills will be applied to individual projects in the laboratory.

SRT 121  Basic Sound and Recording Techniques 1 (3-0) 3 Cr. Hrs.  
Prerequisite: None.  
Fundamentals of the recording arts, including basic audio and acoustical theory, recording consoles, tape recorders, microphone design and technique, speakers and signal processing will be introduced in this course.

SRT 122  Basic Sound and Recording Techniques 2 (3-0) 3 Cr. Hrs.  
Prerequisite: SRT 121.  
Multi-track studio production techniques are developed through class discussion, demonstration and project assignments. Theory of digital audio technology and its integration into music production is emphasized.

SRT 150  Ear Training for Recording Engineers (2-0) 2 Cr. Hrs.  
Prerequisite: SRT 121 or consent of department.  
Listening skills particular to the recording engineer are developed through demonstration and ear training exercises. These skills include hearing and discriminating frequencies, levels, processing, phase, distortion and equalization. Application of these skills to multi-track mixing is emphasized and developed through hands-on assignments using a variety of professional mixing systems.

SRT 221  Advanced Audio Production 1 (3-0) 3 Cr. Hrs.  
Prerequisite: SRT 122 and SRT 150.  
This course is a comprehensive examination of the principles and applications of digital audio in today's recording and interactive media industries. Computer-based recording and editing is emphasized along with musical instrument digital interface (MIDI) technology.

SRT 222  Advanced Audio Production 2 (3-0) 3 Cr. Hrs.  
Prerequisite: None.  
This course is a continuation of SRT 221 and recording in the digital domain. Areas of focus will include advanced mixing and editing techniques, synchronization, mastering, post-production and surround sound.

THEATRE

THEA 101  Introduction to Theatre (3-0) 3 Cr. Hrs.  
Prerequisite: None.  
A survey course which examines all the elements of theatre: actor, director, playwright, scenery, costumes, makeup, lighting, sound, audience, theatre publicity, theatre management and critic. The course offers the opportunity for developing an appreciation of theatre and how it relates to the world.

THEA 120  Theatre Activities 1 (1-0) 1 Cr. Hr.  
Prerequisite: None.  
A brief introduction to all the elements of theatre: actor, director, playwright, scenery, costumes, makeup, lighting, sound, audience, theatre publicity, theatre management and critic. Students are required to work on a current production.

THEA 121  Theatre Activities 2 (1-0) 1 Cr. Hr.  
Prerequisite: THEA 120 recommended.  
This course is a continuation of THEA 120 and continues to explore all the elements of theatre: actor, director, playwright, scenery, costumes, makeup, lighting, sound, audience, theatre publicity, theatre management and critic. Students are required to work on a current production.

THEA 204  Stage Makeup (2-0) 2 Cr. Hrs.  
Prerequisite: None.  
An introductory course in stage makeup application. The course covers basic makeup, character makeup, old-age makeup and special effects. Discussion on types of makeup and practical student application projects.

THEA 207  Stagecraft and Lighting (3-0) 3 Cr. Hrs.  
Prerequisite: None.  
This course investigates stage designs and lighting theories with a practical application by work on the college production. The course also covers the basic knowledge of set construction, lighting and its equipment, costume construction, makeup techniques and costume maintenance. Students are required to work on a current production.

THEA 208  Acting 1 (3-0) 3 Cr. Hrs.  
Prerequisite: None.  
A beginning course to prepare the actor for acting. Training in voice and body development that not only is applicable to the stage but to daily life is covered. Exercise work in concentration, relaxation, awareness, sensitivity and body alignment is introduced and applied to scene work from modern drama.

THEA 220  Theatre Activities 3 (1-0) 1 Cr. Hr.  
Prerequisite: THEA 121 recommended.  
This course is a continuation of THEA 121 and continues to explore all the elements of theatre: actor, director, playwright, scenery, costumes, makeup, lighting, sound, audience, theatre publicity, theatre management and critic. Students are required to work on current production.

THEA 221  Theatre Activities 4 (1-0) 1 Cr. Hr.  
Prerequisite: THEA 220 recommended.  
This course is a continuation of THEA 220 and will continue to explore all the elements of theatre: actor, director, playwright, scenery, costumes, makeup, lighting, sound, audience, theatre publicity, theatre management and critic. Students are required to work on current production.
<table>
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<th>COURSES</th>
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| **THEA 231 History of Theatre 1 (3-0) 3 Cr. Hrs.**
  *Prerequisite: None.*
  The development of dramatic art and practice from ancient times to the end of the 18th century stressing the evolution of the physical theatre and dramatic forms in relation to contemporaneous production facilities and innovations will be explored. |
| **THEA 232 History of Theatre 2 (3-0) 3 Cr. Hrs.**
  *Prerequisite: None.*
  The development of dramatic art and practice from the beginning of the 19th century to the present stressing the evolution of the physical theatre and dramatic forms in relation to contemporaneous production facilities and innovations will be explored. |
| **THEA 241 Oral Interpretation of Literature (3-0) 3 Cr. Hrs.**
  *Prerequisite: THEA 208 or COMA 103.*
  This course is designed to give students an understanding of Oral Interpretation of Literature through a two-fold technique: one, by practical experience in interpretive readings in various types of literature, and two, by the study of techniques used in the textbook. The class emphasizes the performance of literature through the use of the voice and body. |

### WELDING TECHNOLOGY

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| **WELD 110 Introduction to Welding Basics for Fabrication (2-2) 3 Cr. Hrs.**
  *Prerequisite: None.*
  This class serves as an introduction for individuals that have no welding or fabrication experience in various welding and fabrication processes. Covered in the course will be the set up and safe operation of gas welding and brazing, shielded metal arc welding, gas metallic arc welding, gas tungsten arc welding, resistance welding, gas cutting and plasma cutting equipment as well as the safe set up and operation of equipment found in a welding fabrication facility. This class produces a good foundation for WELD 113 and is recommended for students interested in art and related metallic sculpture. |
| **WELD 111 Project Mathematics (2-2) 4 Cr. Hrs.**
  *Prerequisite: None.*
  A mathematics course covering basic skills needed to increase the quantitative literacy of skilled welders in engineering and industrial practice. Welding related problems are designed to increase understanding of basic mathematics as they relate to linear, angular, four sided, triangular and circular measurements. Topics covered in the course also include volumetric measurement of conventional shapes as well as irregular shaped objects, weight calculation and calculations used in bending metals. |
| **WELD 112 Contemporary Metal Sculpture 1 (1-3) 3 Cr. Hrs.**
  *Prerequisite: None.*
  This course will explore the world of contemporary sculpture with metal. Emphasis will be on the different methods of welding, fabricating, forming metal and how these methods are applied to the principles of design in sculpture. Two critiques as well as pre-design layout will be required in the course. The required assignments will help develop fabrication techniques, conceptual thinking as well as artistic insight. This class is flexible enough to accommodate the entry-level or the advanced welder/artist. |
| **WELD 113 Shielded Metallic Arc Welding (S.M.A.W.) (2-2) 3 Cr. Hrs.**
  *Prerequisite: None.*
  Theory and fundamentals of oxy/fuel cutting, welding, braze welding, shielded metal arc welding, joining and fabricating will be explored. Emphasis will be on basic welding skills, filler metals and techniques for using different welding rods. Welding machine set up and oxy/fuel welding equipment set up will be practiced extensively to insure good sound safety habits. Safety in all welding applications will be explained and students will be required to pass safety evaluations. This course will establish good sound work habits and provide a foundation for more advanced courses. |
| **WELD 115 Gas Metallic Arc Welding (G.M.A.W./M.I.G.) (2-2) 3 Cr. Hrs.**
  *Prerequisite: None.*
  Theory and fundamentals of gas metallic arc welding commonly referred to as M.I.G. welding will be explored. This method of fusion of metals is widely used and is the fastest growing segment of the metal working industry. Emphasis will be on basic skill development and the establishment of sound work habits. The course is designed to provide entry level employability and a solid foundation for more advanced courses. |
| **WELD 118 Adhesive Joining Technology (1-3) 4 Cr. Hrs.**
  *Prerequisite: WELD 113, MET 114 or consent of department.*
  Adhesive joining technology concentrates on the design and assembly of metallic and nonmetallic materials including ceramics. Two major categories, structural and non-structural adhesive bonding, as well as adhesives selection, joint design, methods of surface preparation and joint evaluation will be compared to general mechanical joining techniques. |
| **WELD 119 Gas Tungsten Inert Arc Welding (G.T.A.W./T.I.G.) (2-2) 3 Cr. Hrs.**
  *Prerequisite: None.*
  Theory and fundamentals of Gas Tungsten Arc Welding (G.T.A.W.) will be explored. This method of metal fusion is capable of producing very high quality welds in virtually all metals and one of the few methods of welding some of the more difficult to weld metals. The course is designed to provide entry level employability and solid foundation for more advanced courses. |
| **WELD 120 Advanced Processes—Stick Electrode and M.I.G. Welding (2-2) 3 Cr. Hrs.**
  *Prerequisite: WELD 115 or consent of department.*
  The student will gain additional knowledge and experience in both shielded metallic and gas metallic arc welding. Welding will be performed in all positions; flat, horizontal, vertical and overhead. The class will introduce the student to pipe cutting and pipe welding on heavy sections. Material will be formed and fabricated using power and hand operated tools and equipment. Students will produce several required projects that will simulate weld joints found in today’s modern manufacturing and construction industry. |
WELD 130  Advanced Processes—Gas Tungsten (2-2) 3 Cr. Hrs.
**Prerequisite:** WELD 119 or consent of department.

Advanced Processes—Gas Tungsten Arc Welding moves students to a higher level of welding that the student, as an employee, may find in a job. The course will cover welding of carbon steel, stainless steel and aluminum. This course will challenge the student to perform required elements that produce welds that would meet national standards. Proper fit up of weld joints, weld bead size, weld strength and appearance will be stressed. Lay out of complex weld joints will be another requirement evaluated in an ongoing process as welded exercises are pre-formed.

WELD 205  Welder’s Print Reading (1-1) 2 Cr. Hrs.
**Prerequisite:** WELD 120.

Welder’s print reading provides detailed information to help welding students develop skills necessary to interpret working sketches and prints common to the welding/metalworking field. In addition, the welding student will gain knowledge in how to interpret conventional drafting symbology and specialized welding symbols and will have the opportunity to perform welds on test plates that are indicated by the welding symbols.

WELD 206  Welding Inspection and Qualification (1-1) 2 Cr. Hrs.
**Prerequisite:** WELD 205.

Quality welders are in demand today. It is important that these welders possess a working knowledge of weld test equipment and qualification as well as be able to test and evaluate welds. Proper use of weld test gages and equipment, dye penetrant, fluorescent dye penetrant, magnetic particle and destructive testing equipment and techniques will be covered.

WELD 208  Advanced Metal Sculpture (1-3) 4 Cr. Hrs.
**Prerequisite:** WELD 120 and WELD 130 or consent of department.

This course is structured around the advanced artist/welder. Emphasis will be on the different methods of welding, fabricating and forming metal and how these methods are applied to the principles of design in sculpture. Three projects, two critiques, as well as pre-design layout, will be required in the course. Students will have the opportunity to investigate alternative metal fabrication techniques and processes.

WELD 210  Preparation for Welder Certification in Shielded Metal Arc Welding (S.M.A.W.) (2-2) 3 Cr. Hrs.
**Prerequisite:** WELD 113 or extensive welding experience.

The need for “Certified Welders” continues to grow. Certification comes as a result of demonstration of competence by passing performance examinations. Although Schoolcraft College does not qualify or certify welders, the college can duplicate these tests, provide instruction in the proper welding procedure and provide the appropriate testing equipment to examine and evaluate the results. This course addresses competencies in gas metallic arc welding, which is a highly precise welding process that uses an electric arc producing torch and a hand-feed filler.

WELD 211  Preparation for Welder Certification in Gas Metallic Arc Welding (G.M.A.W./M.I.G.) (2-2) 3 Cr. Hrs.
**Prerequisite:** WELD 115 or extensive welding experience.

The need for “Certified Welders” continues to grow. Certification comes as a result of demonstration of competence by passing performance examinations. Although Schoolcraft College does not qualify or certify welders, the college can duplicate these tests, provide instruction in the proper welding procedure and provide the appropriate testing equipment to examine and evaluate the results. This course addresses competencies in gas metallic arc welding, which is a highly precise welding process that uses an electric arc producing torch and a hand-feed filler.

WELD 212  Preparation for Welder Certification in G.T.A.W./T.I.G. (2-2) 3 Cr. Hrs.
**Prerequisite:** WELD 119 or consent of department.

The need for “Certified Welders” continues to grow. Certification comes as a result of demonstration of competence by passing performance examinations. Although Schoolcraft College does not qualify or certify welders, the college can duplicate these tests, provide instruction in the proper welding procedure and provide the appropriate testing equipment to examine and evaluate the results. This course addresses competencies in Gas Tungsten Arc Welding, which is a highly precise welding process that uses an electric arc producing torch and a hand-feed filler.

WELD 214  Preparation for Welder Certification in Pipe Welding (2-2) 3 Cr. Hrs.
**Prerequisite:** WELD 130 or consent of department.

The need for “Certified Welders” continues to grow. Certification comes as a result of demonstration of competence by passing performance examinations. Although Schoolcraft College does not qualify or certify welders, the college can duplicate these tests, provide instruction in the proper welding procedure and provide the appropriate testing equipment to examine and evaluate the results. This course addresses competencies needed to become certified as a pipe welder. Shielded Metal Arc Welding, Gas Metallic Arc Welding and Gas Tungsten Arc Welding can be used to produce these pipe welds.

WELD 222  Fabrication (2-4) 4 Cr. Hrs.
**Prerequisite:** WELD 120 and WELD 130 or consent of department.

Fabrication of student/instructor selected projects will be the format for this course. Emphasis will be on the development of fabrication techniques, including design, material selection, layout, material preparation and use of fixtures. Welding skills developed in WELD 120 and WELD 130 will be applied. There will be an opportunity for students to further investigate other industrial welding processes.

WELD 262  Welding Metallurgy (1-2) 3 Cr. Hrs.
**Prerequisite:** MET 102 and MET 152 or concurrent.

Welding metallurgy includes the influence of alloy composition, filler materials, fluxes and thermal interactions on the structure and properties of metals. Topics covered in the course will include the chemical, mechanical and physical properties of metals; mechanical behavior; microstructure and post-weld heat treating.
Becoming a Schoolcraft College Student

Enrollment Process
Admissions and Welcome Center, McDowell Center

General Admission Criteria
Regular admission to Schoolcraft is open to all applicants who are high school graduates as well as to those who have successfully completed the General Education Development (GED) test. Students who have not completed high school are also eligible for regular admission if their high school class has already graduated. There is no charge to apply for admission.

Some students may have special circumstances that do not meet the general admission criteria. These students need to follow a modified process for admission to the college depending on their specific circumstances, many of which are described under Special Admission Processes.

Admission to the college does not guarantee admission to all courses and programs of study, including limited enrollment or restricted enrollment programs that have additional requirements. Exceptions to the criteria above can be made by the vice president of Student Services.

Application and Enrollment Process
- Complete the Schoolcraft College application for admission at www.schoolcraft.edu/apply.
- Submit high school transcript(s)/GED scores to the Records office, McDowell Center.
- Submit official college transcript(s), if applicable, to the Records office, McDowell Center. Official college transcripts must be sent directly from the transfer institution’s Registrar’s office. Hand carried or “issued to student” copies will not be accepted or considered official.
- Tour Schoolcraft College. Register online at www.schoolcraft.edu/tour for a campus tour of the main campus in Livonia or a tour focused on the culinary arts programs. Tours of the Radcliff Center in Garden City can be scheduled by calling 734-462-4786.
- Take placement tests for English, mathematics and reading to ensure proper placement in courses. Visit www.schoolcraft.edu/testing for more information. Students who have completed the ACT/SAT may use those scores instead of placement testing.
- Attend a new student orientation. Visit www.schoolcraft.edu/orientation to schedule.
- Meet with an academic advisor or counselor prior to registering. Call 734-462-4429 to schedule an appointment, or visit www.schoolcraft.edu/orientation to reserve a spot in new student orientation. Meeting with an academic advisor or counselor is included as part of the orientation process.

Special Admission Processes

Dual Enrollment—Allows students currently enrolled in high school to use funding from their K–12 district to pay for classes taken at Schoolcraft College. This process must be completed each term prior to registering. These requirements are subject to change in accordance with state legislation.
- Complete the high school enrollment application, available at www.schoolcraft.edu/admissions/special. This application requires approval from the student's high school principal or counselor.
- Meet with a Schoolcraft College academic advisor or counselor. Call 734-462-4429 to schedule an appointment.

Special High School Enrollment—Allows students currently enrolled in high school or home-school to pay for their own classes taken at Schoolcraft College. This process must be completed each term prior to registering. These requirements are subject to change in accordance with state legislation.
- Complete the high school enrollment application, available at www.schoolcraft.edu/admissions/special.
- Meet with a Schoolcraft College academic advisor or counselor. Call 734-462-4429 to schedule an appointment.

Early Enrollment—Allows exceptional students under the age of 18 who demonstrate the ability to be successful in college-level classes and who do not qualify for regular admission or high school enrollment options to take classes at Schoolcraft College. This process must be completed each term prior to registering.
- Take placement tests for English, mathematics and reading to ensure proper placement in courses. Visit www.schoolcraft.edu/testing for more information. Students who have completed the ACT/SAT may use those scores instead of placement testing.
- Meet with the associate dean of counseling and student support. Call 734-462-4429 to schedule an appointment.
- Recommendation from high school principal or counselor, or from home-school official, may be requested.

Readmission of Former Students—Allows former students that have not attended Schoolcraft College for more than two years an expedited re-enrollment process.
- Complete the Schoolcraft College application for admission at www.schoolcraft.edu/apply.
- If student is in good academic standing, meet with an academic advisor or counselor to discuss and revise educational plan. Call 734-462-4429 to schedule an appointment.
- Academically dismissed students must follow the guidelines for appeal outlined in the dismissal notification.
Guest Students—Allows students attending another college or university to attend Schoolcraft College with an expedited enrollment process.  
• Students attending another Michigan college or university should complete a Michigan Uniform Guest Application available at www.schoolcraft.edu/guest.  
• Students attending a college or university outside of Michigan must submit a Schoolcraft College Application for Admission at www.schoolcraft.edu/guest and indicate their desire to be a guest student.  
• Guest students are not required to take placement tests or meet with an academic advisor or counselor, but are welcome to do so. If a guest student does not indicate their guest student status through a Michigan Uniform Guest Application or on the Schoolcraft College application for admission, they may be required to follow the same Application and Enrollment Process described above. Also, guest students cannot apply their financial aid to the classes they take at Schoolcraft.

International Students—including Canadian citizens.  
• Complete the Schoolcraft College application for admission at www.schoolcraft.edu/apply.  
• Submit high school transcript(s)/GED scores to the Records office, McDowell Center.  
• Submit official college transcript(s), if applicable, to the Records office, McDowell Center. Official college transcripts must be sent directly from the transfer institution’s Registrar’s office. Hand carried or “issued to student” copies will not be accepted or considered official.  
• Obtain and maintain valid visa status. Schoolcraft College is authorized to issue eligibility visa documents (an I-20) for foreign nationals to obtain F-1 or M-1 student status either by changing their current visa status if they are in the U.S. or by obtaining an F-1 or M-1 visa through a U.S. consulate outside of the U.S. Prospective international students in the U.S. with another visa status must be sure that your current status allows full-time study.  
To be issued the necessary visa documents the prospective international student must:  
- Submit a completed international student packet that can be obtained from the international student services coordinator in McDowell Center, at www.schoolcraft.edu/admissions/apply-now or call 734-462-4429.  
- Submit documentation of sufficient level of financial support and availability of funds. Examples of documentation include a bank statement of sponsor dated within the past four months; an earnings statement; the prior year’s income tax statement; a letter from an employer; or two recent paycheck stubs verifying current and year-to-date earnings.  
- Provide a copy of a valid passport identification page.  
- If native language is not English, demonstrate adequate knowledge of written English proficiency: Test of English as a Foreign Language (TOEFL), Michigan English Language Assessment Battery (MELAB), Michigan Test of English Language Proficiency (MTELP), or International English Language Testing System (IELTS) are accepted. Please confirm allowable cut scores for desired degree program or educational goal.  
• Provide proof of health insurance.  
• Previous education credentials should be evaluated from an independent source. Evaluations are accepted from Educational Credential Evaluators (ECE, www.ece.org) or World Education Services (WES, www.wes.org).  
• Meet with a Schoolcraft College academic advisor or counselor. Call 734-462-4429 to schedule an appointment.
Financial Aid

There are a variety of programs available to help students pay for college.

- **FAFSA.** The first step in qualifying for Financial Aid, including student loans, is to fill out the Free Application for Student Aid (FAFSA) online at www.fafsa.gov. Schoolcraft’s FAFSA code is 002315.

  Once a student qualifies for Financial Aid, it is applied to the student's account each semester based on the start date of classes. Financial Aid funds are used to pay for tuition and fees. Any excess funds can then be used to purchase books and necessary class supplies at the Schoolcraft Bookstore.

- **Student Loans.** Filling out the FAFSA is the first step to qualify for student loans. Student loans are not automatically awarded based on your FAFSA. You must also complete the student loan request process outlined at www.schoolcraft.edu/aid. All student loans will need to be repaid after graduation.

- **Scholarships.** Generally based on academic achievement and don't have to be repaid. Schoolcraft College has an online scholarship service to make it easier for students who have been accepted to the College by the Admissions Office to apply for scholarships. For more information, go to www.schoolcraft.edu/scholarships.

- **Grants.** Eligibility is based primarily on demonstrated financial need, and grant awards do not have to be repaid. The FAFSA is the application for Federal grants.

- **Work Study.** A need-based program where students are placed in jobs on campus and wages are paid in part by the work study program. Students may submit a Work Study request form to the Office of Financial Aid. Schoolcraft also offers other student employment opportunities which are not based on financial need. For more information, contact Career Services at 734-462-4421 or via email at ctc@schoolcraft.edu. For more information about Financial Aid programs and what you need to do to qualify, contact the Office of Financial Aid at 734-462-4433 or go to www.schoolcraft.edu/aid. Financial aid students
Registration Information

Map Out Degree Plan, Determine Appropriate Classes and Prepare to Register.

1. Start with your counselor or academic advisor to help you build a plan and schedule in WebAdvisor. To schedule an appointment or for more information, call 734-462-4429 or click on the Counseling and Advising tab on the website’s Admissions page.

2. Access WebAdvisor by logging in to WebAdvisor at schoolcraft.edu, click on Students Menu and then select Schedule Planner under the Registration tab.

3. Go to Am I Ready to Register under Registration in WebAdvisor to verify and update your personal information. Check any Restrictions to make sure you can Register.

4. Next, check your Academic Program to make sure it is correct. If you need to change it, go to the Academic Program Change Form link under Academic Planning in the Students menu, or contact your counselor or academic advisor.

5. Go to Schedule Planner in WebAdvisor and search for classes based on location, instructor and term. Once you enter the classes you want, and the times during the day you can’t take classes, the Schedule Planner will generate all the possible class options for you.

6. Select a schedule and print it out or write down the six-digit class section numbers.

7. Register for classes by logging on to WebAdvisor, going to the Students menu, then select Register for Sections under Registration.

8. If you know your 6-Digit section numbers for the classes you want to take, select the Express Registration tab. Otherwise, choose the Search and Register option. Follow the on-screen instructions to complete your registration.

Need Help with Registration?

• The Registration Center
  Located in the McDowell Center, the Registration Center has computers available for students to use when registering and helpful staff to assist you.
  Hours of Operation:
  Monday through Thursday: 8 a.m. to 6 p.m.
  Friday: 8 a.m. to 4:30 p.m.

• The Answer Center
  The Answer Center can provide you with registration assistance and answer any other questions you may have about Schoolcraft College.
  Call 734-462-4426 | Email answers@schoolcraft.edu.
  Hours of Operation:
  Monday through Friday: 8 a.m. to 11 p.m.
  Saturday: 7 a.m. to 11 p.m.
  Sunday: 7 a.m. to 9 p.m.

Search class listings and register for classes at https://webadvisor.schoolcraft.edu

With WebAdvisor you can:

Search for Classes. Check back frequently; class sections are continually being added based on student demand.

Use Schedule Planner. Enter the classes you want and days/times you are not available and Schedule Planner generates all possible class schedules that would work for you.

Register for classes. If you don’t have a computer, you can use one of the computers available on campus, including those available in the Registration Center.
General Information

• Current and former students in good standing may select their own class schedule. New college students or those interested in limited or restricted enrollment programs must meet with an academic advisor or counselor before registering. Call 734-462-4429 for information.

• Students also need advisor or counselor approval if:
  - They plan to take more than 18 credit hours in fall or winter semesters
  - Take more than 9 credit hours in spring or summer sessions
  - Are on academic probation, dismissal or registration hold

Prerequisites

• Students must complete prerequisites as required before enrolling in some courses. Check to determine if there are prerequisites required before registering for a course, or contact your academic advisor or counselor for assistance.

Waitlist

• If a course is full, students can add their name to a waitlist. If a spot in the course becomes available, the first student on the waitlist will be notified via email alerting them of the deadline date by which you must register. After the date expires, the seat will be offered to subsequent students on the list.

• Students that receive permission to register after the class has met must obtain a written consent from the instructor to register, and the consent must be returned to the Registration Center before the specified deadline.

Schedule Adjustment

• During the first week of the term, students can adjust their schedule if needed. That can include Late Entry to a class after it has met or attempting to add a class that is already filled. Both situations will need approval of the course instructor. For more information, visit the Admissions page on the Schoolcraft website and click on the Register for Classes tab. Registering online is not permitted when entering a class late or overloading into a class.

Late Entry/Overload

• Students wishing to register for a class after it has met for the first time, or want to try to get into an overload class, need written approval from the instructor. You can get a late entry/overload form from the Registration Center to have the instructor sign or have instructor email the consent to registration@schoolcraft.edu. Bring the consent form or copy of consent email to the Registration Center within two business days of receipt of the consent to enroll.

Drops from Classes or Withdrawals

• Dropping a class during the refund/schedule adjustment period means the student no longer wishes to attend the class and wants to receive a refund. Dropped courses do not appear on the official college transcript, and no grade is issued for dropped courses.

• Students may withdraw from classes online through WebAdvisor on or before the last day for withdrawal. Check the Important Dates on pages 3-5 for deadlines. A “W” grade will be issued. Students do not receive refunds for classes they have withdrawn from.

• For more information, click on the Admissions page on the website and then go to the Register for Classes link and go to the Drop vs. Withdrawal tab.
Schoolcraft College Personnel

ADMINISTRATORS

Borton, Jeffrey 1990
Executive Director of Information Security and Networking
AAS Schoolcraft College
BS Lawrence Technological University

Butler, Gloria F. 2008
Director of Testing Services
BS Lawrence Technological University

Cerny, Glenn R. 2010
Vice President and Chief Financial Officer
BBA University of Michigan
MBA Eastern Michigan University

Champagne, Gerald M. 2013
Associate Dean of Public Safety Programs
AAS Schoolcraft College
BS/MLS Eastern Michigan University

Cicchelli, Cynthia 2001
Associate Dean, Operations, Curriculum and Assessment
BA Concordia University
MEd Wayne State University

Cullen, Laura A. 2014
Executive Director of Enterprise Applications
BA Siena Heights University

Daiek, Deborah B. 1998
Dean of Education Programs and Learning Support
BA and MEd Western Michigan University
PhD Wayne State University

Denny, Christopher C. 2012
Executive Director of Information Technology
AAS Grand Rapids Community College
BS University of Phoenix
MA Central Michigan University

Durling, Brenda 1998
Director of VisTaTech Operations
BBA Cleary University

Fox, Sidney I. 2006
Director of Athletics
BS and MEd Wayne State University

Fox, William E. 1986
Director of Information Technology Support
AAS Schoolcraft College
BA Siena Heights University

Genig, Dennis K. 2013
Associate Dean of Education Programs
AA Concordia Junior College
BA Concordia University
MA and EdD University of Michigan

Gooden, Samuel 1995
Director of Media Services
AS Schoolcraft College

Green, Stephen J. 2007
Director of Building Systems and Maintenance
AS Henry Ford Community College

Hagen, Cheryl M. 2001
Vice President and Chief Student Affairs Officer
BA Valparaiso University
MA Eastern Michigan University

Hawkins, Cheryl D. 1996
Dean of Liberal Arts and Sciences
BS Eastern Michigan University
MS Wayne State University
PhD Walden University

Hayes, Charles R. 2013
Associate Dean of Sciences
BBA and MA Walsh College

Heator, Martin G. 2001
Associate Dean of Enrollment Management and Student Relations
BS and MA Eastern Michigan University

Heckard, Bonnie L. 2011
Associate Dean of College Centers
AAS Ferris State University
BBA Saginaw Valley State University
MEB and EdD Central Michigan University

Heusner, Scott 1997
Director of Administrative Systems
BBA Cleary University

Holtzman, Joseph 2012
Director of College Bookstore
BA Carleton College
MA University of Michigan

Jeffress, Conway A. 1982
President
BA Washington and Jefferson College
MEd and PhD University of Pittsburgh

Jones, Amy M. 1994
Associate Dean of Occupational Programs
AA Schoolcraft College
BBA Walsh College
MBA Wayne State University

Kattuah-Snyder, Laurie 2006
Associate Dean of Advising and Partnerships
BS Western Michigan University
MA University of Michigan

Kaufman, Steven 2011
Director of Development
BS Michigan State University

Krause, Louis K. 2011
Director of Student Financial Aid Operations
AA Schoolcraft College
BS and MA Eastern Michigan University

Lamb, Jon W. 2012
Controller and Director of Financial Operations
BS Central Michigan University
Certified Public Accountant

Leadley, Jr., Robert J. 2011
Dean of Occupational Programs and Economic Development
BS Michigan State University
MBA Saint Joseph’s University
MS University of Wisconsin
PhD University of Kansas

Leavens, Brenda K. 1999
Director of Business Services and Safety Compliance
AAS Schoolcraft College
BBA Cleary University

McCardell, Catherine 2002
Director of Registration Services
AB and BBA Cleary University

Mosley, Regina 2005
Executive Director of Student Financial Services
BS University of Michigan-Flint
MEd Central Michigan University

Oliver, Michael D. 2014
Associate Dean of Counseling and Student Support
BS Wayne State University
MEd Wayne State University
PhD Wayne State University

Petty, Leslie L. 2010
Associate Dean of Continuing Education and Professional Development
BA Clark University
MEd and EdD Harvard University

Piotrowski, John 1992
Director of Programming and Software Applications
AAS Schoolcraft College

Ragan, Sr, Michael R. 1979
Director of Custodial and Grounds Operations
Certificate Schoolcraft College

Ruggirello, Frank 2013
Executive Director of Marketing and Advancement
BA Michigan State University

Sather, Susan A. 1986
Assistant Controller and Director of Accounting
AAS Schoolcraft College

Schultz, Melissa A. 2015
Director of Student Retention
BS Michigan State University
MEd University of Arkansas

Sensing, Laura A. 2010
Executive Director of Human Resources
BA Wayne State University
MA Central Michigan University

Shaughnessy-Smith, Jean 1989
Director of Children’s Center
AAS Schoolcraft College
BA Spring Arbor University
Keyes, Gene M. 2012
Instructor, Manufacturing
Certified Manufacturing Engineer

Kirkpatrick, Kent 1992
Professor, Political Science
BS and MA Eastern Michigan University

Kramer, James R. 1986
Professor, Electronic Technology
BA, BS and MS Eastern Michigan University

Krystyniak, Karen 2000
Counselor, Assistant Professor
BS Madonna University
MA Eastern Michigan University

LaJoy, Mary B. 2001
Counselor, Associate Professor
BS Western Michigan University
MA Eastern Michigan University

Lavis, Jerome M. 2010
Instructor, Chemistry
BS Ecole Superieure de Physique et Chimie
MS University of Paris VI
PhD Michigan State University

Lazarski, Andrea L. 2006
Associate Professor, Mathematics
BS University of Michigan
MA Wayne State University

Lloyd, Elaine M. 2013
Instructor, Nursing
BSN and MSN Eastern Michigan University
AAS Wayne County Community College

Loving, Shawn 2008
Associate Professor, Culinary Arts
AAS Schoolcraft College
Certified Executive Chef

Lynd, Jeremy D. 2013
Instructor, Biology
BS and MS University of Michigan

Maheras, Nancy 2013
Instructor, Nursing
BSN and MSN Eastern Michigan University

Maheshwari, Archana 2002
Associate Professor, English
BA and MA Osmania University
MA Wayne State University

McCoy, Michael D. 2009
Assistant Professor, Mathematics
BS Western Michigan University
MS University of Nebraska-Lincoln

McLean, Coley 2014
Instructor, Welding
BFA Center for Creative Studies
Certified Welding Educator
Certified Welding Inspector

McNutt, Caroline H. 2000
Associate Professor, Biology
BS and MS University of Western Ontario

Mehall, Michael J. 1998
Professor, Computer Graphics Technology
BFA and MA Wayne State University

Mellnick, Gerard J. 2007
Associate Professor, Business
AC Henry Ford Community College
BBA University of Michigan-Dearborn
MBA Wayne State University
Certified Public Accountant

Mingela, Audrone M. 2000
Associate Professor, Mathematics
BS University of Michigan
MA Eastern Michigan University

Moore, Josselyn 1995
Professor, Anthropology, Archaeology, Sociology
BA Washington University
MA Hunter College City University of New York

Mott, Madeline A. 2007
Instructor, Nursing
AAS Schoolcraft College
BSN Graceland University
MSN Walden University

Nissen, James C. 1996
Professor, Humanities
BM, MM, and DMA University of Michigan

Nofz, Andrea L. 1999
Professor, Spanish
BA and MA Michigan State University

O'Connell, Diane 1990
Professor, Geography
BA College of William and Mary
MS Eastern Michigan University

O'Connor, Thomas A. 1990
Professor, Biology
BA and MS Purdue University
PhD University of Washington

Olson, Sarah M. 2000
Associate Professor, Art
BAEd, BFA, MA University of Michigan

Ontko, Susan M. 2006
Associate Professor, Business
BA General Motors Institute
MBA University of Michigan

Orick, Michael 1993
Professor, Biology
BS University of Michigan-Dearborn
MS Eastern Michigan University

Palmer, Nancy 1995
Professor, Nursing
BSN Mercy College of Detroit
MSN Wayne State University

Pilgrim, Colleen C. 2000
Associate Professor, Psychology
BS Michigan State University
MA and PhD Wayne State University

Polcyn, Brian D. 1997
Associate Professor, Culinary Arts
Certified Executive Chef

Polo, Barton L. 2001
Assistant Professor, Music
BM, MM and PhD University of Michigan

Pricer, Wayne F. 1994
Librarian, Professor
ALA Oakland Community College
BA Madonna University
MSLS Wayne State University

Ramey, La Vonda G. 1985
Professor, Accounting
BBA and MBA University of Michigan
Certified Public Accountant

Randall, Michelle F. 2001
Associate Professor, Accounting
BBA University of Michigan
MBA Wayne State University
Certified Public Accountant

Rexius, James E. 1981
Professor, Geology
BA University of Michigan
MS Eastern Michigan University

Richards, Christopher M. 2001
Counselor, Associate Professor
BS and MA Eastern Michigan University

Rybicka, Elzbieta T. 2006
Associate Professor, English
BA and MA Jagiellonian University

Sager, Todd S. 2009
Assistant Professor, Sound Recording Technology
BM and MM University of Michigan
Schaumann, Karen E. 2007
Associate Professor, Sociology
BS and MA Eastern Michigan University

Schell, Denise L. 2012
Counselor, Instructor
AGS Macomb Community College
BA and MA Oakland University
MA Wayne State University

Scheller, Jody E. 1993
Professor, Health Information Technology
AS, BS and MS Mercy College of Detroit

Schlick, William E. 1995
Professor, Computer Information Systems/Computer Electronics Technology
AAS Schoolcraft College
MSU Wayne State University

Schmansky, Paula M. 2013
Instructor, Mathematics
ND Notre Dame College
MA Eastern Michigan University

Schwartz, Randy K. 1984
Professor, Mathematics
BA Dartmouth College
BA and PhD Wayne State University

Simmons-Short, Ida C. 1990
Professor, English
BS and MA University of Michigan

Smith, Laurie 2012
Instructor, Nursing
BA Michigan State University
BSN Wayne State University
MSN and MPA Eastern Michigan University

Snyder, Cheryl A. 1998
Professor, Chemistry
BA Suny at Plattsburgh New York
BS and MS Purdue University

Stegbauer, Katherine A. 2013
Instructor, Nursing
BA University of Michigan
BSN Wayne State University
MSN Oakland University

Stetson, Bradley D. 2006
Associate Professor, Mathematics
BS University of Michigan

Suess Kaushik, Anita B. 2006
Associate Professor, French/German
BA Eidgenosssische Docolmetscherseule
MA University of Paris
MA and PhD University of Cincinnati

Taylor, Bonnita K. 2002
Associate Professor, Biology
BS Michigan State University
MS Eastern Michigan University

Taylor, Juluan C. 1989
Professor, Communication Arts
BA Mercy College
MA University of Detroit

Taylor, Kathy L. 2013
Instructor, Health Information Technology
AAS Schoolcraft College
BS University of Detroit Mercy

Thomson, Alexander 1999
Associate Professor, Political Science/History
BA, MA and PhD Wayne State University

Waldyke, Michael J. 2001
Associate Professor, Chemistry
BS Calvin College
MS University of California, Berkeley

Wood, Christopher J. 2006
Associate Professor, Physics
BS and MS University of Michigan
MS Eastern Michigan University

Worthington, Thomas P. 2012
Assistant Professor, Emergency Medical Technology
AAS Baker College
BS Siena Heights University

Wroble, Stephen A. 1991
Professor, Art, Computer Graphics Technology
BFA Michigan State University
MA Wayne State University

Zaccone, Lisa A. 2000
Associate Professor, Mathematics
AAS Delta College
BS Michigan Technological University
MA Eastern Michigan University

**SUPPORT STAFF**

Abbott, Gary 2013
Utility II

Adams, Lisa 2002
Early Childhood Teacher

Adams, Susan 1991
Help Support Specialist

Agostinelli, Janet 2008
Report Writer/Analyst

Almakahleh, Shadi 2014
Blackboard Administrator

Altesleben, Joseph 2012
Utility II

Anchor, Elizabeth 1997
Development Associate

Anderson, Ill, Bruce 1999
Computer Technician

Arambasich, Denise 2003
Assistant Director, Financial Aid-Direct Loan Program

Authier, Adam 2013
Instructional Designer

Baas, Conrad 2013
Sr. ERP Programmer/Analyst

Balogh, Dana 2014
Account Manager

Bannan, Felicia 2014
CEPD Technician

Barney, Cynthia 2000
Financial Services Office Assistant

Bazylewicz, Christina 2002
Supervisor, Duplication Design Center

Belknap, Jeffery 2010
Server Administrator

Bellino, Pamela 2000
Senior Buyer

Berendt, Amy 1989
Benefits Manager

Bialo, Michele 2006
Program Manager

Bilak, Jodi 2003
Administrative Assistant III

Bloedel, Mary 2004
Administrative Assistant III

Bobby, Matthew 2014
Campus Police Authority Officer

Bona, Roberta 1995
Registration Associate

Boopalan, Subashini 2012
.NET/PHP Programmer/Analyst

Boyle, Charlene 1992
Accounts Payable Associate

Brdak, III, Raymond 2010
Intelligence Operations Center Technician

Brighton, Gregg 2013
Public Safety Education Coordinator

Brown, Catherine 2001
Senior Administrative Assistant I

Brown, David 1997
Media Technician

Brown, Paul 1983
General Maintenance

Burka, Rachel 2005
Financial Aid Client Services Coordinator

Busche, Kristin 2012
Senior Academic Advisor

Bushaw, Lisa 2005
Coordinator of Admissions

Cardinal, Kimberly 2009
Accounts Payable Associate

Carney, Mary 2011
Utility II

Cassady, Sean 2014
Computer Technician

Cassar, Hailey 2014
Counseling Office Assistant

Cheema, Lakbir 1996
Culinary Sanitarian

Colflesh, Melissa 2001
Network & Voice Communications Administrator

Colling, Gregory 1985
Campus Police Authority Officer

Colling, Jean 2013
Administrative Assistant III

Combs, David 2014
Utility II

Cook, Aaron 2004
Executive Chef, Banquet and Catering Services

Cook, Jennifer 1997
PE Attendant
Coutts, Roger 1995
Network & Voice Communications
Administrator

Cowles, Angela 2000
Administrative Assistant III

Cox, Kathleen 1999
Coordinator of Women's Resource Center and
Student Employment Services

Crawford, Cali 2012
Coordinator-Athletic Operations

Czajka, Amber 2013
Account Manager

Czeszewski, Scott 2007
Network & Voice Communications
Administrator

Dani, Deborah 1992
Human Resources Technician

Davis, Scott 2014
Curriculum Technologist

Deane, Jann 1998
PTAC Coordinator

Dixon, Shirley 1989
Research Coordinator

Downing, Carrie 2010
Financial Aid Associate

Duka, Kenneth 1986
Utility II

Duncan, Jr., Timothy 1997
Computer Technician

Durant, Joi 2014
Student Accounts Associate

Eleson, Belinda 1979
Registration Associate

Engstrom, Mark 2012
Campus Police Authority Lieutenant

Erisman, Bradley 1995
Purchasing Associate

Everhart, Wayne 2011
Utility II Group Leader

Fenton, Linda 2008
Administrative Assistant II

Ford, Rachel 2006
Learning Options Associate

Fournier, Jeffrey 2001
Media Technician

Fournier, Ronald 1998
Skilled Maintenance, HVAC

Frader, Sheri 2006
Senior Administrative Assistant I

Frentzos, Karla 1993
Executive Assistant to the President

Frost, Laurin 2013
Graphic Designer

Fuher, Michele 2012
Programming Coordinator

Fuller, Barbara 2011
Utility II

Fulton, Gary 2003
Software Asset Management Specialist

Furness, Jillian 2011
Student Accounts Associate

Gaynier, Michelle 2007
Coordinator, College Communications

Geinzer, Christine 2000
Project Manager

George, Kimberly 2006
Payroll Associate

Gillow, Janine 1998
Accounting and Budget Manager

Glowinski, Kellie 2011
Purchasing Associate

Gonzalez, Maria
Computer Technician

Goodrich, Stephen 2002
Media Technician

Gosur, Maria 2011
Web/Application Developer

Greenshields, Thea 2000
Senior Administrative Assistant I

Greifenberg, Jason 1997
Assistant Director of Server Administration

Gumina, Sara 1996
SBTDC Technician

Gumm, Debra 2007
Registration Associate

Gury, Melissa 2014
Laboratory Coordinator

Hamm, April 1995
Senior Buyer

Hanley, Susan 2011
Database Architect/Administrator

Harrison, Becky 1988
Utility II

Hearn, Joy 2013
Admissions and CRM Representative

Henry, Kurt 1994
Utility I

Hinzman, Sylvia 1988
Public Safety Education Associate

Hochberg, Ellen 1998
Senior Graphic Designer

Holley, Shiquita 2013
Cashier III

Holtzschneider, Donna 1996
Early Childhood Teacher

Howell, Bradley 1999
Skilled Maintenance

Huber, Anne 2012
Curriculum Designer

Hudson, April 2004
Utility I

Hudson, Jr., Robert 1980
Utility I Leader

Hunt, David 2011
Utility II

Isabell, Agnes 1995
Executive Assistant

Jackson, Andre 2010
Utility II

Jarvis, Sandy 2005
Payroll Associate

Johnson, David 2014
Programmer/Analyst

Jones, David 1995
Campus Police Authority Officer

Jones, Terasa 1991
Office Assistant, CEPD

Kalnasy, Angela 2009
Early Childhood Teacher

Kendall-Williams, Micheele 2007
Record Retention/Archive Specialist

King, David 1980
Utility II

King, Jr., David 2014
Computer Technician

Kluksi, Catherine 1976
Executive Assistant

Klotz, Holly 2002
Operations Manager

Koniensky, Adam 2006
Utility II

Kovacs, Chris 1991
Campus Police Authority Officer

Kramer, Phyllis 2002
CEPD Technician

Kreipke, Laura 2014
Employment Coordinator

Kudlawiec, John 1994
Storekeeper Leader

LaBenne, Amy 2011
Financial Aid Associate

LaForest, Elizabeth 2011
Executive Assistant/FM and FBS Planning and Technology Coordinator

Lampheir, Allison 2009
Product Process Documentation and Training Specialist

Landau, Brent 2006
Senior Academic Advisor

Larente, Janice 2006
Early Childhood Teacher

Laster, James 2011
Skilled Maintenance

Latarski, Daniel 2007
Media Technician

LaVeque, II, Randolph 2010
Utility II

Law, Darlene 2010
Cashier III

Lightfoot, Russell 1977
Utility I Group Leader

Logan, Caroline 2002
Scholarship Program Associate

Losey, Kenneth 2010
Campus Police Authority Officer

Losey, Kevin 1994
General Maintenance
<table>
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<th>Name</th>
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<tr>
<td>Loudermilk, Jason</td>
<td>Network &amp; Voice Communications Administrator</td>
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<td>Lowe, Claudette</td>
<td>Administrative Coordinator to the President</td>
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<td>Ludwig, Kimberly</td>
<td>Accounting Manager</td>
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<td>Lynch, Marjorie</td>
<td>Special Events and Student Scholarships Coordinator</td>
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<td>Machniak, Elizabeth</td>
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<td>Maisano, Joseph</td>
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<td>Malinowski, Karen</td>
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<td>Banquets and Catering Services Coordinator</td>
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<td>Campus Police Authority Associate</td>
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<td>St. Pierre, Lena</td>
<td>Administrative Assistant III</td>
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ADJUNCT, PART-TIME FACULTY

The following part-time adjunct instructors have earned a minimum of 100 points in one or more Schoolcraft disciplines. Some have expertise in more than one discipline. Highest earned degree is indicated.

Adjunct Professor
(Min. 14 yrs. service & 200 points)

Alway, Peter, MS ................. PHYS
Ames, Carol, BSN ................. NURS
Andersen, Katherine, MA ........ MATH
Anderson, Diane L., MS ......... BIOL/HIT
Anderson, Jr., Thomas, PhD ..... HIST
Bagdatchi, Mahin, MS .......... CHEM
Baker, Shirley, MA ............... CCD
Balfour, Linda, MA ............... MATH
Baron, Timothy, BS .......... CIS/COMPS/ELECT
Begle, Catherine, BS .......... GT
Behler, Conrad, MA ............ HIST
Bielat, Robert, MA .......... ART
Bell, Carolyn, PhD ............ ENG
Binkowski, Christine, MS ....... MA
Boron, James, MA ............... CIS
Bowers, Jr., Anne, PhD ......... COMA
Boyde, Silvia A., MA .......... COLLS
Breger, William, MBA .......... ACCT
Brennan, Judith M., MS .......... PSYCH
Brewer, Janice, MS .......... ACCT
Brooks, Gale, BSN .......... NURS/NATP
Buchta, Patricia, BSN .......... NURS
Callahan, Dena L., BA .......... ENG
Cardello, Carla, MA .......... BUS
Cavan, Paul, MS .......... COR
Cieslak, Daniel H., BS .......... BUS
Clack, Donna, MA .......... COLLS
Cramb, Jr., Richard, MA ......... CJ
Delonis, Richard, JD .......... CJ
Dembicki, Helen, MA .......... ENG
Derderian, Harry, MBA .......... BUS
DiDonato, Jeannine A., MS ...... MATH
Donkers, Sylvia, MEd .......... CIS
Driscol, Faye, MA .......... COUNS
Edwards, Allan, EdD .......... MATH
Ellies, Karen, MBA .......... BUS
Enteshary-Najafabady, Abbas, MS .... CIS
Fletcher, Debra, MA .......... ENG
Friedrich, Paul, MA .......... MATH
Garcia, Glenda, MA .......... PSYCH
Gates-Palombo, Debora, MA .... ECOU
Glass—Boyd, Crystal, MA .... GEOG
Graham, Jeanne R., BA .......... ENG
Grant, Dorothy, MA .......... COLLS
Grewe, Barbara, MS .......... NURS/NATP
Griffith, Robert, MBA .......... ACCT
Gulledge, Kira, BA .......... SPAN
Haldane, Judith, MA .......... MATH
Harden, Shirley, EBM .......... MUSIC
Harper, Ellen, MSA .......... HIT/AHE
Harper, Michael, AAS .......... FIRE
Hays, Samuel K., MA .......... ENG
Hewett, Barry, MA .......... ENG
Hochberg, Ellen, MA .......... CGT
Hoffmann, Jr., Walter, MEd .... PSYCH
Holman, Cheri, MSA .......... BUS/OIS
Hummer, Herbert, MS .......... COR
Hunley, Ellen M., MA .......... ENG
Hurick, Patricia, MA .......... COUNS
Jackson, Harold, MA .......... MATH
Jacobs, Elisabeth, MA .......... CGT
Jacobs, Jan, PhD .......... PSYCH
Johns, Michael, MA .......... HIST
Johnson, Theodore J., MBA .... CJ
Jooohariani, Robert, PhD .......... PHIL
Julive, Julie E., BAA .......... CGT
Kappen, Orville, MA .......... CJ
Keller, Mary J., BS .......... CDD
Kirkby, Frederick, MA .......... COMA
Kitakis, Frank G., PhD .......... BIOL
Kirsuki, Thomas E., MPA .......... FIRE
Koelzer, Leonard, MBE .......... CIS
Kohlert, Peter A., MSA .......... MATH
Kurland, Sheila, MS .......... BIOL
LaBerge, Brenda, BSN .......... NATP/NURS
Lai, Hongyuan, PhD .......... MATH
Laird, Anita S., MS .......... OIS/CIS
Lane, Robert H., MA .......... BIOL
Langdon, Julie E., BAA .......... CGT
Lesko, John, MS .......... PHYS
Levy, Barbara S., MS .......... NURS
Lewton, Kelli L .......... CAP
Lindenberg, Arthur, MFA .......... ENG
Liss, Marianna, MA .......... COMA
Lonigro, Antonio, MA .......... ITAL/SPAN
Lovelace, Il, Robert, AS .......... EMT
Madsen, James, MA .......... CJ
Marroso, Marlynn MSN .......... NURS
Marilley, David, MS .......... MATH
Mazur, Brian, MBA .......... BUS
McCarty, James, MA .......... BUS
McCulloch, Celia M., AAS .......... CGT
McMahon, George, EdD .......... SOC
McPherson, Doris, EdD .......... CIS
Meehan, George, MEd ............... MATH
Melia, Nancy, BS .................. BIOL
Misiak, Christopher, BA ....... CAP/CHEM
Mogelnicki, Margaret, MA ....... CIS
Moucoulis, Ellen, MA .......... ART
Moylan, Mark, MA .......... COMA
Murphy, Susan, MBA ........... CIS/OIS
Murray, Steven M., PhD ........ PSYCH
Musto, Samuel A., MA ......... CAP
Nathan, John, PhD ............... ENG
Ndukwe, Ernest, PhD .......... GEOG
O’Kelly, James, MS .......... POLS
Oakes, Michael, MA .......... GEOG
Olech, Timothy, MS .......... POLS
Parsons, Wayne A., MA ....... CIS
Partyka, Patricia, MEd ....... CIS/OIS
Pearce, Robert F., MPA .......... CJ
Peters, Chris, AAS .......... BMET
Pfaendtner, Jean, MSW ....... CCD
Pfannes, Daniel P., MA ...... CJ/PA
Phillips, Clyde T., MS .......... CIS
Probelski, James, MS ....... MATH
Qiu, Yun, MS ............... MATH
Rabotnick, Seymour, MBA .... ACCT
Redmond, Charles, MS ....... CIS
Renas, Kim, MA .............. MUSIC
Reynolds, John R., MA ........ HIST
Robinson, Ronald, MA ....... POLS
Rochon, Steven, MBA ...... CAD/MFG/DSGN
Roney-Hays, Sandra, MA ....... ANTH/SOC
Rothstein, Barbara, MA ...... FR/GER
Rubio, Patricia, MSA .......... HIT/MA/MT
Safran, Kenneth, JD .......... BUS
Sarris, Cynthia, MFA .......... ART
Sarris, Stephanie, MFA .......... ART
Schaden, J. R., PhD ........... PHIL/PSYCH
Schuett, Faye, PhD .......... ENG
Sheppard, Cynthia, MSN ....... NURS
Siegel, Marie C., MSN ..... NATP/NURS
Sikorski, Gary .......... PA
Simo, C.T., MSA .......... BUS
Smilnak, John, BS .......... FIRE
Spolsky, Susan, MSW .... PSYCH/SOC
Stanley, Dorothy, MA ....... MATH
Steffen, Carolyn, PhD ....... BIOL
Switalski, Jurgen, PhD ...... CHEM
Swope, Michael, MA .......... HIST
Sypniewski, Matthew, MA ....... ENG
Szabo, Sharon, MBEd ....... CIS
Talbert, Linda S., MA ....... COLLs
Temporelli, Barbara, MS .... CHEM
Towner, Jr., Melvin, MBA .... CIS
Trembath, Darryl, MBA ........ BUS
Trpovski, Jovan, BAA ....... POLS
Turnau, Ill, William, BS .......... DSGN
Venditelli, Deborah, MSN ....... NURS/NATP
Vikshe, Edgars G., MBA .......... BUS
Vittori, Karen, JD .......... BUS
Wale, Jerry, MSEE .......... CIS/ELECT
Walker, Andrew .......... FIRE
Washka, Jack, MEd .......... PE
Wlosinski, Raymond, BS .... FIRE
Woods, Robert, MA .......... ENG
Woodside, Kenneth, MS .... CHEM
Wroblewski, Veronica, MA ...... COLLs/FR
Zorn, Lila K., MS .......... ENG

Adjunct Associate Professor
(Min. 8 yrs. service & 150 points)
Anderson, Mark E., MA .......... HIST/POLS
Aquila, Dominic, PhD .......... HIST/HUM/MUSIC
Arnold, Jacinta, MA .......... ENG
Bacon, Anthony, MEd .......... ART/HUM
Badry, Peter, MA .......... ECON
Bayne, Nancy, PhD .......... BIOL
Blau, Ben, AAS .......... SRT
Burhans, Bruce, MA .......... HIST
Buslawski, Jr, Robert, MA .... COMA
Catalano, Timothy .......... FIRE
Chaudhery, Malasri, MA .......... PSYCH
Chaudhery, Virinder, PhD .......... HUM
Christmas, Charles, PhD .......... ACCT
Corral, Michael, MA .......... MATH
Coursey, Donald, MS .......... BIOL
Crawley, Christopher .......... FIRE
Derian, Janice, BS .......... MUSIC
Donohue-Ebach, Patricia .... PE
Dowdy, Kristen, AAS .......... CAP
Drake, Jonathan, DM .......... MUSIC
Fedewa, David, MA .......... PE
Fitzpatrick, Kandance, BS .... HIT
Gildner, Douglas, BS .......... FIRE
Ginsberg, Lorraine, MA .......... MATH
Glubinski, Ann, MBA .......... BUS
Goncharoff, Darryl, MA .......... ENG
Gorzenski, Lena, BSN .......... NURS
Gould, Rosemary, MEd .......... MATH
Gueguiveiu, Emil A., MA .......... MATH
Gutierrez, Linda, MA .......... SOC
Handelman, Nancy, MA ....... COLS
Hanna, Samer, MS .......... CHEM
Haynes, Constance, MSBA ....... OIS
Hill, Clarice, MA .......... COR
Hill, Michele L., MS .......... ACCT/BUS
Homsher, Ruth, PhD .......... CHEM
Hunt, Dennis, MA .......... ECON
Jannot, Kenneth, MA .......... ENG
Jawad, Badri, MBA .......... ECON
Jenzen, Cynthia, MA .......... ANTH
Johnson, Kelly, MS .......... PSYCH
Kairis, Tony, MA .......... SOC
Kallas, Jason, MA .......... ENG
Kheder, Niran, MA .......... ENG/ESL
Knox, Mary, BA .......... CJ
Koenigsknecht, Cindy, PhD ...... BUS/PSYCH
Kremer, Katherine, BA .......... HIT
Leib, Arthur, MA .......... PE
Lowell, Carole, MA .......... POLS
Maheshwari, Neal, MBA, MS .......... MATH
Martin, James, MA .......... SOC/PHIL/PSYCH
Mathieson, Karen K., BSN ......... NURS
Matthews, Janice, MBA .......... BUS
McDonald, Patrick, MA .......... HIST
McGinnis, Jr, Donald, MA .......... GER/POLS
Mclane, Patricia, MA .......... HIT
Mercer, Sarah E., BS .......... CAP
Miller, Natalie, MA .......... CCD
Milnes, Charlotte, MA .......... COLLs/MAS
Moss, Frederick, MM .......... MUSIC
Mumm, Douglas .......... CGT
Munro, Joyce, MA .......... ENG
Nanian, Marjorie, JD .......... POLS
Nicklaus, Ronald, MA .......... MATH
Oxley, Robert, PhD .......... PHIL/POLS/SOC
Paholsky, Kathleen, BA .......... MAS
Pawlik, Patricia, MSN .......... NURS
Peper, Karen, MSN .......... NATP/NURS
Puggini, Julie, MA .......... COUNS/HDS
Rainey, Anne, ME .......... MATH
Reed, Gary B., MS .......... BIOL
Rintz, Michael, MS, JD .......... CM
Rogers, Jerry, MS .......... BIOL
Rosenbaum, Daniel, PhD .......... PSYCH
Roth, Diane, MA .......... MATH
Sadowski, Mark, BBA .......... ACCT/BUS
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*College Personnel | Schoolcraft College 2015–2016 Catalog*
Williamson, Agnes, MA  ..........  ENG
Zydeck, Sarah  .....................  PE

EMERITUS--HONORAIRE

 playoffs = Deceased

Adams, Jon P. 1965–1973  
Dean of Applied Sciences Emeritus
Secretary Learning Resources Honoraire
Allen, Kenneth M. 1965–1993  
Biology Professor Emeritus
OIS Associate Professor Emeritus
Anderson, Roger 1968–2002  
Biology Professor Emeritus
Assistant Dean, CES Emeritus
Accounting Professor Emeritus
Arsznov, Janet 1996–2013  
Mathematics Professor Emeritus
Attalai, Peter 1964–1984  
German, Spanish Professor Emeritus
Balfour, Linda M. 1990–2010  
Mathematics Professor Emeritus
Electronics Professor Emeritus
Beaudoin, Mary 1974–2011  
Bursar Emeritus
Bedford, John P. 1964–1981  
Geology Professor Emeritus
Benson, Richard 1967–1993  
Culinary Arts Professor Emeritus
Berkaw, Molly 1988–2003  
Secretary to the Assistant Vice President for Instruction Honoraire
Bettis, Patricia J. 1995–2011  
Accounts Payable Associate Honoraire
Black, Agnes J. 1973–1992  
Personnel Specialist Honoraire
Art Professor Emeritus
Blazic, Carol S. 1992–2010  
Secretary III-Learning Support Services Honoraire
Bloom, Bradley 1968–2001  
Music Professor Emeritus
Bloom, Stuart C. 1965–1996  
History Professor Emeritus
Bogarin, Russell 1965–1991  
Registrar Emeritus
Boisseau, Patricia K. 1992–2010  
Coordinator-Testing Center Honoraire
Bolce, Eileen 1971–1995  
Nursing Professor Emeritus
Bonner, April 1991–2013  
Director of ERP Emeritus
Bowe, Stella 1986–2008  
Admissions and Enrollment Center Office Assistant Honoraire
Boye, Marilyn Joyce 1973–1994  
Doc-U-Center Supervisor Honoraire
Mathematics Professor Emeritus
Bradner, Eric 1961–1971  
President Emeritus
Director of Health, Fitness and Senior Adult Programs Emeritus
Breithaupt, Robert L. 1966–1987  
Assistant Dean of Culinary Arts Emeritus
Burke, William 1967–2004  
Political Science Professor Emeritus
Manufacturing Professor Emeritus
Burnside, Robert 1967–1996  
Counselor Professor Emeritus
Butler, Patrick 1962–1984  
Director of Library Emeritus
Carleton, Midge 1970–2002  
Associate Dean-Sciences Emeritus
Castillo, Charles W. 1964–1985  
Communication Arts Professor Emeritus
Cavanaugh, Gerald 1969–2004  
Related Trades Professor Emeritus
Cichonski, Carol 1996–2013  
Administrative Assistant III Honoraire
Clack, Donna 1988–2004  
Developmental Education Professor Emeritus
Secretary to the Dean of Educational Services Honoraire
Business Professor Emeritus
Cooley, Margot 1997–2007  
Business Services Secretary Honoraire
Cotton, Sharon A. 1980–2000  
Accounting Professor Emeritus
Covert, Christine 1965–1982  
OIS Professor Emeritus
Dagher, Joseph 1967–1988  
English Professor Emeritus
Dansky, Edwynna 1979–1994  
Dean of College Centers Emeritus
Diebel, Thaddeus E. 1973–1985  
Dean of College Centers Emeritus
Doinidis, Elgene 1988–2009  
Director of College Centers Emeritus
Mathematics Professor Emeritus
Dorsey, Juanita 1979–2010  
Secretary III-Sciences Honoraire
Drouillard, Clarence 1966–2004  
Facilities Management Utility II Honoraire
DuFort, Robert C. 1969–1999  
Art Professor Emeritus
Edmunds, Margaret 1991–2002  
Continuing Education Office Assistant Honoraire
Ellis, Midge B. 1974–1991  
Coordinator of Special Events Honoraire
Feenstra, Feron 1964–2002  
Associate Dean-Business and Technology Emeritus
Ferrari, Dorothy E. 1982–1992  
Personnel Specialist Honoraire
Fleming, Michael J. 1983–2011  
Operations Technician Honoraire
Florek, Sandra P. 1969–1999  
Dean of Marketing and Development Emeritus
Foley, Maureen F. 1983–2000  
Chemistry Professor Emeritus
Gaitskill, Lawrence R. 1964–1985  
Political Science Professor Emeritus
Gans, Marvin 1964–2002  
Assistant Dean, Continuing Education Services Emeritus
Garrett, Evan 1968–2004  
History Professor Emeritus
Garritano, Rocco 1966–1991  
Mathematics Professor Emeritus
Geil, Barbara A. 1964–1995  
Vice President for Student Services Emeritus
Gerage, Elaine E. 1983–2011  
Coordinator-Student Employment Honoraire
Metallurgy Associate Professor Emeritus
Gilbert, Betty J. 1986–2001  
Executive Director of Human Resources Emeritus
Gniewek, Donna 2002–2014  
Senior Graphic Designer Honoraire
English Professor Emeritus
Green, Anne 1978–2002  
Administrative Coordinator to the President Honoraire
Greenwell, Diane F. 1978–2004  
Accounts Receivable Associate Honoraire
Griffith, Ronald 1971–2003  
Assistant Vice President for Instruction Emeritus
Gudan, Sirrika 1980–1998  
Assistant Dean for Academic and Assessment Services Emeritus
Nursing Professor Emeritus
Harju, Debbie 1980–2002  
Assistant to the Director of Enrollment Management Honoraire
Hayes, Sylvia J. 1989–2009  
Culinary Arts Marketing/Merchandising Specialist Honoraire
Assistant Dean for Instruction Honoraire
Counselor Professor Emeritus
Hershoren, Gary 1967–1996
Counselor Professor Emeritus
Hoffmann Jr., Walter O. 1964–2004
Psychology Professor Emeritus
Holtzman, Roberta 1964–2004
Foreign Language Professor Emeritus
Hulik, Kathleen 1996–2007
Public Relations/Media Coordinator Honoraire
Hurick, Patricia 1990–2002
Counselor Professor Emeritus
Huston, D. Louise 1964–1982
Director of Accounting, Payroll Honoraire
Jawor, Mary 1964–1989
English Professor Emeritus
Jones, Clare 1964–1979
Chemistry Professor Emeritus
Joswiak, Fran 1992–2005
Executive Assistant Honoraire
Kaplan, Suzanne 1964–2002
English Professor Emeritus
Keene, Robert 1968–1979
Instructional Vice President Emeritus
Kelley, Ralph B. 1964–1984
English Professor Emeritus
Kelly, Cecilia 1964–1983
Art Professor Emeritus
Counseling Secretary III Honoraire
Kianfar, Mehdi 1967–1987
Political Science Professor Emeritus
Kirkland, Jo Ann 1989–2000
Human Resources Operations Assistant Honoraire
Kolenda, Janet 1971–2001
Nursing Professor Emeritus
Kyriacopoulos, John 1965–1992
English Professor Emeritus
LaBo, Holly 1987–2010
PE Attendant Honoraire
Lao, Lincoln 1968–1999
Art Professor Emeritus
Secretary to Associate Dean of College Centers Honoraire
Lesko Jr., John S. 1969–2002
Physicist Professor Emeritus
Lichty-Mayes, Elizabeth F. 1967–1992
English Professor Emeritus
Lindenberg, Arthur 1967–2002
English Professor Emeritus
Lindner, W. Kenneth 1962–1987
Vice President for Business Services Emeritus
Lockwood, J. Bryce 1964–1988
Physics Professor Emeritus
Loehne, Joyce 1969–1986
Assistant to the Vice President for Business Services Honoraire
Ludwig, Joyce 1964–1992
Secretary to the President Honoraire
Lurain, Jane 1966–1985
Secretary to Assistant Dean Community Services Honoraire
Martin, Candis 1965–1997
Assistant Dean Math, Information Systems, and Business Emeritus
Marroso, Marlynn J. 1998–2012
Nursing Associate Professor Emeritus
Computer Information Systems Professor Emeritus
Mattson, Lorna M. 1987 – 2012
Accounts Receivable Associate Honoraire
Mayes, La Salle S. 1964–1992
English Professor Emeritus
McBride, Ronald 1974–2005
Electronics Professor Emeritus
President Emeritus
McNally, Edward V. 1963–1981
Vice President for Student Affairs Emeritus
Computer Information Systems Professor Emeritus
Miller, James 1986–2011
Utility I Honoraire
Miller, Ralph 1966–1985
Geography Professor Emeritus
Minick, Donna 1967–1996
English Professor Emeritus
Monge, John A. 1997–2012
Campus Police Authority Chief Emeritus
Monroe, Carl 2002–2012
Counselor Associate Professor Emeritus
Mathematics Professor Emeritus
Morand, Mary 1993–2010
Administrative Coordinator Honoraire
Morgan, Harriet C. 1964–1990
Biology Professor Emeritus
Morelock, Donald L. 1967–2012
Music Professor Emeritus
Transfer Coordinator Honoraire
Mathematics Professor Emeritus
Munro, Kenneth 1962–1987
Vice President for Business Services Emeritus
Munro, Gerald 1970–1996
Executive Director of Human Resources Emeritus
Munro, Kenneth F. 1986–2006
Physical Education Attendant Emeritus
Naslund, Raymond L. 1966–1985
Accounting Professor Emeritus
Nathan, John G. 1975–2004
English Professor Emeritus
Nesbit, Diane 1985–2013
Librarian Emeritus
Nickels, William G. 1968–2001
Chemistry Professor Emeritus
Niergarth, Grover G. 1965–1990
Biology Professor Emeritus
Nordman, Donna J. 1986–2010
Director of Counseling/Career Transfer Center Emeritus
Nuffer, Roy 1985–2011
Librarian Emeritus
Ochs, Marion J. 1964–1980
Business Professor Emeritus
Olson, John A. 1973–1985
Librarian Emeritus
Ordowski, Lawrence E. 1965–1995
Associate Dean of Liberal Arts Emeritus
O’Sullivan, Jill F. 1982–2009
Vice President/Chief Financial Officer Emeritus
O’Toole Jr., Michael A. 1964–1992
English Professor Emeritus
Palm-Leopold, Mary Alice 1993–2010
English Professor Emeritus
Partyka, Patricia A. 1978–2010
OIS/CIS Professor Emeritus
Pearce, Robert F. 1996–2010
Associate Dean of College Centers Emeritus
Perkins, W. David 1964–1985
English Professor Emeritus
Pike, Jean 1964–1997
Associate Dean of Students Emeritus
Plemmons, Larry M. 1990–2010
Campus Police Authority Officer Honoraire
Pletcher, E. Rachel 1968–1983
Payroll Employee Honoraire
Pompey, Sharon Y. 1988–2011
Nursing Professor Emeritus
Poupart, Oscar 1967–1992
CIS Professor Emeritus
Powell, Mary S. 1966–2004
English Professor Emeritus
Profitt, Carol M. 1992–1999
Document and Layout Associate Honoraire
Vice President for Business Services Emeritus
Randall, Ronald 1969–2002
Registrar Emeritus
Reibling, Louis A. 1980–2004
Vice President for Instruction Emeritus
Richmond, Merle J. 1970–1999
Accounting Professor Emeritus
Rief, Mary Jo H. 1987–2004
Administrative Assistant to the Vice President for Finance and Business Services Honoraire
Counselor Professor Emeritus
Roncoli, Thomas C. 1967–1992
Physical Education Professor Emeritus
Rosenberger, Roberta L. 1995–2010
Campus Police Authority Officer Honoraire
Rousseau, Clara M. 1962–1981
Administrative Assistant Honoraire

Rubio, Patricia A. 1969–2011
Health Information Technology Professor Emeritus

Rudick, Lawrence W. 1964–1983 Communication Arts Professor Emeritus

Rupp, Louis E. 1969–1988 Counselor Professor Emeritus

Ryan, William A. 1964–1979 Geology Professor Emeritus

Ryktarsyk, Donald 1964–2004 Business Professor Emeritus

Ryktarsyk, Donna 1967–2003 Assistant Director-Financial Aid Honoraire

Sampson, Dorothy 1967–1998 Nursing Professor Emeritus

Sattig, Harriett H. 1963–1980 Director of Health Careers Emeritus

Schaden, J. Robert 1993–2004 Philosophy Professor Emeritus

Scharmen, Barbara D. 1991–2009 Administrative Assistant/Budget Coordinator Honoraire

Scharmen, Larry L. 1985–2000 Biomedical Engineering Technology Professor Emeritus

Schewe, Stephen J. 1972–2004 Physics Professor Emeritus

Schneider, Janet 1989–2004 Librarian Emeritus

Schuett, Faye 1992–2012 English Professor Emeritus

Sheppard, Cynthia 2001-2013 Nursing Professor Emeritus

Shon, Maybelle B. 1966–1983 Secretary to Dean of College Centers Honoraire

Sipes, Delavan W. 1965–1987 Electronics Professor Emeritus

Smith, Mary 1965–1988 Nursing Professor Emeritus

Smith, Piera 1985–2010 Coordinator-Support Services Honoraire

Snyder, Edmund S. 1962–1974 Librarian Professor Emeritus

Snyder, Gordon G. 1965–2000 Biology Professor Emeritus

Springer, Sherry L. 1983–2009 Coordinator, Student Activities Honoraire

Ste, Leonard 1966–1990 Culinary Arts Professor Emeritus

Stefanski, Frederick 1966–1980 Instructional Dean Emeritus

Steffen, Carolyn A. 1975–2010 Biology Professor Emeritus

Stein, Joanne 1967–2002 English Professor Emeritus

Sullivan, Monica 1989–2010 Vice President of Instruction Emeritus

Sutherland, Roger A. 1964–1990 Biology Professor Emeritus

Swanborg, Nancy K. 1989–2008 Director of Women's Resource Center Emeritus

Sweet, Bruce A. 1985-2009 Associate Dean Business and Technology Emeritus

Swiger, Curtis W. 1979–2012 Sergeant Honoraire

Sylvester, James 1967–1997 Counselor Professor Emeritus


Szabo, Sharon F. 1981–2001 Computer Information Systems Professor Emeritus

Szukielowicz, Gail 1989–2010 Transfer Credit Specialist Honoraire

Tang, Kin Ling 1990–1999 Psychology Associate Professor Emeritus


Timte, Jacqueline 1994–2004 Secretary, Business Services Honoraire

Titus, John L. 1997–2009 Counselor Assistant Professor Emeritus

Tomalty, R. Elaine 1987–2001 Secretary for Women's Resource Center Honoraire

Tomalty, Richard L. 1970–2000 Counselor Professor Emeritus

Tomey, Carolyn S. 1991–2005 Registrar’s Office Assistant Honoraire

Tomey, John B. 1974–2005 Executive Vice President Emeritus

Udrys, Janina 1973–2004 Mathematics Professor Emeritus

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Vukmirovich, Sylvia 1967–2001 Counselor Professor Emeritus

Wallen, Lynn 1994–2009 Administrative Coordinator Honoraire

Washka, Jack A. 1967–2004 Health and Physical Education Professor Emeritus

Watson, Andrew C. 1964–1999 Chemistry Professor Emeritus

Advisory Committees

Webber, John R. 1965–1993 Director of Counseling Emeritus

Williams, Larry G. 1969–2006 Mathematics Professor Emeritus

Wilson, Gordon 1968–2004 English Professor Emeritus

Wilson, John M. 1965–1993 History Professor Emeritus

Witten, Dorothy B. 1975–2001 Child Care Development Professor Emeritus

Witten, John D. 1967–2001 Counselor Professor Emeritus

Wolitz, Phebe M. 1965-1982 Accounting Professor Emeritus

Woodruff, Cecil 1970–2004 Health and Physical Education Professor Emeritus

Worosz, Gregory J. 1969–2000 Business Professor Emeritus

Wright, John E. 1974–2007 Director of Maintenance and Grounds Emeritus

Yaremchuk, Patricia A. 1980–2005 Human Resources Specialist Honoraire

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Health Professions Simulation Lab
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Susan Karasinski, MSN, RN Coordinator of Professional Nursing Development, Garden City Hospital
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Law Enforcement Continuing Education, Homeland Security & Criminal Justice
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Daniel Grant Chief, Wyandotte Police Department
Daniel Pfannes Undersheriff, County of Wayne, Greater Detroit Area
Robert Muery Chief, Garden City Police Department
Gerald Zapolnik Chief Operating Officer, Huron Valley Ambulance Services, Ann Arbor

Learning Support Services
Michelle Brunsch Counselor, Plymouth-Canton Community Schools, Canton
Lisa Duguanno Transition and Work Study Coordinator, Special Education, Plymouth-Canton Community Schools, Canton
Jim Gibbons Principal, Livonia Public Schools, Livonia
Nan Hansen Counselor, Plymouth-Canton Community Schools, Canton
Jeff Houston Supervisor, Adult Ed, Livonia Public Schools, Livonia
Bridget Kocurek Counselor, Plymouth-Canton Community Schools, Canton
Lauren LeBlanc Upward Bound, Wayne Westland Community Schools, Wayne
Barbara Lehmann Counselor, Plymouth-Canton Community Schools, Canton
Karen Ling Interim Supervisor – Shared Time & Adult Ed, Livonia Public Schools, Livonia
Tracey Mocon Principal, Ladywood High School, Livonia
King T. Nelson Rehabilitation Counselor, Bureau of Services for Blind Persons, Detroit
Diana Patterson Assistant Principal, Northville Public Schools, Northville
Rosalyn Pollard Special Pops Coordinator, William D. Ford Career Technology Center, Westland
Ida Turpin Counselor, Walled Lake Consolidated Schools, Walled Lake
Lisa Wilson Counselor, Livonia Public Schools, Livonia
Lori Wozniak Counselor, Livonia Public Schools, Livonia

Manufacturing
Dennis Benson Quality Manager, FI Tool Holders, Livonia
Chuck Dardas President, Alpha USA, Livonia
Harold Eklund Machining Manager, Ameriforge, Redford
Mel Koslowski Engineering Program Manager, Roush Industries
Daniel Laible Chief Financial Officer, NYX Incorporated, Livonia
Michael Medwid President, Three-M Tool and Machine, Inc., Commerce Township
Sharron Medwid Owner, Three-M Tool and Machine, Inc., Commerce Township
Floyd Peterson President, Ecco Tool, Novi

Bob Sakuta President, Delta Research, Livonia
Scott Sakuta President, Delta Gear, Livonia
Mark Slack Director of Operations, Roush, Livonia
Richard Yesue President, Lincoln Park Boring, Romulus

Massage Therapy
Paul Anderson, Jr. Executive Manager, Fortunatus Investments, Livonia
Karen Armstrong Supervisor, Clinical Massage Integrative Medicine, Royal Oak
Brandi Ellis Owner, Bellis Therapeutic Spa, Farmington
Joseph Fischer Student Services/Technical Support IT Lead, Medcerts, Livonia
Irene Ivanac Co-Owner, Strength & Spirit LLC, Garden City
Claire Kona Business Consultant, CK Business Development, LLC, Birmingham
Carrie Mayo Massage Therapist, The Sanctuary Chiropractic & Wellness Spa, Livonia; Adjunct Instructor, Stautzenberger College, Allen Park
Janine McKay Massage Therapy Program Coordinator, Oakland Community College—Highland Lakes Campus, Waterford
Adam Wilensky Owner, Elements Studio, Birmingham

Medical Assisting
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Kristen Formosa Community Member, Dearborn
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Natalie Ostrom Practice Manager, IHA Pediatric Healthcare, Canton
Kimberly Riddle Alumni, Advanced Cardiovascular Health Specialists, Livonia
Danielle Seewald Student, Livonia
Char Sobieski Consultant, Dearborn
April Yates Practice Manager, Vascular Surgery, Westland
Nursing Career Ladder Curriculum

Betty Bear, BScN, RN, CPN  Clinical Improvement Specialist, Harper University—Hutzel Women’s Hospital, Detroit
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Krystal Boddie, RN  Director of Inservice Education, Botsford Continuing Care Center, Farmington Hills
Diana Bowman, BSN, RN  Nurse Educator, Huron Valley Hospital, Commerce
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Margaret Hasler, MS, RN, NEA-BC  Vice President of Patient Care Services, Botsford Hospital, Farmington
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Emily Pholonski, M.Ed.  Science Content Area Leader & Partners in Excellence Coordinator, Novi High School, Novi
Sandra Schmitt, BSN, RN  Manager, Nursing Development, Oakwood Hospital, Dearborn
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Cheri Holman, CPS  Adjunct Professor, Schoolcraft College
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Pamela Stopper  Retired CAP-OM Senior Administrative Assistant, Soil and Materials Engineers, Inc., Plymouth

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Ann Chen, DMA  Private Piano Instructor, Maple Arts Academy at Steinway Piano Gallery of Detroit, Commerce Township
Janice Derian  President, Livonia Area Piano Teachers Forum, Livonia
Marilyn Sluka  Past President, Michigan Music Teachers Association, Livonia
Nancy Whitecar  Past President, Livonia Area Piano Teachers Forum, Livonia Michigan Music Teachers Association Certification Committee, Northville

Sound Recording Technology

Jason Corey  Assistant Professor, Performing Arts Technology, School of Music, University of Michigan, Ann Arbor
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Craig Frankenstein  Director of New Media Sales, AVI Systems, Farmington Hills
David Lau  Owner, Brookwood Studio, Inc., Plymouth
Eric Morgeson  President, Studio A Recording, Inc., Dearborn Heights

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Kevin McDonell  Training Coordinator, Iron Workers Local 25, Wixom
Phil Mosquera  Senior Applications Engineer, OTC, Novi
Jason Scales, Ph.D  Welding Education Specialist, Lincoln Electric, Cleveland, Ohio
Mike Jennings  President/CEO, JP Industrial Services LLC, Romulus
Pat York  Sales Representative, Ann Arbor Welding, Ypsilanti
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Welcome to Schoolcraft. Welcome to college.