Schoolcraft© College

60 YEARS

2021-2022 Catalog

The 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.

The Vision

The College wishes to be a first choice provider of educational services, a competent organization, functioning with integrity, behaving strategically, and providing value beyond expectations.

College Values

- We recognize that 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.

Schoolcraft College provides this document for information purposes only. Its contents do not constitute a contract between this institution and prospective or enrolled students. The information contained in this document reflects the current curricula of the college as of 2/15/21. This information is subject to change at any time by action of the Board of Trustees or the administration.

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Quick links – Select a link below for more information.

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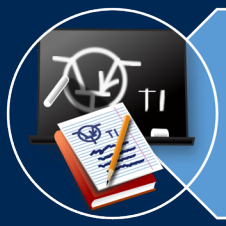
Apply for Financial Aid



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PROGRAM INFORMATION

AAS-ASSOCIATE IN APPLIED SCIENCE

2021-2022 Credential Year

Schoolcraft Degree and Program Code	**AAS - ASSOCIATE IN APPLIED SCIENCE** Schoolcraft College currently offers numerous AAS degrees, each with a unique program code. Please see the specific program requirements for each, from Accounting through Welding, on the Schoolcraft College webpage.
Description	By obtaining an associate in applied science (AAS) degree, students will be prepared to seek employment in their chosen career field. To explore transferability options, it is recommended that students meet with an academic advisor.
Degree Focus	Occupational (Transfer possible through articulation): Completion of a specified set of occupational courses that satisfy the development of occupational skills, as well as a broad distribution of liberal arts courses used to achieve a balance between job skills and general education.
English Communication	Minimum 6 credit hours. Completion of a minimum of two English communication courses within a set of courses. ENG 101$_M$ and ENG 102$_M$* or ENG 101$_M$ and COMA 103$_{M^+}$* ENG 102$_M$ and COMA 103$_{M^+}$* or ENG 102$_M$ and ENG 221$_M$* or or ENG 221$_M$ and COMA 103$_{M^+}$* OR ENG 100 and ENG 106 or ENG 100 and ENG 116 or ENG 101$_M$ and ENG 106 or ENG 101$_M$ and ENG 107 or ENG 101$_M$ and ENG 116
Humanities$^+$	Minimum 1 credit hour. Completion of a minimum of one humanities course. Art, Communication Arts, English (Literature), Foreign Language, History$^+$, Humanities, Music, Philosophy or Theatre
Mathematics	Minimum 3 credit hours. Completion of a minimum of one mathematics course.
Natural Sciences	Minimum 3 credit hours. Completion of a minimum of one natural science course. Biology, Chemistry, Geography$^+$, Geology, Nutrition and Food Science or Physics
Social Sciences$^+$	Minimum 3 credit hours. Completion of a minimum of one social science course. Anthropology, Economics, Geography$^+$, History$^+$, Political Science, Psychology or Sociology
Major Area of Study	Minimum 16-44 credit hours in a major concentration area which are identified and listed in the program requirements which are specific or supportive of the occupational goals.
General Electives	Completion of a range of occupational or liberal arts courses that support the development of occupational skills or Schoolcraft College (SC) General Education requirements.

Course Level	All courses that apply to this degree must be at the 100-through 400-level with a minimum grade point average (GPA) of 2.0.
Credit Requirement	Minimum 60 credit hours.
Institutional Requirements	Completion of all Schoolcraft College Core Abilities and a minimum of 16 credit hours associate-level Schoolcraft College General Education requirements in English, humanities, mathematics, natural sciences, and social sciences. The Michigan Transfer Agreement (MTA) may be used to fulfill the Schoolcraft College General Education requirements. PLEASE NOTE: Students may not use the same History course to satisfy both the humanities and social sciences distribution area. Additionally, students may not use COMA 103_{M^+}* to satisfy both the humanities and English communications distribution area. Only certain Geography courses can be used for a natural science or social science course.
Types of Courses	There are two primary types of courses that may be used towards fulfilling credentials[c] such as certificate, associate, or bachelor degrees at Schoolcraft College (SC). The nature, goals, and use of each course determines the type of course and how it applies toward each credential at Schoolcraft College or at other transfer institutions. The two types of courses include occupational and liberal arts courses. 1. Occupational Courses – Occupational courses have a direct career relationship and focus on developing necessary knowledge and skills to enter the work force within the chosen field of study-e.g., **ACCT 103**, **EMT 115**, **MFG 211**, **WELD 120**. Courses may or may not transfer to another institution and are written in bold font. No SC occupational course may be used toward SC General Education (SCGE) or to meet the requirements for Michigan Transfer Agreement (MTA)^ T. 2. Liberal Arts Courses – Liberal Arts courses provide general knowledge and theory in the arts, language and communication, humanities, natural sciences, math and social sciences areas. Liberal Arts courses may fall into three categories: a. Applied Liberal Arts – courses that are focused on building particular skills through the practice and application of talents or concepts-e.g., *ART 248*, *ENG 205*, *CAB 100*, *THEA 204*, *MUSIC 114*, *COLLS 105*. Applied Liberal Arts courses typically do not transfer to other institutions and are written in italicized font. A subset of these courses may be used toward meeting the requirements for SCGE. b. Liberal Arts used for Schoolcraft College General Education (SCGE) – courses that are theory-based or application-based which offer a wide distribution of experiences to students across multiple disciplines-e.g., ENG 100, PSYCH 153_M, HIST 138_{M^+}, MATH 106. These courses may or may not transfer to another institution. The Liberal Arts courses that do not transfer are typically applied in nature and are written in plain text-e.g., MATH 106. The Liberal Arts courses that are intended to transfer are typically theory-based and are denoted with a subscript$_M$ -e.g., PSYCH 153_M –see paragraph 2c. c. Liberal Arts Courses used for Transfer – courses which are theory-based and offer a wide distribution of experiences to students across multiple disciplines-e.g., PSYCH 153_M, BIOL 101_{M^L}, ECON 201_M, ART 120_M, MATH 111_M. These courses are a sub-set of the Liberal Arts used for SCGE which meet both SCGE and the requirements for the Michigan Transfer Agreement (MTA). The MTA-identified courses are intended to meet the general education requirements at transfer institutions and are denoted with a subscript$_M$ -e.g., MATH 111_M. Information about the MTA requirements may be found at https://www.macrao.org/ . [c] = Credentials – a documentation of satisfactory completion of courses that result in a nationally recognized acknowledgement of learning and skills. Schoolcraft College offers skills certificate, certificate, associate and bachelor degree credentials.

	^ = Courses used for SCGE and MTA – a list of specific disciplines and course numbers within each distribution area that meet the requirements for Schoolcraft General Education (SCGE) and the Michigan Transfer Agreement (MTA) may be found here: http://www.schoolcraft.edu/catalog . ^{T} = Transferability of courses should be discussed with an academic advisor and may be dependent on the receiving institution.
Key	Plain text = Liberal Arts courses used to satisfy Schoolcraft College General Education (SCGE) requirements. $_{M}$ = Liberal Arts courses used to satisfy SCGE requirements and the Michigan Transfer Agreement (MTA) requirements. * = Only these courses or combination of courses may be used to satisfy the final requirement for MTA English Communications. ^{L} = Lab Science $^{+}$ = Students may not use the same History course to satisfy both the humanities and social sciences or COMA $103_{M}{}^{+*}$ to satisfy both humanities and English communications. Only certain Geography courses can be used for a natural science or social science course. *Italicized text* = Applied Liberal Arts courses that do not qualify to meet SCGE requirements or MTA requirements (Courses may or may not transfer to another institution.) **BOLD** = Occupational Courses have a direct career relationship, and focus on developing necessary knowledge and skills to enter the work force within the chosen field of study. (Courses may or may not transfer to another institution. No SC occupational courses may be used toward SC General Education or to meet the requirements for MTA.) Liberal Arts courses will typically transfer to another institution. They provide general knowledge and theory in the arts, language and communication, humanities, natural sciences, math and social sciences.

AA-ASSOCIATE IN ARTS

2021-2022 Credential Year

Schoolcraft Degree and Program Code	**AA - ASSOCIATE IN ARTS** **# AA.00042**
Description	The associate in arts (AA) 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. Schoolcraft students may complete the degree by following the requirements specified by the transfer institution and Schoolcraft College (SC).
Degree Focus	Transfer: Completion of a broad distribution of liberal arts courses in the English, humanities, mathematics, natural sciences, and social sciences distribution areas that may be used to meet transfer requirements toward a baccalaureate degree. Some liberal arts courses cannot be used to satisfy the Michigan Transfer Agreement (MTA). Please see your advisor or review the MTA course list on schoolcraft.edu/transfer and select "Michigan Transfer Agreement".
English Communication	Minimum 6 credit hours. Completion of a minimum of two English communication courses within a set of courses. ENG 101$_M$ and ENG 102$_M$* or ENG 102$_M$ and ENG 221$_M$* or ENG 102$_M$ and COMA 103$_{M^+}$* or ENG 221$_M$ and COMA 103$_{M^+}$*
Humanities+	Minimum 4 credit hours. Completion of a minimum of two humanities courses from two different disciplines. Art, Communication Arts, English (Literature), Foreign Language, History+, Humanities, Music, Philosophy or Theatre.
Mathematics	Minimum 4 credit hours. Completion of a minimum of one mathematics course from Schoolcraft's approved Michigan Transfer Agreement (MTA) course list.
Natural Sciences	Minimum 7 credit hours. Completion of a minimum of two natural science courses from two different disciplines. One must be a lab science course. Biology, Chemistry, Geography+, Geology, Nutrition and Food Science or Physics
Social Sciences+	Minimum 6 credit hours. Completion of a minimum of two social science courses from two different disciplines. Anthropology, Geography+, History+, Political Science, Psychology or Sociology
Major Area of Study **General Electives**	Minimum 33 credit hours in liberal arts courses that satisfy transfer and academic goals and requirements.
Course Level	All courses that apply to this degree must be at the 100- through 400-level with a minimum grade point average (GPA) of 2.0.
Credit Requirement	Minimum 60 credit hours.

Institutional Requirements	Completion of all Schoolcraft College Core Abilities and a minimum of 16 credit hours associate-level Schoolcraft College General Education requirements in English, humanities, mathematics, natural sciences and social sciences. The Michigan Transfer Agreement (MTA) may be used to fulfill the Schoolcraft College General Education requirements. PLEASE NOTE**:** Students may not use the same History course to satisfy both the humanities and social sciences distribution area. Additionally, students may not use COMA 103_{M^+}* to satisfy both the humanities and English communications distribution area. Only certain Geography courses can be used for a natural science or social science course. There are three (3) types of courses that may be used toward fulfilling associate degrees at Schoolcraft College: liberal arts, applied liberal arts, and occupational. Applied liberal arts or occupational courses may not account for more than 15 credits in an AA degree. While the applied liberal arts courses provide immediate skill building opportunities, their transferability and value should be discussed with an academic advisor. Most transferable courses may be found in the Schoolcraft College MTA requirements.
Types of Courses	There are two primary types of courses that may be used towards fulfilling credentials[c] such as certificate, associate, or bachelor degrees at Schoolcraft College (SC). The nature, goals, and use of each course determines the type of course and how it applies toward each credential at Schoolcraft College or at other transfer institutions. The two types of courses include occupational and liberal arts courses. 3. Occupational Courses – Occupational courses have a direct career relationship and focus on developing necessary knowledge and skills to enter the work force within the chosen field of study-e.g., **ACCT 103**, **EMT 115**, **MFG 211**, **WELD 120**. Courses may or may not transfer to another institution and are written in bold font. No SC occupational course may be used toward SC General Education (SCGE) or to meet the requirements for Michigan Transfer Agreement (MTA)^ [T]. 4. Liberal Arts Courses – Liberal Arts courses provide general knowledge and theory in the arts, language and communication, humanities, natural sciences, math and social sciences areas. Liberal Arts courses may fall into three categories: a. Applied Liberal Arts – courses that are focused on building particular skills through the practice and application of talents or concepts-e.g., *ART 248*, *ENG 205*, *CAB 100*, *THEA 204*, *MUSIC 114*, *COLLS 105*. Applied Liberal Arts courses typically do not transfer to other institutions and are written in italicized font. A subset of these courses may be used toward meeting the requirements for SCGE. b. Liberal Arts used for Schoolcraft College General Education (SCGE) – courses that are theory-based or application-based which offer a wide distribution of experiences to students across multiple disciplines-e.g., ENG 100, PSYCH 153_M, HIST 138_{M^+}, MATH 106. These courses may or may not transfer to another institution. The Liberal Arts courses that do not transfer are typically applied in nature and are written in plain text-e.g., MATH 106. The Liberal Arts courses that are intended to transfer are typically theory-based and are denoted with a subscript$_M$ –e.g., PSYCH 153_M –see category C. c. Liberal Arts Courses used for Transfer – courses which are theory-based and offer a wide distribution of experiences to students across multiple disciplines-e.g., PSYCH 153_M, BIOL 101_{M^L}, ECON 201_M, ART 120_M, MATH 111_M. These courses are a sub-set of the Liberal Arts used for SCGE which meet both SCGE and the requirements for the Michigan Transfer Agreement (MTA). The MTA identified courses are intended to meet the general education requirements at transfer institutions and are denoted with a subscript$_M$ –e.g., MATH 111_M. Information about the MTA requirements may be found at https://www.macrao.org/ . [c] = Credentials – a documentation of satisfactory completion of courses that result in a nationally recognized acknowledgement of learning and skills. Schoolcraft College offers skills certificate, certificate, associate and bachelor degree credentials.

	^ = Courses used for SCGE and MTA – a list of specific disciplines and course numbers with each distribution area that meet the requirements for Schoolcraft General Education (SCGE) and the Michigan Transfer Agreement (MTA) may be found here: http://www.schoolcraft.edu/catalog . ^{T} = Transferability of courses should be discussed with an academic advisor and may be dependent on the receiving institution.
Key	Plain text = Liberal Arts courses used to satisfy Schoolcraft College General Education (SCGE) requirements. $_{M}$ = Liberal Arts courses used to satisfy SCGE requirements and the Michigan Transfer Agreement (MTA) requirements. * = Only these courses or combination of courses may be used to satisfy the final requirement for MTA English Communications. ^{L} = Lab Science $^{+}$ = Students may not use the same History course to satisfy both the humanities and social sciences or COMA $103_{M}{}^{+*}$ to satisfy both humanities and English communications. Only certain Geography courses can be used for a natural science or social science course. *Italicized text* = Applied Liberal Arts courses that do not qualify to meet SCGE requirements or MTA requirements (Courses may or may not transfer to another institution.) **BOLD** = Occupational Courses have a direct career relationship, and focus on developing necessary knowledge and skills to enter the work force within the chosen field of study. (Courses may or may not transfer to another institution. No SC occupational courses may be used toward SC General Education or to meet the requirements for MTA.) Liberal Arts courses will typically transfer to another institution. They provide general knowledge and theory in the arts, language and communication, humanities, natural sciences, math and social sciences.

ABA-ASSOCIATE IN BUSINESS ADMINISTRATION

2021-2022 Credential Year

Schoolcraft Degree and Program Code	**ABA - ASSOCIATE IN BUSINESS ADMINISTRATION # ABA.00401**
Description	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 frame-work 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 degree by following the requirements specified by the transfer institution and Schoolcraft College (SC).
Degree Focus	Transfer: Completion of a broad distribution of liberal arts courses in the English, humanities, mathematics, natural sciences, and social sciences distribution areas to meet transfer requirements toward a baccalaureate degree with an intended focus toward business and related fields. Some liberal arts courses cannot be used to satisfy the Michigan Transfer Agreement (MTA). Please see your advisor or review the MTA course list on schoolcraft.edu/transfer and select "Michigan Transfer Agreement".
English Communication	Minimum 6 credit hours. Completion of a minimum of two English communication courses within a set of courses. ENG 101M and ENG 102M* or ENG 102M and ENG 221M* or ENG 102M and COMA 103M+* or ENG 221M and COMA 103M+*
Humanities+	Minimum 4 credit hours. Completion of a minimum of two humanities courses from two different disciplines. Art, Communication Arts, English (Literature), Foreign Language, History+, Humanities, Music, Philosophy or Theatre
Mathematics	Minimum 4 credit hours. Completion of a minimum of one mathematics course from Schoolcraft's approved Michigan Transfer Agreement (MTA) course list. MATH 122M recommended
Natural Sciences	Minimum 7 credit hours. Completion of a minimum of two natural science courses from two different disciplines. One must be a lab science course. Biology, Chemistry, Geography+, Geology, Nutrition and Food Science or Physics
Social Sciences+	Minimum 11 credit hours. Completion of a minimum of two social science courses from two different disciplines. ECON 201M and 202M required POLS 105M recommended Anthropology, Economics, Geography+, History+, Political Science, Psychology or Sociology
Major Area of Study	Minimum 11 credit hours. **ACCT 201** and **202** required **BUS 101** required

General Electives	Minimum 17 credit hours in liberal arts or occupational courses that satisfy transfer and academic goals and requirements. **BUS 207** recommended **CIS 115** or **120** recommended
Course Level	All courses that apply to this degree must be at the 100- through 400-level with a minimum grade point average (GPA) of 2.0.
Credit Requirement	Minimum 60 credit hours.
Institutional Requirements	Completion of all Schoolcraft College Core Abilities and a minimum of 16 credit hours associate-level Schoolcraft College General Education requirements in English, humanities, mathematics, natural sciences, and social sciences. The Michigan Transfer Agreement (MTA) may be used to fulfill the Schoolcraft College General Education requirements.
	PLEASE NOTE: Students may not use the same History course to satisfy both the humanities and social sciences distribution area. Additionally, students may not use COMA 103_{M^+}* to satisfy both the humanities and English communications distribution area. Only certain Geography courses can be used for a natural science or social science course. There are three (3) types of courses that may be used toward fulfilling associate degrees at Schoolcraft College: liberal arts, applied liberal arts, and occupational. Applied liberal arts or occupational courses may not account for more than 15 credits in an ABA degree. While the applied liberal arts courses provide immediate skill building opportunities, their transferability and value should be discussed with an academic advisor. Most transferable courses may be found in the Schoolcraft College MTA requirements.
Types of Courses	There are two primary types of courses that may be used towards fulfilling credentials[c] such as certificate, associate, or bachelor degrees at Schoolcraft College (SC). The nature, goals, and use of each course determines the type of course and how it applies toward each credential at Schoolcraft College or at other transfer institutions. The two types of courses include occupational and liberal arts courses. 5. Occupational Courses – Occupational courses have a direct career relationship and focus on developing necessary knowledge and skills to enter the work force within the chosen field of study-e.g., **ACCT 103**, **EMT 115**, **MFG 211**, **WELD 120**. Courses may or may not transfer to another institution and are written in bold font. No SC occupational course may be used toward SC General Education (SCGE) or to meet the requirements for Michigan Transfer Agreement (MTA)^ [T]. 6. Liberal Arts Courses – Liberal Arts courses provide general knowledge and theory in the arts, language and communication, humanities, natural sciences, math and social sciences areas. Liberal Arts courses may fall into three categories: a. Applied Liberal Arts – courses that are focused on building particular skills through the practice and application of talents or concepts.-e.g., *ART 248*, *ENG 205*, *CAB 100*, *THEA 204*, *MUSIC 114*, *COLLS 105*. Applied Liberal Arts courses typically do not transfer to other institutions and are written in italicized font. A subset of these courses may be used toward meeting the requirements for SCGE. b. Liberal Arts used for Schoolcraft College General Education (SCGE) – courses that are theory-based or application-based which offer a wide distribution of experiences to students across multiple disciplines-e.g., ENG 100, PSYCH 153_{M}, HIST 138_{M^+}, MATH 106. These courses may or may not transfer to another institution. The Liberal Arts courses that do not transfer are typically applied in nature and are written in plain text-e.g., MATH 106. The Liberal Arts courses that are intended to transfer are typically theory-based and are denoted with a subscript $_{M}$ –e.g., PSYCH 153_{M} – see category C. c. Liberal Arts Courses used for Transfer – courses which are theory-based and offer a wide distribution of experiences to students across multiple disciplines-e.g., PSYCH 153_{M}, BIOL 101_{M^L}, ECON 201_{M}, ART 120_{M}, MATH 111_{M}. These courses are a sub-set of the Liberal Arts used for SCGE which meet both SCGE and the requirements for the Michigan Transfer Agreement (MTA). The MTA-identified courses are intended to meet the general education requirements at transfer institutions and are denoted with a subscript

	$_M$ –e.g., MATH 111$_M$. Information about the MTA requirements may be found at https://www.macrao.org/ . ^{c} = Credentials – a documentation of satisfactory completion of courses that result in a nationally recognized acknowledgement of learning and skills. Schoolcraft College offers skills certificate, certificate, associate and bachelor degree credentials. ^ = Courses used for SCGE and MTA – a list of specific disciplines and course numbers within each distribution area that meet the requirements for Schoolcraft General Education (SCGE) and the Michigan Transfer Agreement (MTA) may be found here: http://www.schoolcraft.edu/catalog . ^{T} = Transferability of courses should be discussed with an academic advisor and may be dependent on the receiving institution.
Key	Plain text = Liberal Arts courses used to satisfy Schoolcraft College General Education (SCGE) requirements. $_M$ = Liberal Arts courses used to satisfy SCGE requirements and the Michigan Transfer Agreement (MTA) requirements. * = Only these courses or combination of courses may be used to satisfy the final requirement for MTA English Communications. ^{L} = Lab Science $^+$ = Students may not use the same History course to satisfy both the humanities and social sciences or COMA 103$_M$$^{+*}$ to satisfy both humanities and English communications. Only certain Geography courses can be used for a natural science or social science course. *Italicized text* = Applied Liberal Arts courses that do not qualify to meet SCGE requirements or MTA requirements (Courses may or may not transfer to another institution.) **BOLD** = Occupational Courses have a direct career relationship, and focus on developing necessary knowledge and skills to enter the work force within the chosen field of study. (Courses may or may not transfer to another institution. No SC occupational courses may be used toward SC General Education or to meet the requirements for MTA.) Liberal Arts courses will typically transfer to another institution. They provide general knowledge and theory in the arts, language and communication, humanities, natural sciences, math and social sciences.

AE-ASSOCIATE IN ENGINEERING

2021-2022 Credential Year

Schoolcraft Degree and Program Code	**AE - ASSOCIATE IN ENGINEERING** **AE.00039**
Description	The associate in engineering (AE) degree is for students who plan to pursue a baccalaureate degree in engineering. Schoolcraft students may complete the degree by following the requirements specified by the transfer institution and Schoolcraft College (SC).
Degree Focus	Transfer: Completion of a broad distribution of liberal arts courses in the English, humanities, mathematics, natural sciences, and social sciences distribution areas that may be used to meet transfer requirements toward a baccalaureate degree with an intended focus toward engineering and related fields. Some liberal arts courses cannot be used to satisfy the Michigan Transfer Agreement (MTA). Please see your advisor, or review the MTA course list on schoolcraft.edu/transfer and select "Michigan Transfer Agreement**".**
English Communication	Minimum 6 credit hours. Completion of a minimum of two English communication courses within a set of courses. Students seeking to fulfill Michigan Transfer Agreement (MTA) requirements should complete one of the following sets of courses: ENG 101M and ENG 102M* or ENG 102M and ENG 221M* or ENG 102M and COMA 103M+* or ENG 221M and COMA 103M+* The following set of courses also can be used to meet the English Communication requirement of this degree, but **will not meet MTA requirements**. Check requirements of the transfer institution. ENG 101M and ENG 116
Humanities+	Minimum 4 credit hours. Completion of a minimum of two humanities courses from two different disciplines. Art, Communication Arts, English (Literature), Foreign Language, History+, Humanities, Music, Philosophy or Theatre
Mathematics **Natural Sciences**	Minimum 34 credit hours. Completion of a minimum of one mathematics course from Schoolcraft's approved Michigan Transfer Agreement (MTA) course list. MATH 150M, 151M, 240M and 252M required Completion of a minimum of two natural science courses from two different disciplines. One must be a lab science course. CHEM 111ML required PHYS 211ML and 212ML required Biology, Chemistry, Geography+, Geology, Nutrition and Food Science or Physics
Social Sciences+	Minimum 6 credit hours. Completion of a minimum of two social science courses from two different disciplines. ECON 201M or ECON 202M required Anthropology, Economics, Geography+, History+, Political Science, Psychology or Sociology
Major Area of Study	Minimum 10 credit hours in liberal arts or occupational courses that satisfy transfer and academic goals and requirements. **ENGR 201** recommended

General Electives	**ENGR 202** recommended **ENGR 203** recommended
Course Level	All courses that apply to this degree must be at the 100- through 400-level with a minimum grade point average (GPA) of 2.0.
Credit Requirement	Minimum 60 credit hours.
Institutional Requirements	Completion of all Schoolcraft College Core Abilities and a minimum of 16 credit hours associate-level Schoolcraft College General Education requirements in English, humanities, mathematics, natural sciences and social sciences. The Michigan Transfer Agreement (MTA) may be used to fulfill the Schoolcraft College General Education requirements. PLEASE NOTE: Students may not use the same History course to satisfy both the humanities and social sciences distribution area. Additionally, students may not use COMA 103M+* to satisfy both the humanities and English communications distribution area. Only certain Geography courses can be used for a natural science or social science course. There are three (3) types of courses that may be used toward fulfilling associate degrees at Schoolcraft College: liberal arts, applied liberal arts, and occupational. Applied liberal arts or occupational courses may not account for more than 15 credits in an AE degree. While the applied liberal arts courses provide immediate skill building opportunities, their transferability and value should be discussed with an academic advisor. Most transferable courses may be found in the Schoolcraft College MTA requirements.
Types of Courses	There are two primary types of courses that may be used towards fulfilling credentials[c] such as certificate, associate, or bachelor degrees at Schoolcraft College (SC). The nature, goals, and use of each course determines the type of course and how it applies toward each credential at Schoolcraft College or at other transfer institutions. The two types of courses include occupational and liberal arts courses. 7. Occupational Courses – Occupational courses have a direct career relationship and focus on developing necessary knowledge and skills to enter the work force within the chosen field of study-e.g., **ACCT 103**, **EMT 115**, **MFG 211**, **WELD 120**. Courses may or may not transfer to another institution and are written in bold font. No SC occupational course may be used toward SC General Education (SCGE) or to meet the requirements for Michigan Transfer Agreement (MTA)^T. 8. Liberal Arts Courses – Liberal Arts courses provide general knowledge and theory in the arts, language and communication, humanities, natural sciences, math and social sciences areas. Liberal Arts courses may fall into three categories: a. Applied Liberal Arts – courses that are focused on building particular skills through the practice and application of talents or concepts-e.g., *ART 248*, *ENG 205*, *CAB 100*, *THEA 204*, *MUSIC 114*, *COLLS 105*. Applied Liberal Arts courses typically do not transfer to other institutions and are written in italicized font. A subset of these courses may be used toward meeting the requirements for SCGE. b. Liberal Arts used for Schoolcraft College General Education (SCGE) – courses that are theory-based or application-based which offer a wide distribution of experiences to students across multiple disciplines-e.g., ENG 100, PSYCH 153M, HIST 138M+, MATH 106. These courses may or may not transfer to another institution. The Liberal Arts courses that do not transfer are typically applied in nature and are written in plain text-e.g., MATH 106. The Liberal Arts courses that are intended to transfer are typically theory-based and are denoted with a subscriptM-e.g., PSYCH 153M, see paragraph 2C. c. Liberal Arts Courses used for Transfer – courses which are theory-based and offer a wide distribution of experiences to students across multiple disciplines-e.g., PSYCH 153M, BIOL 101ML, ECON 201M, ART 120M, MATH 111M. These courses are a sub-set of the Liberal Arts used for SCGE which meet both SCGE and the requirements for the Michigan Transfer Agreement (MTA). The MTA identified courses are intended to meet the general education requirements at transfer institutions and are denoted with a subscriptM-e.g., MATH 111M. Information about the MTA requirements may be found at https://www.macrao.org/.

	^{C} = Credentials – a documentation of satisfactory completion of courses that result in a nationally recognized acknowledgement of learning and skills. Schoolcraft College offers skills certificate, certificate, associate and bachelor degree credentials. ^ = Courses used for SCGE and MTA – a list of specific disciplines and course numbers within each distribution area that meet the requirements for Schoolcraft General Education (SCGE) and the Michigan Transfer Agreement (MTA) may be found here: http://www.schoolcraft.edu/catalog . ^{T} = Transferability of courses should be discussed with an academic advisor and may be dependent on the receiving institution.
Key	Plain text = Liberal Arts courses used to satisfy Schoolcraft College General Education (SCGE) requirements. $_{M}$ = Liberal Arts courses used to satisfy SCGE requirements and the Michigan Transfer Agreement (MTA) requirements. * = Only these courses or combination of courses may be used to satisfy the final requirement for MTA English Communications. ^{L} = Lab Science $^{+}$ = Students may not use the same History course to satisfy both the humanities and social sciences or COMA 103$_{M}^{+*}$ to satisfy both humanities and English communications. Only certain Geography courses can be used for a natural science or social science course. *Italicized text* = Applied Liberal Arts courses that do not qualify to meet SCGE requirements or MTA requirements (Courses may or may not transfer to another institution.) **BOLD** = Occupational Courses have a direct career relationship, and focus on developing necessary knowledge and skills to enter the work force within the chosen field of study. (Courses may or may not transfer to another institution. No SC occupational courses may be used toward SC General Education or to meet the requirements for MTA.) Liberal Arts courses will typically transfer to another institution. They provide general knowledge and theory in the arts, language and communication, humanities, natural sciences, math and social sciences.

AFA-ASSOCIATE IN FINE ARTS

2021-2022 Credential Year

Schoolcraft Degree and Program Code	**AFA - ASSOCIATE IN FINE ARTS # AFA.00402**
Description	The associate in fine arts (AFA) 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. Schoolcraft students may complete the degree by following the requirements specified by the transfer institution and Schoolcraft College (SC).
Degree Focus	Transfer: Completion of a broad distribution of liberal arts courses in the English, humanities, mathematics, natural sciences, and social sciences distribution areas that may be used to meet transfer requirements toward a baccalaureate degree with an intended focus toward the arts, literature, music, humanities and other related fields. Some liberal arts courses cannot be used to satisfy the Michigan Transfer Agreement (MTA). Please see your advisor or review the MTA course list on schoolcraft.edu/transfer and select "Michigan Transfer Agreement".
English Communication	Minimum 6 credit hours. Completion of a minimum of two English communication courses within a set of courses. ENG 101$_M$ and ENG 102$_M$* or ENG 102$_M$ and ENG 221$_M$* or ENG 102$_M$ and COMA 103$_{M^+}$* or ENG 221$_M$ and COMA 103$_{M^+}$*
Humanities$^+$	Minimum 4 credit hours plus an additional 18 hours from the Major Area of Study. Completion of a minimum of two humanities courses from two different disciplines. Art, Communication Arts, English (Literature), Foreign Language, History$^+$, Humanities, Music, Philosophy or Theatre
Mathematics	Minimum 4 credit hours. Completion of a minimum of one mathematics course from Schoolcraft's approved Michigan Transfer Agreement (MTA) course list.
Natural Sciences	Minimum 7 credit hours. Completion of a minimum of two natural science courses from two different disciplines. One must be a lab science course. Biology, Chemistry, Geography$^+$, Geology, Nutrition and Food Science or Physics
Social Sciences$^+$	Minimum 6 credit hours. Completion of a minimum of two social science courses from two different disciplines. Anthropology, Economics, Geography$^+$, History$^+$, Political Science, Psychology or Sociology

Major Area of Study	Minimum 18 credit hours selected from any of the following liberal arts areas: ART, HUM, MUSIC, THEA, and ENG (Creative Writing or Literature only). Schoolcraft College recommends students complete a specific track as specified below while referring to the transfer institution's requirements: These courses also may be used to meet the Humanities requirement of this degree as long as the minimum number of credits and disciplines are completed. **Art Track:** ART courses recommended: 115M, 116M, ART 120M, 121M, 122M, 201M, *248* Additional courses in various art media that satisfy transfer and academic goals and requirements are recommended. **Creative Writing Track:** ENG courses recommended: 120M, 205M, 206M, 243M, 244M, 246M, 248M, 280M Additional courses in literature that satisfy transfer and academic goals and requirements are recommended. **Humanities Track:** HUM courses recommended: 151M, 152M, 190M, 210M, 212M, 215M Additional courses in the history, appreciation, and culture of music and art that satisfy transfer and academic goals and requirements are recommended. **Music Tracks:** ***Music History/Culture Track:*** MUSIC courses recommended: 105M, 149M, 153M, 154M, 155M, 160M, 164M, 165M Additional courses in music history and culture that satisfy transfer and academic goals and requirements are recommended. ***Music Performance Track:*** Core MUSIC courses recommended: 121M, 137M, 138M, 153M, 154M Select MUSIC courses recommended: Applied performance courses in piano, voice, instrumental, & ensemble Additional courses in humanities and music performance that satisfy transfer and academic goals and requirements are recommended. **Theater Track:** THEA courses recommended: 101M, 210M, 211M, 231M, 232M, 241M ENG courses recommended: 200M, 245M, 248M Additional courses in theater and literature that satisfy transfer and academic goals and requirements are recommended.
General Electives	Minimum 15 credit hours in liberal arts or occupational courses that satisfy transfer and academic goals and requirements.
Course Level	All courses that apply to this degree must be at the 100- through 400-level with a minimum overall grade point average (GPA) of 2.0.
Credit Requirement	Minimum 60 credit hours.
Institutional Requirements	Completion of all Schoolcraft College Core Abilities and a minimum of 16 credit hours associate-level Schoolcraft College general education requirements in English, humanities, mathematics, natural sciences and social sciences. The Michigan Transfer Agreement (MTA) may be used to fulfill the Schoolcraft College general education requirements.

	PLEASE NOTE: Students may not use the same History course to satisfy both the humanities and social sciences distribution area. Additionally, students may not use COMA 103M+* to satisfy both the humanities and English communications distribution area. Only certain Geography courses can be used for a natural science or social science course. There are three (3) types of courses that may be used toward fulfilling associate degrees at Schoolcraft College: liberal arts, applied liberal arts, and occupational. Applied liberal arts or occupational courses may not account for more than 15 credits in an AFA degree. While the applied liberal arts courses provide immediate skill building opportunities, their transferability and value should be discussed with an academic advisor. Most transferable courses may be found in the Schoolcraft College MTA requirements.
Types of Courses	There are two primary types of courses that may be used towards fulfilling credentials[c] such as certificate, associate, or bachelor degrees at Schoolcraft College (SC). The nature, goals, and use of each course determines the type of course and how it applies toward each credential at Schoolcraft College or at other transfer institutions. The two types of courses include occupational and liberal arts courses. 9. Occupational Courses – Occupational courses have a direct career relationship and focus on developing necessary knowledge and skills to enter the work force within the chosen field of study-e.g., **ACCT 103**, **EMT 115**, **MFG 211**, **WELD 120**.) Courses may or may not transfer to another institution and are written in bold font. No SC occupational course may be used toward SC General Education (SCGE) or to meet the requirements for Michigan Transfer Agreement (MTA)^ [T]. 10. Liberal Arts Courses – Liberal Arts courses provide general knowledge and theory in the arts, language and communication, humanities, natural sciences, math and social sciences areas. Liberal Arts courses may fall into three categories: a. Applied Liberal Arts – courses that are focused on building particular skills through the practice and application of talents or concepts-e.g., *ART 248*, *ENG 205*, *CAB 100*, *THEA 204*, *MUSIC 114*, *COLLS 105*. Applied Liberal Arts courses typically do not transfer to other institutions and are written in italicized font. A subset of these courses may be used toward meeting the requirements for SCGE. b. Liberal Arts used for Schoolcraft College General Education (SCGE) – courses that are theory-based or application-based which offer a wide distribution of experiences to students across multiple disciplines-e.g., ENG 100, PSYCH 153M, HIST 138M+, MATH 106). These courses may or may not transfer to another institution. The Liberal Arts courses that do not transfer are typically applied in nature and are written in plain text-e.g., MATH 106. The Liberal Arts courses that are intended to transfer are typically theory-based and are denoted with a subscriptM-e.g., PSYCH 153M, see paragraph 2c. c. Liberal Arts Courses used for Transfer – courses which are theory-based and offer a wide distribution of experiences to students across multiple disciplines-e.g., PSYCH 153M, BIOL 101ML, ECON 201M, ART 120M, MATH 111M. These courses are a sub-set of the Liberal Arts used for SCGE which meet both SCGE and the requirements for the Michigan Transfer Agreement (MTA). The MTA identified courses are intended to meet the general education requirements at transfer institutions and are denoted with a subscriptM-e.g., MATH 111M. Information about the MTA requirements may be found at https://www.macrao.org/ . [c] = Credentials – a documentation of satisfactory completion of courses that result in a nationally recognized acknowledgement of learning and skills. Schoolcraft College offers skills certificate, certificate, associate and bachelor degree credentials. ^ = Courses used for SCGE and MTA – a list of specific disciplines and course numbers within each distribution area that meet the requirements for Schoolcraft General Education (SCGE) and the Michigan Transfer Agreement (MTA) may be found here: http://www.schoolcraft.edu/catalog . [T] = Transferability of courses should be discussed with an academic advisor and may be dependent on the receiving institution.

Key	Plain text = Liberal Arts courses used to satisfy Schoolcraft College General Education (SCGE) requirements. $_{M}$ = Liberal Arts courses used to satisfy SCGE requirements and the Michigan Transfer Agreement (MTA) requirements. * = Only these courses or combination of courses may be used to satisfy the final requirement for MTA English Communications. ^{L} = Lab Science $^{+}$ = Students may not use the same History course to satisfy both the humanities and social sciences or COMA 103$_{M}{}^{+*}$ to satisfy both humanities and English communications. Only certain Geography courses can be used for a natural science or social science course. *Italicized text* = Applied Liberal Arts courses that do not qualify to meet SCGE requirements or MTA requirements (Courses may or may not transfer to another institution.) **BOLD** = Occupational Courses have a direct career relationship, and focus on developing necessary knowledge and skills to enter the work force within the chosen field of study. (Courses may or may not transfer to another institution. No SC occupational courses may be used toward SC General Education or to meet the requirements for MTA.) Liberal Arts courses will typically transfer to another institution. They provide general knowledge and theory in the arts, language and communication, humanities, natural sciences, math and social sciences.

AGS-ASSOCIATE IN GENERAL STUDIES

2021-2022 Credential Year

Schoolcraft Degree and Program Code	**AGS–ASSOCIATE IN GENERAL STUDIES** #AGS.00042	
	Option 1	**Option 2**
Description	The associate in general studies degree (AGS) is for students who wish to earn an associate degree and want to transfer to a college or university through an occupational or individualized program of study.	
	Option 1 – complete a balanced set of liberal arts courses, as well as customizing any additional coursework.	**Option 2** – complete two focused concentration areas of liberal arts courses, as well as customizing any additional coursework.
Degree Focus	Occupational or Transfer: Completion of a broad set of liberal arts courses in the English, humanities, mathematics, natural sciences and social sciences areas, as well as any distribution of occupational or applied areas of studies. This may include completion of a set of occupational courses that satisfy the development of occupational skills. Some liberal arts courses cannot be used to satisfy the Michigan Transfer Agreement (MTA). Please see your advisor or review the MTA course list on schoolcraft.edu/transfer and select "Michigan Transfer Agreement".	
English Communication	Minimum 6 credit hours. Completion of a minimum of two English communication courses within a set of courses. ENG 101M and ENG 102M* or ENG 102M and ENG 221M* or ENG 102M and COMA 103M+* or ENG 221M and COMA 103M+* OR ENG 100 and ENG 106 or ENG 100 and ENG 116 or ENG 101M and ENG 106 or ENG 101M and ENG 107 or ENG 101M and ENG 116	
General Liberal Arts Concentrations		Completion of any two of the following sets of either humanities, mathematics and natural science or social science course concentrations for a combined total of 24 credit hours, as well as coursework from every area to fulfill the Schoolcraft College General Education requirements:
Humanities+	Minimum 4 credit hours. Completion of a minimum of two humanities courses. Art, Communication Arts, English (Literature), Foreign Language, History+, Humanities, Music, Philosophy or Theatre	Minimum 12 credit hours. Completion of a minimum of three humanities courses. Art, Communication Arts, English (Literature), Foreign Language, History+, Humanities, Music, Philosophy or Theatre NOTE: One humanities course must be selected to meet the Schoolcraft College General Education requirements regardless of general liberal arts concentration selected.

<table>
<tr><td>Mathematics</td><td>Minimum 3 credit hours.
Completion of a minimum of one mathematics course.</td><td rowspan="2">Minimum 12 credit hours.
Completion of a minimum of one mathematics course.
Completion of a minimum of two natural science courses.
Biology, Chemistry, Geography+, Geology, Nutrition and Food Science or Physics
NOTE: One course in math and one in science must be selected to meet the Schoolcraft College General Education requirements regardless of general liberal arts concentration selected.</td></tr>
<tr><td>Natural Sciences</td><td>Minimum 7 credit hours.
Completion of a minimum of two natural science courses.
Biology, Chemistry, Geography+, Geology, Nutrition and Food Science or Physics</td></tr>
<tr><td>Social Sciences+</td><td>Minimum 6 credit hours.
Completion of a minimum of two social science courses.
Anthropology, Economics, Geography+, History+, Political Science, Psychology or Sociology</td><td>Minimum 12 credit hours.
Completion of a minimum of three social science courses.
Anthropology, Economics, Geography+, History+, Political Science, Psychology or Sociology
NOTE: One social science course must be selected to meet the Schoolcraft College General Education requirements regardless of general liberal arts concentration selected.</td></tr>
<tr><td>Major Area of Study
General Electives</td><td colspan="2">Minimum 34 credit hours in any group of courses which are specific or supportive of the occupational and academic goals.
Minimum 30 credit hours in any group of courses which are specific or supportive of the occupational and academic goals.</td></tr>
<tr><td>Course Level</td><td colspan="2">All courses that apply to this degree must be at the 100-through 400-level with a minimum overall grade point average (GPA) of 2.0.</td></tr>
<tr><td>Credit Requirement</td><td colspan="2">Minimum 60 credit hours.</td></tr>
<tr><td>Institutional Requirements</td><td colspan="2">Completion of all Schoolcraft College Core Abilities and a minimum of 16 credit hours associate-level Schoolcraft College General Education requirements in English, humanities, mathematics, natural sciences and social sciences.
The Michigan Transfer Agreement (MTA) may be used to fulfill the Schoolcraft College general education requirements.</td></tr>
<tr><td></td><td colspan="2">PLEASE NOTE: Students may not use the same History course to satisfy both the humanities and social sciences distribution requirement. Additionally, students may not use COMA 103M+* to satisfy both the humanities and English communications distribution requirement.
Only certain Geography courses can be used for a natural science or social science course.</td></tr>
</table>

Types of Courses	There are two primary types of courses that may be used towards fulfilling credentials[c] such as certificate, associate, or bachelor degrees at Schoolcraft College (SC). The nature, goals, and use of each course determines the type of course and how it applies toward each credential at Schoolcraft College or at other transfer institutions. The two types of courses include occupational and liberal arts courses. 11. Occupational Courses – Occupational courses have a direct career relationship and focus on developing necessary knowledge and skills to enter the work force within the chosen field of study-e.g., **ACCT 103**, **EMT 115**, **MFG 211**, **WELD 120**. Courses may or may not transfer to another institution and are written in bold font. No SC occupational course may be used toward SC General Education (SCGE) or to meet the requirements for Michigan Transfer Agreement (MTA)^ [T]. 12. Liberal Arts Courses – Liberal Arts courses provide general knowledge and theory in the arts, language and communication, humanities, natural sciences, math and social sciences areas. Liberal Arts courses may fall into three categories: a. Applied Liberal Arts – courses that are focused on building particular skills through the practice and application of talents or concepts-e.g., *ART 248*, *ENG 205*, *CAB 100*, *THEA 204*, *MUSIC 114*, *COLLS 105*. Applied Liberal Arts courses typically do not transfer to other institutions and are written in italicized font. A subset of these courses may be used toward meeting the requirements for SCGE. b. Liberal Arts used for Schoolcraft College General Education (SCGE) – courses that are theory-based or application-based which offer a wide distribution of experiences to students across multiple disciplines- e.g., ENG 100, PSYCH 153$_{M}$, HIST 138$_{M}^{+}$, MATH 106. These courses may or may not transfer to another institution. The Liberal Arts courses that do not transfer are typically applied in nature and are written in plain text-e.g., MATH 106. The Liberal Arts courses that are intended to transfer are typically theory-based and are denoted with a subscript $_{M}$ –e.g., PSYCH 153$_{M}$ – see category C. c. Liberal Arts Courses used for Transfer – courses which are theory-based and offer a wide distribution of experiences to students across multiple disciplines-e.g., PSYCH 153$_{M}$, BIOL 101$_{M}^{L}$, ECON 201$_{M}$, ART 120$_{M}$, MATH 111$_{M}$. These courses are a sub-set of the Liberal Arts used for SCGE which meet both SCGE and the requirements for the Michigan Transfer Agreement (MTA). The MTA identified courses are intended to meet the general education requirements at transfer institutions and are denoted with a subscript $_{M}$ –e.g., MATH 111$_{M}$. Information about the MTA requirements may be found at https://www.macrao.org/ . [c] = Credentials – a documentation of satisfactory completion of courses that result in a nationally recognized acknowledgement of learning and skills. Schoolcraft College offers skills certificate, certificate, associate and bachelor degree credentials. ^ = Courses used for SCGE and MTA – a list of specific disciplines and course numbers within a distribution area that meet the requirements for Schoolcraft General Education (SCGE) and the Michigan Transfer Agreement (MTA) may be found here: http://www.schoolcraft.edu/catalog . [T] = Transferability of courses should be discussed with an academic advisor and may be dependent on the receiving institution.
Key	Plain text = Liberal Arts courses used to satisfy Schoolcraft College General Education (SCGE) requirements. $_{M}$ = Liberal Arts courses used to satisfy SCGE requirements and the Michigan Transfer Agreement (MTA) requirements. * = Only these courses or combination of courses may be used to satisfy the final requirement for MTA English Communications. ^{L} = Lab Science $^{+}$ = Students may not use the same History course to satisfy both the humanities and social sciences or COMA 103$_{M}^{+*}$ to satisfy both humanities and English communications. Only certain Geography courses can be used for a natural science or social science course. *Italicized text* = Applied Liberal Arts courses that do not qualify to meet SCGE requirements or MTA requirements (Courses may or may not transfer to another institution.) **BOLD** = Occupational Courses have a direct career relationship, and focus on developing necessary knowledge and skills to enter the work force within the chosen field of study. (Courses may or may not transfer to another institution. No SC occupational courses may be used toward SC General Education or to meet the requirements for MTA.) Liberal Arts courses will typically transfer to another institution. They provide general knowledge and theory in the arts, language and communication, humanities, natural sciences, math and social sciences.

AS-ASSOCIATE IN SCIENCE

2021-2022 Credential Year

Schoolcraft Degree and Program Code	**AS - ASSOCIATE IN SCIENCE** **# AS.00042** Another program code may be specified for specific programs, such as the Pre-Pharmacy program.
Description	The associate in science (AS) degree is for students who plan to pursue baccalaureate degree in a science-related field. Schoolcraft students may complete the degree by following the requirements specified by the transfer institution and Schoolcraft College (SC).
Degree Focus	Transfer: Completion of a broad distribution of liberal arts courses in the English, humanities, mathematics, natural sciences and social sciences distribution areas that may be used to meet transfer requirements toward a baccalaureate degree with an intended focus toward the sciences and related fields. Some liberal arts courses cannot be used to satisfy the Michigan Transfer Agreement (MTA). Please see your advisor or review the MTA course list on schoolcraft.edu/transfer and select "Michigan Transfer Agreement".
English Communication	Minimum 6 credit hours. Completion of a minimum of two English communication courses within a set of courses. ENG 101$_M$ and ENG 102$_M$* or ENG 102$_M$ and ENG 221$_M$* or ENG 102$_M$ and COMA 103$_{M^+}$* or ENG 221$_M$ and COMA 103$_{M^+}$*
Humanities$^+$	Minimum 4 credit hours. Completion of a minimum of two humanities courses from two different disciplines. Art, Communication Arts, English (Literature), Foreign Language, History$^+$, Humanities, Music, Philosophy or Theatre
Mathematics **Natural Sciences**	Minimum 20 credit hours. Completion of a minimum of one mathematics course from Schoolcraft's approved Michigan Transfer Agreement (MTA) course list. Completion of a minimum of two natural science courses from two different disciplines. One must be a lab science course. Biology, Chemistry, Geography$^+$, Geology, Nutrition and Food Science or Physics
Social Sciences$^+$	Minimum 6 credit hours. Completion of a minimum of two social science courses from two different disciplines. Anthropology, Economics, Geography$^+$, History$^+$, Political Science, Psychology or Sociology
Major Area of Study **General Electives**	Minimum 24 credit hours in liberal arts courses that satisfy transfer and academic goals and requirements.
Course Level	All courses that apply to this degree must be at the 100- through 400-level with a minimum grade point average (GPA) of 2.0.
Credit Requirement	Minimum 60 credit hours.

Institutional Requirements	Completion of all Schoolcraft College Core Abilities and a minimum of 16 credit hours associate-level Schoolcraft College General Education requirements in English, humanities, mathematics, natural sciences and social sciences. The Michigan Transfer Agreement (MTA) may be used to fulfill the Schoolcraft College General Education requirements. PLEASE NOTE: Students may not use the same History course to satisfy both the humanities and social sciences distribution requirement. Additionally, students may not use COMA 103_{M^+}* to satisfy both the humanities and English communications distribution requirement. Only certain Geography courses can be used for a natural science or social science course. There are three (3) types of courses that may be used toward fulfilling associate degrees at Schoolcraft College: liberal arts, applied liberal arts, and occupational. Applied liberal arts or occupational courses may not account for more than 15 credits in an AS degree. While the applied liberal arts courses provide immediate skill building opportunities, their transferability and value should be discussed with an academic advisor. Most transferable courses may be found in the Schoolcraft College MTA requirements.
Types of Courses	There are two primary types of courses that may be used towards fulfilling credentials[c] such as certificate, associate, or bachelor degrees at Schoolcraft College (SC). The nature, goals, and use of each course determines the type of course and how it applies toward each credential at Schoolcraft College or at other transfer institutions. The two types of courses include occupational and liberal arts courses. 13. Occupational Courses – Occupational courses have a direct career relationship and focus on developing necessary knowledge and skills to enter the work force within the chosen field of study-e.g., **ACCT 103**, **EMT 115**, **MFG 211**, **WELD 120**. Courses may or may not transfer to another institution and are written in bold font. No SC occupational course may be used toward SC General Education (SCGE) or to meet the requirements for Michigan Transfer Agreement (MTA)^ [T]. 14. Liberal Arts Courses – Liberal Arts courses provide general knowledge and theory in the arts, language and communication, humanities, natural sciences, math and social sciences areas. Liberal Arts courses may fall into three categories: a. Applied Liberal Arts – courses that are focused on building particular skills through the practice and application of talents or concepts-e.g., *ART 248*, *ENG 205*, *CAB 100*, *THEA 204*, *MUSIC 114*, *COLLS 105*. Applied Liberal Arts courses typically do not transfer to other institutions and are written in italicized font. A subset of these courses may be used toward meeting the requirements for SCGE. b. Liberal Arts used for Schoolcraft College General Education (SCGE) – courses that are theory-based or application-based which offer a wide distribution of experiences to students across multiple disciplines-e.g., ENG 100, PSYCH 153_M, HIST 138_{M^+}, MATH 106. These courses may or may not transfer to another institution. The Liberal Arts courses that do not transfer are typically applied in nature and are written in plain text-e.g., MATH 106. The Liberal Arts courses that are intended to transfer are typically theory-based and are denoted with a subscript$_M$ -e.g., PSYCH 153_M –see paragraph 2c. c. Liberal Arts Courses used for Transfer – courses which are theory-based and offer a wide distribution of experiences to students across multiple disciplines-e.g., PSYCH 153_M, BIOL 101_{M^L}, ECON 201_M, ART 120_M, MATH 111_M. These courses are a sub-set of the Liberal Arts used for SCGE which meet both SCGE and the requirements for the Michigan Transfer Agreement (MTA). The MTA identified courses are intended to meet the general education requirements at transfer institutions and are denoted with a subscript$_M$-e.g., MATH 111_M. Information about the MTA requirements may be found at https://www.macrao.org/ . [c] = Credentials – a documentation of satisfactory completion of courses that result in a nationally recognized acknowledgement of learning and skills. Schoolcraft College offers skills certificate, certificate, associate and bachelor degree credentials. ^ = Courses used for SCGE and MTA – a list of specific disciplines and course numbers within each distribution area that meet the requirements for Schoolcraft General Education (SCGE) and the Michigan Transfer Agreement (MTA) may be found here: http://www.schoolcraft.edu/catalog .

	^{T} = Transferability of courses should be discussed with an academic advisor and may be dependent on the receiving institution.
Key	Plain text = Liberal Arts courses used to satisfy Schoolcraft College General Education (SCGE) requirements. $_{M}$ = Liberal Arts courses used to satisfy SCGE requirements and the Michigan Transfer Agreement (MTA) requirements. * = Only these courses or combination of courses may be used to satisfy the final requirement for MTA English Communications. ^{L} = Lab Science $^{+}$ = Students may not use the same History course to satisfy both the humanities and social sciences or COMA 103$_{M}{}^{+*}$ to satisfy both humanities and English communications. Only certain Geography courses can be used for a natural science or social science course. *Italicized text* = Applied Liberal Arts courses that do not qualify to meet SCGE requirements or MTA requirements (Courses may or may not transfer to another institution.) **BOLD** = Occupational Courses have a direct career relationship, and focus on developing necessary knowledge and skills to enter the work force within the chosen field of study. (Courses may or may not transfer to another institution. No SC occupational courses may be used toward SC General Education or to meet the requirements for MTA.) Liberal Arts courses will typically transfer to another institution. They provide general knowledge and theory in the arts, language and communication, humanities, natural sciences, math and social sciences.

BS-BACHELOR IN SCIENCE

2021-2022 Credential Year

Schoolcraft Degree and Program Code	**BS - BACHELOR IN SCIENCE** Schoolcraft College currently offers the Bachelor in Science in Culinary and Dietary Operations Management, program code # BS.00397. Please see the specific program requirements on the Schoolcraft College webpage. http://schoolcraft.edu/academics/culinary-arts-brewing-and-distillation-technology/culinary-and-dietary-operations-management.
Description	By obtaining a bachelor in science (BS) degree, students will be prepared to seek employment in their chosen career field.
Degree Focus	Occupational Specialization: Completion of a broad distribution of courses in the English, humanities, mathematics, natural sciences, and social sciences distribution areas, as well as occupational, technical and specialization courses that satisfy the development of a specialist skill set.
English Research	Minimum 3 credit hours. Completion of a minimum of one English course. ENG 102M* or ENG 221M*
Humanities+	Minimum 4 credit hours. Completion of a minimum of two humanities courses from two different disciplines. Art, Communication Arts, English (Literature), Foreign Language, History+, Humanities, Music, Philosophy or Theatre
Mathematics **Natural Sciences** **Technical or Specializations**	Minimum 20 credit hours. Completion of a minimum of one mathematics course from Schoolcraft's approved Michigan Transfer Agreement (MTA) course list. Completion of a minimum of two natural science courses from two different disciplines. One must be a lab science course. Biology, Chemistry, Geography+, Geology, Nutrition and Food Science or Physics Completion of technical or specialization courses that serve as specific or supportive of the occupational and academic goals. Accounting, Business, Culinary, Finance or Nutrition
Social Sciences+	Minimum 6 credit hours. Completion of a minimum of two social science courses from two different disciplines. Anthropology, Economics, Geography+, History+, Political Science, Psychology, or Sociology
Major Area of Study	Minimum 30 credit hours in a major specialization concentration area are identified and listed in the program requirements which are specific or supportive of the occupational and academic goals.
General Electives	Minimum 57 credit hours in liberal arts, technical, or specialization courses that satisfy career and academic goals and requirements.
Course Level	All courses that apply to this degree must be at the 100- through 400-level with a minimum overall grade point average (GPA) of 2.0. A minimum of 30 credits must be at the 300- or 400-level.
Credit Requirement	Minimum 120 credit hours.

Institutional Requirements	Completion of all Schoolcraft College (SC) Core Abilities and a minimum of 30 credit hours bachelor-level Schoolcraft College General Education requirements in English, humanities, mathematics, natural sciences and social sciences. The Michigan Transfer Agreement (MTA) may be used to fulfill the Schoolcraft College General Education requirements. PLEASE NOTE: Students may not use the same History course to satisfy both the humanities and social sciences distribution requirement. Only certain Geography courses can be used for a natural science or social science course.
Types of Courses	There are two primary types of courses that may be used towards fulfilling credentials[c] such as certificate, associate, or bachelor degrees at Schoolcraft College (SC). The nature, goals, and use of each course determines the type of course and how it applies toward each credential at Schoolcraft College or at other transfer institutions. The two types of courses include occupational and liberal arts courses. 15. Occupational Courses – Occupational courses have a direct career relationship and focus on developing necessary knowledge and skills to enter the work force within the chosen field of study-e.g., **ACCT 103**, **EMT 115**, **MFG 211**, **WELD 120**. Courses may or may not transfer to another institution and are written in bold font. No SC occupational course may be used toward SC General Education (SCGE) or to meet the requirements for Michigan Transfer Agreement (MTA)^ [T]. 16. Liberal Arts Courses – Liberal Arts courses provide general knowledge and theory in the arts, language and communication, humanities, natural sciences, math and social sciences areas. Liberal Arts courses may fall into three categories: a. Applied Liberal Arts – courses that are focused on building particular skills through the practice and application of talents or concepts-e.g., *ART 248*, *ENG 205*, *CAB 100*, *THEA 204*, *MUSIC 114*, *COLLS 105*. Applied Liberal Arts courses typically do not transfer to other institutions and are written in italicized font. A subset of these courses may be used toward meeting the requirements for SCGE. b. Liberal Arts used for Schoolcraft College General Education (SCGE) – courses that are theory-based or application-based which offer a wide distribution of experiences to students across multiple disciplines-e.g., ENG 100, PSYCH 153_{M}, HIST 138_{M^+}, MATH 106. These courses may or may not transfer to another institution. The Liberal Arts courses that do not transfer are typically applied in nature and are written in plain text-e.g., MATH 106. The Liberal Arts courses that are intended to transfer are typically theory-based and are denoted with a subscriptM-e.g., PSYCH 153_{M}, see paragraph 2c. c. Liberal Arts Courses used for Transfer – courses which are theory-based and offer a wide distribution of experiences to students across multiple disciplines-e.g., PSYCH 153_{M}, BIOL 101_{M^L}, ECON 201_{M}, ART 120_{M}, MATH 111_{M}. These courses are a sub-set of the Liberal Arts used for SCGE which meet both SCGE and the requirements for the Michigan Transfer Agreement (MTA). The MTA identified courses are intended to meet the general education requirements at transfer institutions and are denoted with a subscriptM-e.g., MATH 111_{M}. Information about the MTA requirements may be found at https://www.macrao.org/ . [c] = Credentials – a documentation of satisfactory completion of courses that result in a nationally recognized acknowledgement of learning and skills. Schoolcraft College offers skills certificate, certificate, associate and bachelor degree credentials. ^ = Courses used for SCGE and MTA – a list of specific disciplines and course numbers within each distribution area that meet the requirements for Schoolcraft General Education (SCGE) and the Michigan Transfer Agreement (MTA) may be found here: http://www.schoolcraft.edu/catalog . [T] = Transferability of courses should be discussed with an academic advisor and may be dependent on the receiving institution.

Key	Plain text = Liberal Arts courses used to satisfy Schoolcraft College General Education (SCGE) requirements. $_{M}$ = Liberal Arts courses used to satisfy SCGE requirements and the Michigan Transfer Agreement (MTA) requirements. * = Only these courses or combination of courses may be used to satisfy the final requirement for MTA English Communications. ^{L} = Lab Science $^{+}$ = Students may not use the same History course to satisfy both the humanities and social sciences or COMA 103$_{M}^{+*}$ to satisfy both humanities and English communications. Only certain Geography courses can be used for a natural science or social science course. *Italicized text* = Applied Liberal Arts courses that do not qualify to meet SCGE requirements or MTA requirements (Courses may or may not transfer to another institution.) **BOLD** = Occupational Courses have a direct career relationship, and focus on developing necessary knowledge and skills to enter the work force within the chosen field of study. (Courses may or may not transfer to another institution. No SC occupational courses may be used toward SC General Education or to meet the requirements for MTA.) Liberal Arts courses will typically transfer to another institution. They provide general knowledge and theory in the arts, language and communication, humanities, natural sciences, math and social sciences.

Schoolcraft College General Education and Michigan Transfer Agreement Requirements

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.

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.

Schoolcraft College Associate Degree General Education Requirements

Distribution Area	Course Requirements
English Communication: 6 credit hours	Select one combination of courses based on program requirements
Humanities: 1 to 4 credit hours	Select a minimum of one course
Mathematics: 3 to 5 credit hours	Select a minimum of one course
Sciences: 3 to 5 credit hours	Select a minimum of one course
Social Sciences: 3 to 4 credit hours	Select a minimum of one course
Total Credits	16 to 24 credit hours

Schoolcraft College Bachelor Degree General Education Requirements

Distribution Area	Course Requirements
English Communication: 3 credit hours	English Research: ENG 102_M or ENG 221_M
Humanities: 4 credit hours	Select two courses from two different disciplines
Mathematics: 4 to 5 credit hours	Select at least one MTA math course
Sciences: 7 to 9 credit hours	Select two science courses, with one course containing a lab, from two different disciplines
Social Sciences: 6 credit hours	Select two courses from two different disciplines
Total Credits: Minimum of 30 credit hours required	Electives may be chosen from Schoolcraft General Education courses or MTA courses

Michigan Transfer Agreement Requirements

(Only these courses or combination of courses may be used to satisfy the final requirement for MTA math or communications.)

Distribution Area	Course Requirements
English Communication: 6 credit hours	ENG 101_M & ENG 102_M* *or* ENG 101_M & COMA 103_M+* *or* ENG 102_M & COMA 103_M+* *or* ENG 102_M & ENG 221_M* *or* ENG 221_M & COMA 103_M+*
Humanities: 4 to 8 credit hours	Select two MTA courses from two different disciplines
Mathematics: 4 to 5 credit hours	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
Sciences: 7 to 9 credit hours	Select two MTA science courses, with one course containing a lab, from two different disciplines
Social Sciences: 6 to 8 credit hours	Select two MTA courses from two different disciplines

Distribution Area	Course Requirements
Total Credits: Minimum of 30 credit hours required	Electives may be selected from MTA courses

Courses and Credentials at Schoolcraft College

There are two primary types of courses that may be used towards fulfilling credentials[c] such as certificate, associate, or bachelor degrees at Schoolcraft College (SC). The nature, goals, and use of each course determines the type of course and how it applies toward each credential at Schoolcraft College or at other transfer institutions. The two types of courses include occupational and liberal arts courses.

17. Occupational Courses – Occupational courses have a direct career relationship and focus on developing necessary knowledge and skills to enter the work force within the chosen field of study-e.g., **ACCT 103**, **EMT 115**, **MFG 211**, **WELD 120**. Courses may or may not transfer to another institution and are written in bold font. No SC occupational course may be used toward SC General Education (SCGE) or to meet the requirements for Michigan Transfer Agreement (MTA)^[T].
18. Liberal Arts Courses – Liberal Arts courses provide general knowledge and theory in the arts, language and communication, humanities, natural sciences, math and social sciences areas. Liberal Arts courses may fall into three categories:
    a. Applied Liberal Arts – courses that are focused on building particular skills through the practice and application of talents or concepts-e.g., *ART 248*, *ENG 205*, *CAB 100*, *THEA 204*, *MUSIC 114*, *COLLS 105*. Applied Liberal Arts courses typically do not transfer to other institutions and are written in italicized font. A subset of these courses may be used toward meeting the requirements for SCGE.
    b. Liberal Arts used for Schoolcraft College General Education (SCGE) – courses that are theory-based or application-based which offer a wide distribution of experiences to students across multiple disciplines-e.g., ENG 100, PSYCH 153_{M}, HIST 138_{M}^{+}, MATH 106. These courses may or may not transfer to another institution. The Liberal Arts courses that do not transfer are typically applied in nature and are written in plain text-e.g., MATH 106. The Liberal Arts courses that are intended to transfer are typically theory-based and are denoted with a subscript $_{M}$ -e.g., PSYCH 153_{M} –see category C.
    c. Liberal Arts Courses used for Transfer – courses which are theory-based and offer a wide distribution of experiences to students across multiple disciplines-e.g., PSYCH 153_{M}, BIOL 101_{M}^{L}, ECON 201_{M}, ART 120_{M}, MATH 111_{M}. These courses are a sub-set of the Liberal Arts used for SCGE which meet both SCGE and the requirements for the Michigan Transfer Agreement (MTA). The MTA identified courses that are intended to meet the general education requirements at transfer institutions are denoted with a subscript $_{M}$ -e.g., MATH 111_{M}. Information about the MTA requirements may be found at https://www.macrao.org/ .

Key

[c] = Credentials – a documentation of satisfactory completion of courses that result in a nationally recognized acknowledgement of learning and skills. Schoolcraft College offers skills certificate, certificate, associate and bachelor degree credentials.

BOLD = Occupational Courses have a direct career relationship, and focus on developing necessary knowledge and skills to enter the work force within the chosen field of study. (Courses may or may not transfer to another institution. No SC occupational courses may be used toward SC General Education or to meet the requirements for MTA.)

^ = Courses used for SCGE and MTA – a list of specific disciplines and course numbers within each distribution area that meet the requirements for Schoolcraft General Education (SCGE) and the Michigan Transfer Agreement (MTA) may be found here: http://schoolcraft.edu/academics/curriculum-guides#.WIIv6k0zVi4

[T] = Transferability of courses should be discussed with a counselor or academic advisor and may be dependent on the receiving institution.

Italicized text = Applied Liberal Arts courses that do not qualify to meet SCGE requirements or MTA requirements (Courses may or may not transfer to another institution.)

Plain text = Liberal Arts courses used to satisfy Schoolcraft College General Education (SCGE) requirements.

$_{M}$ = Liberal Arts courses used to satisfy SCGE requirements and the Michigan Transfer Agreement (MTA) requirements.

$^{+}$ = Students may not use the same History course to satisfy both the humanities and social sciences or COMA 103_{M}^{+*} to satisfy both humanities and English communications. Only certain Geography courses can be used for a natural science or social science course.

^{L} = Lab Science

* = Only these courses or combination of courses may be used to satisfy the final requirement for MTA English Communications.

Liberal Arts courses will typically transfer to another institution. They provide general knowledge and theory in the arts, language and communication, humanities, natural sciences, math and social sciences.

Liberal Arts Courses Fulfilling Schoolcraft College General Education and/or Michigan Transfer Agreement (MTA) Requirements

English Communication

English (ENG)	101$_M$ & 102$_M$* or 102$_M$ & 221$_M$* or 100 & 106 or 100 & 116 or 101$_M$ & 106 or 101$_M$ & 107 or 101$_M$ & 116 or ENG 101$_M$ & COMA 103$_M$$^+$* or ENG 102$_M$ & COMA 103$_M$$^+$* or ENG 221$_M$ & COMA 103$_M$$^+$*

Humanities

Arabic (ARB)	101$_M$, 102$_M$, 201$_M$, 202$_M$
Art (ART)	113, 115$_M$, 116$_M$, 117$_M$, 120$_M$, 121$_M$, 122$_M$, 127$_M$, 128$_M$, 133$_M$, 134$_M$, 201$_M$, 216, 221$_M$, 222$_M$, 228$_M$, 231$_M$, 233$_M$, 234$_M$, 235$_M$, 246$_M$, 247$_M$
Chinese (CHIN)	101$_M$, 102$_M$, 201$_M$, 202$_M$
Communications (COMA)	103$_M$$^+$*, 105$_M$, 200$_M$, 202$_M$, 212$_M$, 230$_M$, 240$_M$
French (FR)	101$_M$, 102$_M$, 201$_M$, 202$_M$
German (GER)	101$_M$, 102$_M$, 201$_M$, 202$_M$
History (HIST)	134$_M$$^+$, 137$_M$$^+$, 138$_M$$^+$, 141$_M$$^+$, 151$_M$$^+$, 152$_M$$^+$, 153$_M$$^+$, 230$_M$$^+$
Humanities (HUM)	106$_M$, 151$_M$, 152$_M$, 190$_M$, 201$_M$, 202$_M$, 203$_M$, 204$_M$, 210$_M$, 212$_M$, 215$_M$
Italian (ITAL)	101$_M$, 102$_M$
Literature (ENG)	120$_M$, 170$_M$, 200$_M$, 203$_M$, 205$_M$, 206$_M$, 243$_M$, 244$_M$, 245$_M$, 246$_M$, 248$_M$, 251$_M$, 252$_M$, 275$_M$, 280$_M$
Music (MUSIC)	104$_M$, 105$_M$, 107^L, 149$_M$, 153$_M$, 154$_M$, 155$_M$, 160$_M$, 164$_M$, 165$_M$, 250$_M$, 252$_M$
Philosophy (PHIL)	243$_M$, 247$_M$, 257$_M$, 265$_M$, 277$_M$
Spanish (SPAN)	101$_M$, 102$_M$, 201$_M$, 202$_M$
Theater (THEA)	101$_M$, 210$_M$, 211$_M$, 231$_M$, 232$_M$, 241$_M$

Mathematics

(MATH)	101, 102, 105, 106, 111$_M$, 113, 119$_M$, 122$_M$, 126$_M$, 129$_M$, 135$_M$, 145$_M$, 150$_M$, 151$_M$, 230$_M$, 240$_M$, 252$_M$

Sciences

Biology (BIOL)	100$_M$^{L}, 101$_M$^{L}, 103$_M$, 104$_M$, 105$_M$, 107$_M$, 114$_M$, 115$_M$, 120$_M$^{L}, 130$_M$^{L}, 140$_M$^{L}, 236$_M$^{L}, 237$_M$^{L}, 238$_M$^{L}, 240, 243$_M$^{L}
Chemistry (CHEM)	100^L, 104$_M$^{L}, 111$_M$^{L}, 117$_M$^{L}, 120$_M$^{L}, 213$_M$^{L}, 214$_M$^{L}
Geography (GEOG)	105^{L+}, 135$_M$$^{L+}$, 203$_M$$^+$, 212$_M$$^+$, 217$_M$$^+$, 225$_M$$^+$, 230$_M$$^+$
Geology (GEOL)	133$_M$^{L}, 134$_M$^{L}, 237$_M$^{L}
Nutrition & Food Science (NFS)	320, 360, 440^L
Physics (PHYS)	104$_M$^{L}, 123$_M$^{L}, 181$_M$^{L}, 182$_M$^{L}, 211$_M$^{L}, 212$_M$^{L}

Social Sciences

Anthropology (ANTH)	112$_M$, 117$_M$, 120$_M$, 201$_M$, 211$_M$, 214$_M$
Economics (ECON)	103$_M$, 201$_M$, 202$_M$
Geography GEOG)	133$_M$$^+$
History (HIST)	134$_M$$^+$, 137$_M$$^+$, 138$_M$$^+$, 141$_M$$^+$, 151$_M$$^+$, 152$_M$$^+$, 153$_M$$^+$, 230$_M$$^+$
Political Science (POLS)	105$_M$, 109$_M$, 205$_M$, 207$_M$, 209$_M$, 298$_M$
Psychology (PSYCH)	153$_M$, 201$_M$, 205$_M$, 206$_M$, 207$_M$, 209$_M$, 219$_M$, 229$_M$, 239$_M$, 249$_M$, 259$_M$
Sociology (SOC)	201$_M$, 205$_M$, 209$_M$, 210$_M$, 211$_M$, 220$_M$, 290$_M$

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.

Key

Plain text = Liberal Arts courses used to satisfy Schoolcraft College General Education (SCGE) requirements.

$_M$ = Liberal Arts courses used to satisfy SCGE requirements and the Michigan Transfer Agreement (MTA) requirements.

* = Only these courses or combination of courses may be used to satisfy the final requirement for MTA English Communications.

^{L} = Lab Science

$^+$ = Students may not use the same History course to satisfy both the humanities and social sciences or COMA 103$_M$$^+$* to satisfy both humanities and English communications. Only certain Geography courses can be used for a natural science or social science course.

Italicized text = Applied Liberal Arts courses that do not qualify to meet SCGE requirements or MTA requirements (Courses may or may not transfer to another institution.)

BOLD = Occupational Courses have a direct career relationship, and focus on developing necessary knowledge and skills to enter the work force within the chosen field of study. (Courses may or may not transfer to another institution. No SC occupational courses may be used toward SC General Education or to meet the requirements for MTA.)

Liberal Arts courses will typically transfer to another institution. They provide general knowledge and theory in the arts, language and communication, humanities, natural sciences, math and social sciences.

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.

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 employees; or who currently own or are starting a small business.

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.

Not all courses are offered each semester. Students should work with an academic advisor to develop a schedule that will work for them. Students planning to transfer should check the transfer institution's requirements/guides or discuss their options with an academic advisor. Number of credits may vary depending on the course selection.

SAMPLE SCHEDULE OF COURSES

First Year - Fall Semester

Course #	Course Title	Credits
ACCT 201	**Principles of Accounting 1**	4
CIS 120	**Software Applications**	3
	Total Credits: 7	

First Year - Winter Semester

Course #	Course Title	Credits
ACCT 263	**Computerized Accounting Using QuickBooks**	3
Elective	**Select four tax credit hours from list**	4
ACCT 238	**Federal Tax Accounting**	
OR		
ACCT 138	**Income Tax Preparation**	
AND		
ACCT 139	**Michigan Taxes**	
	Total Credits: 7	

Second Year - Fall Semester

Course #	Course Title	Credits
Elective	**Select one:**	3
CIS 180	**Spreadsheet Applications - Current Software**	
ACCT 262	**Payroll Accounting**	
	Total Credits: 3	

PROGRAM TOTAL 17 CREDITS

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. Students who successfully complete all program courses qualify for a certificate of program completion.

Not all courses are offered each semester. Students should work with an academic advisor to develop a schedule that will work for them. Students planning to transfer should check the transfer institution's requirements/guides or discuss their options with an academic advisor. Number of credits may vary depending on the course selection.

SAMPLE SCHEDULE OF COURSES

First Year - Fall Semester

Course #	Course Title	Credits
ACCT 201	**Principles of Accounting 1**	4
CIS 120	**Software Applications**	3
ENG 101	**English Composition 1**	3
MATH 101	**Business Mathematics**	3
	Total Credits: 13	

First Year - Winter Semester

Course #	Course Title	Credits
ACCT 202	**Principles of Accounting 2**	4
Elective	**Select four tax credit hours from list**	4
ACCT 238	**Federal Tax Accounting**	
OR		
ACCT 138	**Income Tax Preparation**	
AND		
ACCT 139	**Michigan Taxes**	
BUS 207	**Business Law 1**	3
ACCT 263	**Computerized Accounting Using QuickBooks**	3
	Total Credits: 14	

Second Year - Fall Semester

Course #	Course Title	Credits
COMA 103	**Fundamentals of Speech**	3
ACCT 262	**Payroll Accounting**	3
	Total Credits: 6	

PROGRAM TOTAL 33 CREDITS

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. Students who satisfactorily complete all college and program requirements qualify for an associate in applied science degree.

Not all courses are offered each semester. Students should work with an academic advisor to develop a schedule that will work for them. Students planning to transfer should check the transfer institution's requirements/guides or discuss their options with an academic advisor. Number of credits may vary depending on the course selection.

SAMPLE SCHEDULE OF COURSES

First Year - Fall Semester

Course #	Course Title	Credits
ACCT 201	**Principles of Accounting 1**	4
CIS 120	**Software Applications**	3
ENG 101	**English Composition 1**	3
Mathematics	**Select one:**	3-4
MATH 101	**Business Mathematics**	
MATH 113	**Intermediate Algebra for College Students**	
	Total Credits: 13-14	

First Year - Winter Semester

Course #	Course Title	Credits
ACCT 202	**Principles of Accounting 2**	4
CIS 180	**Spreadsheet Applications - Current Software**	3
ACCT 263	**Computerized Accounting Using QuickBooks**	3
ECON 201	**Principles of Macroeconomics**	4
	Total Credits: 14	

First Year - Spring/Summer Session

Course #	Course Title	Credits
COMA 103	**Fundamentals of Speech**	3
ENG 106	**Business English**	3
	Total Credits: 6	

Accounting AAS Degree (continued)

Second Year - Fall Semester

Course #	Course Title	Credits
ACCT 221	**Intermediate Accounting 1**	4
ACCT 226	**Cost Accounting**	4
BUS 207	**Business Law 1**	3
Elective	**Select one:**	3-4
ACCT 262	**Payroll Accounting**	
BUS 101	**Introduction to Business**	
ECON 202	**Principles of Microeconomics**	
	Total Credits: 14-15	

Second Year - Winter Semester

Course #	Course Title	Credits
ACCT 222	**Intermediate Accounting 2**	4
Elective	**Select four tax credit hours from list**	4
ACCT 238	**Federal Tax Accounting**	
OR		
ACCT 138	**Income Tax Preparation**	
AND		
ACCT 139	**Michigan Taxes**	
Elective	**Select one:**	3-4
ACCT 206	**Accounting Internship**	
BUS 202	**Business Ethics**	
BUS 240	**International Business**	
CNT 115	**Cybersecurity Fundamentals**	
PSYCH 153	**Human Relations**	
POLS 209	**International Relations**	
PHIL 247	**Logic**	
SOC 201	**Principles of Sociology**	
Science	**Select a General Education Science course**	4
	Total Credits: 15-16	

PROGRAM TOTAL 62-65 CREDITS

Biomedical Engineering Technology

Credentials

Biomedical Engineering Technologist AAS Degree	66-70 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 healthcare 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.

Biomedical Engineering Technologist AAS Degree

Schoolcraft program code # AAS.00128

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 256 or BMET 257. 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 program courses. Students must complete internships to be eligible to fulfill program requirements. 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.

Not all courses are offered each semester. Students should work with an academic advisor to develop a schedule that will work for them. Students planning to transfer should check the transfer institution's requirements/guides or discuss their options with an academic advisor. Number of credits may vary depending on the course selection.

SAMPLE SCHEDULE OF COURSES

Admission Prerequisites

First Year - Fall Semester

Course #	Course Title	Credits
ELECT 131	**Basic Measurement and Reporting Skills**	3
ELECT 137	**DC Circuits and Mathematical Modeling**	5
ENG 101	**English Composition 1**	3
BIOL 105	**Basic Human Anatomy and Physiology**	4
	Total Credits: 15	

First Year - Winter Semester

Course #	Course Title	Credits
ELECT 138	**AC Circuits and Mathematical Modeling**	5
ELECT 139	**Diodes and Transistors**	3
ELECT 180	**LabVIEW Programming CORE 1 and 2**	5
	Total Credits: 13	

Biomedical Engineering Technologist AAS Degree (continued)

First Year - Spring/Summer Session

Course #	Course Title	Credits
ELECT 215	**Operational Amplifiers and Linear Integrated Circuits**	4
ELECT 219	**Digital Logic Circuits**	4
	Total Credits: 8	

Admission to the Biomedical Program Internship Sequence

Second Year - Fall Semester

Course #	Course Title	Credits
BMET 116	**Biomedical Instrumentation Terminology and Safety 1**	3
MATH 102	**Technical Mathematics**	4
Social Science	**Select General Education Social Science course**	3-4
PSYCH 153	**Human Relations (recommended)**	
English	**Select one:**	3
ENG 102	**English Composition 2**	
ENG 116	**Technical Writing**	
	Total Credits: 13-14	

Second Year - Winter Semester

Course #	Course Title	Credits
BMET 204	**Biomedical Instrumentation Terminology and Safety 2**	4
BMET 256	**Biomedical Equipment Internship 1**	3
Elective	**See List**	3
Elective	**See List**	3
Humanities	**Select General Education Humanities course**	1-4
COMA 103	**Fundamentals of Speech (recommended)**	
	Total Credits: 14-17	

Second Year - Spring/Summer Semester

Course #	Course Title	Credits
BMET 257	**Biomedical Equipment Internship 2**	3
	Total Credits: 3	

Biomedical Engineering Technologist AAS Degree (continued)

Electives

Course #	Course Title	Credits
BMET 130	**Introduction to Biomedical Imaging**	3
CIS 115	**Introduction to Computer Based Systems**	3
CIS 171	**Introduction to Networking**	3
CIS 172	**Network Security Fundamentals**	3
CIS 251	**IT Project Management**	3
CNT 115	**Cybersecurity Fundamentals**	3
CNT 130	**Computer Hardware and Troubleshooting**	3
CNT 173	**Computer User Support**	3
CNT 179	**Physical Networking**	3
ELECT 144	**Introduction to Microcontrollers**	3
ELECT 218	**AC/DC Motors**	3
ELECT 228	**Electronic Troubleshooting**	3

PROGRAM TOTAL 66-70 CREDITS

Biomedical Applications Post-Associate Certificate

Schoolcraft program code # PAC.00178

This post-associate certificate in biomedical applications is designed to provide working professionals who have experience and/or training in biomedical engineering opportunities to study new technologies and innovations.

Completion of this program will enhance a professional's ability to meet the demands of rapidly changing technologies in the biomedical field. These courses are also intended to meet requirements for current and future professional certification.

Prior to admission to this program, students must have completed a minimum of an accredited associate degree in biomedical engineering technology. The post-associate certificate is awarded upon successful completion of 16 credit hours.

Not all courses are offered each semester. Students should work with an academic advisor to develop a schedule that will work for them. Number of credits may vary depending on the course selection.

Courses can be taken through independent study. Students may choose an applicable 200-level elective.

Program Courses

A student is required to choose the two courses listed below:

Course #	Course Title	Credits
CIS 171	**Introduction to Networking**	3
CNT 130	**Computer Hardware and Troubleshooting**	3

A student may choose from any of the courses listed below:

Course #	Course Title	Credits
BUS 220	**Supervision**	3
CIS 172	**Network Security Fundamentals**	3
CIS 178	**Technical Microsoft Windows**	3
CIS 250	**Systems Development and Design**	4
CIS 251	**IT Project Management**	3
CIS 273	**TCP/IP and Network Architectures**	3
CNT 115	**Cybersecurity Fundamentals**	3
CNT 173	**Wireless Local Area Networks**	3
CNT 179	**Physical Networking**	3
CNT 210	**CCNA Networking 1**	4
ELECT 144	**Introduction to Microcontrollers**	3
BMET 130	**Introduction to Biomedical Imaging**	3
QM 107	**Quality Planning and Team Building**	3

Brewing and Distillation Technology

Credentials

Brewing and Distillation Technology Certificate	25 cr.
Brewing and Distillation Technology Program AGS Degree	60 cr.

Major Description

The Brewing and Distillation Technology Certificate offered by Schoolcraft College provides detailed knowledge that can help jumpstart a career in craft beverage or brewing operations or provide the needed background for an entrepreneur who is considering opening a brewpub or microbrewery. The curriculum has been designed with direct input from brewing professionals and owners of breweries, brewpubs, and distilleries in order to meet industry talent needs and to address the issues faced by aspiring entrepreneurs in this growing industry. The course of study focuses on the vital aspects of the beer and distilled spirits industry, including business, brewing science, operations, product finishing and packaging, draught systems management, beer history, and customer service.

Brewing and Distillation Technology Certificate

Schoolcraft program code # 1YC.00084

This program is intended for those who are interested in starting a career in brewing, expanding their current brewing knowledge and practice, or considering opening a brewpub or microbrewery. The curriculum has been designed with direct input and participation by brewing professionals, owners of breweries and brewpubs and distillers. The program is designed by craft beverage professionals to meet industry needs, and also addresses potential issues faced by entrepreneurs aspiring to startup a microbrewery or brewpub in Michigan. The course of study introduces the science, operation, business, finishing, packaging and service of beer and distilled spirits, and prepares the student to pursue employment in a wide variety of positions in a craft beverage operation.

Students who satisfactorily complete the program requirements qualify for a certificate of program completion.

Not all courses are offered each semester. Students should work with an academic advisor to develop a schedule that will work for them. Students planning to transfer should check the transfer institution's requirements/guides or discuss their options with an academic advisor. Number of credits may vary depending on the course selection.

SAMPLE SCHEDULE OF COURSES

First Year - Fall Semester

Course #	Course Title	Credits
BDT 101	**Brewing Science**	4
BDT 121	**Beer Styles and Flavor Evaluation**	3
BDT 110	**Brewhouse Operations and Technology**	4
BDT 140	**Marketing and Operations Management**	2
	Total Credits: 13	

First Year - Winter Semester

Course #	Course Title	Credits
BDT 210	**Cellaring, Packaging and Quality Management**	4
BDT 220	**Advanced Brewing and Distillation**	4
BDT 231	**Craft Beer Management and Service**	4
	Total Credits: 12	

PROGRAM TOTAL 25 CREDITS

Brewing and Distillation Technology Program AGS Degree

Schoolcraft program code # AGS.00042

This program is intended for those who are interested in starting a career in brewing, expanding their current brewing knowledge and practice, or considering opening a brewpub or microbrewery. The curriculum has been designed with direct input and participation by brewing professionals, owners of breweries and brewpubs and distillers. The program is designed by craft beverage professionals to meet industry needs, and also addresses potential issues faced by entrepreneurs aspiring to startup a microbrewery or brewpub in Michigan. The course of study introduces the science, operation, business, finishing, packaging and service of beer and distilled spirits, and prepares the student to pursue employment in a wide variety of positions in a craft beverage operation.

Any student wishing to pursue an associate degree can apply all 25 credits from the Brewing and Distillation Technology Certificate toward an Associate in General Studies (AGS) degree. Depending on the desired career path, discuss options for an associate degree with an academic advisor.

Not all courses are offered each semester. Students should work with an academic advisor to develop a schedule that will work for them. Students planning to transfer should check the transfer institution's requirements/guides or discuss their options with an academic advisor. Number of credits may vary depending on the course selection.

SAMPLE SCHEDULE OF COURSES

First Year - Fall Semester

Course #	Course Title	Credits
BDT 101	**Brewing Science**	4
BDT 121	**Beer Styles and Flavor Evaluation**	3
BDT 110	**Brewhouse Operations and Technology**	4
BDT 140	**Marketing and Operations Management**	2
English Communication	**Select first within a set of General Education English Communication courses***	3
	Total Credits: 16	

First Year - Winter Semester

Course #	Course Title	Credits
BDT 210	**Cellaring, Packaging and Quality Management**	4
BDT 220	**Advanced Brewing and Distillation**	4
BDT 231	**Craft Beer Management and Service**	4
English Communication	**Select second within a set of General Education English Communication courses***	3
	Total Credits: 15	

Brewing and Distillation Technology Program AGS Degree (continued)

Second Year – Fall Semester

Course #	Course Title	Credits
Humanities	**Select General Education Humanities course***	3
Mathematics	**Select General Education Mathematics course***	3
Science	**Select General Education Science course***	4
Social Science	**Select General Education Social Science course***	3
Electives	**Select courses supportive of occupational and academic goals**	3
	Total Credits: 16	

Second Year - Winter Semester

Course #	Course Title	Credits
Humanities	**Select General Education Humanities course***	1
Science	**Select General Education Science course***	3
Social Science	**Select General Education Social Science course***	3
Electives	**Select courses supportive of occupational and academic goals**	6
	Total Credits: 13	

PROGRAM TOTAL 60 CREDITS

* Please check Schoolcraft General Education requirements to determine course options.

Broadcast Communications

Credentials

Broadcast Communications AAS Degree	60-62 cr.

Major Description

Broadcast communications plays a vital role in the dissemination of news, information and entertainment worldwide and has become even more important in the Internet age. Whether you are interested in becoming a radio or television reporter, a director, video editor, web producer or sound engineer, you can prepare yourself by earning an associate degree in broadcast communications. Through a unique partnership between Schoolcraft and the Specs Howard School of Media Arts, you can:

- Spend a year at the Specs Howard studios to get real-world training while earning credits toward your degree.
- Earn the balance of your credits at Schoolcraft.
- Start the program at either Specs Howard or Schoolcraft.
- Get additional hands-on experience through Schoolcraft's Video Production Club, and working local sporting and community events like broadcasts of Schoolcraft College's team events.
- Follow in the footsteps of program graduates who work at local and national radio and television stations and in the film and television industries.

Broadcast Communications AAS Degree

Schoolcraft program code #AAS.00041

Students will develop the skills necessary to function as entry-level employees in radio, television, cable television or industrial 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. The program can begin at either school.

Students who satisfactorily complete all college and program requirements qualify for an associate in applied science degree.

Not all courses are offered each semester. Students should work with an academic advisor to develop a schedule that will work for them. Students planning to transfer should check the transfer institution's requirements/guides or discuss their options with an academic advisor. Number of credits may vary depending on the course selection.

Specs Howard School of Media Arts:

Approved Articulation Credit	15
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

Course #	Course Title	Credits
Mathematics	**Select one:**	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 210	**Acting 1 - Theory and Elements**	3
	Total Credits: 15-16	

Broadcast Communications AAS Degree (continued)

First Year - Winter Semester

Course #	Course Title	Credits
CIS 105	**Computer Orientation**	1
COMA 202	**Small Group Communication**	3
GEOG 135	**Earth Systems**	4
PSYCH 201	**Introductory Psychology**	4
THEA 241*	**Oral Interpretation of Literature**	3
	Total Credits: 15	

Second Year - Fall Semester

Course #	Course Title	Credits
ENG 107	**Introduction to Journalism**	3
GEOL 133	**Physical Geology**	4
POLS 105	**Survey of American Government**	3
SOC 201	**Principles of Sociology**	3
Elective	**Any 100- or 200- level course not previously taken**	2-3
	Total Credits: 15-16	

PROGRAM TOTAL 60-62 CREDITS

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

Business

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 or university to earn a bachelor's degree.

There are three associate in applied science degrees (AAS) and two 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-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 - 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.

Students who satisfactorily complete the program requirements qualify for a certificate of program completion.

Not all courses are offered each semester. Students should work with an academic advisor to develop a schedule that will work for them. Students planning to transfer should check the transfer institution's requirements/guides or discuss their options with an academic advisor. Number of credits may vary depending on the course selection.

SAMPLE SCHEDULE OF COURSES

First Year - Fall Semester

Course #	Course Title	Credits
BUS 101	**Introduction to Business**	3
MATH 101	**Business Mathematics**	3
ENG 101	**English Composition 1**	3
COMA 103	**Fundamentals of Speech**	3
BUS 220	**Supervision**	3
	Total Credits: 15	

First Year - Winter Semester

Course #	Course Title	Credits
ENG 102	**English Composition 2**	3
Accounting	**Select one:**	4
ACCT 103	**Introduction to Accounting**	
ACCT 201	**Principles of Accounting 1**	
ECON 201	**Principles of Macroeconomics**	4
PSYCH 153	**Human Relations**	3
	Total Credits: 14	

First Year - Spring Session

Course #	Course Title	Credits
BUS 202	**Business Ethics**	3
	Total Credits: 3	

PROGRAM TOTAL 32 CREDITS

Small Business for Entrepreneurs Certificate

Schoolcraft program code # 1YC.00213

The small business for entrepreneur's 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.

Students who satisfactorily complete the program requirements qualify for a certificate of program completion.

Not all courses are offered each semester. Students should work with an academic advisor to develop a schedule that will work for them. Students planning to transfer should check the transfer institution's requirements/guides or discuss their options with an academic advisor. Number of credits may vary depending on the course selection.

SAMPLE SCHEDULE OF COURSES

First Year - Fall Semester

Course #	Course Title	Credits
BUS 103	**Organizing a Small Business**	3
ENG 101	**English Composition 1**	3
BUS 220	**Supervision**	3
Accounting	**Select one:**	4
ACCT 103	**Introduction to Accounting**	
ACCT 201	**Principles of Accounting 1**	
	Total Credits: 13	

First Year - Winter Semester

Course #	Course Title	Credits
BUS 104	**Operating a Small Business**	3
BUS 122	**Advertising**	3
ENG 102	**English Composition 2**	3
PSYCH 153	**Human Relations**	3
Elective	**See list**	2-3
	Total Credits: 14-15	

First Year - Spring Session

Course #	Course Title	Credits
BUS 202	**Business Ethics**	3
	Total Credits: 3	

Small Business for Entrepreneurs Certificate (continued)

Electives

Course #	Course Title	Credits
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	**E-Commerce**	3

PROGRAM TOTAL 30-31 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. Students who satisfactorily complete all college and program requirements qualify for an associate in applied science degree.

Not all courses are offered each semester. Students should work with an academic advisor to develop a schedule that will work for them. Students planning to transfer should check the transfer institution's requirements/guides or discuss their options with an academic advisor. Number of credits may vary depending on the course selection.

SAMPLE SCHEDULE OF COURSES

First Year - Fall Semester

Course #	Course Title	Credits
BUS 101	**Introduction to Business**	3
BUS 122	**Advertising**	3
BUS 123	**Consumer Behavior**	3
Accounting	**Select one:**	4
ACCT 103	**Introduction to Accounting**	
ACCT 201	**Principles of Accounting 1**	
ENG 101	**English Composition 1**	3
	Total Credits: 16	

First Year - Winter Semester

Course #	Course Title	Credits
MATH 101	**Business Mathematics**	3
BUS 120	**Strategic Selling**	3
ENG 102	**English Composition 2**	3
PSYCH 153	**Human Relations**	3
Science	**Select General Education Science course**	4
	Total Credits: 16	

Marketing and Applied Management AAS Degree (continued)

Second Year - Fall Semester

Course #	Course Title	Credits
BUS 217	**Business Management**	3
BUS 220	**Supervision**	3
BUS 240	**International Business**	3
HUM 106	**Introduction to Art and Music**	1
ECON 201	**Principles of Macroeconomics**	4
	Total Credits: 14	

Second Year - Winter Semester

Course #	Course Title	Credits
BUS 226	**Principles of Marketing**	3
BUS 202	**Business Ethics**	3
BUS 204	**Personal Finance**	3
BUS 215	**E-Commerce**	3
Electives	**See list**	4-6
	Total Credits: 16-18	

Electives

Course #	Course Title	Credits
BUS 103	**Organizing a Small Business**	3
BUS 104	**Operating a Small Business**	3
BUS 207	**Business Law 1**	3
BUS 208	**Business Law 2**	3
BUS 230	**Human Resource Management**	3
BUS 292	**Business Internship**	3
CIS 120	**Software Applications**	3
CIS 180	**Spreadsheet Applications - Current Software**	3
COMA 103	**Fundamentals of Speech**	3
ENG 116	**Technical Writing**	3
MATH 122	**Elementary Statistics**	4

PROGRAM TOTAL 62-64 CREDITS

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.

Students who satisfactorily complete all college and program requirements qualify for an associate in applied science degree.

Not all courses are offered each semester. Students should work with an academic advisor to develop a schedule that will work for them. Students planning to transfer should check the transfer institution's requirements/guides or discuss their options with an academic advisor. Number of credits may vary depending on the course selection.

SAMPLE SCHEDULE OF COURSES

First Year - Fall Semester

Course #	Course Title	Credits
BUS 101	**Introduction to Business**	3
MATH 101	**Business Mathema4tics**	3
BUS 122	**Advertising**	3
ENG 101	**English Composition 1**	3
Humanities	**Select General Education Humanities course**	3
COMA 103	**Fundamentals of Speech (recommended)**	
	Total Credits: 15	

First Year - Winter Semester

Course #	Course Title	Credits
BUS 120	**Strategic Selling**	3
Accounting	**Select one:**	4
ACCT 103	**Introduction to Accounting**	
ACCT 201	**Principles of Accounting 1**	
ENG 102	**English Composition 2**	3
PSYCH 153	**Human Relations**	3
Science	**Select General Education Science course**	4
	Total Credits: 17	

Business - General AAS Degree (continued)

Second Year - Fall Semester

Course #	Course Title	Credits
BUS 217	**Business Management**	3
BUS 220	**Supervision**	3
ECON 201	**Principles of Macroeconomics**	4
BUS 202	**Business Ethics**	3
BUS 240	**International Business**	3
	Total Credits: 16	

Second Year - Winter Semester

Course #	Course Title	Credits
BUS 204	**Personal Finance**	3
BUS 207	**Business Law 1**	3
BUS 215	**E-Commerce**	3
BUS 226	**Principles of Marketing**	3
Electives	**See list**	2-4
	Total Credits: 14-16	

Electives

Course #	Course Title	Credits
BUS 103	**Organizing a Small Business**	3
BUS 104	**Operating a Small Business**	3
BUS 123	**Consumer Behavior**	3
BUS 208	**Business Law 2**	3
BUS 230	**Human Resource Management**	3
BUS 292	**Business Internship**	3
CIS 120	**Software Applications**	3
CIS 180	**Spreadsheet Applications - Current Software**	3
ENG 116	**Technical Writing**	3
MATH 122	**Elementary Statistics**	4

PROGRAM TOTAL 62-64 CREDITS

Small Business for Entrepreneurs AAS Degree

Schoolcraft program code # AAS.00011

The small business for entrepreneur's 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.

Students who satisfactorily complete all college and program requirements qualify for an associate in applied science degree.

Not all courses are offered each semester. Students should work with an academic advisor to develop a schedule that will work for them. Students planning to transfer should check the transfer institution's requirements/guides or discuss their options with an academic advisor. Number of credits may vary depending on the course selection.

SAMPLE SCHEDULE OF COURSES

First Year - Fall Semester

Course #	Course Title	Credits
BUS 101	**Introduction to Business**	3
BUS 103	**Organizing a Small Business**	3
BUS 122	**Advertising**	3
MATH 101	**Business Mathematics**	3
ENG 101	**English Composition 1**	3
	Total Credits: 15	

First Year - Winter Semester

Course #	Course Title	Credits
BUS 104	**Operating a Small Business**	3
Accounting	**Select one:**	4
ACCT 103	**Introduction to Accounting**	
ACCT 201	**Principles of Accounting 1**	
ENG 102	**English Composition 2**	3
Science	**Select General Education Science course**	4
BUS 120	**Strategic Selling**	3
	Total Credits: 17	

Small Business for Entrepreneurs AAS Degree (continued)

Second Year - Fall Semester

Course #	Course Title	Credits
BUS 204	**Personal Finance**	3
BUS 220	**Supervision**	3
BUS 202	**Business Ethics**	3
HUM 106	**Introduction to Art and Music**	1
BUS 215	**E-Commerce**	3
Elective	**See list**	3
	Total Credits: 16	

Second Year - Winter Semester

Course #	Course Title	Credits
BUS 207	**Business Law 1**	3
BUS 226	**Principles of Marketing**	3
BUS 230	**Human Resource Management**	3
PSYCH 153	**Human Relations**	3
Elective	**See list**	2-4
	Total Credits: 14-16	

Electives

Course #	Course Title	Credits
ACCT 138	**Income Tax Preparation**	2
ACCT 263	**Computerized Accounting Using QuickBooks**	3
BUS 123	**Consumer Behavior**	3
BUS 208	**Business Law 2**	3
BUS 217	**Business Management**	3
BUS 240	**International Business**	3
BUS 292	**Business Internship**	3
CIS 120	**Software Applications**	3
ECON 201	**Principles of Macroeconomics**	4
ENG 116	**Technical Writing**	3

PROGRAM TOTAL 62-64 CREDITS

Business Information Technology

Credentials

Business Information Technology Certificate	34-36 cr.
Business Information Technology AAS Degree	62-68 cr.

Major Description

Business is becoming more complex every day due to the high-tech hardware and software used behind the scenes. If you enjoy staying current on the latest technological advances and finding the right technology to meet business needs, you can find a niche in this fast-growing field.

Information technology (IT) professionals help organizations in virtually every industry to determine the best use of automated systems to reach their goals.

This field requires analytical and problem solving skills, technical expertise and the ability to juggle projects while meeting deadlines and quality standards. Excellent communication skills are also essential.

Today's employers are looking for people who have a sound business background combined with the ability to develop or manage business computer systems. The widespread use of computers in all areas of business has generated new positions and expanded opportunities. The associate in applied science degree program sets the stage for transfer to a four-year college or school. The certificate program provides students with an overview of business and computer systems and results in a certificate of program completion.

Business Information Technology Certificate

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 request graduates who have 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.

Students who satisfactorily complete the program requirements qualify for a certificate of program completion.

Not all courses are offered each semester. Students should work with an academic advisor to develop a schedule that will work for them. Students planning to transfer should check the transfer institution's requirements/guides or discuss their options with an academic advisor. Number of credits may vary depending on the course selection.

SAMPLE SCHEDULE OF COURSES

First Year - Fall Semester

Course #	Course Title	Credits
BUS 101	**Introduction to Business**	3
CIS 120	**Software Applications**	3
CIS 129	**Introduction to Programming Logic**	3
CNT 115	**Cybersecurity Fundamentals**	3
ENG 101	**English Composition 1**	3
	Total Credits: 15	

First Year - Winter Semester

Course #	Course Title	Credits
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	

Business Information Technology Certificate (continued)

First Year - Spring Session

Course #	Course Title	Credits
BUS 217	**Business Management**	3
Elective	**See list**	2-4
	Total Credits: 5-7	

Electives

Course #	Course Title	Credits
BUS 207	**Business Law 1**	3
BUS 208	**Business Law 2**	3
BUS 215	**E-Commerce**	3
BUS 226	**Principles of Marketing**	3
CIS 170	**Microsoft Windows**	3
CIS 171	**Introduction to Networking**	3
CIS 176	**Visual Basic.NET**	3
CIS 178	**Technical Microsoft Windows**	3
CIS 185	**Introduction to HTML**	3
CIS 211	**Introduction to C++**	2
CIS 221	**Advanced C++**	2
CIS 223	**Introduction to C#**	3
CIS 225	**Database Management Systems**	3
CIS 255	**Introduction to Linux**	3
CIS 274	**Advanced Linux**	3
CIS 290	**Object-Oriented Programming with Java**	3
CNT 130	**Computer Hardware and Troubleshooting**	3
CNT 133	**Computer Software and Troubleshooting**	3
CNT 210	**CCNA Networking 1**	4
CNT 250	**Server Administration 1**	3

PROGRAM TOTAL 34-36 CREDITS

Business Information Technology AAS Degree

Schoolcraft College program code # AAS.00277

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 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 businesses has generated new positions and expanded opportunities in information technology. Effective use of technology enables businesses to serve customers better, access more information, and be more flexible in responding to business changes and increase employee productivity.

Students who satisfactorily complete all college and program requirements qualify for an associate in applied science degree.

Not all courses are offered each semester. Students should work with an academic advisor to develop a schedule that will work for them. Students planning to transfer should check the transfer institution's requirements/guides or discuss their options with an academic advisor. Number of credits may vary depending on the course selection.

SAMPLE SCHEDULE OF COURSES

First Year - Fall Semester

Course #	Course Title	Credits
ENG 101	**English Composition 1**	3
BUS 101	**Introduction to Business**	3
CNT 115	**Cybersecurity Fundamentals**	3
CIS 120	**Software Applications**	3
CIS Elective	**Select CIS course from list**	3
	Total Credits: 15	

First Year - Winter Semester

Course #	Course Title	Credits
English	**Select one:**	3
ENG 102	**English Composition 2**	
ENG 106	**Business English**	
MATH 113	**Intermediate Algebra for College Students**	4
BUS 217	**Business Management**	3
CIS 129	**Introduction to Programming Logic**	3
Elective	**See list**	2-3
	Total Credits: 15-16	

Business Information Technology AAS Degree (continued)

First Year - Spring/Summer Session

Course #	Course Title	Credits
Social Science	**Select one:**	3-4
POLS 105	**Survey of American Government**	
PSYCH 153	**Human Relations**	
PSYCH 201	**Introductory Psychology**	
COMA 103	**Fundamentals of Speech**	3
	Total Credits: 6-7	

Second Year - Fall Semester

Course #	Course Title	Credits
BUS 220	**Supervision**	3
CIS 250	**Systems Development and Design**	4
CIS Elective	**Select CIS course from list**	2-3
Science	**Select General Education Science course**	3-5
	Total Credits: 12-15	

Second Year - Winter Semester

Course #	Course Title	Credits
CIS 251	**IT Project Management**	3
ACCT 201	**Principles of Accounting 1**	4
ECON 201	**Principles of Macroeconomics**	4
Elective	**See list**	3-4
	Total Credits: 14-15	

Business Information Technology AAS Degree (continued)

Electives

Course #	Course Title	Credits
BUS 207	**Business Law 1**	3
BUS 208	**Business Law 2**	3
BUS 215	**E-Commerce**	3
BUS 226	**Principles of Marketing**	3
CIS 170	**Microsoft Windows**	3
CIS 171	**Introduction to Networking**	3
CIS 176	**Visual Basic.NET**	3
CIS 178	**Technical Microsoft Windows**	3
CIS 185	**Introduction to HTML**	3
CIS 211	**Introduction to C++**	2
CIS 221	**Advanced C++**	2
CIS 223	**Introduction to C#**	3
CIS 225	**Database Management Systems**	3
CIS 255	**Introduction to Linux**	3
CIS 274	**Advanced Linux**	3
CIS 290	**Object-Oriented Programming with Java**	3
CNT 130	**Computer Hardware and Troubleshooting**	3
CNT 133	**Computer Software and Troubleshooting**	3
CNT 210	**CCNA Networking 1**	4
CNT 250	**Server Administration 1**	3

PROGRAM TOTAL 62-68 CREDITS

Computer Aided Design

Credentials

Computer Aided Design: Mechanical Design Skills Certificate	17 cr.
Computer Aided Design: Mechanical Design Certificate	31 cr.
Computer Aided Design: Mechanical Design AAS Degree	64 – 68 cr.

Major Description

Schoolcraft College in Livonia offers an Associate's Degree in Mechanical Design. Our program is designed to prepare students for immediate employment utilizing multiple CAD (Computer Aided Design) software packages. A person can choose to enhance their knowledge in CAD and Manufacturing with the Skills Certificate or the Certificate. In the Degree program, 2D Drawing and 3D Modeling software is utilized and design practice is demonstrated for gears, cams, fasteners, jigs and fixtures. Dimension & Tolerance is according to the ASME Y14.5 Standard.

Computer Aided Design: Mechanical Design Skills Certificate

Schoolcraft program code # CRT.00238

Computer-Aided Design (CAD) is the process of creating 3D Virtual Models of components & assemblies, and 2D drawings that fully describe the product. The CAD operator, while using a wide variety of CAD software packages, refines the product and creates drawings following standardized practices through International and company related Standards. This certificate provides learning opportunities in CAD software, drawing creation following ASME standards and Dimension & Tolerance per the ASME Y14.5 standard. Graduates can find entry level employment in design and engineering related activities in the areas of transportation, aerospace, medical technology, power transmission & defense.

Students who satisfactorily complete the program requirements qualify for a certificate of program completion.

Not all courses are offered each semester. Students should work with an academic advisor to develop a schedule that will work for them. Students planning to transfer should check the transfer institution's requirements/guides or discuss their options with an academic advisor. Number of credits may vary depending on the course selection.

SAMPLE SCHEDULE OF COURSES

First Year – Fall Semester

Course #	Course Title	Credits
CAD 120	**Mechanical Blueprint Reading with Sketching**	3
MFG 102	**Basic Machining Processes**	3
MATH 102	**Technical Mathematics**	4
	Total Credits: 10	

First Year – Winter Semester

Course #	Course Title	Credits
CAD 130	**Geometric Dimensioning and Tolerance**	3
Elective	**Select one:**	4
CAD 140	**AutoCAD – 2D Application**	
CAD 210	**CATIA – 3D & 2D Applications**	
CAD 220	**SolidWorks – 3D & 2D Applications**	
CAD 230	**NX – 3D & 2D Applications**	
	Total Credits: 7	

PROGRAM TOTAL 17 CREDITS

Computer Aided Design: Mechanical Design Certificate

Schoolcraft program code # 1YC.00248

Computer-Aided Design (CAD) is the process of creating 3D Virtual Models of components and assemblies, and 2D drawings that fully describe the product. The Mechanical Designer, while using a wide variety of CAD software, develops/refines the product and creates drawings following standardized practices through International and company related standards. This program provides learning opportunities in multiple CAD software packages, drawing creation following ASME standards and Dimension & Tolerance per the ASME Y14.5 standard. Graduates can find entry level employment in design and engineering related activities, in the areas of transportation, aerospace, medical technology, power transmission, and defense.

Students who satisfactorily complete the program requirements qualify for a certificate of program completion.

Not all courses are offered each semester. Students should work with an academic advisor to develop a schedule that will work for them. Students planning to transfer should check the transfer institution's requirements/guides or discuss their options with an academic advisor. Number of credits may vary depending on the course selection.

SAMPLE SCHEDULE OF COURSES

First Year – Fall Semester

Course #	Course Title	Credits
CAD 120	**Mechanical Blueprint Reading with Sketching**	3
MET 103	**Introduction to Materials Science**	3
MFG 102	**Basic Machining Processes**	3
MATH 102	**Technical Mathematics**	4
QM 107	**Quality Planning and Team Building**	3
	Total Credits: 16	

First Year - Winter Semester

Course #	Course Title	Credits
CAD 140	**AutoCAD – 2D Application**	4
CAD 130	**Geometric Dimensioning and Tolerance**	3
MFG 105	**Manufacturing Processes**	4
Elective	**Select one:**	4
CAD 210	**CATIA – 3D & 2D Applications**	
CAD 220	**SolidWorks – 3D & 2D Applications**	
CAD 230	**NX – 3D & 2D Applications**	
	Total Credits: 15	

PROGRAM TOTAL 31 CREDITS

Computer Aided Design: Mechanical Design AAS Degree

Schoolcraft program code # AAS.00258

Computer-Aided Design (CAD) is the process of creating 3D Virtual Models of components and assemblies, and 2D drawings that fully describe the product. The Mechanical Designer, while using a wide variety of CAD software, develops the product and creates drawings following standardized practices through International and company related standards. This program provides learning opportunities in multiple CAD software packages, drawing creation following ASME standards, tool and machine design, dimension & tolerance per the ASME Y14.5 standard and introduction to part creation through Manufacturing. Graduates can find employment in design and engineering related activities, in the areas of transportation, aerospace, medical technology, power transmission and defense.

Students who satisfactorily complete all college and program requirements qualify for an associate in applied science degree.

Not all courses are offered each semester. Students should work with an academic advisor to develop a schedule that will work for them. Students planning to transfer should check the transfer institution's requirements/guides or discuss their options with an academic advisor. Number of credits may vary depending on the course selection.

SAMPLE SCHEDULE OF COURSES

First Year - Fall Semester

Course #	Course Title	Credits
CAD 120	**Mechanical Blueprint Reading with Sketching**	3
ENGR 100	**Introduction to Engineering and Technology**	3
MET 103	**Introduction to Materials Science**	3
MATH 102	**Technical Mathematics**	4
Humanities	**Select General Education Humanities course**	1-4
Recommended:	**COMA 103 Fundamentals of Speech**	
	Total Credits: 14-17	

First Year - Winter Semester

Course #	Course Title	Credits
CAD 140	**AutoCAD – 2D Application**	4
MFG 102	**Basic Machining Processes**	3
Elective	**Select two:**	8
CAD 210	**CATIA – 3D & 2D Applications**	
CAD 220	**SolidWorks – 3D & 2D Applications**	
CAD 230	**NX – 3D & 2D Applications**	
	Total Credits: 15	

Computer Aided Design: Mechanical Design AAS Degree (continued)

First Year - Spring/Summer Session

Course #	Course Title	Credits
CAD 130	**Geometric Dimensioning and Tolerance**	3
English	**Select first within a set of General Education English Communication courses**	3
Recommended:	**ENG 100 Communication Skills**	
Recommended:	**ENG 101 English Composition 1**	
	Total Credits: 6	

Second Year – Fall Semester

Course #	Course Title	Credits
CAD 270	**Machine Elements and Design**	4
English	**Select second within a set of General Education English Communication courses**	3
Recommended:	**ENG 116 Technical Writing**	
MFG 105	**Manufacturing Processes**	4
QM 107	**Quality Management**	3
	Total Credits: 14	

Second Year - Winter Semester

Course #	Course Title	Credits
CAD 275	**Tool, Die and Fixture Design**	4
Elective	**Select one:**	3
CAD 280	**CAD Capstone Project**	
CAD 291	**Computer-Aided Design Internship**	
PHYS 123	**Applied Physics**	5
Social Science	**Select General Education Social Science course**	3-4
Recommended:	**PSYCH 153 Human Relations**	
	Total Credits: 15-16	

PROGRAM TOTAL 64-68 CREDITS

Computer Graphics Technology

Credentials

Foundation Skills Certificate	16cr.
3D and Video Graphics Certificate	30 cr.
Graphic Arts Certificate	30 cr.
Web and Interactive Media Certificate	30 cr.
3D and Video Graphics AAS Degree	61-62 cr.
Graphic Arts AAS Degree	61-62 cr.
Web and Interactive Media AAS Degree	61-62 cr.
Post-Associate Certificate	16-20 cr.

Major Description

The merger of art and computer technology is the basis of the program options available for students interested in a career in the expanding fields of graphic design and computer graphics.
Students learn how to use professional level software, hardware and peripherals, and to apply the principles of design, typography and color theory to the creation of effective print- and electronic-based visual communication. The computer graphics technology tracks prepare students for a career in the fields of 3D and video graphics, web and interactive media or digital arts, leading to either a certificate or an associate of applied science degree. Instruction in the programs expands on the skills achieved in the foundation skills certificate or equivalent experience. The certificate programs provide students with the opportunity to expand their design and application skills for a specific career within the graphic design and computer graphics industry and learn the principles of design to create professional level visual communications and how to apply software, hardware and peripherals.

In addition to the skills and knowledge students acquire in the certificate programs, the degree programs include coursework that meets the general education requirements for a Schoolcraft associate in applied science (AAS) degree. The degree programs' capstone classes expand the students' creative and practical skills.

It is highly recommended that students meet with faculty for advice in selecting their electives. The foundation skills certificate or equivalent skills must be achieved before starting one of the specialty track certificate or AAS programs.

Computer Graphics Technology: Foundation Skills Certificate

Schoolcraft program code # CRT.00364

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.

Students who satisfactorily complete all college and program requirements qualify for a certificate of 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 to explore their options for transfer and work life credit.

Not all courses are offered each semester. Students should work with an academic advisor to develop a schedule that will work for them. Students planning to transfer should check the transfer institution's requirements/guides or discuss their options with an academic advisor. Number of credits may vary depending on the course selection.

SAMPLE SCHEDULE OF COURSES

First Year - Fall Semester

Course #	Course Title	Credits
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 one:**	3
CGT 247	**3D Animation - Introduction**	
CGT 136	**Web Design and Development 1**	
ART 120	**Drawing: Theory and Elements**	
	Total Credits: 16	

PROGRAM TOTAL 16 CREDITS

Computer Graphics Technology Certificate Specialty Tracks

The computer graphics technology specialty tracks leading to a certificate expand on the skills achieved in the foundation skills certificate or equivalent experience. These certificates give students the opportunity to expand their design and application skills for a specific career within the graphic design and computer graphics industry. The foundation skills certificate or equivalent skills must be achieved before starting one of the specialty track certificate programs. Classes with no prerequisite can be taken before starting the program.

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.

Students who satisfactorily complete the program requirements qualify for a certificate of program completion.

Not all courses are offered each semester. Students should work with an academic advisor or Computer Graphics Technology (CGT) faculty to develop a schedule that will work for them. Students planning to transfer should check the transfer institution's requirements/guides or discuss their options with an academic advisor. Number of credits may vary depending on the course selection.

SAMPLE SCHEDULE OF COURSES

First Year - Fall Semester

Course #	Course Title	Credits
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

Course #	Course Title	Credits
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: Graphic Arts Certificate

Schoolcraft program code # 1YC.00136

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.

Students who satisfactorily complete the program requirements qualify for a certificate of program completion.

Not all courses are offered each semester. Students should work with an academic advisor or CGT faculty to develop a schedule that will work for them. Students planning to transfer should check the transfer institution's requirements/guides or discuss their options with an academic advisor. Number of credits may vary depending on the course selection.

SAMPLE SCHEDULE OF COURSES

First Year - Fall Semester

Course #	Course Title	Credits
ART 128	**The Human Figure in Art 1: Theory and Elements**	3
CGT 136	**Web Design and Development 1**	3
CGT 161	**History of Graphic Design**	3
CGT 166	**Photography**	3
CGT 226	**Digital Imaging 2 - Photoshop**	3
	Total Credits: 15	

First Year - Winter Semester

Course #	Course Title	Credits
ART 228	**The Human Figure in Art 2: Theory and Elements**	3
CGT 149	**Typography**	3
CGT 231	**Electronic Publishing**	3
CGT 257	**Portfolio Preparation**	3
Elective	**BUS 103 or CGT or ART**	3
	Total Credits: 15	

PROGRAM TOTAL 30 CREDITS

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.

Students who satisfactorily complete the program requirements qualify for a certificate of program completion.

Not all courses are offered each semester. Students should work with an academic advisor or Computer Graphic Technology (CGT) faculty to develop a schedule that will work for them. Students planning to transfer should check the transfer institution's requirements/guides or discuss their options with an academic advisor. Number of credits may vary depending on the course selection.

SAMPLE SCHEDULE OF COURSES

First Year - Fall Semester

Course #	Course Title	Credits
CGT 149	**Typography**	3
CGT 161	**History of Graphic Design**	3
CGT 163	**Web Design and Development 2**	3
CGT 168	**Storyboarding**	3
CGT 141	**Introduction to 2D Animation and Interactive Media**	3
	Total Credits: 15	

First Year - Winter Semester

Course #	Course Title	Credits
CGT 212	**Advanced Interactive Media**	3
CGT 213	**Advanced 2D Animation**	3
CGT 226	**Digital Imaging 2 - Photoshop**	3
CGT 234	**Web Development and Design 3**	3
CIS 238	**JavaScript**	3
	Total Credits: 15	

PROGRAM TOTAL 30 CREDITS

Computer Graphics Technology AAS Degree Specialty Tracks

The computer graphics technology programs prepare students for a career in the fields of 3D and video graphics, web and interactive media or digital arts. As in the certificate program, students learn how to use the principles of design, typography, and color theory to create professional level visual communications and how to apply software, hardware and peripherals to meet these goals. In addition to the certificate skills, the associate degree tracks include coursework that meets the general education requirements for a Schoolcraft associate in applied science (AAS) degree. The program's capstone classes expand the students' creative and practical skills. It is highly recommended that students meet with faculty for advice in selecting their electives. The foundation skills certificates or equivalent skills must be achieved before starting one of the specialty track AAS degrees. Classes with no prerequisite can be taken before starting the program.

Computer Graphics Technology: 3D and Video Graphics AAS Degree

Schoolcraft program code # AAS.00032

Similar to the 3D and video graphics certificate, this degree prepares 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.

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.

Not all courses are offered each semester. Students should work with an academic advisor or CGT faculty to develop a schedule that will work for them. Students planning to transfer should check the transfer institution's requirements/guides or discuss their options with an academic advisor. Number of credits may vary depending on the course selection.

SAMPLE SCHEDULE OF COURSES

First Year - Fall Semester

Course #	Course Title	Credits
Mathematics	**Select one:**	3-4
MATH 101	**Business Mathematics**	
MATH 102	**Technical Mathematics**	
MATH 113	**Intermediate Algebra for College Students**	
CGT 166	**Photography**	3
CGT 168	**Storyboarding**	3
CGT 215	**Motion Graphics 1-After Effects**	3
CGT 254	**3D Animation - Advanced Models and Textures**	3
	Total Credits: 15-16	

Computer Graphics Technology: 3D and Video Graphics AAS Degree (continued)

First Year - Winter Semester

Course #	Course Title	Credits
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

Course #	Course Title	Credits
ENG 102	**English Composition 2**	3
Science	**Select one:**	4
BIOL 101	**General Biology**	
CHEM 111	**General Chemistry 1**	
PHYS 104	**Introduction to Astronomy**	
CGT 158	**Sound Design**	3
CGT 226	**Digital Imaging 2 - Photoshop**	3
CGT 244	**History of Animation**	3
	Total Credits: 16	

Second Year - Winter Semester

Course #	Course Title	Credits
Social Science	**Select one:**	3
POLS 105	**Survey of American Government**	
PSYCH 153	**Human Relations**	
CGT 210	**Visual Effects Production**	3
BUS 103	**Organizing a Small Business**	3
Capstone	**Select one:**	3
CGT 250	**Practical Application**	
CGT 271*	**Internship**	
CGT 298*	**Honors Studies**	
CGT 256	**Portfolio 3D - Reel Development**	3
	Total Credits: 15	

PROGRAM TOTAL 61-62 CREDITS

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

Computer Graphics Technology: Graphic Arts AAS Degree

Schoolcraft program code # AAS.00028

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.

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.

Not all courses are offered each semester. Students should work with an academic advisor or Computer Graphics Technology (CGT) faculty to develop a schedule that will work for them. Students planning to transfer should check the transfer institution's requirements/guides or discuss their options with an academic advisor. Number of credits may vary depending on the course selection.

SAMPLE SCHEDULE OF COURSES

First Year - Fall Semester

Course #	Course Title	Credits
ENG 101	**English Composition 1**	3
Mathematics	**Select one:**	3-4
MATH 101	**Business Mathematics**	
MATH 102	**Technical Mathematics**	
MATH 113	**Intermediate Algebra for College Students**	
ART 128	**The Human Figure in Art 1: Theory and Elements**	3
CGT 136	**Web Design and Development 1**	3
CGT 161	**History of Graphic Design**	3
	Total Credits: 15-16	

First Year - Winter Semester

Course #	Course Title	Credits
ENG 102	**English Composition 2**	3
BUS 122	**Advertising**	3
ART 228	**The Human Figure in Art 2: Theory and Elements**	3
CGT 166	**Photography**	3
CGT 226	**Digital Imaging 2 - Photoshop**	3
	Total Credits: 15	

Computer Graphics Technology: Graphic Arts AAS Degree (continued)

Second Year - Fall Semester

Course #	Course Title	Credits
Science	**Select one:**	4
BIOL 101	**General Biology**	
CHEM 111	**General Chemistry 1**	
PHYS 104	**Introduction to Astronomy**	
COMA 103	**Fundamentals of Speech**	3
Elective	**Select one:**	3
ART 246	**Sculpture 1: Theory and Elements**	
WELD 112	**Contemporary Metal Sculpture 1**	
Elective	**Select one:**	3
	Any ART or CGT course	
CGT 149	**Typography**	3
	Total Credits: 16	

Second Year - Winter Semester

Course #	Course Title	Credits
Social Science	**Select one:**	3
POLS 105	**Survey of American Government**	
PSYCH 153	**Human Relations**	
CGT 231	**Electronic Publishing**	3
BUS 103	**Organizing a Small Business**	3
Capstone	**Select one:**	3
CGT 250	**Practical Application**	
CGT 271*	**Internship**	
CGT 298*	**Honors Studies**	
CGT 257	**Portfolio Preparation**	3
	Total Credits: 15	

PROGRAM TOTAL 61-62 CREDITS

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

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.

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.

Not all courses are offered each semester. Students should work with an academic advisor or Computer Graphics Technology (CGT) faculty to develop a schedule that will work for them. Students planning to transfer should check the transfer institution's requirements/guides or discuss their options with an academic advisor. Number of credits may vary depending on the course selection.

SAMPLE SCHEDULE OF COURSES

First Year - Fall Semester

Course #	Course Title	Credits
ENG 101	**English Composition 1**	3
Mathematics	**Select one:**	3-4
MATH 101	**Business Mathematics**	
MATH 102	**Technical Mathematics**	
MATH 113	**Intermediate Algebra for College Students**	
CGT 163	**Web Design and Development 2**	3
CGT 149	**Typography**	3
CGT 141	**Introduction to 2D Animation and Interactive Media**	3
	Total Credits: 15-16	

First Year - Winter Semester

Course #	Course Title	Credits
ENG 102	**English Composition 2**	3
CGT 213	**Advanced 2D Animation**	3
CGT 161	**History of Graphic Design**	3
CGT 168	**Storyboarding**	3
CGT 212	**Advanced Interactive Media**	3
	Total Credits: 15	

Computer Graphics Technology: Web and Interactive Media AAS Degree (continued)

Second Year - Fall Semester

Course #	Course Title	Credits
Science	**Select one:**	4
BIOL 101	**General Biology**	
CHEM 111	**General Chemistry 1**	
PHYS 104	**Introduction to Astronomy**	
COMA 103	**Fundamentals of Speech**	3
CGT 234	**Web Development and Design 3**	3
CGT 226	**Digital Imaging 2 - Photoshop**	3
BUS 122	**Advertising**	3
	Total Credits: 16	

Second Year - Winter Semester

Course #	Course Title	Credits
Social Science	**Select one:**	3
POLS 105	**Survey of American Government**	
PSYCH 153	**Human Relations**	
CIS 238	**JavaScript**	3
BUS 103	**Organizing a Small Business**	3
Capstone	**Select one:**	3
CGT 250	**Practical Application**	
CGT 271*	**Internship**	
CGT 298*	**Honors Studies**	
CGT 257	**Portfolio Preparation**	3
	Total Credits: 15	

PROGRAM TOTAL 61-62 CREDITS

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

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.

The post-associate certificate is awarded upon successful completion of 16 credits (exact number may vary slightly due to credit value of course.)

Not all courses are offered each semester. Students should work with an academic advisor to develop a schedule that will work for them. Number of credits may vary depending on the course selection.

Computer Graphics Technology: Post-Associate Certificate

Course #	Course Title	Credits
ART 115	**Art History 1**	4
ART 116	**Art History 2**	4
ART 120	**Drawing: Theory and Elements**	3
ART 128	**The Human Figure in Art 1: Theory and Elements**	3
ART 246	**Sculpture 1: Theory and Elements**	3
CGT 136	**Web Design and Development 1**	3
CGT 141	**Introduction to 2D Animation and Interactive Media**	3
CGT 149	**Typography**	3
CGT 158	**Sound Design**	3
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 212	**Advanced Interactive Media**	3
CGT 213	**Advanced 2D Animation**	3
CGT 215	**Motion Graphics 1-After Effects**	3
CGT 226	**Digital Imaging 2 - Photoshop**	3
CGT 231	**Electronic Publishing**	3
CGT 234	**Web Development and Design 3**	3

Computer Graphics Technology: Post-Associate Certificate (continued)

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 1**	3

PROGRAM TOTAL 16-20 CREDITS

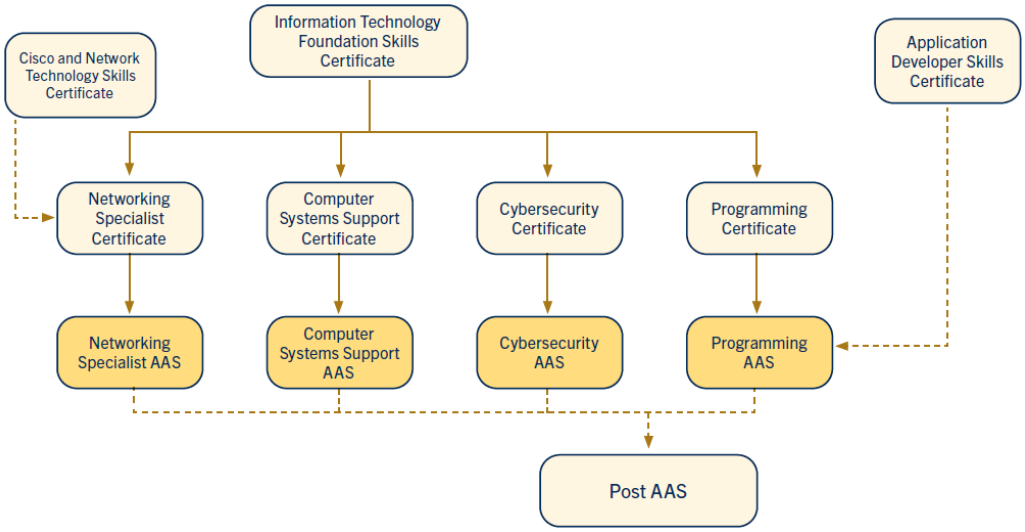
Computer Information Systems

Credentials

Foundation	
Information Technology Foundation Skills Certificate	16-18 cr.
Networking	
Cisco and Network Technology Skills Certificate	18 cr.
Networking Specialist Certificate	30 cr.
Networking Specialist AAS Degree	60-64 cr.
Computer Systems Support	
Computer Systems Support Certificate	33-34 cr.
Computer Systems Support AAS Degree	62-69 cr.
Cybersecurity	
Cybersecurity Certificate	35 cr.
Cybersecurity AAS Degree	63-71 cr.
Programming	
Application Developer Skills Certificate	16 cr.
Programming Certificate	30-31 cr.
Programming AAS Degree	60–62 cr.
Post-Associate	
Post-Associate Certificate	16 cr.

Major Description

If you are interested in learning more about computer basics or technology, or preparing for a career in an emerging technology field, Schoolcraft's Computer Information Systems programs have what you need. We offer four associate of applied science degrees and eight certificates that will help you enhance your skills and prepare for a career in computer systems support, networking, cybersecurity, or programming. Explore the diagram of our educational options below to chart your path:



Foundation

- **Information Technology Foundation Skills Certificate:** This certificate program is designed for students who are new to computers and information technology looking to become more knowledgeable before choosing a specific path to pursue in the field. Students at any level of computer familiarity will gain fundamental computer knowledge and skills before having the opportunity to choose courses providing a path forward into several certificate and degree programs.

Networking

- **Cisco and Network Technology Skills Certificate:** This certificate program is designed to provide students with a focused understanding of network fundamentals and relevant industry skills, while working with network equipment and the latest networking technologies in preparation to achieve the Cisco Certified Network Associate (CCNA) and other industry certifications.

- **Networking Specialist Certificate:** This certificate provides students with an understanding of network fundamentals and technologies necessary to support networks and network technologies in the demanding information technology field. Students will gain proficiency working with network equipment such as routers and switches, servers and modern operating systems, and explore advanced topics such as cloud technology and cybersecurity. For students looking to jump-start their current IT career, several industry certifications are covered and include Network+, Security+, Cloud+, Linux+, CCNA.

- **Networking Specialist AAS Degree:** Networks form the basis of nearly all of the technologies used in the field of information technology. This program prepares students for an entry-level position in network support where one is expected to not only master networking technologies, but understand how they integrate with and support business operations. Students will gain proficiency working with network equipment such as routers and switches, servers and modern operating systems, and explore advanced topics such as cloud technology and cybersecurity. This program also covers several industry certifications important to starting a networking career including Network+, Security+, Cloud+, Linux+, and CCNA.

Computer Systems Support

- **Computer Systems Support Certificate:** This certificate program provides students with the fundamental knowledge and skills required for an entry-level role in the rapidly evolving field of information technology. Students will learn basics of computer hardware, software and user support, as well as explore advanced areas of networking and cybersecurity vital to today's organizations. This

program also covers several industry certifications important to starting a career in information technology including: A+, Networking+, (and others depending on chosen electives).

- **Computer Systems Support AAS Degree:** In a world dominated by cloud networking and data breaches, supporting computer systems and users is more challenging than ever before. This degree program prepares students for entry-level positions in information technology support where a wide range of technical skills and knowledge are not only requested by employers, but required. Students will learn how to support the latest computer hardware and software technologies, support users in a business environment and explore the wider field of IT including networking and cybersecurity. This program also covers several industry certifications important to starting a career in information technology including: A+, Networking+, (and others such as Security+ or Cisco certification depending on chosen electives).

Cybersecurity

- **Cybersecurity Certificate:** This certificate provides students with a firm foundation of technologies and knowledge required to enter the exciting cybersecurity field. Students will gain proficiency with network equipment, operating systems, security software, as well as skills necessary for configuring and analyzing secure systems. This program also covers several industry certifications including Security+, Linux+, Cisco certification, and Microsoft Windows Server.

- **Cybersecurity AAS Degree:** Cybersecurity is becoming increasingly important as more organizations seek to protect their networks, software, and information from potential threats. This program is designed for students who plan to enter this rapidly advancing field and provides a firm foundation of technical skills and knowledge required to thrive in modern business environments. Students will gain proficiency with network equipment, operating systems, security software, as well as skills necessary for configuring and analyzing secure systems. Several industry certifications are covered, including Security+, Linux+, Cisco certification, and Microsoft Windows Server.

Programming

- **Application Developer Skills Certificate:** This certificate program is designed to introduce students to the top computer 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.

- **Programming 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.

- **Programming AAS Degree:** This degree offers students a schedule of core computer courses and electives to prepare them for a 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.

Post -Associate

- **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.

Students who possess current external certification in any of the following should contact *OccupationalPrograms@schoolcraft.edu* to determine if they are eligible to earn Schoolcraft College credit: CompTIA Network+, CompTIA Security+, CompTIA A+, CompTIA Cloud+, Cisco Certified Entry Network Technician (CCENT), Cisco Certified Network Associate (CCNA), Cisco Certified Network Associate (CCNA) Cyber Ops certification, or Cisco Certified CyberOps Associate.

Computer Information Systems: Information Technology Foundation Skills Certificate

Schoolcraft program code # CRT.00328

This certificate program is designed for students who are new to computers and information technology looking to become more knowledgeable before choosing a specific path to pursue in the field. Students at any level of computer familiarity will gain fundamental computer knowledge and skills before having the opportunity to choose courses providing a path forward into several certificate and degree programs.

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.

Not all courses are offered each semester. Students should work with an academic advisor to develop a schedule that will work for them. Students planning to transfer should check the transfer institution's requirements/guides or discuss their options with an academic advisor. Number of credits may vary depending on the course selection.

SAMPLE SCHEDULE OF COURSES

First Year - Fall Semester

Course #	Course Title	Credits
CIS 115	**Introduction to Computer Based Systems**	3
CIS 120	**Software Applications**	3
Elective(s)	**Select from list**	3-4
	Total Credits: 9-10	

First Year - Winter Semester

Course #	Course Title	Credits
CNT 115	**Cybersecurity Fundamentals**	3
Elective(s)	**Select from list**	4-5
	Total Credits: 7-8	

Electives

Course #	Course Title	Credits
CIS 122	**Microsoft Outlook**	2
CIS 129	**Introduction to Programming Logic**	3
CIS 171	**Introduction to Networking**	3
CIS 172	**Network Security Fundamentals**	3
CIS 178	**Technical Microsoft Windows**	3
CIS 211	**Introduction to C++**	2
CIS 255	**Introduction to Linux**	3
CNT 133	**Computer Software and Troubleshooting**	3
CNT 210	**CCNA Networking 1**	4

PROGRAM TOTAL 16-18 CREDITS

Computer Information Systems: Cisco and Network Technology Skills Certificate

Schoolcraft program code # CRT.00329

This fast-paced certificate is geared towards working professionals who have experience and/or training in the computer field, or for someone with exposure to technology, that is serious about obtaining Cisco and relevant networking industry certifications. This curriculum provides students with a focused understanding of network fundamentals, proficiency working with network equipment and the latest networking technologies. Specific topics and skills covered are based on the latest Cisco Certified Networking Associate exam objectives and topics relevant to industry certification in the networking field. Completion of this Skills Certificate positions the student to continue on to the Networking Specialist Certificate with many of the requirements already completed.

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.

Not all courses are offered each semester. Students should work with an academic advisor to develop a schedule that will work for them. Students planning to transfer should check the transfer institution's requirements/guides or discuss their options with an academic advisor. Number of credits may vary depending on the course selection.

SAMPLE SCHEDULE OF COURSES

First Year - Fall Semester

Course #	Course Title	Credits
CNT 210*	**CCNA Networking 1**	4
CNT 220*	**CCNA Networking 2**	4
	Total Credits: 8	

First Year - Winter Semester

Course #	Course Title	Credits
CNT 230*	**CCNA Networking 3**	4
Elective	**Select Two**	6
CIS 172	**Network Security Fundamentals**	
CIS 255	**Introduction to Linux**	
CNT 176	**Cloud Network Technologies**	
CNT 244	**Cybersecurity Operations**	
	Total Credits: 10	

PROGRAM TOTAL 18 CREDITS

*Completion of CNT 210, CNT 220 and CNT 230 will prepare the student to sit for the Cisco Certified Network Associate (CCNA) exam.

Computer Information Systems: Networking Specialist Certificate

Schoolcraft program code # 1YC.00231

This program prepares students for the challenging field of networking where fundamental knowledge of networks underpins the ability to master rapidly advancing advancements that span nearly all technologies in use today. A thorough practical foundation is provided by the rigorous Cisco Academy, with additional courses in the specialized topics of server administration, cybersecurity, wireless, and cloud networking.

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.

Not all courses are offered each semester. Students should work with an academic advisor to develop a schedule that will work for them. Students planning to transfer should check the transfer institution's requirements/guides or discuss their options with an academic advisor. Number of credits may vary depending on the course selection.

SAMPLE SCHEDULE OF COURSES

First Year - Fall Semester

Course #	Course Title	Credits
CNT 115	**Cybersecurity Fundamentals**	3
CNT 210*	**CCNA Networking 1**	4
CNT 220*	**CCNA Networking 2**	4
CNT 250	**Server Administration 1**	3
Elective	**Select one:**	3
CIS 178	**Technical Microsoft Windows**	
CIS 255	**Introduction to Linux**	
	Total Credits: 17	

First Year - Winter Semester

Course #	Course Title	Credits
CNT 230*	**CCNA Networking 3**	4
CNT 173	**Wireless Local Area Networks**	3
CNT 176	**Cloud Network Technologies**	3
CIS 172	**Network Security Fundamentals**	3
	Total Credits: 13	

PROGRAM TOTAL 30 CREDITS

*Completion of CNT 210, CNT 220 and CNT 230 will prepare the student to sit for the Cisco Certified Network Associate (CCNA) exam.

Computer Information Systems: Networking Specialist AAS Degree

Schoolcraft program code # AAS.00007

This program builds on the Networking Specialist certificate program to further prepare students for a career in the challenging field of networking. In addition to the targeted curriculum of the certificate program, students will gain additional knowledge and skills necessary to design, integrate, and manage networking projects.

Students who satisfactorily complete all college and program requirements qualify for an associate in applied science degree.

Not all courses are offered each semester. Students should work with an academic advisor to develop a schedule that will work for them. Students planning to transfer should check the transfer institution's requirements/guides or discuss their options with an academic advisor. Number of credits may vary depending on the course selection.

SAMPLE SCHEDULE OF COURSES

First Year - Fall Semester

Course #	Course Title	Credits
English	**Select one:**	3
ENG 100	**Communication Skills**	
ENG 101	**English Composition 1**	
CNT 115	**Cybersecurity Fundamentals**	3
CNT 210*	**CCNA Networking 1**	4
CNT 220*	**CCNA Networking 2**	4
	Total Credits: 14	

First Year - Winter Semester

Course #	Course Title	Credits
English	**Select one:**	3
ENG 102	**English Composition 2**	
ENG 106	**Business English**	
ENG 116	**Technical Writing**	
Mathematics	**Select one:**	4
MATH 102	**Technical Mathematics**	
MATH 113	**Intermediate Algebra for College Students**	
MATH 126	**College Algebra**	
CNT 230*	**CCNA Networking 3**	4
Humanities	**General Education Humanities course (Recommended courses below)**	1-3
COMA 103	**Fundamentals of Speech**	
HUM 106	**Introduction to Art and Music**	
	Total Credits: 12 - 14	

Computer Information Systems: Networking Specialist AAS Degree (continued)

First Year - Spring Session

Course #	Course Title	Credits
Social Science	**General Education Social Science course (Recommended courses below)**	3-4
POLS 105	**Survey of American Government**	
PSYCH 153	**Human Relations**	
PSYCH 201	**Introductory Psychology**	
Science	**General Education Science course**	3-4
	Total Credits: 6-8	

Second Year - Fall Semester

Course #	Course Title	Credits
CIS 172	**Network Security Fundamentals**	3
CNT 173	**Wireless Local Area Networks**	3
CNT 250	**Server Administration 1**	3
Elective	**Select one:**	3
CIS 178	**Technical Microsoft Windows**	
CIS 255	**Introduction to Linux**	
	Total Credits: 12	

Second Year - Winter Semester

Course #	Course Title	Credits
CIS 250	**Systems Development and Design**	4
CIS 251	**IT Project Management**	3
CNT 176	**Cloud Network Technologies**	3
CNT 293	**Network Design**	3
Elective	**Select one not previously taken**	3
	Total Credits: 16	

Computer Information Systems: Networking Specialist AAS Degree (continued)

Electives

Course #	Course Title	Credits
CIS 178	**Technical Microsoft Windows**	3
CIS 225	**Database Management Systems**	3
CIS 255	**Introduction to Linux**	3
CIS 273	**TCP/IP and Network Architectures**	3
CIS 274	**Advanced Linux**	3
CNT 253	**Server Administration 2**	3

PROGRAM TOTAL 60-64 CREDITS

*Completion of CNT 210, CNT 220 and CNT 230 will prepare the student to sit for the Cisco Certified Network Associate (CCNA) exam.

Computer Information Systems: Computer Systems Support Certificate

Schoolcraft program code # 1YC.00230

This program prepares students for their role as a modern systems support technician in businesses where they are expected be responsible for much more than just fixing computers. In addition to a firm basis in computer hardware and software skills, students will gain technical proficiency in operating systems, networking, and cybersecurity, while also learning how to communicate with and support users in a business environment.

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.

Not all courses are offered each semester. Students should work with an academic advisor to develop a schedule that will work for them. Students planning to transfer should check the transfer institution's requirements/guides or discuss their options with an academic advisor. Number of credits may vary depending on the course selection.

SAMPLE SCHEDULE OF COURSES

First Year - Fall Semester

Course #	Course Title	Credits
CIS 120	**Software Applications**	3
CNT 115	**Cybersecurity Fundamentals**	3
CNT 179	**Physical Networking**	3
CNT 130	**Computer Hardware and Troubleshooting**	3
CNT 133	**Computer Software and Troubleshooting**	3
	Total Credits: 15	

First Year - Winter Semester

Course #	Course Title	Credits
CIS 215	**Advanced Software Applications**	3
Elective	**Select one:**	3
CIS 178	**Technical Microsoft Windows**	
CIS 255	**Introduction to Linux**	
CNT 136	**Computer User Support**	3
CIS 171	**Introduction to Networking**	3
Elective	**Select from list**	3-4
	Total Credits: 15-16	

First Year - Spring Session

Course #	Course Title	Credits
CIS 180	**Spreadsheet Applications - Current Software**	3
	Total Credits: 3	

Electives

Course #	Course Title	Credits
CIS 172	**Network Security Fundamentals**	3
CNT 173	**Wireless Local Area Networks**	3
CNT 210	**CCNA Networking 1**	4
CNT 220	**CCNA Networking 2**	4

PROGRAM TOTAL 33-34 CREDITS

Computer Information Systems: Computer Systems Support AAS Degree

Schoolcraft program code # AAS.00014

This program builds on the Computer Systems Support certificate program to further prepare students for a career as a modern systems support technician. Students will enhance their technical skills, while also learning how to manage projects and develop systems solutions to business challenges.

Students who satisfactorily complete all college and program requirements qualify for an associate in applied science degree.

Not all courses are offered each semester. Students should work with an academic advisor to develop a schedule that will work for them. Students planning to transfer should check the transfer institution's requirements/guides or discuss their options with an academic advisor. Number of credits may vary depending on the course selection.

SAMPLE SCHEDULE OF COURSES

First Year - Fall Semester

Course #	Course Title	Credits
English	**Select one:**	3
ENG 100	**Communication Skills**	
ENG 101	**English Composition 1**	
CIS 120	**Software Applications**	3
CNT 115	**Cybersecurity Fundamentals**	3
CNT 130	**Computer Hardware and Troubleshooting**	3
CNT 133	**Computer Software and Troubleshooting**	3
	Total Credits: 15	

First Year - Winter Semester

Course #	Course Title	Credits
English	**Select one:**	3
ENG 102	**English Composition 2**	
ENG 106	**Business English**	
ENG 116	**Technical Writing**	
Mathematics	**Select one:**	4
MATH 102	**Technical Mathematics**	
MATH 113	**Intermediate Algebra for College Students**	
MATH 126	**College Algebra**	
CIS 171	**Introduction to Networking**	3
CIS 215	**Advanced Software Applications**	3
CNT 136	**Computer User Support**	3
	Total Credits: 16	

Computer Information Systems: Computer Systems Support AAS Degree (continued)

First Year - Spring Session

Course #	Course Title	Credits
Social Science	**General Education Social Science course (Recommended courses below)**	3-4
POLS 105	**Survey of American Government**	
PSYCH 153	**Human Relations**	
PSYCH 201	**Introductory Psychology**	
Science	**General Education Science course**	3-4
	Total Credits: 6-8	

Second Year - Fall Semester

Course #	Course Title	Credits
CIS 180	**Spreadsheet Applications - Current Software**	3
Humanities	**General Education Humanities course (Recommended courses below)**	1-3
COMA 103	**Fundamentals of Speech**	
HUM 106	**Introduction to Art and Music**	
CIS 178	**Technical Microsoft Windows**	3
CNT 179	**Physical Networking**	3
Elective	**Select one:**	3-4
CIS 172	**Network Security Fundamentals**	
CNT 173	**Wireless Local Area Networks**	
CNT 210	**CCNA Networking 1**	
CNT 220	**CCNA Networking 2**	
	Total Credits: 13-16	

Second Year - Winter Semester

Course #	Course Title	Credits
CIS 250	**Systems Development and Design**	4
CIS 251	**IT Project Management**	3
CIS 255	**Introduction to Linux**	3
Elective	**Select from list (if not previously taken)**	2-4
	Total Credits: 12-14	

Computer Information Systems: Computer Systems Support AAS Degree (continued)

Electives - Select one not previously taken

Course #	Course Title	Credits
CIS 122	**Microsoft Outlook**	2
CIS 172	**Network Security Fundamentals**	3
CIS 185	**Introduction to HTML**	3
CIS 225	**Database Management Systems**	3
CNT 173	**Wireless Local Area Networks**	3
CNT 210	**CCNA Networking 1**	4
CNT 220	**CCNA Networking 2**	4

PROGRAM TOTAL 62-69 CREDITS

Computer Information Systems: Cybersecurity Certificate

Schoolcraft program code # 1YC.00232

This program prepares students for the exciting and rapidly advancing Cybersecurity field. A thorough foundation is provided in networking and operating systems, while also covering advanced security topics including design, vulnerability and penetration testing, and defense technologies. All program required courses must have been completed with a grade of 2.0 or better.

Not all courses are offered each semester. Students should work with an academic advisor to develop a schedule that will work for them. Students planning to transfer should check the transfer institution's requirements/guides or discuss their options with an academic advisor. Number of credits may vary depending on the course selection.

SAMPLE SCHEDULE OF COURSES

First Year - Fall Semester

Course #	Course Title	Credits
CNT 115	**Cybersecurity Fundamentals**	3
CNT 210*	**CCNA Networking 1**	4
CNT 220*	**CCNA Networking 2**	4
	Total Credits: 11	

First Year - Winter Semester

Course #	Course Title	Credits
CIS 172	**Network Security Fundamentals**	3
CNT 250	**Server Administration 1**	3
CIS 255	**Introduction to Linux**	3
CIS 129	**Introduction to Programming Logic**	3
	Total Credits: 12	

Second Year - Fall Semester

Course #	Course Title	Credits
CNT 262	**Perimeter Defense**	3
CNT 180	**Ethical Hacking and System Defense**	3
	Total Credits: 6	

Second Year - Winter Semester

Course #	Course Title	Credits
CNT 260	**Information Assurance and Security**	3
Select One		3
CNT 264	**Security Testing Methods**	
CNT 244	**Cybersecurity Operations**	
	Total Credits: 6	

PROGRAM TOTAL 35 CREDITS

**CNT 210 is a prerequisite to CNT 220. Students are encouraged to take the 7-week section of CNT 210 followed by the 7-week section of CNT 220 in the same semester. Students who do not follow this path could face additional semesters to degree completion.*

Computer Information Systems: Cybersecurity AAS Degree

Schoolcraft program code # AAS.00066

This program builds on the Cybersecurity certificate program to further develop the skills necessary for students to be successful in environments where business and technical requirements constantly evolve. In addition to the targeted cybersecurity curriculum of the certificate program, students will gain additional business and data analysis skills while also having the opportunity to further explore networking, systems management, or programming.

Students who satisfactorily complete all college and program requirements qualify for an associate in applied science degree.

Not all courses are offered each semester. Students should work with an academic advisor to develop a schedule that will work for them. Students planning to transfer should check the transfer institution's requirements/guides or discuss their options with an academic advisor. Number of credits may vary depending on the course selection.

SAMPLE SCHEDULE OF COURSES

First Year – Fall Semester

Course #	Course Title	Credits
English	**Select one:**	3
ENG 100	**Communication Skills**	
ENG 101	**English Composition 1**	
CNT 115	**Cybersecurity Fundamentals**	3
CNT 210*	**CCNA Networking 1**	4
CNT 220*	**CCNA Networking 2**	4
	Total Credits: 14	

First Year – Winter Semester

Course #	Course Title	Credits
English	**Select one:**	3
ENG 102	**English Composition 2**	
ENG 106	**Business English**	
ENG 116	**Technical Writing**	
CIS 129	**Introduction to Programming Logic**	3
CIS 172	**Network Security Fundamentals**	3
CNT 250	**Server Administration 1**	3
CIS 255	**Introduction to Linux**	3
	Total Credits: 15	

Computer Information Systems: Cybersecurity AAS Degree (continued)

First Year – Spring Session

Course #	Course Title	Credits
Social Science	**Select General Education Social Science course. Recommended courses below.**	3-4
POLS 105	**Survey of American Government**	
PSYCH 153	**Human Relations**	
PSYCH 201	**Introductory Psychology**	
CIS 180	**Spreadsheet Applications – Current Software**	3
	Total Credits: 6-7	

Second Year – Fall Semester

Course #	Course Title	Credits
CNT 262	**Perimeter Defense**	3
CNT 180	**Ethical Hacking and System Defense**	3
Mathematics	**Select one:**	4
MATH 102	**Technical Mathematics**	
MATH 113	**Intermediate Algebra for College Students**	
MATH 126	**College Algebra**	
Science	**Select General Education Science course**	3-4
Elective	**Select one**	2-3
	Total credits: 15-17	

Second Year – Winter Semester

Course #	Course Title	Credits
CIS 250	**Systems Development and Design**	4
CNT 260	**Information Assurance and Security**	3
Select One		3
CNT 264	**Security Testing Methods**	
CNT 244	**Cybersecurity Operations**	
Elective	**Select one**	2-5
Humanities	**Select General Education Humanities course. Recommended courses below.**	1-3
COMA 103	**Fundamentals of Speech**	
HUM 106	**Introduction to Art and Music**	
	Total Credits: 13-18	

Computer Information Systems: Cybersecurity AAS Degree (continued)

Electives

Course #	Course Title	Credits
CIS 178	**Technical Microsoft Windows**	3
CIS 225	**Database Management Systems**	3
CNT 253	**Server Administration 2**	3
CIS 273	**TCP/IP and Network Architectures**	3
CIS 274	**Advanced Linux**	3
CIS 251	**IT Project Management**	3
CNT 176	**Cloud Network Technologies**	3
CIS 211	**Introduction to C++**	2
CIS 221	**Advanced C++**	2
CIS 238	**JavaScript**	3
CIS 290	**Object-Oriented Programming with Java**	3
ELECT 180	**LabVIEW Programming CORE 1 and 2**	5

PROGRAM TOTAL 63-71 CREDITS

**CNT 210 is a prerequisite to CNT 220. Students are encouraged to take the 7-week section of CNT 210 followed by the 7-week section of CNT 220 in the same semester. Students who do not follow this path could face additional semesters to degree completion.*

Computer Information Systems: Application Developer 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.

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.

Not all courses are offered each semester. Students should work with an academic advisor to develop a schedule that will work for them. Students planning to transfer should check the transfer institution's requirements/guides or discuss their options with an academic advisor. Number of credits may vary depending on the course selection.

SAMPLE SCHEDULE OF COURSES

First Year - Fall Semester

Course #	Course Title	Credits
CIS 129	**Introduction to Programming Logic**	3
	Total Credits: 3	

First Year - Winter Semester

Course #	Course Title	Credits
CIS/CNT Elective	**Select one:**	3
CNT 115	**Cybersecurity Fundamentals**	
CIS 171	**Introduction to Networking**	
CIS 211	**Introduction to C++**	2
	Total Credits: 5	

Second Year - Fall Semester

Course #	Course Title	Credits
CIS 221	**Advanced C++**	2
CIS 223	**Introduction to C#**	3
CIS 290	**Object-Oriented Programming with Java**	3
	Total Credits: 8	

PROGRAM TOTAL 16 CREDITS

Computer Information Systems: Programming 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 any time during or after the first year. However, all degree requirements must be fulfilled.

Students who satisfactorily complete the program requirements qualify for a certificate of program completion.

Not all courses are offered each semester. Students should work with an academic advisor to develop a schedule that will work for them. Students planning to transfer should check the transfer institution's requirements/guides or discuss their options with an academic advisor. Number of credits may vary depending on the course selection.

SAMPLE SCHEDULE OF COURSES

First Year – Fall Semester

Course #	Course Title	Credits
CIS 115	**Introduction to Computer Based Systems**	3
CIS 120	**Software Applications**	3
CIS 129	**Introduction to Programming Logic**	3
CIS 171	**Introduction to Networking**	3
Mathematics	**Select one:**	4
MATH 113	**Intermediate Algebra for College Students**	
MATH 126	**College Algebra**	
	Total Credits: 16	

First Year – Winter Semester

Course #	Course Title	Credits
CNT 115	**Cybersecurity Fundamentals**	3
CIS 178	**Technical Microsoft Windows**	3
CIS 223	**Introduction to C#**	3
CIS 225	**Database Management Systems**	3
Elective	**Select from list**	2-3
	Total Credits: 14-15	

Computer Information Systems: Programming Certificate (continued)

Electives

Course #	Course Title	Credits
CIS 122	**Microsoft Outlook**	2
CIS 211	**Introduction to C++**	2
CIS 251	**IT Project Management**	3
CIS 255	**Introduction to Linux**	3

PROGRAM TOTAL 30-31 CREDITS

Computer Information Systems: Programming AAS Degree

Schoolcraft program code # AAS.00012

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.

Students who satisfactorily complete all college and program requirements qualify for an associate in applied science degree.

Not all courses are offered each semester. Students should work with an academic advisor to develop a schedule that will work for them. Students planning to transfer should check the transfer institution's requirements/guides or discuss their options with an academic advisor. Number of credits may vary depending on the course selection.

SAMPLE SCHEDULE OF COURSES

First Year – Fall Semester

Course #	Course Title	Credits
CIS 115	**Introduction to Computer Based Systems**	3
CIS 129	**Introduction to Programming Logic**	3
Mathematics	**Select one:**	4
MATH 113	**Intermediate Algebra for College Students**	
MATH 126	**College Algebra**	
COMA 103	**Fundamentals of Speech**	3
ENG 101	**English Composition 1**	3
	Total Credits: 16	

First Year – Winter Semester

Course #	Course Title	Credits
ENG 102	**English Composition 2**	3
CIS 178	**Technical Microsoft Windows**	3
CIS 225	**Database Management Systems**	3
Science	**General Education Science course**	4
CNT 115	**Cybersecurity Fundamentals**	3
	Total Credits: 16	

Computer Information Systems: Programming AAS Degree (continued)

Second Year – Fall Semester

Course #	Course Title	Credits
CIS 211	**Introduction to C++**	2
CIS 223	**Introduction to C#**	3
CIS 255	**Introduction to Linux**	3
Elective	**Select from list**	6
	Total Credits: 14	

Second Year – Winter Semester

Course #	Course Title	Credits
CIS 250	**Systems Development and Design**	4
CIS 290	**Object-Oriented Programming with Java**	3
CIS 221	**Advanced C++**	2
Social Science	**Select one:**	3-4
POLS 105	**Survey of American Government**	
PSYCH 153	**Human Relations**	
PSYCH 201	**Introductory Psychology**	
Elective	**Select from list**	2-3
	Total Credits: 14-16	

Electives

Course #	Course Title	Credits
CIS 120	**Software Applications**	3
CIS 122	**Microsoft Outlook**	2
CIS 171	**Introduction to Networking**	3
CIS 185	**Introduction to HTML**	3
CIS 238	**JavaScript**	3
CIS 251	**IT Project Management**	3

PROGRAM TOTAL 60-62 CREDITS

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. The post-associate certificate is awarded upon successful completion of 16 credit hours (exact number may vary slightly due to credit value of courses).

Many courses can be taken through independent study. Not all courses are offered each semester. Students should work with an academic advisor to develop a schedule that will work for them. Number of credits may vary depending on the course selection.

Program Courses

Course #	Course Title	Credits
CIS 172	**Network Security Fundamentals**	3
CIS 178	**Technical Microsoft Windows**	3
CIS 185	**Introduction to HTML**	3
CIS 211	**Introduction to C++**	2
CIS 221	**Advanced C++**	2
CIS 223	**Introduction to C#**	3
CIS 238	**JavaScript**	3
CIS 250	**Systems Development and Design**	4
CIS 251	**IT Project Management**	3
CIS 255	**Introduction to Linux**	3
CIS 274	**Advanced Linux**	3
CIS 290	**Object-Oriented Programming with Java**	3
CNT 176	**Cloud Network Technologies**	3
CNT 210	**CCNA Networking 1**	4
CNT 220	**CCNA Networking 2**	4
CNT 130	**Computer Hardware and Troubleshooting**	3
CNT 250	**Server Administration 1**	3

Cosmetology Management

Credentials

Cosmetology Management AAS Degree	67 cr.

Major Description

The associate degree in cosmetology management program is designed for cosmetologists who are interested in managing a salon or starting their own business. It focuses on the essentials of organizing and operating a business, along with the communication and people skills needed to be successful as a salon manager or owner.

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.

Students who satisfactorily complete all college and program requirements qualify for an associate in applied science degree.

Not all courses are offered each semester. Students should work with an academic advisor to develop a schedule that will work for them. Students planning to transfer should check the transfer institution's requirements/guides or discuss their options with an academic advisor. Number of credits may vary depending on the course selection.

SAMPLE SCHEDULE OF COURSES

Admission Prerequisites

Course #	Course Title	Credits
	Current Cosmetology License	30

First Year - Fall Semester

Course #	Course Title	Credits
BUS 101	**Introduction to Business**	3
BUS 103	**Organizing a Small Business**	3
MATH 101	**Business Mathematics**	3
ENG 101	**English Composition 1**	3
PSYCH 153	**Human Relations**	3
	Total Credits: 15	

First Year - Winter Semester

Course #	Course Title	Credits
ACCT 103	**Introduction to Accounting**	4
BUS 104	**Operating a Small Business**	3
COMA 103	**Fundamentals of Speech**	3
ENG 116	**Technical Writing**	3
Social Science	**Select one:**	3
POLS 105	**Survey of American Government**	
SOC 201	**Principles of Sociology**	
	Total Credits: 16	

Cosmetology Management AAS Degree (continued)

First Year - Spring Session

Course #	Course Title	Credits
BIOL 101	**General Biology**	4
CIS 105	**Computer Orientation**	1
HUM 106	**Introduction to Art and Music**	1
	Total Credits: 6	

TOTAL 37 CREDITS

CURRENT COSMETOLOGY LICENSE 30 CREDITS

PROGRAM TOTAL 67 CREDITS

Criminal Justice and Police Academy

Credentials

Criminal Justice AAS Degree	60-63 cr.
Criminal Justice AAS Degree with Academy	63-66 cr.

Major Description

Schoolcraft offers two criminal justice associate in applied science degrees to help prepare students for a career and quick advancement in this public safety field. The criminal justice AAS degree is geared toward working professionals in the field who are looking to enhance their on-the-job training with specialized criminal justice courses in communication, computing, health and human relations. This degree also helps students develop the skills needed to investigate human behaviors and take the appropriate measures to ensure the safety of the society.

The second criminal justice AAS degree with the academy is aimed at students aspiring to law enforcement careers and who want police academy experience in addition to the academic credentials. After completing the academy, students will be eligible to take the Michigan Commission on Law Enforcement Standards (MCOLES) Certification Exam which is a prerequisite for law enforcement employment in Michigan.

Both degrees help students expand their knowledge of the criminal justice system, including criminal law, police field operations and criminal investigation. They will also gain an understanding of the sociological, psychological, biological and environmental factors that cause deviant or criminal behavior.

Students who want to pursue a career as a law enforcement officer should review the “Employment Standards for Michigan Law Enforcement Officers” at www.michigan.gov/mcoles prior to beginning this area of study to ensure they meet certain psychological and physical requirements.

Criminal Justice AAS Degree

Schoolcraft program code # AAS.00086

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 assist existing employees of the criminal justice system and prepares students for full employment in this field. Students who satisfactorily complete all college and program requirements qualify for an associate in applied science degree.

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.

Not all courses are offered each semester. Students should work with an academic advisor to develop a schedule that will work for them. Students planning to transfer should check the transfer institution's requirements/guides or discuss their options with an academic advisor. Number of credits may vary depending on the course selection.

SAMPLE SCHEDULE OF COURSES

First Year-Fall Semester

Course #	Course Title	Credits
CJ 113	**Introduction to Criminal Justice System**	3
CJ 102	**Organization and Administration of Law Enforcement Agencies**	3
CJ 210	**Criminal Procedure**	3
COMA 103	**Fundamentals of Speech**	3
ENG 101	**English Composition 1**	3
	Total Credits: 15	

First Year - Winter Semester

Course #	Course Title	Credits
HS 202	**Introduction to Emergency Management**	3
COR 110	**Introduction to Corrections**	3
Social Science	**Select one:**	3-4
PSYCH 153	**Human Relations**	
PSYCH 201	**Introductory Psychology**	
English	**Select one:**	3
ENG 116	**Technical Writing**	
ENG 102	**English Composition 2**	
CJ 107	**Police Field Operations**	3
	Total Credits: 15-16	

Criminal Justice AAS Degree (continued)

Second Year - Fall Semester

Course #	Course Title	Credits
CJ 209	**Basic Criminalistics**	3
CJ 211	**Criminal Law**	3
Science	**General Education Science course**	3-4
Mathematics	**General Education Mathematics course**	3-4
Elective	**Any 100- or 200-level course not previously taken**	3
	Total Credits: 15-17	

Second Year - Winter Semester

Course #	Course Title	Credits
CJ 201	**Criminal Investigation**	3
CJ 212	**Criminology**	3
CJ 221	**Juvenile Justice**	3
SOC 201	**Principles of Sociology**	3
POLS 105	**Survey of American Government**	3
	Total Credits: 15	

PROGRAM TOTAL 60-63 CREDITS

Criminal Justice AAS Degree with Academy

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.

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.

Not all courses are offered each semester. Students should work with an academic advisor to develop a schedule that will work for them. Students planning to transfer should check the transfer institution's requirements/guides or discuss their options with an academic advisor. Number of credits may vary depending on the course selection.

SAMPLE SCHEDULE OF COURSES

First Year - Fall Semester

Course #	Course Title	Credits
CJ 102	**Organization and Administration of Law Enforcement Agencies**	3
COMA 103	**Fundamentals of Speech**	3
ENG 101	**English Composition 1**	3
Science	**General Education Science course**	3-4
	Total Credits: 12-13	

Criminal Justice AAS Degree with Academy (continued)

First Year - Winter Semester

Course #	Course Title	Credits
COR 110	**Introduction to Corrections**	3
CJ 211	**Criminal Law**	3
Social Science	**Select one:**	3-4
PSYCH 153	**Human Relations**	
PSYCH 201	**Introductory Psychology**	
English	**Select one:**	3
ENG 116	**Technical Writing**	
ENG 102	**English Composition 2**	
CJ 210	**Criminal Procedure**	3
	Total Credits: 15-16	

Second Year - Fall Semester

Course #	Course Title	Credits
Mathematics	**General Education Mathematics course**	3-4
CJ 209	**Basic Criminalistics**	3
CJ 212	**Criminology**	3
CJ 221	**Juvenile Justice**	3
SOC 201	**Principles of Sociology**	3
	Total Credits: 15-16	

Second Year - Winter Semester

Course #	Course Title	Credits
CJ 287*	**Police Academy**	21
	Total Credits: 21	

PROGRAM TOTAL 63-66 CREDITS

*CJ 287 requires a special admissions process. Contact the Public Safety Education office at 734-462-4306 for application requirements.

Schoolcraft College | 60 YEARS

2021-2022 CREDENTIAL YEAR

Culinary Baccalaureate Degree Program - BS

Credentials

Culinary and Dietary Operations Management BS Degree	131-132 cr.

Major Description

The Culinary and Dietary Operations Management Bachelor of Science degree is geared towards students with culinary experience who are interested in earning a degree that will prepare them for management positions in the food and nutrition industries. This program also combines business and science courses to broaden the student's knowledge base beyond culinary and improve their career opportunities.

This bachelor of science degree option is a "2 + 2" program that stipulates students must first achieve an associate degree in Culinary Arts from Schoolcraft College or another American Culinary Federation Education Foundation (ACFEF) accredited college prior to gaining admittance to the Culinary and Dietary Operations Management bachelor of science degree. Students must also complete all core ability and bachelor degree general education requirements in addition to completing required bachelor's degree courses. Schoolcraft College's 30 credits of bachelor-level general education requirements align with the Michigan Transfer Agreement. (Students should confer with their counselor or advisor to discuss these criteria and to make appropriate course selections.)

Professional-level American Culinary Federation (ACF) credentialed chefs interested in this program should contact the Culinary Department to explore their options.

Bachelor of Science in Culinary and Dietary Operations Management Program

Schoolcraft program code # BS.00397

The Bachelor of Science (BS) in Culinary and Dietary Operations Management Program is designed for experienced culinary students who are interested in pursuing a bachelor's degree that will lead them to management positions in the food and nutrition industry. This degree program combines business and science courses to provide the culinarian with knowledge and expertise in management, food science and nutrition. Students entering into the Culinary and Dietary Operations Management Baccalaureate Degree Program are preparing themselves for positions of increasing responsibility in culinary and dietary operations. Completion of the degree requirements will also help students prepare to successfully complete exams for the Certified Dietary Manager (CDM) credential from the Association of Nutrition and Food Service Professionals (ANFP), an important credential for students interested in food service operations.

Upon completion of the BS in Culinary and Dietary Operations Management Program, students will have demonstrated proficiency in the following areas:

- Application of new technology to food service operations and nutritional analysis.
- Physical resource management including space, equipment, inventory, labor and overhead.
- Application of quantitative reasoning to food service operations.
- Sustainable agriculture and restaurant operations.
- Food and kitchen safety.
- Professionalism and leadership.
- Professional communication skills.
- Human resource operations.
- Interpretation of federal, state and local laws as they apply to food service operations.
- Assess financial resources required for successful food service operations.

Not all courses are offered each semester. Students should work with an academic advisor to develop a schedule that will work for them. Students planning to transfer should check the transfer institution's requirements/guides or discuss their options with an academic advisor. Number of credits may vary depending on the course selection.

SAMPLE SCHEDULE OF COURSES

Admission Prerequisites

Course #	Course Title	Credits
	Prior ACFEF Culinary Degree*	60
CUL 303	**Culinary Program Practicals**	5
	Total Credits: 65	

*Professional-level American Culinary Federation Education Foundation (ACFEF) credentialed chefs interested in these programs may contact the Culinary Department to explore their options toward fulfilling the associate degree requirements using Prior Learning Credits. For more information about Prior Learning Credits, contact the Registrar.

Bachelor of Science in Culinary and Dietary Operations Management Program (continued)

First Year - Fall Semester

Course #	Course Title	Credits
ACCT	**Select one:**	4
ACCT 103	**Introduction to Accounting**	
ACCT 201	**Principles of Accounting 1**	
BUS 101	**Introduction to Business**	3
BUS 220	**Supervision**	3
BIOL 105	**Basic Human Anatomy and Physiology**	4
	Total Credits: 14	

First Year - Winter Semester

Course #	Course Title	Credits
BUS 303	**Entrepreneurship 1**	3
Mathematics	**Any MTA approved Mathematics Course**	4
ACCT 330	**Managerial Accounting for a Food Service Operation**	3
NFS 360	**Ensuring a Sustainable Food Supply**	3
Humanities	**Any MTA approved Humanities Course**	3
Recommended	**COMA 103 - Fundamentals of Speech**	
	Total Credits: 16	

First Year - Spring/Summer Session

Course #	Course Title	Credits
CUL 360	**Purchasing Control**	2
CHEM	**Select one:**	4
CHEM 104	**Fundamentals of Chemistry**	
CHEM 111	**General Chemistry 1**	
	Total Credits: 6	

Bachelor of Science in Culinary and Dietary Operations Management Program (continued)

Second Year - Fall Semester

Course #	Course Title	Credits
CUL 350	**Food Safety Management**	3
BUS 304	**Entrepreneurship 2**	3
NFS 440	**Exploring Specialized Diets**	3
CM 309	**Culinary Law**	3
Social Science	**Any MTA approved Social Science Course**	3-4
Recommended	**ECON 202 - Principles of Microeconomics**	
	Total Credits: 15-16	

Second Year - Winter Semester

Course #	Course Title	Credits
BUS 426	**Marketing Strategies**	3
FIN 420	**Financial Management**	3
NFS 320	**Evolution of Dietary Needs throughout the Lifecycle**	3
NFS 480	**Clinical Nutrition**	3
	Total Credits: 12	

Second Year - Spring/Summer Session

Course #	Course Title	Credits
NFS 491**	**Clinical Nutrition Internship**	2
CUL 495	**Culinary and Dietary Operations Capstone**	1
	Total Credits: 3	

TOTAL 66-67 CREDITS

ADMISSION PREREQUISITE 65 CREDITS

PROGRAM TOTAL 131-132 CREDITS

**Students must begin NFS 491 within one year of completing NFS 480.

Culinary Arts

Credentials

Culinary Arts Certificate	24 cr.
Culinary Arts AAS Degree	63-65 cr.

Major Description

Culinary Arts associate degree. This provides the necessary knowledge and skills to obtain advanced level positions in the restaurant and food service industries. The curriculum focuses on a variety of food service aspects, including food preparation, cost and portion control, quantity baking and pastry, butchery and charcuterie fabrication, dining room operations, food purchasing and menu formulation Culinary Arts certificate. This option provides the culinary foundation courses that prepare students for immediate entry in the workplace.

The culinary arts program is certified by the American Culinary Federation Education Foundation (ACFEF). 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
Wendy Laino, Accreditation Manager
180 Center Place Way, St. Augustine, FL 32095 904-824-4468 | wlaino@acfchefs.net

Culinary Arts Certificate

Schoolcraft program code # 1YC.00079

The culinary arts certificate is designed to prepare students for a career in the culinary arts field. The focus of the certificate is on establishing hands-on culinary skills and job-related performance characteristics necessary to successfully enter a basic food service occupation. The certificate prepares students for success by instruction in quality food preparation, portion control, quantity baking, breakfast and pantry work, quantity pastry, meat cutting and dining room operations.

This program contains some courses that are restricted only to students officially admitted to this program. Additionally, CUL 102, Culinary Sanitation, or proof of current ServSafe certification, and CUL 103, Introduction to Professional Cooking Skills and Techniques, are pre-program requirements.

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.

Not all courses are offered each semester. Students should work with an academic advisor to develop a schedule that will work for them. Students planning to transfer should check the transfer institution's requirements/guides or discuss their options with an academic advisor. Number of credits may vary depending on the course selection.

SAMPLE SCHEDULE OF COURSES

Admission Prerequisites

Course #	Course Title	Credits
CUL 102*	**Culinary Sanitation**	2
CUL 103	**Introduction to Professional Cooking Skills and Technique**	4
	TOTAL CREDITS: 6	

First Year - Fall Semester

Course #	Course Title	Credits
CUL 144	**Baking**	3
CUL 124	**Breakfast and Pantry**	3
CUL 125	**Pastries 1**	3
	TOTAL CREDITS: 9	

First Year - Winter Semester

Course #	Course Title	Credits
CUL 142	**Butchery**	3
CUL 128	**Introduction to Food Techniques**	3
CUL 143	**Dining Room Service**	3
	TOTAL CREDITS: 9	

PROGRAM TOTAL 24 CREDITS

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

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, CUL 102, Culinary Sanitation or proof of current ServSafe certification as well as CUL 103, Introduction to Professional Cooking Skills and Techniques are pre-program requirements. The college requirements portion of the curriculum is vital to students' development.

Students who satisfactorily complete all college and program requirements qualify for an associate in applied science degree.

The culinary arts program is accredited by the American Culinary Federation Education Foundation, Inc. Accrediting Commission. 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
180 Center Place Way
St. Augustine, FL 32095
904-824-4468
Wendy Laino, Accreditation Manager
wlaino@acfchefs.net

Not all courses are offered each semester. Students should work with an academic advisor to develop a schedule that will work for them. Students planning to transfer should check the transfer institution's requirements/guides or discuss their options with an academic advisor. Number of credits may vary depending on the course selection.

SAMPLE SCHEDULE OF COURSES

Admission Prerequisites

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

Course #	Course Title	Credits
CUL 102*	**Culinary Sanitation**	2
CUL 103	**Introduction to Professional Cooking Skills and Technique**	4
	Total Credits: 6	

Culinary Arts AAS Degree (continued)

First Year - Fall Semester

Course #	Course Title	Credits
CUL 144	**Baking**	3
CUL 124	**Breakfast and Pantry**	3
CUL 125	**Pastries 1**	3
English	**Select one:**	3
ENG 100	**Communication Skills**	
ENG 101	**English Composition 1**	
	Total Credits: 12	

First Year - Winter Semester

Course #	Course Title	Credits
CUL 142	**Butchery**	3
CUL 128	**Introduction to Food Techniques**	3
CUL 143	**Dining Room Service**	3
Mathematics	**Select one:**	3-4
MATH 101	**Business Mathematics**	
MATH 111	**Applications-Utility of Math**	
MATH 122	**Elementary Statistics**	
	Total Credits: 12-13	

First Year - Spring/Summer Session

Course #	Course Title	Credits
CHEM 100	**Introduction to the Chemistry of Food for Culinary Arts**	4
English	**Select one:**	3
ENG 106	**Business English**	
ENG 102	**English Composition 2**	
HUM 106	**Introduction to Art and Music**	1
CUL 241**	**Culinary Nutrition**	2
Elective***	**See list**	3-4
	Total Credits: 13-14	

Culinary Arts AAS Degree (continued)

Second Year - Fall Semester

Course #	Course Title	Credits
CUL 227	**Restaurant Cooking and Preparation**	3
CUL 215	**Charcuterie**	3
CUL 244	**International and American Cuisine**	6
	Total Credits: 12	

Second Year - Winter Semester

Course #	Course Title	Credits
CUL 240	**Pastries 2**	3
CUL 242	**À la Carte**	3
CUL 243	**Storeroom Operations**	2
PSYCH 153	**Human Relations**	3
Elective***	**See list**	3
	Total Credits: 14	

Electives - Select two courses from the classes listed below to fulfill the elective requirement:

Course #	Course Title	Credits
ART 120	**Drawing: Theory and Elements**	3
BUS 122	**Advertising**	3
BUS 207	**Business Law 1**	3
BUS 217***	**Business Management**	3
BUS 220	**Supervision**	3
BUS 226***	**Principles of Marketing**	3
CIS 120	**Software Applications**	3
CM 107**	**Culinary Management - Food and Culture**	3
CM 109**	**Hospitality Law**	3
CM 203	**Restaurant Concepts and Design**	3
CM 210**	**Wine and Spirits**	3
CM 309**	**Culinary Law**	3
CUL 260**	**Competitive Ice Carving**	3
CUL 267	**Chocolatier**	3
CUL 295	**Salon Competition 1**	3
CUL 297	**Salon Competition 2**	4
NFS 360**	**Ensuring a Sustainable Food Supply**	3

PROGRAM TOTAL 63-65 CREDITS

* If student provides documentation of current ServSafe certification, CUL 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.

Schoolcraft College | 60 YEARS

2021-2022 CREDENTIAL YEAR

Culinary Baking and Pastry Arts

Credentials

Culinary Baking and Pastry Arts Certificate	35 cr.
Culinary Baking and Pastry Arts Program AGS Degree	61 cr.

Major Description

The 30-week baking and pastry arts certificate program provides students with skills and a foundation to begin a career in baking and pastry including restaurant or hotel kitchens. Students will learn both fundamental and advanced bakery and pastry skills while studying all aspects of baking processes, techniques, safety and sanitation.

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.

Not all courses are offered each semester. Students should work with an academic advisor to develop a schedule that will work for them. Students planning to transfer should check the transfer institution's requirements/guides or discuss their options with an academic advisor. Number of credits may vary depending on the course selection.

SAMPLE SCHEDULE OF COURSES

Admission Prerequisites

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

Course #	Course Title	Credits
CUL 102*	**Culinary Sanitation**	2
CBPA 103	**Introduction to Baking and Pastry Skills and Techniques**	2
	Total Credits: 4	

First Year - Fall Semester

Course #	Course Title	Credits
CBPA 125	**Pastries**	20
	Total Credits: 20	

First Year - Winter Semester

Course #	Course Title	Credits
CBPA 144	**Baking**	15
	Total Credits: 15	

PROGRAM TOTAL 35 CREDITS

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

Culinary Baking and Pastry Arts Program AGS Degree

Schoolcraft program code #AGS.00042

This 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. Any student wishing to pursue an associate degree can apply all 35 credits from the Culinary Baking and Pastry Arts Certificate toward an Associate in General Studies (AGS) degree. Depending on the desired career path, discuss other options for an associate degree with an academic advisor.

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.

Not all courses are offered each semester. Students should work with an academic advisor to develop a schedule that will work for them. Students planning to transfer should check the transfer institution's requirements/guides or discuss their options with an academic advisor. Number of credits may vary depending on the course selection.

SAMPLE SCHEDULE OF COURSES

Admission Prerequisites

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

Course #	Course Title	Credits
CUL 102*	**Culinary Sanitation**	2
CBPA 103	**Introduction to Baking and Pastry Skills and Techniques**	2
	Total Credits: 4	

First Year - Fall Semester

Course #	Course Title	Credits
CBPA 125	**Pastries**	20
	Total Credits: 20	

First Year - Winter Semester

Course #	Course Title	Credits
CBPA 144	**Baking**	15
	Total Credits: 15	

Culinary Baking and Pastry Arts Program Associate in General Studies Degree (continued)

Second Year – Fall Semester

Course #	Course Title	Credits
English Communication	**Select first within a set of General Education English Communication courses****	3
Humanities	**Select General Education Humanities course****	3
Mathematics	**Select General Education Mathematics course****	3
Science	**Select General Education Science course****	4
Social Science	**Select General Education Social Science course****	3
	Total Credits: 16	

Second Year - Winter Semester

Course #	Course Title	Credits
English Communication	**Select second within a set of General Education English Communication courses****	3
Humanities	**Select General Education Humanities course****	1
Science	**Select General Education Science course****	3
Social Science	**Select General Education Social Science course****	3
	Total Credits: 10	

PROGRAM TOTAL 61 CREDITS

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

**Please check Schoolcraft General Education requirements to determine course options.

Schoolcraft College | 60 YEARS

2021-2022 CREDENTIAL YEAR

Education - Early Childhood Education

Credentials

Child Development Associate (CDA) Skills Certificate	16 cr.
Early Childhood Education Certificate	27 cr.
Early Childhood Education AAS Degree	62-67 cr.

Major Description

To work effectively with children, early childhood educators must be sensitive to and understand the developmental stages of children. This curriculum contains theoretical and practical experiences to prepare students to work in early childhood programs in a variety of settings. The required field experiences expose students to best practices in early childhood education.

Child Development Associate (CDA) Skills Certificate

Schoolcraft program code #CRT.00315

The Schoolcraft College Child Development Associate (CDA) Skills Certificate is designed to meet the formal early childhood education training requirements of the Child Development Associate (CDA) Credential. This external credential is offered through the Council for Professional Recognition and represents an international effort to credential qualified early childhood educators working with children from birth to age five. More information can be found at this link regarding the other credential requirements: https://www.cdacouncil.org/. Depending on if a student chooses to take ECE 135 or ECE 145, upon satisfactory completion of program requirements, they will receive a certificate of completion to present to the Council for Professional Recognition towards Preschool or Infant-Toddler credentialing respectively.

Prior to the start of field placement hours, interviews at sites where children are present, observations, service learning experiences or practicums, students must:

- have a clear criminal background check
- obtain Michigan Central Registry Clearance from the Michigan Department of Human Services
- obtain a current TB test

Students who are not cleared through a criminal background check and by the Michigan Department of Human Services will not be permitted in the ECE/SPE programs. Some field placement/practicum sites may have additional requirements prior to starting an experience/practicum.

Students are expected to follow the ECE/SPE program policies, abide by the National Association for the Education of Young Children Code of Ethical Conduct, follow field placement policies and conduct themselves appropriately in the presence of children, families, and professionals during field placements/practicums. In order to receive a CDA Skills Certificate, students need to obtain a grade of 2.0 or higher in ECE 135 or ECE 145.

Not all courses are offered each semester. Students should work with an academic advisor to develop a plan of study that works for them. Students planning to transfer are advised to check the transfer institution's requirements/guides and discuss their options with an academic advisor. Number of credits may vary depending on the course selection.

SAMPLE SCHEDULE OF COURSES

First Year - Fall Semester

Course #	Course Title	Credits
ECE 100	**Foundations of Early Childhood Education**	2
ECE 110	**Child Development**	3
ECE 120	**Creative Activities**	3
	Total Credits: 8	

Child Development Associate (CDA) Skills Certificate (continued)

First Year - Winter Semester

Course #	Course Title	Credits
ECE	**Select one:**	5
ECE 135*	**Preschool Education with Field Experiences**	
ECE 145*	**Infant and Toddler Education with Field Experiences**	
ECE 240	**Administration of Early Childhood Programs**	3
	Total Credits: 8	

PROGRAM TOTAL 16 CREDITS

** Students will choose either ECE 135 or ECE 145 depending upon the type of External CDA Credential they plan to pursue through the Council for Professional Recognition. Students in the Early Childhood Education program must adhere to the Code of Ethics of the National Association for the Education of Young Children and the Council for Exceptional Children along with the Early Childhood Education and Special Education Department policies. Early Childhood Education and Special Education Department policies are provided from the department to the student in their field experience courses. In order to receive a CDA Skills Certificate, students need to obtain a grade of 2.0 or higher in ECE 135 or ECE 145.*

Early Childhood Education Certificate

Schoolcraft program code #1YC.00031

The Early Childhood Education 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.

Students who satisfactorily complete the program requirements qualify for a certificate of program completion.

Prior to the start of field placement hours, interviews at sites where children are present, observations, service learning experiences or practicums, students must:

- have a clear criminal background check
- obtain Michigan Central Registry Clearance from the Michigan Department of Human Services
- obtain a current TB test

Students who are not cleared through a criminal background check and by the Michigan Department of Human Services will not be permitted in the ECE/SPE programs. Some field placement/practicum sites may have additional requirements prior to starting an experience/practicum.

Students are expected to follow the ECE/SPE program policies, abide by the National Association for the Education of Young Children Code of Ethical Conduct, follow field placement policies and conduct themselves appropriately in the presence of children, families, and professionals during field placements/practicums. In order to receive an Early Childhood Education Certificate students need to obtain a grade of 2.0 or higher in ECE 135 and ECE 145.

Not all courses are offered each semester. Students should work with an academic advisor to develop a plan of study that works for them. Students planning to transfer are advised to check the transfer institution's requirements/guides and discuss their options with an academic advisor. Number of credits may vary depending on the course selection.

SAMPLE SCHEDULE OF COURSES

First Year - Fall Semester

Course #	Course Title	Credits
ECE 100	**Foundations of Early Childhood Education****	2
ECE 110	**Child Development****	3
ECE 120	**Creative Activities****	3
ECE 180	**Child and Family Welfare Services**	3
	Total Credits: 11	

Early Childhood Education Certificate (continued)

First Year - Winter Semester

Course #	Course Title	Credits
ECE 135*	**Preschool Education with Field Experiences****	5
ECE 230	**Classroom Behavior - Understanding Social Competence**	3
ECE 240	**Administration of Early Childhood Programs**	3
	Total Credits: 11	

First Year - Spring Session

Course #	Course Title	Credits
ECE 145*	**Infant and Toddler Education with Field Experiences****	5
	Total Credits: 5	

PROGRAM TOTAL 27 CREDITS

** In order to receive an Early Childhood Education Certificate students need to obtain a grade of 2.0 or higher in ECE 135 and ECE 145.*
*** If a student possesses a Child Development Associate Certification from the Council for Professional Recognition (https://www.cdacouncil.org/) in either the Preschool or Infant Toddler content area, they may be eligible to earn Prior Learning Credit for ECE 100, ECE110, ECE 120, and either ECE 135 (Preschool) or ECE 145 (Infant-Toddler). Please consult the Program Director for more information.*

Early Childhood Education AAS Degree

Schoolcraft program code #AAS.00020

To work effectively with children, early childhood educators must be sensitive to and understand the developmental stages of children. This curriculum contains theoretical and practical experiences to prepare students to work in early childhood programs in a variety of settings. The required field experiences expose students to best practices in early childhood education.

Students who satisfactorily complete all college and program requirements qualify for an Associate in Applied Science degree.

Prior to the start of field placement hours, interviews at sites where children are present, observations, service learning experiences or practicums, students must:

- have a clear criminal background check
- obtain Michigan Central Registry Clearance from the Michigan Department of Human Services
- obtain a current TB test

Students who are not cleared through a criminal background check and by the Michigan Department of Human Services will not be permitted in the ECE/SPE programs. Some field placement/practicum sites may have additional requirements prior to starting an experience/practicum.

Students are expected to follow the ECE/SPE program policies, abide by the National Association for the Education of Young Children Code of Ethical Conduct, follow field placement policies and conduct themselves appropriately in the presence of children, families, and professionals during field placements/practicums.

In order to receive an Early Childhood Education AAS Degree students need to obtain a grade of 2.0 or higher in ECE 135, ECE 145, and ECE 265.

Not all courses are offered each semester. Students should work with an academic advisor to develop a plan of study. Students planning to transfer are advised to check the transfer institution's requirements/guides and discuss their options with an academic advisor. Number of credits may vary depending on the course selection.

SAMPLE SCHEDULE OF COURSES

First Year - Fall Semester

Course #	Course Title	Credits
ECE 100	**Foundations of Early Childhood Education****	2
ECE 110	**Child Development****	3
ECE 120	**Creative Activities****	3
ENG 101	**English Composition 1**	3
Humanities	**Select General Education Humanities course**	3-4
Recommended	**Any World Language**	
COMA 103	**Fundamentals of Speech**	
ENG 203	**Children's Literature**	
	Total Credits: 14-15	

Early Childhood Education AAS Degree (continued)

First Year - Winter Semester

Course #	Course Title	Credits
ECE 135*	**Preschool Education with Field Experiences****	5
ECE 150	**Before and After School Programming for Children**	3
ECE 170	**Curriculum, Assessment and Technology**	3
SPE 220	**Early Childhood Special Education**	3
PSYCH 153	**Human Relations**	3
	Total Credits: 17	

Second Year - Fall Semester

Course #	Course Title	Credits
ECE 145*	**Infant and Toddler Education with Field Experiences****	5
ECE 180	**Child and Family Welfare Services**	3
ECE 250	**Literacy and Numerical Thinking**	3
Mathematics	**Select General Education Mathematics Course**	3-5
ENG 102	**English Composition 2**	3
	Total Credits: 17-19	

Second Year - Winter Semester

Course #	Course Title	Credits
ECE 265*	**Early Childhood Advanced Practical Experiences**	4
ECE 230	**Classroom Behavior – Understanding Social Competence**	3
ECE 280	**Emerging Educator**	1
ECE 240	**Administration of Early Childhood Programs**	3
Science	**Select General Education Science Course**	3-5
	Total Credits: 14-16	

PROGRAM TOTAL 62-67 CREDITS

** In order to receive an Early Childhood Education AAS Degree students need to obtain a grade of 2.0 or higher in ECE 135, ECE 145, and ECE 265.*
*** If a student possesses a Child Development Associate Certification from the Council for Professional Recognition (https://www.cdacouncil.org/) in either the Preschool or Infant Toddler content area, they may be eligible to earn Prior Learning Assessment credit for ECE 100, ECE110, ECE 120, and either ECE 135 (Preschool) or ECE 145 (Infant-Toddler). Please consult the Program Director for more information.*

Education - Elementary and Secondary

Credentials

Elementary Education Alternate Route to Teacher Certification	24 cr.
Secondary Education Alternate Route to Teacher Certification	21 cr.
Liberal Arts Transfer AA, AS, AFA, or AGS Degree	60 cr.
Teacher Education Transfer AA, AS, AFA or AGS Degree	61-68 cr.

Alternate Route to Interim Teacher Certification

Schoolcraft College has been approved by the state of Michigan to offer an Alternative Route to Interim Teacher Certification (ARC) Program. This program is designed for college graduates, who meet specific admission requirements, to be able to become certified classroom teachers using a rigorous, accelerated preparation program. The Alternate Route Program (ARC) also enables currently certified teachers to add new endorsements to their certificates while completing the same ARC program requirements. The Michigan Interim Teaching certificate will enable program completers to work as certified classroom teachers in Michigan's public, charter, and parochial classrooms in a wide variety of disciplines. An individual can become certified to teach in as little as one semester. Unlike the traditional teacher preparation program, the alternate route candidate's certification or endorsement(s) is not contingent on their academic major or minor. Currently certified teachers can also use the ARC program to add additional endorsements to their teaching certificates. Candidates seeking only additional endorsements will complete the current ARC coursework and requirements. As in the case of initial certification, a major or minor is not required. Following the successful completion of the program, teachers will be recommended by Schoolcraft for the Michigan Standard Teaching Certificate, or the permanent endorsement on their current certificate.

The coursework in the Alternative Route (ARC) Program is based on both the Interstate Teacher Assessment and Support Consortium–Model Core Teaching Standards (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.

Certification is available in the following areas:

- Elementary education (Grades K–5 or 6–8 self-contained)
- Secondary education (grades 6–12)
- K–12 (Music, Art, Physical Education, ESL, etc.)

Candidates, as well as currently certified teachers, can be recommended for a wide variety of endorsements, except Special Education and Early Childhood Education.

New co-horts of the ARC program begin each year in the fall, winter, and spring/summer semesters. ARC teacher candidates will complete the four pre-certification courses in either one or two consecutive semesters. The four pre-certification courses are offered in the evenings on the Livonia campus. Candidates who successfully complete the requirements in the pre-certification courses will be recommended for the Michigan Interim Teaching certificate and can be employed as a certified teacher in any Michigan school. ARC teachers

are able to select the district/school in which they will be employed. The ARC program will sponsor and mentor the new ARC teacher for the initial three years of classroom teaching with the certificate. Each new ARC teacher is provided ongoing support of a college supervisor, a building based peer mentor, and professional development coursework during the initial three years of teaching. In addition to the required pre-certification practicum, the program offers additional field based internships to provide further support and practice to candidates and teachers. Contact the program coordinator about these opportunities.

Having completed the three years of successful teaching and meeting all program requirements, candidates will be eligible to be recommended for the Michigan Standard Certificate or to add the endorsement(s) permanently to their certificate. Students enrolled in the Alternative Route for 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 ARC program also recognizes the value of prior teaching experience. Applicants who are not currently working in a K-12 classroom are encouraged to spend time in classrooms as a substitute teacher or a volunteer, in order to become better acquainted with their content area and the classroom environments.

The requirements for admission to an Alternate Route Program are:

- Bachelor's or graduate degree from an accredited college or university
- Minimum grade point average of 3.0 (4.0 point scale)
- Pass the applicable MTTC Subject Area Test(s)
- Pass the criminal background check (Fingerprinting may also be required by some school districts for fieldwork)
- Demonstrate the social, emotional, and professional behaviors consistent with those of professional educators

Note: With the Michigan Interim Teaching Certificate, candidates will be able to assume full-time classroom teaching positions while being sponsored by Schoolcraft's ARC program. 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 initial three years of teaching with the certificate or endorsement. The Michigan Interim Teaching Certificate is recognized only while working with under the supervision of the ARC program.

This program requires an application and special admission process. Contact the Associate Dean, Education and Occupational Programs to complete an application or for additional information at 734-462-4335.

For more information on Michigan Alternative Route to Interim Teacher Certification (MARITC), call 517-335-6615.

For more information on certification, please contact: Michigan Department of Education, 608 W. Allegan Street, P.O. Box 30008, Lansing, MI 48909, 517-373-3324

Elementary Education Alternate Route to Teacher Certification

Schoolcraft program code #1YC.00170

The four pre-certification courses which are required for certification or additional endorsements are offered each semester.

SAMPLE SCHEDULE OF COURSES

Intensive Pre-Certification Semester

Course #	Course Title	Credits
EDUC 101	**Introduction to Education**	3
EDUC 210	**Elementary Instructional Strategies**	3
EDUC 230	**Teaching Literacy in the Elementary Classroom 1**	3
EDUC 291	**Fieldwork Practicum**	2
	Total Credits: 11	

Recommendation for Michigan Interim Teaching Certification after completion of Intensive Pre-Certification Semester.

First Year - Spring/Summer Session - Professional Development

Course #	Course Title	Credits
	Following first year (or minimum of 1 semester) of certified teaching in a Michigan school.	
EDUC 205	**Promoting Learning in a Diverse Society, Using Family, School and Community Partnerships**	3
	Select one:	3
PSYCH 249	**Educational Psychology**	
EDUC 110	**Child Development**	
	Total Credits: 6	

Second Year - Spring/Summer Session - Professional Development

Course #	Course Title	Credits
	Following second year (or minimum of 3 semesters) of certified teaching in a Michigan school.	
EDUC 240	**Teaching Literacy in the Elementary Classroom 2**	3
EDUC 200	**Children with Special Needs**	3
	Total Credits: 6	

Elementary Education Alternate Route to Teacher Certification (continued)

Third Year - Spring/Summer Session - Professional Development

Course #	Course Title	Credits
	Following third year (or minimum of 5 semesters) of certified teaching in a Michigan school.	
EDUC 280	**The Professional Educator**	1
	Total Credits: 1	

PROGRAM TOTAL 24 CREDITS

Recommendation for Michigan Standard Teaching Certification after completion of all semesters.

Secondary Education Alternate Route to Teacher Certification

Schoolcraft program code #1YC.00171

The four pre-certification courses which are required for certification or additional endorsements are offered each semester.

SAMPLE SCHEDULE OF COURSES

Intensive Pre-Certification Semester

Course #	Course Title	Credits
EDUC 101	**Introduction to Education**	3
EDUC 220	**Secondary Instructional Strategies**	3
EDUC 250	**Teaching Literacy in the Secondary School**	3
EDUC 291	**Fieldwork Practicum**	2
	Total Credits: 11	

Recommendation for Michigan Interim Teaching Certification after completion of Intensive Pre-Certification Semester.

First Year - Spring/Summer Session - Professional Development

Course #	Course Title	Credits
	Following first year (or minimum of 1 semester) of certified teaching in a Michigan school.	
EDUC 205	**Promoting Learning in a Diverse Society, Using Family, School and Community Partnerships**	3
	Select one:	3
PSYCH 249	**Educational Psychology**	
EDUC 110	**Child Development**	
	Total Credits: 6	

Second Year - Spring/Summer Session - Professional Development

Course #	Course Title	Credits
	Following second year (or minimum of 3 semesters) of certified teaching in a Michigan school.	
EDUC 200	**Children with Special Needs**	3
	Total Credits: 3	

Secondary Education Alternate Route to Teacher Certification (continued)

Third Year - Spring/Summer Session - Professional Development

Course #	Course Title	Credits
	Following third year (or minimum of 5 semesters) of certified teaching in a Michigan school.	
EDUC 280	**The Professional Educator**	1
	Total Credits: 1	

PROGRAM TOTAL 21 CREDITS

Recommendation for Michigan Standard Teaching Certification after completion of all semesters.

Teacher Education Transfer AA, AS, AFA, AGS Degree

Schoolcraft program code #AA.00700

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) (InTASC) 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
    - PSYCH 249 Educational Psychology
    - EDUC 110 Child Development
    - EDUC 205* Promoting Learning in a Diverse Society Using Family, School and Community Partnerships
    - EDUC 200* Children with Special Needs
    - EDUC 270 Instructional Technology
- Overall minimum GPA of 2.5 (minimum of 60 hours)
- Criminal background check

**Course 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 advisor for details.

Students who are not in the Teacher Education Transfer Program may transfer the individual course credits 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, Education and Occupational Programs for additional information, 734-462-4335.

SAMPLE SCHEDULE OF COURSES

First Year - Fall Semester

Course #	Course Title	Credits
ENG 101	**English Composition 1**	3
Elective*	**Major/Minor Transfer**	3
Social Science	**Select General Education Social Science Course**	3-4
EDUC 101	**Introduction to Education**	3
Elective*	**Major/Minor Transfer**	3
	Total Credits: 15-16	

Teacher Education Transfer AA, AS, AFA, AGS Degree (continued)

First Year - Winter Semester

Course #	Course Title	Credits
ENG 102	**English Composition 2**	3
	Select one:	3
PSYCH 249	**Educational Psychology**	
EDUC 110	**Child Development**	
Social Science	**Select General Education Social Science Course**	3-4
Mathematics	**Select General Education Mathematics Course**	3-4
Humanities	**Select General Education Humanities Course**	3-4
	Total Credits: 15-18	

Second Year - Fall Semester

Course #	Course Title	Credits
EDUC 205	**Promoting Learning in a Diverse Society, Using Family, School and Community Partnerships**	3
Elective*	**Major/Minor Transfer**	3
EDUC 200	**Children with Special Needs**	3
Science	**Select General Education Science Course**	4-5
Humanities	**Select General Education Humanities Course**	3-4
	Total Credits: 16-18	

Second Year - Winter Semester

Course #	Course Title	Credits
Elective*	**Major/Minor Transfer**	3
Humanities	**Select General Education Humanities Course**	3-4
Elective*	**Major/Minor Transfer**	3
Elective*	**Major/Minor Transfer**	3
EDUC 270	**Instructional Technology**	3
	Total Credits: 15-16	

PROGRAM TOTAL 61-68 CREDITS

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

Teacher Education Transfer AA, AS, AFA, AGS Degree (continued)

Potential courses that may be used toward meeting transfer requirements:

Course #	Course Title	Credits
ART 113	**Art Education**	3
ENG 203	**Children's Literature**	3
GEOG 105	**Earth Science for Elementary Teachers**	4
MATH 105	**Mathematics for Elementary Teachers 1**	4
MATH 106	**Mathematics for Elementary Teachers 2**	4
MUSIC 107	**Music for Elementary Teachers**	4
PE 240	**Physical Education for Elementary Teachers**	3

The 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 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.

In order to complete the program requirements, students will need to have an overall minimum GPA of 2.5 (minimum of 60 hours), with no individual course grade lower than 2.0 (C).

Not all courses are offered each semester. Students should work with an academic advisor to develop a schedule that will work for them. Students planning to transfer should check the transfer institution's requirements/guides or discuss their options with an academic advisor. Number of credits may vary depending on the course selection.

Education - Special Education

Credentials

Autism Education Skills Certificate	19 cr.
Autism Education Program AGS Degree	60 cr.
Special Needs Para Educator Certificate	30 cr.
Special Needs Para Educator AAS Degree	61-66 cr.

Major Description

The Autism Education skills certificate is designed to provide students with the knowledge, skills and strategies for working with individuals with autism. Students may be current certified K-12 educators who would like to increase their understanding of autism, current or future paraeducators, and/or families of individuals with autism. The certificate provides the foundational information and direct experiences needed for increased understanding of educational protocol when working with individuals with autism.

Working as a Para Educator requires people to be supportive and nurturing while taking a strength-based perspective to match the strengths of each person with special needs. This curriculum contains theoretical and practical experiences 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 educational and community based teams that support persons with disabilities.

Autism Education Skills Certificate

Schoolcraft program code #CRT.00316

The Autism Education skills certificate provides a foundation in educating individuals with autism. The certificate is designed for exposure to the key elements of educating individuals with autism. Students who satisfactorily complete the program requirements qualify for a certificate of program completion.

Not all courses are offered each semester. Students should work with an academic advisor to develop a plan of study that works for them. Students planning to transfer are advised to check the transfer institution's requirements/guides and discuss their options with an academic advisor. Number of credits may vary depending on the course selection.

SAMPLE SCHEDULE OF COURSES

First Year - Fall Semester

Course #	Course Title	Credits
ECE 110	**Child Development**	3
SPE 100	**Children with Special Needs**	3
SPE 102	**Introduction to Autism Spectrum Disorders (ASD)**	3
	TOTAL CREDITS: 9	

First Year - Winter Semester

Course #	Course Title	Credits
SPE 122	**ASD Communication Strategies**	3
SPE 132	**ASD Instructional Procedures**	3
SPE 142	**ASD Behavior Implications**	3
SPE 112	**Applied Behavior Analysis**	1
	TOTAL CREDITS: 10	

PROGRAM TOTAL 19 CREDITS

Autism Education Program AGS Degree

Schoolcraft program code #AGS.00042

The Autism Education curriculum provides a foundation in educating individuals with autism. It is designed for exposure to the key elements of educating individuals with autism.

Students who want to pursue an associate degree can apply all 19 credits from the Autism Education Skills Certificate toward an Associate in General Studies (AGS) degree. Depending on the desired career path, discuss other options for an associate degree with an academic advisor.

Not all courses are offered each semester. Students should work with an academic advisor to develop a plan of study that works for them. Students planning to transfer are advised to check the transfer institution's requirements/guides and discuss their options with an academic advisor. Number of credits may vary depending on the course selection.

SAMPLE SCHEDULE OF COURSES

First Year - Fall Semester

Course #	Course Title	Credits
ECE 110	**Child Development**	3
SPE 100	**Children with Special Needs**	3
SPE 102	**Introduction to Autism Spectrum Disorders (ASD)**	3
English Communication	**Select first within a set of General Education English Communication courses***	3
Humanities	**Select General Education Humanities course***	3
	TOTAL CREDITS: 15	

First Year - Winter Semester

Course #	Course Title	Credits
SPE 122	**ASD Communication Strategies**	3
SPE 132	**ASD Instructional Procedures**	3
SPE 142	**ASD Behavior Implications**	3
SPE 112	**Applied Behavior Analysis**	1
English Communication	**Select second within a set of General Education English Communication courses***	3
Mathematics	**Select General Education Mathematics course***	3
	TOTAL CREDITS: 16	

Autism Education Program AGS Degree (continued)

Second Year - Fall Semester

Course #	Course Title	Credits
Science	**Select General Education Science course***	4
Social Science	**Select General Education Social Science course***	3
Humanities	**Select General Education Humanities course***	1
Electives	**Select courses supportive of occupational and academic goals**	7
	TOTAL CREDITS: 15	

Second Year - Winter Semester

Course #	Course Title	Credits
Science	**Select General Education Science course***	3
Social Science	**Select General Education Social Science course***	3
Electives	**Select courses supportive of occupational and academic goals**	8
	TOTAL CREDITS: 14	

PROGRAM TOTAL 60 CREDITS

*Please check Schoolcraft General Education requirements to determine course options.

Special Needs Para Educator Certificate

Schoolcraft program code #1YC.00032

The Special Needs Para Educator certificate program provides an educational foundation for understanding neuro-typical and neuro-atypical human development. The program emphasizes a strength-based best practices model in preparing students to work with children and adults with special needs.

Students who satisfactorily complete the program requirements qualify for a certificate of program completion.

Prior to the start of field placement hours, interviews at sites where children are present, observations, service learning experiences or practicums, students must:

- have a clear criminal background check
- obtain Michigan Central Registry Clearance from the Michigan Department of Human Services
- obtain a current TB test

Students who are not cleared through a criminal background check and by the Michigan Department of Human Services will not be permitted in the ECE/SPE programs. Some field placement/practicum sites may have additional requirements prior to starting an experience/practicum.

Students are expected to follow the ECE/SPE program policies, abide by the National Association for the Education of Young Children Code of Ethical Conduct, follow field placement policies and conduct themselves appropriately in the presence of children, families, and professionals during field placements/practicums. In order to receive a Special Education Para Educator Certificate from Schoolcraft College, students need to obtain a grade of 2.0 or higher in SPE 155.

Not all courses are offered each semester. Students should work with an academic advisor to develop a plan of study that works for them. Students planning to transfer are advised to check the transfer institution's requirements/guides and discuss their options with an academic advisor. Number of credits may vary depending on the course selection.

SAMPLE SCHEDULE OF COURSES

First Year - Fall Semester

Course #	Course Title	Credits
ECE 110	**Child Development**	3
SPE 100	**Children with Special Needs**	3
SPE 105	**Introduction to Developmental Disabilities**	3
SPE 115	**Special Educational Programs and Supported Living**	3
SPE 125	**Learning Disabilities**	3
	TOTAL CREDITS: 15	

Special Needs Para Educator Certificate (continued)

First Year - Winter Semester

Course #	Course Title	Credits
SPE 135	**Emotional Impairment**	3
SPE 155*	**Special Education Practical Experiences 1**	3
SPE 210	**Methods and Curricula for Persons with Developmental Disabilities**	3
SPE 220	**Early Childhood Special Education**	3
ECE 230	**Classroom Behavior - Understanding Social Competence**	3
	TOTAL CREDITS: 15	

PROGRAM TOTAL 30 CREDITS

** Students in the Early Childhood and Special Education programs must adhere to the code of ethics of the National Association for the Education of Young Children and the Council for Exceptional Children along with the Early Childhood and Special Education Department policies. In order to receive a Special Education Para Educator Certificate from Schoolcraft College, students need to obtain a grade of 2.0 or higher in SPE 155.*

Special Needs Para Educator AAS Degree

Schoolcraft program code # AAS.00021

Working as a Para Educator requires persons to be supportive and nurturing while taking a strength-based perspective to the strengths of each person with special needs. This curriculum contains theoretical and practical experiences 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 educational and community based teams that support persons with disabilities.

Students who satisfactorily complete all college and program requirements qualify for an Associate in Applied Science degree.

Prior to the start of field placement hours, interviews at sites where children are present, observations, service learning experiences or practicums, students must:

- have a clear criminal background check
- obtain Michigan Central Registry Clearance from the Michigan Department of Human Services
- obtain a current TB test

Students who are not cleared through a criminal background check and by the Michigan Department of Human Services will not be permitted in the ECE/SPE programs. Some field placement/practicum sites may have additional requirements prior to starting an experience/practicum.

Students are expected to follow the ECE/SPE program policies, abide by the National Association for the Education of Young Children Code of Ethical Conduct, follow field placement policies and conduct themselves appropriately in the presence of children, families and professionals during field placements/practicums.

In order to receive a Special Education Para Educator AAS Degree from Schoolcraft College, students need to receive a grade of 2.0 or higher in SPE 155 and SPE 275.

Not all courses are offered each semester. Students should work with an academic advisor to develop a plan of study that works for them. Students planning to transfer are advised to check the transfer institution's requirements/guides and discuss their options with an academic advisor. Number of credits may vary depending on the course selection.

SAMPLE SCHEDULE OF COURSES

First Year - Fall Semester

Course #	Course Title	Credits
ECE 110	**Child Development**	3
SPE 100	**Children with Special Needs**	3
SPE 105	**Introduction to Developmental Disabilities**	3
ENG 101	**English Composition 1**	3
Humanities	**Select General Education Humanities course**	3-4
Recommended	**Any World Language**	
COMA 103	**Fundamentals of Speech**	
ENG 203	**Children's Literature**	
	TOTAL CREDITS: 15-16	

Special Needs Para Educator AAS Degree (continued)

First Year - Winter Semester

Course #	Course Title	Credits
ECE 170	**Curriculum, Assessment and Technology**	3
ECE 180	**Child and Family Welfare Services**	3
SPE 155*	**Special Education Practical Experiences 1**	3
SPE 220	**Early Childhood Special Education**	3
PSYCH 153	**Human Relations**	3
	TOTAL CREDITS: 15	

Second Year - Fall Semester

Course #	Course Title	Credits
SPE 115	**Special Educational Programs and Supported Living**	3
SPE 125	**Learning Disabilities**	3
Mathematics	**Select General Education Mathematics course**	3-5
ECE 120	**Creative Activities**	3
ENG 102	**English Composition 2**	3
	TOTAL CREDITS: 15-17	

Second Year - Winter Semester

Course #	Course Title	Credits
SPE 210	**Methods and Curricula for Persons with Developmental Disabilities**	3
SPE 275*	**Special Education Practical Experiences 2**	3
ECE 230	**Classroom Behavior - Understanding Social Competence**	3
ECE 280	**Emerging Educator**	1
SPE 135	**Emotional Impairment**	3
Science	**Select General Education Science course**	3-5
	TOTAL CREDITS: 16-18	

PROGRAM TOTAL 61-66 CREDITS

** Students in the Early Childhood and Special Education programs must adhere to the code of ethics of the National Association for the Education of Young Children and the Council for Exceptional Children along with the Early Childhood and Special Education Department policies. In order to receive a Special Education Para Educator AAS Degree from Schoolcraft College, students need to receive a grade of 2.0 or higher in SPE155 and SPE 275.*

Schoolcraft College | 60 YEARS

2021-2022 CREDENTIAL YEAR

Electronic Technology

Credentials

Electronic Technology Skills Certificate	16 cr.
Electronic Technology Certificate	33-34 cr.
Electronic Technology AAS Degree	60-66 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 electronic repairer that requires 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, opening 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 micro-controllers, 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.

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.

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.

Not all courses are offered each semester. Students should work with an academic advisor to develop a schedule that will work for them. Students planning to transfer should check the transfer institution's requirements/guides or discuss their options with an academic advisor. Number of credits may vary depending on the course selection.

SAMPLE SCHEDULE OF COURSES

First Year - Fall Semester

Course #	Course Title	Credits
ELECT 131	**Basic Measurement and Reporting Skills**	3
ELECT 137	**DC Circuits and Mathematical Modeling**	5
	Total Credits: 8	

First Year - Winter Semester

Course #	Course Title	Credits
ELECT 138	**AC Circuits and Mathematical Modeling**	5
ELECT 139	**Diodes and Transistors**	3
	Total Credits: 8	

PROGRAM TOTAL 16 CREDITS

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.

Students who satisfactorily complete the program requirements qualify for a certificate of program completion.

Not all courses are offered each semester. Students should work with an academic advisor to develop a schedule that will work for them. Students planning to transfer should check the transfer institution's requirements/guides or discuss their options with an academic advisor. Number of credits may vary depending on the course selection.

SAMPLE SCHEDULE OF COURSES

First Year - Fall Semester

Course #	Course Title	Credits
ELECT 131	**Basic Measurement and Reporting Skills**	3
ELECT 137	**DC Circuits and Mathematical Modeling**	5
Science	**Select one:**	4-5
BIOL 105*	**Basic Human Anatomy and Physiology**	
CHEM 111	**General Chemistry 1**	
PHYS 123	**Applied Physics**	
	Total Credits: 12-13	

First Year - Winter Semester

Course #	Course Title	Credits
ELECT 138	**AC Circuits and Mathematical Modeling**	5
ELECT 139	**Diodes and Transistors**	3
ELECT 180	**LabVIEW Programming CORE 1 and 2**	5
	Total Credits: 13	

First Year - Spring/Summer Session

Course #	Course Title	Credits
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.

Electronics 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.

Students who satisfactorily complete all college and program requirements qualify for an associate in applied science degree.

Not all courses are offered each semester. Students should work with an academic advisor to develop a schedule that will work for them. Students planning to transfer should check the transfer institution's requirements/guides or discuss their options with an academic advisor. Number of credits may vary depending on the course selection.

SAMPLE SCHEDULE OF COURSES

First Year - Fall Semester

Course #	Course Title	Credits
ELECT 131	**Basic Measurement and Reporting Skills**	3
ELECT 137	**DC Circuits and Mathematical Modeling**	5
MATH 102	**Technical Mathematics**	4
Science	**Select one:**	4-5
BIOL 105	**Basic Human Anatomy and Physiology**	
CHEM 111	**General Chemistry 1**	
PHYS 123	**Applied Physics**	
	Total Credits: 16-17	

First Year - Winter Semester

Course #	Course Title	Credits
ELECT 138	**AC Circuits and Mathematical Modeling**	5
ELECT 139	**Diodes and Transistors**	3
ELECT 180	**LabVIEW Programming CORE 1 and 2**	5
	Total Credits: 13	

First Year - Spring/Summer Session

Course #	Course Title	Credits
ELECT 215	**Operational Amplifiers and Linear Integrated Circuits**	4
ELECT 219	**Digital Logic Circuits**	4
	Total Credits: 8	

Electronics Technology AAS Degree (continued)

Second Year - Fall Semester

Course #	Course Title	Credits
ELECT 144	**Introduction to Microcontrollers**	3
ELECT 218	**AC/DC Motors**	3
Social Science	**Select General Education Social Science course**	3-4
Recommended:	**PSYCH 153 Human Relations**	
ENG 101	**English Composition 1**	3
	Total Credits: 12-13	

Second Year - Winter Semester

Course #	Course Title	Credits
ELECT 251	**Programmable Logic and Industrial Controls**	4
Elective	**Select from list 4**	3-4
Humanities	**Select General Education Humanities course**	1-4
Recommended:	**COMA 103 Fundamentals of Speech**	
English	**Select one:**	3
ENG 102	**English Composition 2**	
ENG 116	**Technical Writing**	
	Total Credits: 11-15	

ELECTIVES

Course #	Course Title	Credits
CIS 115	**Introduction to Computer Based Systems**	3
CIS 171	**Introduction to Networking**	3
CIS 176	**Visual Basic.NET**	3
CNT 130	**Computer Hardware and Troubleshooting**	3
ELECT 133	**Introduction to Battery Technology**	3
ELECT 145	**Fluid Power**	4
ELECT 228	**Electronic Troubleshooting**	3
ELECT 252	**Programmable Logic System Design**	4
MET 103	**Introduction to Materials Science**	3
ROBAT 101	**Robot Tool Handling Operations and Programming**	3

PROGRAM TOTAL 60-66 CREDITS

Emergency Medical Technology

Credentials

Emergency Medical Technician Skills Certificate	19 cr.
Paramedic Certificate	31.5 cr.
Paramedic AAS Degree	66.5-67.5 cr.

Major Description

Emergency Medical Technicians and Paramedics are on the front-line of emergency medical care, and Schoolcraft can help students prepare for a career in this fast-paced profession by earning either a certificate or an associate of applied science degree.

The Emergency Medical Technician skills certificate prepares students for employment as a pre-hospital Emergency Medical Technician, while the Paramedic certificate and associate in applied science degree enables students to qualify for positions as an advanced emergency provider. The rigorous programs include a combination of lecture, laboratory, and clinical and field internship experience to give students a solid foundation in the field of emergency medical services. Every course is approved by the Michigan Department of Health & Human Services Bureau of EMS, Trauma, & Preparedness, EMS Section.

Students successfully completing the program requirements will be eligible to take the National Registry of EMT written and practical exams. Those who successfully pass the credentialing exams will be eligible to apply for state licensure.

Credits earned in the certificate programs may count toward a Schoolcraft AAS degree and transfer toward a bachelor's degree at a four-year college or university.

Emergency Medical Technology: EMT Skills Certificate

Schoolcraft program code #CRT.00324

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

All courses are approved by the Michigan Department of Health & Human Services Bureau of EMS, Trauma, & Preparedness, EMS Section. Students successfully completing the program requirements will be eligible to take the National Registry of EMT Paramedic written and practical exams. Those who successfully pass the credentialing exams will be eligible to apply for state licensure.

Students will be evaluated in the following core competency areas: didactic, practical, clinical, and field 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 field 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 hold liability insurance which is valid for one year.

The EMT skills certificate provides students with basic knowledge and applicable skills for a career in the field of emergency medical service. This skill certificate is required for entry into the paramedic certificate program. Currently licensed EMTs may be eligible for prior learning credit. Please contact an advisor for more information.

Not all courses are offered each semester. Students should work with an academic advisor to develop a schedule that will work for them. Students planning to transfer should check the transfer institution's requirements/guides or discuss their options with an academic advisor. Number of credits may vary depending on the course selection.

SAMPLE SCHEDULE OF COURSES

First Year - Fall Semester

Course #	Course Title	Credits
EMT 115	**Emergency Medical Technology - Basic**	10
BIOL 101	**General Biology**	4
	Total Credits: 14	

First Year - Winter Semester

Course #	Course Title	Credits
BIOL 236	**Human Anatomy and Physiology**	5
	Total Credits: 5	

PROGRAM TOTAL 19 CREDITS

Emergency Medical Technology: Paramedic Certificate

Schoolcraft program code # 1YC.00024

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

All courses are approved by the Michigan Department of Health & Human Services Bureau of EMS, Trauma, & Preparedness, EMS Section. Students successfully completing the program requirements will be eligible to take the National Registry of EMT Paramedic written and practical exams. Those who successfully pass the credentialing exams will be eligible to apply for state licensure.

Students will be evaluated in the following core competency areas: didactic, practical, clinical, and field 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 field 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 hold liability insurance which is valid for one year.

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 four courses have done so over a two-year period.

The paramedic certificate program requires the EMT skills certificate for entry. Currently licensed EMTs may be eligible for prior learning credit. Please contact an advisor for more information.

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.

For more information on certification, please contact:
Michigan Department of Health and Human Services Bureau of EMS Trauma, and Preparedness, EMS Section
Capital View Building, 6th Floor
201 Townsend Street
Lansing, Michigan 48913
(517) 335-1825
godet@michigan.gov
www.michigan.gov/ems

The Schoolcraft College Paramedic Program is accredited by the Commission on Accreditation of Allied Health Education Programs (www.caahep.org) upon the recommendation of the Committee on Accreditation of Educational Programs for the Emergency Medical Services Professions (CoAEMSP).
Commission on Accreditation of Allied Health Education Programs
25400 US Highway 19 N.,Suite 158
Clearwater, FL 33763
(727) 210-2350
www.caahep.org

To contact CoAEMSP:
8301 Lakeview Parkway, Suite 111-312
Rowlett, TX 75088
(214) 703-8445 FAX (214) 703-8992
www.coaemsp.org

Emergency Medical Technology: Paramedic Certificate (continued)

Not all courses are offered each semester. Students should work with an academic advisor to develop a schedule that will work for them. Students planning to transfer should check the transfer institution's requirements/guides or discuss their options with an academic advisor. Number of credits may vary depending on the course selection.

SAMPLE SCHEDULE OF COURSES

First Year - Fall Semester

Course #	Course Title	Credits
EMT 210	**Paramedic Technology - Module 1**	10
	Total Credits: 10	

First Year - Winter Semester

Course #	Course Title	Credits
EMT 220	**Paramedic Technology - Module 2**	10.5
	Total Credits: 10.5	

First Year – Spring Session

Course #	Course Title	Credits
EMT 230	**Paramedic Technology - Module 3**	9
	Total Credits: 9	

Second Year - Fall Semester

Course #	Course Title	Credits
EMT 290	**Paramedic Field Internship**	2
	Total Credits: 2	

PROGRAM TOTAL 31.5 CREDITS

Emergency Medical Technology: Paramedic AAS Degree

Schoolcraft program code # AAS.00250

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

All courses are approved by the Michigan Department of Health & Human Services Bureau of EMS, Trauma, & Preparedness, EMS Section. Students successfully completing the program requirements will be eligible to take the National Registry of EMT Paramedic written and practical exams. Those who successfully pass the credentialing exams will be eligible to apply for state licensure. Students will be evaluated in the following core competency areas: didactic, practical, clinical, and field 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 field 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 hold 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. Students who satisfactorily complete all college and program requirements qualify for an associate in applied science degree.

Currently licensed EMTs and Paramedics may be eligible for prior learning credit. Please contact an advisor for more information.

The Paramedic portion of 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.

For more information on certification, please contact:

Michigan Department of Health & Human Services Bureau of EMS Trauma, & Preparedness, EMS Section
Capitol View Building, 6th Floor
201 Townsend Street
Lansing, Michigan 48913
(517) 335-1825
goddet@michigan.gov
www.michigan.gov/ems

The Schoolcraft College Paramedic Program is accredited by the Commission on Accreditation of Allied Health Education Programs (www.caahep.org) upon the recommendation of the Committee on Accreditation of Educational Programs for the Emergency medical Services Professions (CoAEMSP).

Commission on Accreditation of Allied Health Education Programs
25400 US Highway 19 N., Suite 158
Clearwater, FL 33763
(727) 210-2350
www.caahep.org

To contact CoAEMSP:

8301 Lakeview Parkway, Suite 111-312
Rowlett, TX 75088
(214) 703-8445 FAX (214) 703-8992
www.coaemsp.org

Emergency Medical Technology: Paramedic AAS Degree (continued)

Not all courses are offered each semester. Students should work with an academic advisor to develop a schedule that will work for them. Students planning to transfer should check the transfer institution's requirements/guides or discuss their options with an academic advisor. Number of credits may vary depending on the course selection.

SAMPLE SCHEDULE OF COURSES

First Year - Fall Semester

Course #	Course Title	Credits
BIOL 101	**General Biology**	4
EMT 115	**Emergency Medical Technology - Basic**	10
	Total Credits: 14	

First Year - Winter Semester

Course #	Course Title	Credits
BIOL 236	**Human Anatomy and Physiology**	5
ENG 100	**Communication Skills**	3
HIT 100	**Introduction to Medical Terminology**	2
	Total Credits: 10	

First Year - Spring Session

Course #	Course Title	Credits
General Education	**Mathematics (Recommended MATH 101 or 102)**	3-4
PSYCH 153	**Human Relations**	3
	Total Credits: 6-7	

First Year - Summer Session

Course #	Course Title	Credits
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

Course #	Course Title	Credits
EMT 210	**Paramedic Technology - Module 1**	10
	Total Credits: 10	

Emergency Medical Technology: Paramedic AAS Degree (continued)

Second Year - Winter Semester

Course #	Course Title	Credits
EMT 220	**Paramedic Technology - Module 2**	10.5
	Total Credits: 10.5	

Second Year - Spring Session

Course #	Course Title	Credits
EMT 230	**Paramedic Technology - Module 3**	9
	Total Credits: 9	

Third Year - Fall Semester

Course #	Course Title	Credits
EMT 290	**Paramedic Field Internship**	2
	Total Credits: 2	

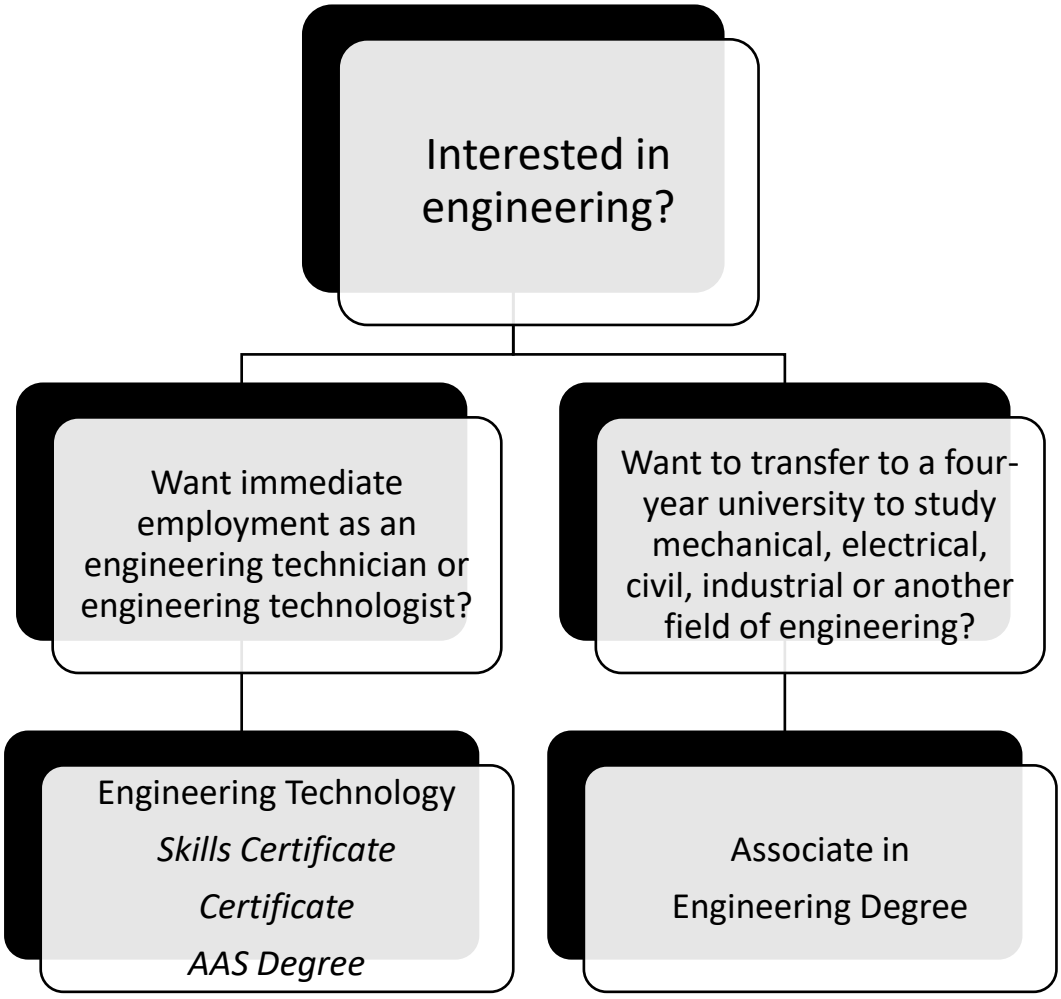
PROGRAM TOTAL 66.5 - 67.5 CREDITS

*CIS 105 may be waived if student has successfully completed a high school computer course or equivalent within the past five years.

Electives (Optional)

Course #	Course Title	Credits
HIT 114	**Pharmacology for Health Professionals**	2
MA 115	**Phlebotomy**	3

Engineering Technology and Pre-Engineering



Credentials

Engineering Technology Skills Certificate	18 cr.
Engineering Technology Certificate	30 cr.
Engineering Technology AAS Degree	60-64 cr.
Engineering Technology AAS Degree – *with Department of Labor Apprenticeship Certificate*	60 cr.
Associate in Engineering Transfer Degree	60 cr.

Engineering Major Description

The practice of Engineering is focused on the design, development, testing, and use of machines, technology, and structures. **Engineers** apply science and math principles to develop new products, improve systems, and solve technical problems. **Engineering Technicians or Technologists** assist engineers in many ways, such as setting up and operating equipment, running tests, and collecting data.

Schoolcraft's Engineering Technology program offers three levels of credentials to prepare students to seek immediate employment as an engineering technician or technologist in a variety of work settings. Students will develop workplace readiness through educational experiences with a real-world focus in the ever-changing fields of engineering, manufacturing, and technology:

- The **Engineering Technology Skills Certificate** is designed to provide foundational skills to prepare a student for employment in the manufacturing industry.
- The **Engineering Technology Certificate** builds upon the Skills Certificate, enhancing a student's career opportunity as an engineering technician or engineering technologist.
- The **Engineering Technology AAS** is 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. AAS graduates may also consider transferring to another college or university to earn a Bachelor's degree in Engineering Technology.
    - Individuals who have successfully completed the Department of Labor Apprenticeship Certificate in a technical occupation, may be able to apply 21-45 credits toward the completion of an Engineering Technology AAS. Contact the Associate Dean of Occupational Programs in Engineering and Technology for further details.

  Students seeking to transfer to a four-year institution to pursue a Bachelor's degree in engineering can begin their studies with Schoolcraft's two-year Associate of Engineering degree:

- The **Associate of Engineering degree** allows the student to establish a strong academic foundation in mathematics and science and complete courses to fulfill general education requirements—all before moving on to a Bachelor's degree in Engineering 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 degree 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 to ensure that their courses transfer.

Engineering Technology Skills Certificate

Schoolcraft program code # CRT.00271

This Skills Certificate is designed to provide foundational first steps for employment as an engineering technician or engineering technologist. These courses apply directly to programs leading to additional credentials, including certificates and Associate Degrees for students seeking to further their education beyond this program.

Students who satisfactorily complete the program requirements qualify for a certificate of completion. All program required courses must be completed with a grade of 2.0 or better.

Not all courses are offered each semester. Students should work with an academic advisor to develop a schedule that will work for them. Students planning to transfer should check the transfer institution's requirements/guides or discuss their options with an academic advisor. Number of credits may vary depending on the course selection.

SAMPLE SCHEDULE OF COURSES

First Year - Fall Semester

Course #	Course Title	Credits
ENGR 100	**Introduction to Engineering and Technology**	3
CIS 120	**Software Applications**	3
Mathematics	**Select one:**	4
MATH 102	**Technical Mathematics**	
MATH 113	**Intermediate Algebra for College Students**	
	Total Credits: 10	

First Year - Winter Semester

Course #	Course Title	Credits
CAD 120	**Mechanical Blueprint Reading with Sketching**	3
Elective*	**Select from list (minimum 3 credits)**	3
OSH	**Select one:**	2
OSH 111	**Occupational Safety and Health for General Industry**	
OSH 112	**Occupational Safety and Health for Construction**	
	Total Credits: 8	

Engineering Technology Skills Certificate (continued)

Electives

Course #	Course Title	Credits
CAD 210	**CATIA – 3D and 2D Applications**	4
CAD 220	**SolidWorks – 3D and 2D Applications**	4
CAD 230	**NX – 3D and 2D Applications**	4
ELECT 131	**Basic Measurement and Reporting Skills**	3
MET 103	**Introduction to Materials Science**	3
MFG 102	**Basic Machining Processes**	3
MFG 105	**Manufacturing Processes**	4
PLAST 130	**Introduction to Plastic Materials**	3
PLAST 131	**Introduction to Plastic Processing**	3
QM 106	**Introduction to Quality Improvement Tools**	3
ROBAT 101	**Robot Tool Handling Operations and Programming**	3
WELD 110	**Introduction to Welding Basics for Fabrication**	3

PROGRAM TOTAL 18 CREDITS

**Students planning to continue studies in pursuit of a certificate or Associate Degree are encouraged to select a course which can be applied to a future program of study. Discuss options with an academic advisor.*

Engineering Technology Certificate

Schoolcraft program code # 1YC.00272

This Certificate is designed to provide introductory educational experiences for those students seeking to start or enhance their career as an engineering technician or engineering technologist. This Certificate provides technical skill and knowledge enhancement in addition to building essential job-related communication skills. All courses apply directly to programs leading to Associate Degrees for students seeking to further their education beyond this program.

Students who satisfactorily complete the program requirements qualify for a certificate of completion. All program required courses must be completed with a grade of 2.0 or better.

Not all courses are offered each semester. Students should work with an academic advisor to develop a schedule that will work for them. Students planning to transfer should check the transfer institution's requirements/guides or discuss their options with an academic advisor. Number of credits may vary depending on the course selection.

SAMPLE SCHEDULE OF COURSES

First Year - Fall Semester

Course #	Course Title	Credits
ENGR 100	**Introduction to Engineering and Technology**	3
CIS 120	**Software Applications**	3
Mathematics	**Select one:**	4
MATH 102	**Technical Mathematics**	
MATH 113	**Intermediate Algebra for College Students**	
OSH	**Select one:**	2
OSH 111	**Occupational Safety and Health for General Industry**	
OSH 112	**Occupational Safety and Health for Construction**	
	Total Credits: 12	

First Year - Winter Semester

Course #	Course Title	Credits
CAD 120	**Mechanical Blueprint Reading with Sketching**	3
Elective*	**Select from list (minimum 3 credits)**	3
QM 106	**Introduction to Quality Improvement Tools**	3
MFG 102	**Basic Machining Processes**	3
	Total Credits: 12	

Engineering Technology Certificate (continued)

First Year – Spring/Summer Session

Course #	Course Title	Credits
English Communication	**Select a General Education English Communication course**	3
Recommended:	**ENG 100 – Communication Skills**	
Social Science	**Select a General Education Social Science course**	3
Recommended:	**PSYCH 153 – Human Relations**	
	Total Credits: 6	

Electives

Course #	Course Title	Credits
CAD 130	**Geometric Dimensioning and Tolerance**	3
CAD 210	**CATIA – 3D and 2D Applications**	4
CAD 220	**SolidWorks – 3D and 2D Applications**	4
CAD 230	**NX – 3D and 2D Applications**	4
ELECT 131	**Basic Measurement and Reporting Skills**	3
MET 103	**Introduction to Materials Science**	3
MFG 105	**Manufacturing Processes**	4
MFG 202	**Advanced Machining Processes**	3
PLAST 130	**Introduction to Plastic Materials**	3
PLAST 131	**Introduction to Plastic Processing**	3
QM 107	**Quality Planning and Team Building**	3
ROBAT 101	**Robot Tool Handling Operations and Programming**	3
WELD 110	**Introduction to Welding Basics for Fabrication**	3

PROGRAM TOTAL 30 CREDITS

**Students planning to continue studies in pursuit of a certificate or Associate Degree are encouraged to select a course which can be applied to a future program of study. Discuss options with an academic advisor.*

Engineering Technology AAS Degree

Schoolcraft program code # AAS.00273

This AAS Degree is designed to provide the student with knowledge of the practical application of principles, techniques, procedures, and equipment to the design and production of various goods and services. Engineering Technology graduates will be able to assist engineers in designing, developing, using, and maintaining all types of equipment. They will work independently or in teams doing product evaluation and testing, where they adjust, test, and repair equipment. Additionally, Technologists may be involved in the manufacturing, deployment, or servicing of equipment. With 16 elective credit options, the program can be customized to meet a student's or employer's interest. Students who graduate with this degree may consider transferring to another college or university to complete a Bachelor's degree in Engineering Technology.

There are two ways to complete the Engineering Technology AAS Degree:

1. The traditional route of completing all courses.
2. Individuals who have successfully completed the Department of Labor Apprenticeship Certificate, may be able to apply 21-45 credits toward the completion of an Engineering Technology AAS. Contact the Associate Dean of Occupational Programs in Engineering and Technology, and see below for further details.

All program required courses must be completed with a grade of 2.0 or better.

Not all courses are offered each semester. Students should work with an academic advisor to develop a schedule that will work for them. Students planning to transfer should check the transfer institution's requirements/guides or discuss their options with an academic advisor. Number of credits may vary depending on the course selection.

SAMPLE SCHEDULE OF COURSES

First Year - Fall Semester

Course #	Course Title	Credits
ENGR 100	**Introduction to Engineering and Technology**	3
CIS 120	**Software Applications**	3
Mathematics	**Select one:**	4
MATH 102	**Technical Mathematics**	
MATH 113	**Intermediate Algebra for College Students**	
OSH	**Select one:**	2
OSH 111	**Occupational Safety and Health for General Industry**	
OSH 112	**Occupational Safety and Health for Construction**	
	Total Credits: 12	

First Year - Winter Semester

Course #	Course Title	Credits
CAD 120	**Mechanical Blueprint Reading with Sketching**	3
Elective	**Select from list (minimum 3 credits)**	3
QM 106	**Introduction to Quality Improvement Tools**	3
MFG 102	**Basic Machining Processes**	3
	Total Credits: 12	

Engineering Technology AAS Degree (continued)

First Year – Spring/Summer Session

Course #	Course Title	Credits
English Communication	**Select a General Education English Communication course**	3
Recommended:	**ENG 100 – Communication Skills**	
Social Science	**Select a General Education Social Science course**	3
Recommended:	**PSYCH 153 – Human Relations**	
	Total Credits: 6	

Second Year - Fall Semester

Course #	Course Title	Credits
MFG 105	**Manufacturing Processes**	4
MET 103	**Introduction to Materials Science**	3
English Communication	**Select a General Education English Communication course**	3
Recommended:	**ENG 116 – Technical Writing**	
Elective	**Select from list (minimum 3 credits)**	3
Humanities	**Select a General Education Humanities course**	1-3
Recommended:	**COMA 103 – Fundamentals of Speech**	
	Total Credits: 14-16	

Second Year - Winter Semester

Course #	Course Title	Credits
WELD 110	**Introduction to Welding Basics for Fabrication**	3
Sciences	**Select a General Education Science course**	3-5
Elective	**Select from list so that AAS program total credits meets minimum 60 credits**	10
	Total Credits: 16-18	

Engineering Technology AAS Degree (continued)

Electives

Course #	Course Title	Credits
CAD 130	**Geometric Dimensioning and Tolerance**	3
CAD 210	**CATIA – 3D and 2D Applications**	4
CAD 220	**SolidWorks – 3D and 2D Applications**	4
CAD 230	**NX – 3D and 2D Applications**	4
ELECT 131	**Basic Measurement and Reporting Skills**	3
MFG 103	**Basic Computer Numerical Control (CNC)**	3
MFG 202	**Advanced Machining Processes**	3
MFG 212	**Coordinate Measuring Machine**	2
MFG 291	**Manufacturing Internship**	3
PLAST 130	**Introduction to Plastic Materials**	3
PLAST 131	**Introduction to Plastic Processing**	3
PLAST 140	**Plastic Materials Testing**	3
PLAST 150	**Plastic Injection Molding Technology**	3
PLAST 160	**Process Control Systems for Plastic Manufacturing**	3
QM 107	**Quality Planning and Team Building**	3
ROBAT 101	**Robot Tool Handling Operations and Programming**	3
WELD 113	**Shielded Metal Arc Welding (S.M.A.W.)**	3
WELD 115	**Gas Metal 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

PROGRAM TOTAL 60-64 CREDITS

Engineering Technology AAS Degree – *with Department of Labor Apprenticeship Certificate*

This AAS Degree is designed to allow students who possess a Department of Labor Apprenticeship Certificate to apply a minimum of 21 credits of their prior learning experiences toward the credits needed for the Engineering Technology AAS degree. Additional credits, based on professional experience and other courses completed, may be applied on a case-by-case basis, not to exceed 45 credits total. Contact the Associate Dean of Occupational Programs in Engineering and Technology for further details.

The following courses will be accepted as completed based on completion of the Department of Labor Apprenticeship Certificate *(21 credits)*:

- All Electives (16 credits)
- ENGR 100 – Introduction to Engineering and Technology *(3 credits)*
- OSH 111 – Occupational Safety and Health for General Industry or OSH 112 - Occupational Safety and Health for General Industry *(2 credits)*

Remaining program required technical courses *(26 credits):*

- CIS 120 – Software Applications *(3 credits)*
- MATH 102 – Technical Mathematics or MATH 113 – Intermediate Algebra for College Students *(4 credits)*
- CAD 120 – Mechanical Blueprint Reading with Sketching *(3 credits)*
- MET 103 – Introduction to Materials Science *(3 credits)*
- QM 106 – Introduction to Quality Improvement Tools *(3 credits)*
- MFG 102 – Basic Machining Processes *(3 credits)*
- MFG 105 – Manufacturing Processes *(4 credits)*
- WELD 110 – Introduction to Welding Basics for Fabrication *(3 credits)*

Remaining program required general education courses *(minimum 13 credits):*

- English Communication *(6 credits)*
    - Recommended: ENG 100 – Communication Skills *(3 credits)*
    - Recommended: ENG 116 – Technical Writing *(3 credits)*
- Social Science *(3 credits)*
    - Recommended: PSYCH 153 – Human Relations *(3 credits)*
- Humanities *(1-3 credits)*
    - Recommended: COMA 103 – Fundamentals of Speech *(3 credits)*
- Science *(3-5 credits)*

Associate in Engineering Degree

Schoolcraft program code # AE.00039

Schoolcraft's Associate of Engineering degree 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 and complete courses to fulfill general education requirements—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 degree 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 to ensure that their courses transfer.

All courses must be completed with a minimum overall grade point average of 2.0 or better.

Not all courses are offered each semester. Students should work with an academic advisor to develop a schedule that will work for them. Students planning to transfer should check the transfer institution's requirements/guides or discuss their options with an academic advisor. Number of credits may vary depending on the course selection.

SAMPLE SCHEDULE OF COURSES

First Year - Fall Semester

Course #	Course Title	Credits
English Communication	**Select first within a set of General Education English Communication courses***	3
Recommended:	**ENG 101 – English Composition 1**	
ECON	**Select one:**	4
ECON 201	**Principles of Macroeconomics**	
ECON 202	**Principles of Microeconomics**	
MATH 150	**Calculus with Analytic Geometry 1**	5
CHEM 111	**General Chemistry 1**	4
	Total Credits: 16	

First Year - Winter Semester

Course #	Course Title	Credits
English Communication	**Select second within a set of General Education English Communication courses***	3
Recommended:	**ENG 102 – English Composition 2 OR**	
	ENG 116 – Technical Writing	
MATH 151	**Calculus with Analytic Geometry 2**	5
PHYS 211	**Physics for Scientists and Engineers 1**	5
Humanities	**Select General Education Humanities course***	3
	Total Credits: 16	

Associate in Engineering Degree (continued)

Second Year – Fall Semester

Course #	Course Title	Credits
MATH 240	**Calculus with Analytic Geometry 3**	5
PHYS 212	**Physics for Scientists and Engineers 2**	5
Social Science	**Select General Education Social Science course***	3
Humanities	**Select General Education Humanities course***	1
	Total Credits: 14	

Second Year - Winter Semester

Course #	Course Title	Credits
MATH 252	**Differential Equations**	5
Electives	**Select liberal arts or occupational courses that satisfy transfer and academic goals and requirements.***	9
Recommended:	**ENGR 201 – Statics OR**	
	ENGR 202 – Mechanics of Materials OR	
	ENGR 203 – Dynamics	
	Total Credits: 14	

PROGRAM TOTAL 60 CREDITS

*Please check Schoolcraft General Education and transfer institution program requirements to determine course options.

English as a Second Language

Major Description

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. Schoolcraft's ESL program is a SEVP recognized and approved English Language Learning/Bridge Program for F-1 students.

English as a Second Language (ESL) Program

Schoolcraft program code: Aligned with the student's major program of study

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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 four levels, focusing on specific content areas, followed by a capstone class designed to prepare students for success in college classes.

Students are initially placed into the appropriate level, based on their ESL Accuplacer Exam scores. Therefore, not all classes may be required. In addition to the required coursework within the program, students may choose to take an elective course to enhance and extend their learning of the English language. Students interested in selecting an elective course will be expected to meet all pre-requisites.

NOTE: Courses must be at a 100-level or higher to be used toward completion of any academic credential or program. Students are required to have a final course grade of 70% (2.0) in order to successfully complete each course and advance to the next level.

Not all courses are offered each semester. Students should work with an academic advisor to develop a schedule that will work for them. Students planning to transfer should check the transfer institution's requirements/guides or discuss their options with an academic advisor. Number of credits may vary depending on the course selection.

SAMPLE SCHEDULE OF COURSES

First Year - Fall Semester

Course #	Course Title	Credits
ESL 060	**Reading and Vocabulary 1**	4
ESL 064	**Listening and Speaking 1**	4
ESL 067	**Grammar and Writing 1**	4
	Total Credits: 12	

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

First Year - Winter Semester

Course #	Course Title	Credits
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

Course #	Course Title	Credits
ESL 080	**Reading and Vocabulary 3**	4
ESL 084	**Listening and Speaking 3**	4
ESL 087	**Grammar and Writing 3**	4
Elective	**Select one (optional)**	3
ESL 078	**English for Business Purposes**	
ESL 079	**American English Pronunciation**	
	Total Credits: 12-15	

Second Year - Winter Semester

Course #	Course Title	Credits
ESL 110	**Reading and Vocabulary 4**	4
ESL 114	**Listening and Speaking 4**	4
ESL 117	**Grammar and Writing 4**	4
Elective	**Select one (optional)**	3
ESL 078	**English for Business Purposes**	
ESL 079	**American English Pronunciation**	
	Total Credits: 12-15	

Third Year - Fall Semester

Course #	Course Title	Credits
ESL 130	**Capstone Course**	4
Electives	**Selected entry level courses (optional)**	8
	Total Credits: 4-12	

PROGRAM TOTAL 52-66 CREDITS

Schoolcraft College | 60 YEARS

2021-2022 CREDENTIAL YEAR

Environmental Studies

Credentials

Geographic Information Systems (GIS) Skills Certificate	16-17 cr.
Environmental Science Technician Certificate	31 cr.
Environmental Studies AAS Degree	61-65 cr.

Major Description

With more focus on “green” energy, technology and sustainability, Schoolcraft’s environmental studies programs prepare students for entry into this fast-growing field. Through the study of the environment, related sciences, communication and geographic information systems, students can pursue a skills certificate in Geographic Information Systems (GIS), an Environmental Science Technician Certificate, or an Associate in Applied Science degree in Environmental Studies. Students in the certificate or AAS program can complete a spring field experience in their final semester to apply the knowledge and skills learned at Schoolcraft in a real-world situation.

Environmental Studies: Geographic Information Systems Skills Certificate

Schoolcraft program code #CRT.00376

Geographic Information Systems (GIS) are sophisticated programs that incorporate both geospatial and tabular data to create products that can help users understand a problem or issue. GIS is used by professionals in all levels of government, business, engineering, public health, utilities, education, transportation, planning, emergency management, and other fields. Possible disciplines which employ GIS include biology, geography, anthropology, sociology, political science, and criminal justice. Students that complete the Geographic Information Systems Skills Certificate will have a basic understanding of GIS and the variety of its applications.

Students who satisfactorily complete the program requirements qualify for a certificate of program completion.

Not all courses are offered each semester. Students should work with an academic advisor to develop a schedule that will work for them. 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.

SAMPLE SCHEDULE OF COURSES

First Year - Fall Semester

Course #	Course Title	Credits
GEOG 212	**Environmental Science**	3
GEOG 225	**Introduction to Geographic Information Systems (GIS)**	4
CIS 225	**Database Management Systems**	3
	Total Credits: 10	

First Year - Winter Semester

Course #	Course Title	Credits
ENVR 245	**Applications in Geographic Information Systems (GIS)**	3
GEOG Elective	*Select one*	
GEOG 135	**Earth Systems**	4
GEOG 217	**Water Resources**	3
	Total Credits: 6-7	

PROGRAM TOTAL 16-17 CREDITS

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 testing, monitoring and data management. The environmental science technician applies scientific and technical skills and knowledge to specific tasks. Students in this program will develop their written and oral communication skills and computer skills as well as participate in practical hands-on training in the field and laboratory. They will have the opportunity to problem solve and apply their classroom knowledge to real world situations. The environmental science technician program provides students with the necessary background to be successful environmental science technicians.

Students who satisfactorily complete the program requirements qualify for a certificate of program completion.

Not all courses are offered each semester. Students should work with an academic advisor to develop a schedule that will work for them. 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.

First Year - Fall Semester

Course #	Course Title	Credits
GEOG 212	**Environmental Science**	3
GEOG 225	**Introduction to Geographic Information Systems (GIS)**	4
CIS 225	**Database Management Systems**	3
MATH 113	**Intermediate Algebra for College Students**	4
	Total Credits: 14	

First Year - Winter Semester

Course #	Course Title	Credits
ENVR 107	**Soil Mechanics**	4
ENVR 245	**Applications in Geographic Information Systems (GIS)**	3
GEOG 135	**Earth Systems**	4
GEOG 217	**Water Resources**	3
	Total Credits: 14	

First Year - Spring Semester

Course #	Course Title	Credits
ENVR 233	**Environmental Studies Field Experience**	3
	Total Credits: 3	

PROGRAM TOTAL 31 CREDITS

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.

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.

Not all courses are offered each semester. Students should work with an academic advisor to develop a schedule that will work for them. 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.

SAMPLE SCHEDULE OF COURSES

First Year - Fall Semester

Course #	Course Title	Credits
GEOG 212	**Environmental Science**	3
GEOG 225	**Introduction to Geographic Information Systems (GIS)**	4
CIS 225	**Database Management Systems**	3
MATH 113	**Intermediate Algebra for College Students**	4
	Total Credits: 14	

First Year - Winter Semester

Course #	Course Title	Credits
ENVR 107	**Soil Mechanics**	4
ENVR 245	**Applications in Geographic Information Systems (GIS)**	3
GEOG 135	**Earth Systems**	4
GEOG 217	**Water Resources**	3
	Total Credits: 14	

First Year - Spring Semester

Course #	Course Title	Credits
ENVR 233	**Environmental Studies Field Experience**	3
	Total Credits: 3	

Environmental Studies AAS Degree (continued)

Second Year - Fall Semester

Course #	Course Title	Credits
English Communication	**Select first within a set of General Education English Communication courses***	3
Recommended:	**ENG 101 – English Composition 1**	
Humanities	**Select General Education Humanities course***	1-4
GEOG 230	**Energy Resources**	3
BIOL 101	**General Biology**	4
Social Science	**Select General Education Social Science course***	3
Recommended:	**POLS 105 – Survey of American Government**	
	Total Credits: 14-17	

Second Year - Winter Semester

Course #	Course Title	Credits
English Communication	**Select second within a set of General Education English Communication courses***	3
Recommended:	**ENG 102 – English Composition 2**	
GEOG 203	**Weather and Climate**	3
CHEM 111	**General Chemistry 1**	4
Elective	**Select two courses not previously taken from list**	6-7
	Total Credits: 16-17	

Electives

Course #	Course Title	Credits
ANTH 112	**Introduction to Anthropology**	3
ANTH 201	**Cultural Anthropology**	3
CJ 113	**Introduction to Criminal Justice Systems**	3
GEOG 133	**World Regional Geography**	4
HS 101	**Introduction to Homeland Security**	3
HS 201	**Organizational and Facility Security**	3
POLS 105	**Survey of American Government**	3
POLS 109	**State and Local Government**	3
SOC 205	**Social Problems**	3

PROGRAM TOTAL 61-65 CREDITS

**Please check Schoolcraft General Education requirements to determine course options.*

Fire Technology

Credentials

Fire Fighter Technology Certificate	30 cr.
Fire Fighter Technology AAS Degree	63-72 cr.
Fire and Emergency Services AAS Degree	60-78 cr.

Major Description

Today's fire fighter has a wide range of responsibilities, from fighting fires and rescuing victims, to salvaging building contents, providing medical services, and having an awareness of leaderships role in tactics and strategies as well as fire service administration. Schoolcraft offers three educational options to help students become part of this field.

Our certificate program provides career training for entry-level fire fighters. It is designed for students who are currently entry level, volunteer or paid-on-call employees of a recognized Michigan fire department or are currently seeking employment as such. The program works in cooperation with the Michigan Fire Fighters Training Council and can prepare you to take the state exam for certification as an entry-level fire fighter.

The Fire Fighter Technology associate in applied science degree combines lectures and hands-on activities that prepare the student to respond in a variety of emergencies. Our Fire Fighter Technology degree program is available to students wishing to attend part-time or full-time.

The Fire and Emergency Services associate in applied science degree will expose students to the broader spectrum of the fire and emergency services in the post-9/11 world. Students will learn the core traditional fire service information along with the newer emergency services, emergency management and homeland security components common in the industry today.

Most programs enable students to participate in courses that utilize Schoolcraft's state-of-the-art Public Safety Training Complex. It includes a four-story burn tower that simulates a variety of firefighting and rescue situations, including high-angle approaches. Credits may also transfer toward a bachelor's degree at a four-year college or university.

Fire Fighter Technology Certificate

Schoolcraft program code # 1YC.00149

The fire fighter technology program provides career training for fire protection technicians. The program is offered in cooperation with the Michigan Fire Fighters Training Council and focuses on meeting the needs of fire service personnel. It is designed for students who are currently employed by Michigan Fire Marshal/recognized fire departments, currently seeking employment and/or volunteer in recognized fire districts. All courses meet the state-mandated requirements for preparing students to take the state exam for certification as entry-level fire fighters.

The Fire Fighter 1 and 2 courses cover content that is identical to the Fire Academy course, but in a part-time format. Therefore two sample schedules are offered below. Fire Fighter 1, 2 and/or Academy courses require students to attain an average of 70 percent or better on test scores and to score at least 70 percent on their final exam to receive a passing grade of 2.0. The Emergency Medical Technology—Basic course requires an average of 80 percent on tests and an 80 percent on the final for a grade of 2.7. Students achieving an 80 percent or higher in Emergency Medical Technology—Basic course will receive a certificate of completion and be eligible to test for State licensure. Practical skills in both areas must be passed at stated proficiency levels to successfully complete each course and be recommended for the state certification exams.

Students who satisfactorily complete the program requirements qualify for a certificate of program completion.

Contact the Fire Technology office at 734-462-4305 for additional information.

The Fire Fighter Technology Programs and Fire Academy courses 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 • 517- 241-8847 www.michigan.gov

Not all courses are offered each semester. Students should work with an academic advisor to develop a schedule that will work for them. Students planning to transfer should check the transfer institution's requirements/guides or discuss their options with an academic advisor. Number of credits may vary depending on the course selection.

SAMPLE SCHEDULE OF COURSES

First Year - Fall Semester

Course #	Course Title	Credits
FIRE 112	**Fire Fighter 1 - Basic Fire Suppression**	10
	Total Credits: 10	

First Year - Winter Semester

Course #	Course Title	Credits
FIRE 119	**Fire Fighter 2 - Advanced Fire Suppression**	10
	Total Credits: 10	

Fire Fighter Technology Certificate (continued)

First Year - Spring Session

Course #	Course Title	Credits
EMT 115	**Emergency Medical Technology - Basic**	10
	Total Credits: 10	

PROGRAM TOTAL 30 CREDITS

ALTERNATE - Fire Fighter Technology Certificate

First Year - Fall Semester

Course #	Course Title	Credits
FIRE 124	**Fire Academy**	20
	Total Credits: 20	

First Year - Winter Semester

Course #	Course Title	Credits
EMT 115	**Emergency Medical Technology - Basic**	10
	Total Credits: 10	

PROGRAM TOTAL 30 CREDITS

Fire Fighter Technology AAS Degree

Schoolcraft program code # AAS.00177

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 Fighter 1 and 2 courses cover content that is identical to the Fire Academy course, but in a part-time format. Therefore, two sample schedules are offered below.

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.

The Fire Fighter Technology Programs and Fire Academy courses 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 • 517- 241-8847 www.michigan.gov

Not all courses are offered each semester. Students should work with an academic advisor to develop a schedule that will work for them. Students planning to transfer should check the transfer institution's requirements/guides or discuss their options with an academic advisor. Number of credits may vary depending on the course selection.

SAMPLE SCHEDULE OF COURSES

First Year - Fall Semester

Course #	Course Title	Credits
FIRE 112	**Fire Fighter 1 - Basic Fire Suppression**	10
English	**Select one:**	3
ENG 100	**Communication Skills**	
ENG 101	**English Composition 1**	
Mathematics	**General Education Mathematics course**	3-4
	Total Credits: 16-17	

First Year - Winter Semester

Course #	Course Title	Credits
FIRE 119	**Fire Fighter 2 - Advanced Fire Suppression**	10
Science	**General Education Science course**	3-4
	BIOL 101 General Biology **(Recommended for students interested in EMT)**	
FIRE 101	**Principles of Emergency Services**	3
	Total Credits: 16-17	

Fire Fighter Technology AAS Degree (continued)

First Year - Spring/Summer Session

Course #	Course Title	Credits
Social Science	**General Education Social Science course**	3-4
Humanities	**General Education Humanities course**	1-4
	Total Credits: 4-8	

Second Year - Fall Semester

Course #	Course Title	Credits
English	**Select one:**	3
ENG 116	**Technical Writing**	
ENG 102	**English Composition 2**	
EMT 115	**Emergency Medical Technology - Basic**	10
FIRE 131	**Fire Fighting - Tactics and Strategy**	3
	Total Credits: 16	

Second Year - Winter Semester

Course #	Course Title	Credits
FIRE 205	**Fire Department Organization and Administration**	3
FIRE 125	**Building Construction for the Fire Service**	3
HS 202	**Introduction to Emergency Management**	3
Elective	**Select from list**	2-5
	Total Credits: 11-14	

PROGRAM TOTAL 63-72 CREDITS

ALTERNATE - Fire Fighter Technology AAS Degree

First Year - Fall Semester

Course #	Course Title	Credits
FIRE 124	**Fire Academy**	20
	Total Credits: 20	

ALTERNATE - Fire Fighter Technology AAS Degree (continued)

First Year - Winter Semester

Course #	Course Title	Credits
English	**Select one:**	3
ENG 100	**Communication Skills**	
ENG 101	**English Composition 1**	
Mathematics	**General Education Mathematics course**	3-4
FIRE 101	**Principles of Emergency Services**	3
Science	**General Education Science course**	3-4
	BIOL 101 General Biology **(Recommended for students interested in EMT)**	
	Total Credits: 12-14	

First Year - Spring/Summer Session

Course #	Course Title	Credits
Social Science	**General Education Social Science course**	3-4
Humanities	**General Education Humanities course**	1-4
	Total Credits 4-8	

Second Year - Fall Semester

Course #	Course Title	Credits
English	**Select one:**	3
ENG 116	**Technical Writing**	
ENG 102	**English Composition 2**	
EMT 115	**Emergency Medical Technology - Basic**	10
FIRE 131	**Fire Fighting - Tactics and Strategy**	3
	Total Credits: 16	

ALTERNATE - Fire Fighter Technology AAS Degree (continued)

Second Year - Winter Semester

Course #	Course Title	Credits
FIRE 205	**Fire Department Organization and Administration**	3
FIRE 125	**Building Construction for the Fire Service**	3
HS 202	**Introduction to Emergency Management**	3
Elective	**Select from list**	2-5
	Total Credits: 11-14	

Electives

Course #	Course Title	Credits
FIRE 128	**Fire Fighting - Hydraulics and Water Supply**	4
FIRE 136	**Fire Protection Systems**	3
FIRE 105	**Fire Behavior and Combustion**	3
FIRE 132	**Fire Prevention**	3
FIRE 221	**Principles of Fire and Emergency Services Safety and Survival**	3
FIRE 200	**Fire and Arson Investigation**	4
FIRE 207	**Fire Company Officer**	3
BIOL 236	**Human Anatomy and Physiology**	5
PE 202	**Lifestyle Fitness - Wellness**	2

PROGRAM TOTAL 63-72 CREDITS

Fire and Emergency Services AAS Degree

Schoolcraft program code # AAS.00217

This program is designed with distance-learning, online schedule flexibility for students who currently possess firefighting certifications or will not require them. This emphasis is designed for students who seek promotions or desire a professional position in the public or private fire service sectors, and provides students a wide knowledge base of the fire service and public safety. Students in this emphasis will have the education necessary to work in administrative, preventive, investigative, and educational areas of the fire service.

Contact the Fire Technology office at 734-462-4305 for additional information.

The Fire and Emergency Services Associate Degree program is nationally recognized by the U.S. Fire Administration through the Fire and Emergency Services Higher Education (FESHE) initiative.
Not all courses are offered each semester. Students should work with an academic advisor to develop a schedule that will work for them. Students planning to transfer should check the transfer institution's requirements/guides or discuss their options with an academic advisor. Number of credits may vary depending on the course selection.

SAMPLE SCHEDULE OF COURSES

First Year - Fall Semester

Course #	Course Title	Credits
FIRE 101	**Principles of Emergency Services**	3
FIRE 105	**Fire Behavior and Combustion**	3
ENG 101	**English Composition 1**	3
Mathematics	**General Education Mathematics course**	3-4
	Total Credits: 12-13	

First Year - Winter Semester

Course #	Course Title	Credits
FIRE 132	**Fire Prevention**	3
Social Science	**General Education Social Science course**	3-4
Science	**General Education Science course**	3-4
	BIOL 101 - General Biology **(Recommended for students interested in EMT)**	
HS 101	**Introduction to Homeland Security**	3
	Total Credits: 12-14	

First Year - Spring/Summer Session

Course #	Course Title	Credits
ENG 102	**English Composition 2**	3
Humanities	**General Education Humanities course**	3-4
	Total Credits: 6-7	

Fire and Emergency Services AAS Degree (continued)

Second Year - Fall Semester

Course #	Course Title	Credits
FIRE 136	**Fire Protection Systems**	3
CIS 120	**Software Applications**	3
FIRE 205	**Fire Department Organization and Administration**	3
FIRE 221	**Principles of Fire and Emergency Services Safety and Survival**	3
CJ 102	**Organization and Administration of Law Enforcement Agencies**	3
	Total Credits: 15	

Second Year - Winter Semester

Course #	Course Title	Credits
FIRE 125	**Building Construction for the Fire Service**	3
FIRE 131	**Fire Fighting - Tactics and Strategy**	3
HS 202	**Introduction to Emergency Management**	3
Elective	**Select one to two not previously taken**	6-20
	Total Credits: 15-29	

Electives

Course #	Course Title	Credits
CJ 210	**Criminal Procedure**	3
CJ 211	**Criminal Law**	3
FIRE 207	**Fire Company Officer**	3
FIRE 112	**Fire Fighter 1 - Basic Fire Suppression**	10
FIRE 124	**Fire Academy**	20
SOC 201	**Principles of Sociology**	3

PROGRAM TOTAL 60-78 CREDITS

Schoolcraft College | 60 YEARS

2021-2022 CREDENTIAL YEAR

THIS PROGRAM WAS REVISED, effective May 2021.
SEE ADDENDUM - A

Health Information Technology

Credentials

Health: Coding Specialist Certificate	39 cr.
Health Information Technology AAS Degree	66 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 applied 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.
- 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.

Health: Coding Specialist Certificate

Schoolcraft program code # 1YC.00240

THIS PROGRAM WAS REVISED, effective May 2021. SEE ADDENDUM - A

The coding specialist program will prepare a student to review and analyze health records to identify relevant diagnoses and procedures 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 using International Classification of Diseases 10th Revision, Clinical Modification (ICD-10-CM) and inpatient procedures using the International Classification of Diseases 10th Revision, Procedure Coding System (ICD-10-PCS).
- Coding of ambulatory setting procedures and services using Current Procedural Terminology (CPT).
- 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.

A 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 and basic computer 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. The coding specialist certificate may be completed on a full-time or part-time basis.

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/admissions@schoolcraft.edu or the Advising Departments at 734-462-4429 (option 4)/eadvise@schoolcraft.edu to complete an application.

All courses may be applied toward the Associate of General Studies degree. Not all courses are offered each semester. Students should work with an academic advisor to develop a schedule that will work for them. Students planning to transfer should check the transfer institution's requirements/guides or discuss their options with an academic advisor. Number of credits may vary depending on the course selection.

SAMPLE SCHEDULE OF COURSES

Admission Prerequisites

Course #	Course Title	Credits
BIOL 236*	**Human Anatomy & Physiology**	5
HIT 104	**Medical Terminology**	4
CIS 120	**Software Applications**	3
	Total Credits: 12	

Health: Coding Specialist Certificate (continued)

THIS PROGRAM WAS REVISED, effective May 2021. SEE ADDENDUM - A

First Year - Fall Semester

Course #	Course Title	Credits
HIT 120	**Foundations of Health Information Management Technology**	3
HIT 118	**Human Diseases**	4
HIT 114	**Pharmacology for Health Professionals**	2
HIT 117	**ICD-10-CM/PCS**	3
HIT 222	**Basic Ambulatory Coding**	3
	Total Credits: 15	

First Year - Winter Semester

Course #	Course Title	Credits
HIT 235	**Intermediate ICD-10-CM/PCS**	3
HIT 234	**Intermediate Ambulatory Coding**	3
HIT 236	**ICD Coding Practicum**	2
HIT 231	**Ambulatory Coding Practicum**	2
HIT 240	**Healthcare Reimbursement Methodologies**	2
	Total Credits: 12	

PROGRAM TOTAL 39 CREDITS

*Students desiring transfer credit should substitute BIOL 237 & BIOL 238. Please review all course prerequisites.

Health Information Technology AAS Degree

THIS PROGRAM WAS REVISED, effective May 2021. SEE ADDENDUM - A

Schoolcraft program code # AAS.00153

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 experiences in a variety of healthcare facilities, such as acute care hospitals, ambulatory care centers, mental health facilities 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 healthcare 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 Registered Health Information Technician (RHIT) examination. The program is designed for the full-time or part-time student.

There are two ways to complete the Health Information Technology AAS Degree:

1. The traditional route of completing all courses.
2. Individuals who have successfully completed training, such as through the Medical Education & Training Campus, may be able to apply 19-45 credits toward the completion of a Health Information Technology AAS. Contact the appropriate instructional administrator for further details.

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 or the Advising Departments at 734-462-4429 (option 4)/eadvise@schoolcraft.edu to complete an application.

The Associate Degree Program in Health Information Technology at Schoolcraft College is accredited by the Commission on Accreditation for Health Informatics and Information Management Education (CAHIIM). For additional information contact:

CAHIIM
233 N. Michigan Ave. 21st Floor
Chicago, Illinois 60611-5800
info@cahiim.org | www.cahiim.org | 312-233-1100

Not all courses are offered each semester. Students should work with an academic advisor to develop a schedule that will work for them. Students planning to transfer should check the transfer institution's requirements/guides or discuss their options with an academic advisor. Number of credits may vary depending on the course selection.

SAMPLE SCHEDULE OF COURSES

Admission Prerequisites

These courses must be completed prior to admission to the Health Information Technology AAS program. Students must achieve a 2.0 or higher in CIS 120, BIOL 236*, MATH 111, ENG 101, HIT 104, HIT 114, HIT 117, HIT 118, HIT 120, and HIT 162 for acceptance.

Health Information Technology AAS Degree (continued)

THIS PROGRAM WAS REVISED, effective May 2021. SEE ADDENDUM - A

First Year - Fall Semester

Course #	Course Title	Credits
HIT 104*	**Medical Terminology**	4
BIOL 236* **	**Human Anatomy & Physiology**	5
CIS 120*	**Software Applications**	3
ENG 101*	**English Composition 1**	3
	Total Credits: 15	

First Year - Winter Semester

Course #	Course Title	Credits
HIT 117*	**ICD-10-CM/PCS**	3
HIT 118*	**Human Diseases**	4
HIT 120*	**Foundations of Health Information Management Technology**	3
MATH 111*	**Applications - Utility of Math**	4
	Total Credits: 14	

First Year - Spring Session

Course #	Course Title	Credits
HIT 114*	**Pharmacology for Health Professionals**	2
HIT 162*	**Professional Practice Experience Simulation**	2
	Total Credits: 4	

Admission to the HIT AAS Program required for courses with a ** below**

Second Year - Fall Semester

Course #	Course Title	Credits
English	**Select one:**	3
ENG 102***	**English Composition 2**	
ENG 106	**Business English**	
HIT 210****	**Healthcare Statistics for Health Information Management**	3
HUM 106	**Introduction to Art and Music**	1
HIT 130	**Legal Aspects of Health Information**	3
HIT 222	**Basic Ambulatory Coding**	3
HIT 232****	**Computer Applications in Healthcare**	2
	Total Credits: 15	

Health Information Technology AAS Degree (continued)

THIS PROGRAM WAS REVISED, effective May 2021. SEE ADDENDUM - A

Second Year - Winter Semester

Course #	Course Title.	Credits
HIT 224****	**Quality Management in Healthcare**	2
HIT 242****	**Organization and Management**	3
HIT 240****	**Healthcare Reimbursement Methodologies**	2
HIT 235	**Intermediate ICD-10-CM/PCS**	3
HIT 234	**Intermediate Ambulatory Coding**	3
	Total Credits: 13	

Second Year - Spring Session

Course #	Course Title	Credits
HIT 262****	**Professional Practice Experience**	2
PSYCH 153	**Human Relations**	3
	Total Credits: 5	

Elective (Optional)

Course #	Course Title	Credits
HIT 213	**Health Information Technology Seminar**	1
HIT 236	**ICD Coding Practicum**	2
HIT 231	**Ambulatory Coding Practicum**	2

PROGRAM TOTAL 66 CREDITS

* Courses that must be taken prior to acceptance in the HIT program

**All students are strongly encouraged to take BIOL 237 & BIOL 238. Any student desiring transfer credit should substitute BIOL 237 & BIOL 238. Please review all course prerequisites.

*** Students desiring transfer credit should take ENG 102.

**** Courses require admission into the HIT AAS program.

Homeland Security

Credentials

Homeland Security AAS Degree	60-64 cr.

Major Description

Homeland security personnel help secure U.S. borders, airports, seaports and waterways. They also research and develop the latest security technologies, respond to natural disasters or terrorist assaults and analyze intelligence reports to help protect the homeland from threats.

Schoolcraft's homeland security associate in applied science degree provides students the educational foundation of private and homeland security knowledge to prepare for transfer to a four-year institution with classes in criminal justice, communications and emergency management.

Homeland Security AAS Degree

Schoolcraft program code # AAS.00252

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 pro- gram 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.

Students who satisfactorily complete all college and program requirements qualify for an associate in applied science degree.

Not all courses are offered each semester. Students should work with an academic advisor to develop a schedule that will work for them. Students planning to transfer should check the transfer institution's requirements/guides or discuss their options with an academic advisor. Number of credits may vary depending on the course selection.

Contact the Public Safety Education office at 734-462-4747 for more information.

SAMPLE SCHEDULE OF COURSES

First Year - Fall Semester

Course #	Course Title	Credits
CJ 102	**Organization and Administration of Law Enforcement Agencies**	3
HS 101	**Introduction to Homeland Security**	3
English	**Select one:**	3
ENG 100	**Communication Skills**	
ENG 101	**English Composition 1**	
POLS 105	**Survey of American Government**	3
Social Science	**Select one:**	3-4
PSYCH 153	**Human Relations**	
PSYCH 201	**Introductory Psychology**	
	Total Credits: 15-16	

Homeland Security AAS Degree (continued)

First Year - Winter Semester

Course #	Course Title	Credits
Mathematics	**General Education Mathematics course**	3-4
English	**Select one:**	3
ENG 116	**Technical Writing**	
ENG 102	**English Composition 2**	
CJ 210	**Criminal Procedure**	3
CJ 113	**Introduction to Criminal Justice System**	3
HS 102	**Understanding Terrorism**	3
	Total Credits: 15-16	

Second Year - Fall Semester

Course #	Course Title	Credits
Science	**General Education Science course**	3-4
CJ 201	**Criminal Investigation**	3
HS 103	**Transportation and Border Security**	3
HS 202	**Introduction to Emergency Management**	3
SOC 201	**Principles of Sociology**	3
	Total Credits: 15-16	

Second Year - Winter Semester

Course #	Course Title	Credits
CIS 115	**Introduction to Computer Based Systems**	3
CJ 211	**Criminal Law**	3
HS 201	**Organizational and Facility Security**	3
HS 203	**Intelligence Analysis and Security Management**	3
Humanities	**General Education Humanities course. Any 100 or 200 World Language course (recommended)**	3-4
	Total Credits: 15-16	

PROGRAM TOTAL 60-64 CREDITS

Manufacturing

Credentials

Advanced Manufacturing Skills Certificate	18 cr.
Advanced Manufacturing Certificate	31-33 cr.
Advanced Manufacturing AAS Degree	60-66 cr.

Major Description

Today's manufacturing professionals need to understand the fundamentals of production and technology while using critical thinking skills to solve problems and focus on quality and efficiency. Schoolcraft's manufacturing program exposes students to manufacturing processes, materials, methods of production and quality systems and tools offering three levels of credentials:

- The Advanced Manufacturing Skills Certificate introduces students to the fundamental skills and techniques in manufacturing needed for employment in today's highly technical manufacturing environments.
- With the Advanced Manufacturing Certificate, students can enhance their skills as they are exposed to the most current manufacturing technology and techniques through experiential learning experiences.
- The Associate of Applied Science Degree in Advanced Manufacturing gives students higher-level knowledge and skills, such as how to program CNC machines, or work as a production manager or quality technician. This program also provides exposure to tool and die making.

Advanced Manufacturing Skills Certificate

Schoolcraft program code # CRT.00337

The Advanced Manufacturing Skills Certificate introduces learners to foundational 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 Certificate and Associate in Applied Science Degree. Protective shop clothing and eye protection supplies are required for the program, and will be purchased by the student.

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.

Not all courses are offered each semester. Students should work with an academic advisor to develop a schedule that will work for them. Students planning to transfer should check the transfer institution's requirements/guides or discuss their options with an academic advisor. Number of credits may vary depending on the course selection.

SAMPLE SCHEDULE OF COURSES

First Year - Fall Semester

Course #	Course Title	Credits
MFG 102	**Basic Machining Processes**	3
ENGR 100	**Introduction to Engineering and Technology**	3
CAD 120	**Mechanical Blueprint Reading with Sketching**	3
	Total Credits: 9	

First Year - Winter Semester

Course #	Course Title	Credits
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

Advanced Manufacturing Certificate

Schoolcraft program code # 1YC.00237

The Advanced Manufacturing Certificate provides enhanced 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 or expand the skills of seasoned manufacturing workers with the most current technology and techniques. These classes all apply to the Advanced Manufacturing Associate in Applied Science Degree. Protective shop clothing and eye protection supplies are required for the program, and will be purchased by the student.

Students who satisfactorily complete the program requirements qualify for a certificate of program completion. Not all courses are offered each semester. Students should work with an academic advisor to develop a schedule that will work for them. Students planning to transfer should check the transfer institution's requirements/guides or discuss their options with an academic advisor. Number of credits may vary depending on the course selection.

SAMPLE SCHEDULE OF COURSES

First Year - Fall Semester

Course #	Course Title	Credits
MFG 102	**Basic Machining Processes**	3
MFG 105	**Manufacturing Processes**	4
CAD 120	**Mechanical Blueprint Reading with Sketching**	3
ENGR 100	**Introduction to Engineering and Technology**	3
	Total Credits: 13	

First Year - Winter Semester

Course #	Course Title	Credits
MFG 103	**Basic Computer Numerical Control (CNC)**	3
MFG 106	**Basic Mastercam**	3
Mathematics	**Select General Education Mathematics course**	3-5
QM 107	**Quality Planning and Team Building**	3
	Total Credits: 12-14	

First Year - Spring Session

Course #	Course Title	Credits
Manufacturing	**Select one:**	3
MFG 203	**Advanced Computer Numerical Control (CNC)**	
MFG 206	**Advanced Mastercam**	
CAD 130	**Geometric Dimensioning and Tolerance**	3
	Total Credits: 6	

PROGRAM TOTAL 31-33 CREDITS

Advanced Manufacturing AAS Degree

Schoolcraft program code # AAS.00135

The Associate in Applied Science Degree in Advanced Manufacturing is designed to provide learners with growth and development in a variety of manufacturing processes, to expose them to materials and methods of production, make them aware of quality systems and tools and introduce them to tool and die making. This degree is 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 are required for the program, and will be purchased by the student.

Students who satisfactorily complete all college and program requirements qualify for an Associate in Applied Science Degree.

Not all courses are offered each semester. Students should work with an academic advisor to develop a schedule that will work for them. Students planning to transfer should check the transfer institution's requirements/guides or discuss their options with an academic advisor. Number of credits may vary depending on the course selection.

SAMPLE SCHEDULE OF COURSES

First Year - Fall Semester

Course #	Course Title	Credits
MFG 102	**Basic Machining Processes**	3
MFG 105	**Manufacturing Processes**	4
ENGR 100	**Introduction to Engineering and Technology**	3
CAD 120	**Mechanical Blueprint Reading with Sketching**	3
Mathematics	**Select General Education Mathematics course**	3-5
	Total Credits: 16-18	

First Year - Winter Semester

Course #	Course Title	Credits
MFG 103	**Basic Computer Numerical Control (CNC)**	3
MFG 106	**Basic Mastercam**	3
CAD 130	**Geometric Dimensioning and Tolerance**	3
QM 107	**Quality Planning and Team Building**	3
	Total Credits: 12	

First Year - Spring Session

Course #	Course Title	Credits
Elective	**Select from list**	3
Science	**Select General Education Science course**	3-5
	Total Credits: 6-8	

Second Year - Fall Semester

Course #	Course Title	Credits
MFG 203	**Advanced Computer Numerical Control (CNC)**	3
MFG 206	**Advanced Mastercam**	3
MET 103	**Introduction to Materials Science**	3
English	**Select first within a set of General Education English Communication courses**	3
Recommended:	**ENG 100 Communication Skills**	
Social Science	**Select General Education Social Science Course**	3
Recommended:	**PSYCH 153 Human Relations**	
	Total Credits: 15	

Second Year - Winter Semester

Course #	Course Title	Credits
MFG 211	**3D Computer Numerical Control (CNC) Machining**	3
Elective	**Select any from list not previously taken**	4
English	**Select second within a set of General Education English Communication courses**	3
Recommended:	**ENG 106 Business English OR**	
	ENG 116 Technical Writing	
Humanities	**Select General Education Humanities course**	1-3
Recommended:	**COMA 103 Fundamentals of Speech**	
	Total Credits: 11-13	

Electives

Course #	Course Title	Credits
MFG 202	**Advanced Machining Processes**	3
MFG 212	**Coordinate Measuring Machine**	2
MFG 213	**Machining Speeds and Feeds**	2
MFG 291	**Manufacturing Internship**	3
OSH 111	**Occupational Safety and Health for General Industry**	2
WELD 110	**Introduction to Welding Basics for Fabrication**	3
WELD 115	**Gas Metal 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
PLAST 130	**Introduction to Plastic Materials**	3
PLAST 131	**Introduction to Plastic Processing**	3
ROBAT 101	**Robot Tool Handling Operations and Programming**	3

PROGRAM TOTAL 60-66 CREDITS

* Other courses meeting the college requirements may be substituted.

Mechatronics

Credentials

Mechatronics Skills Certificate	18 cr.
Mechatronics Certificate	39 cr.
Mechatronics AAS Degree	63-67 cr.

Major Description

The Mechatronics program focuses on the integration of mechanical, electrical (electronics), fluid power (hydraulics or pneumatics) and computer technologies to control machine movements. The students' studies begin with courses in mechanics, sensors, basic electronics, pneumatics, control logic and robot programming and control.

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.

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 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.

Mechatronics Skills Certificate

Schoolcraft program code # CRT.00326

The mechatronics skills certificate introduces learners to the basic skills needed for employment in today's complex manufacturing environments. These classes all apply to the mechatronics certificate and associate degree.

Protective shop clothing and eye protection supplies required for the program will be purchased by the student.

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.

Not all courses are offered each semester. Students should work with an academic advisor to develop a schedule that will work for them. Students planning to transfer should check the transfer institution's requirements/guides or discuss their options with an academic advisor. Number of credits may vary depending on the course selection.

SAMPLE SCHEDULE OF COURSES

First Year - Fall Semester

Course #	Course Title	Credits
ELECT 131	**Basic Measurement and Reporting Skills**	3
MATH 113	**Intermediate Algebra for College Students**	4
MFG 102	**Basic Machining Processes**	3
	Total Credits: 10	

First Year - Winter Semester

Course #	Course Title	Credits
ELECT 137	**DC Circuits and Mathematical Modeling**	5
CAD 120	**Mechanical Blueprint Reading with Sketching**	3
	Total Credits: 8	

PROGRAM TOTAL 18 CREDITS

Mechatronics Certificate

Schoolcraft program code # 1YC.00225

The mechatronics certificate is designed to address basic competency in skills needed for employment in today's complex manufacturing environments. These classes all apply to the mechatronics associate degree. 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.

Protective shop clothing and eye protection supplies required for the program will be purchased by the student. Students who satisfactorily complete the program requirements qualify for a certificate of program completion.

Not all courses are offered each semester. Students should work with an academic advisor to develop a schedule that will work for them. Students planning to transfer should check the transfer institution's requirements/guides or discuss their options with an academic advisor. Number of credits may vary depending on the course selection.

SAMPLE SCHEDULE OF COURSES

First Year - Fall Semester

Course #	Course Title	Credits
ELECT 131	**Basic Measurement and Reporting Skills**	3
ELECT 145	**Fluid Power**	4
MATH 113	**Intermediate Algebra for College Students**	4
MFG 102	**Basic Machining Processes**	3
	Total Credits: 14	

First Year - Winter Semester

Course #	Course Title	Credits
ELECT 137	**DC Circuits and Mathematical Modeling**	5
ELECT 251	**Programmable Logic and Industrial Controls**	4
CAD 120	**Mechanical Blueprint Reading with Sketching**	3
OSH	**Select one:**	2
OSH 111	**Occupational Safety and Health for General Industry**	
OSH 112	**Occupational Safety and Health for Construction**	
	Total Credits: 14	

Mechatronics Certificate (continued)

First Year - Spring Session

Course #	Course Title	Credits
ELECT 138	**AC Circuits and Mathematical Modeling**	5
ELECT 139	**Diodes and Transistors**	3
ELECT 218	**AC/DC Motors**	3
	Total Credits: 11	

PROGRAM TOTAL 39 CREDITS

Mechatronics AAS Degree

Schoolcraft program code # AAS.00226

The mechatronics program focuses on the integration of mechanical, electrical (electronics), fluid power (hydraulics or pneumatics) and computer technologies to control machine movements. The students' studies begin with courses in mechanics, sensors, basic electronics, pneumatics, control logic and robot programming and control.

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.

Protective shop clothing and eye protection supplies required for the program will be purchased by the student.

Students who satisfactorily complete all college and program requirements qualify for an associate in applied science degree.

Not all courses are offered each semester. Students should work with an academic advisor to develop a schedule that will work for them. Students planning to transfer should check the transfer institution's requirements/guides or discuss their options with an academic advisor. Number of credits may vary depending on the course selection.

SAMPLE SCHEDULE OF COURSES

First Year - Fall Semester

Course #	Course Title	Credits
ELECT 131	**Basic Measurement and Reporting Skills**	3
English	**Select one:**	3
ENG 100	**Communication Skills**	
ENG 101	**English Composition 1**	
MATH 113	**Intermediate Algebra for College Students**	4
MFG 102	**Basic Machining Processes**	3
OSH	**Select one:**	2
OSH 111	**Occupational Safety and Health for General Industry**	
OSH 112	**Occupational Safety and Health for Construction**	
	Total Credits: 15	

First Year - Winter Semester

Course #	Course Title	Credits
ELECT 137	**DC Circuits and Mathematical Modeling**	5
ELECT 145	**Fluid Power**	4
ELECT 251	**Programmable Logic and Industrial Controls**	4
CAD 120	**Mechanical Blueprint Reading with Sketching**	3
	Total Credits: 16	

Mechatronics AAS Degree (continued)

First Year - Spring Session

Course #	Course Title	Credits
ELECT 138	**AC Circuits and Mathematical Modeling**	5
English	**Select one:**	3
ENG 102	**English Composition 2**	
ENG 116	**Technical Writing**	
	Total Credits: 8	

Second Year - Fall Semester

Course #	Course Title	Credits
ELECT 139	**Diodes and Transistors**	3
ELECT 218	**AC/DC Motors**	3
ENGR 100	**Introduction to Engineering and Technology**	3
Social Science	**Select General Education Social Science course**	3-4
	Total Credits: 12-13	

Second Year - Winter Semester

Course #	Course Title	Credits
ELECT 144	**Introduction to Microcontrollers**	3
Elective	**Select from list**	3
Humanities	**Select General Education Humanities course**	1-4
Recommended:	**COMA 103 Fundamentals of Speech**	
PHYS 123	**Applied Physics**	5
	Total Credits: 12-15	

Electives

Course #	Course Title	Credits
CAD 130	**Geometric Dimensioning and Tolerance**	3
CIS 129	**Introduction to Programming Logic**	3
MET 103	**Introduction to Materials Science**	3
MFG 103	**Basic Computer Numerical Control (CNC)**	3
QM 107	**Quality Planning and Team Building**	3
ROBAT 101	**Robot Tool Handling Operations and Programming**	3
WELD 110	**Introduction to Welding Basics for Fabrication**	3

PROGRAM TOTAL 63-67 CREDITS

Medical Assisting

Credentials

Medical Biller/Receptionist Skills Certificate	16 cr.
Medical Biller/Receptionist Program AGS Degree	60 cr.
Phlebotomy Skills Certificate	19 cr.
Phlebotomy Program AGS Degree	60 cr.
Medical Assisting Certificate	35 cr.
Medical Assisting Program AGS Degree	60 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 three certificate options:

• 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.

• The medical assisting certificate objective is to prepare competent, entry-level medical assistants in the cognitive (knowledge), psychomotor (skills), and affective (behavior) learning domains.

Medical Biller/Receptionist Skills Certificate

Schoolcraft program code # CRT.00350

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 healthcare facility. Job opportunities are in medical offices, hospitals, clinics, health-related facilities, urgent care centers, and surgical centers.

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.

Not all courses are offered each semester. Students should work with an academic advisor to develop a schedule that will work for them. Students planning to transfer should check the transfer institution's requirements/guides or discuss their options with an academic advisor. Number of credits may vary depending on the course selection.

SAMPLE SCHEDULE OF COURSES

First Year - Fall Semester

Course #	Course Title	Credits
CIS 120	**Software Applications**	3
HIT 104*	**Medical Terminology**	4
MA 134*	**Medical Insurance Coding**	3
	Total Credits: 10	

First Year - Winter Semester

Course #	Course Title	Credits
MA 155*	**Medical Insurance Billing**	3
MA 140*	**Medical Office Procedures**	3
	Total Credits: 6	

PROGRAM TOTAL 16 CREDITS

*Courses apply to the Medical Assisting Program.

Medical Biller/Receptionist Program AGS Degree

Schoolcraft program code # AGS.00042

The medical biller/receptionist curriculum 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 healthcare facility. Job opportunities are in medical offices, hospitals, clinics, health-related facilities, urgent care centers, and surgical centers.

Any student wishing to pursue an associate degree can apply all 16 credits from the Medical Biller/Receptionist Skills Certificate toward an Associate in General Studies (AGS) degree. Depending on the desired career path, discuss other options for an associate degree with an academic advisor. All program required courses must have been completed with a grade of 2.0 or better.

Not all courses are offered each semester. Students should work with an academic advisor to develop a schedule that will work for them. Students planning to transfer should check the transfer institution's requirements/guides or discuss their options with an academic advisor. Number of credits may vary depending on the course selection.

SAMPLE SCHEDULE OF COURSES

First Year - Fall Semester

Course #	Course Title	Credits
CIS 120	**Software Applications**	3
HIT 104*	**Medical Terminology**	4
MA 134*	**Medical Insurance Coding**	3
English Communication	**Select first within a set of General Education English Communication courses****	3
Humanities	**Select General Education Humanities course****	3
	Total Credits: 16	

First Year - Winter Semester

Course #	Course Title	Credits
MA 155*	**Medical Insurance Billing**	3
MA 140*	**Medical Office Procedures**	3
English Communication	**Select second within a set of General Education English Communication courses****	3
Mathematics	**Select General Education Mathematics course****	3
Social Science	**Select General Education Social Science course****	3
	Total Credits: 15	

Medical Biller/Receptionist Program AGS Degree (continued)

Second Year - Fall Semester

Course #	Course Title	Credits
Science	**Select General Education Science course****	4
Humanities	**Select General Education Humanities course****	1
Electives	**Select courses supportive of occupational and academic goals**	10
	Total Credits: 15	

Second Year - Winter Semester

Course #	Course Title	Credits
Science	**Select General Education Science course****	3
Social Science	**Select General Education Social Science course****	3
Electives	**Select courses supportive of occupational and academic goals**	8
	Total Credits: 14	

PROGRAM TOTAL 60 CREDITS

*Courses apply to the Medical Assisting Program.

**Please check Schoolcraft General Education requirements to determine course options.

Medical Assisting - Phlebotomy Skills Certificate

Schoolcraft program code # CRT.00325

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.

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.

Not all courses are offered each semester. Students should work with an academic advisor to develop a schedule that will work for them. Students planning to transfer should check the transfer institution's requirements/guides or discuss their options with an academic advisor. Number of credits may vary depending on the course selection.

SAMPLE SCHEDULE OF COURSES

First Year - Fall Semester

Course #	Course Title	Credits
BIOL 105*	**Basic Human Anatomy and Physiology**	4
HIT 104*	**Medical Terminology**	4
	Total Credits: 8	

First Year - Winter Semester

Course #	Course Title	Credits
MA 115*	**Phlebotomy**	3
MA 140*	**Medical Office Procedures**	3
CIS 120*	**Software Applications**	3
	Total Credits: 9	

First Year - Spring Session

Course #	Course Title	Credits
Select One		2
MA 161**	**Phlebotomy Internship**	
HIT 114*	**Pharmacology for Health Professionals**	
	Total Credits: 2	

PROGRAM TOTAL 19 CREDITS

*Courses apply to the Medical Assisting Program.

** If your major is Phlebotomy, you are strongly encouraged to complete MA 161 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.

Medical Assisting - Phlebotomy Program AGS Degree

Schoolcraft program code # AGS.00042

The phlebotomy curriculum 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.

Any student wishing to pursue an associate degree can apply all 17 credits from the Phlebotomy Skills Certificate toward an Associate in General Studies (AGS) degree. Depending on the desired career path, discuss other options for an associate degree with an academic advisor. All program required courses must have been completed with a grade of 2.0 or better.

Not all courses are offered each semester. Students should work with an academic advisor to develop a schedule that will work for them. Students planning to transfer should check the transfer institution's requirements/guides or discuss their options with an academic advisor. Number of credits may vary depending on the course selection.

SAMPLE SCHEDULE OF COURSES

First Year - Fall Semester

Course #	Course Title	Credits
BIOL 105*	**Basic Human Anatomy and Physiology**	4
HIT 104*	**Medical Terminology**	4
English Communication	**Select first within a set of General Education English Communication courses****	3
Humanities	**Select General Education Humanities course****	3
	Total Credits: 14	

First Year - Winter Semester

Course #	Course Title	Credits
MA 115*	**Phlebotomy**	3
MA 140*	**Medical Office Procedures**	3
CIS 120*	**Software Applications**	3
English Communication	**Select second within a set of General Education English Communication courses****	3
Mathematics	**Select General Education Mathematics course****	3
	Total Credits: 15	

First Year - Spring Session

Course #	Course Title	Credits
Select One		2
MA 161	**Phlebotomy Internship**	
HIT 114*	**Pharmacology for Health Professionals**	
	Total Credits: 2	

Medical Assisting - Phlebotomy Program AGS Degree (continued)

Second Year - Fall Semester

Course #	Course Title	Credits
Social Science	**Select General Education Social Science course****	3
Humanities	**Select General Education Humanities course****	1
Science	**Select General Education Science course****	3
Electives	**Select courses supportive of occupational and academic goals**	9
	Total Credits: 16	

Second Year - Winter Semester

Course #	Course Title	Credits
Social Science	**Select General Education Social Science course****	3
Electives	**Select courses supportive of occupational and academic goals**	10
	Total Credits: 13	

PROGRAM TOTAL 60 CREDITS

*Courses apply to the Medical Assisting Program.

**Please check Schoolcraft General Education requirements to determine course options.

Medical Assisting Certificate

Schoolcraft program code # 1YC.00026

The medical assisting certificate objective is to prepare competent, entry level medical assistants in the cognitive (knowledge), psychomotor (skills), and affective (behavior) learning domains. 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.

Students who satisfactorily complete the program requirements qualify for a certificate of program completion. "The Medical Assisting Program of Schoolcraft College is accredited by the Commission on Accreditation of Allied Health Education Programs (www.caahep.org) upon the recommendation of Medical Assisting Education Review Board (MAERB)." 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.

Not all courses are offered each semester. Students should work with an academic advisor to develop a schedule that will work for them. Students planning to transfer should check the transfer institution's requirements/guides or discuss their options with an academic advisor. Number of credits may vary depending on the course selection. Note: Students must begin MA 196 within six months of completing MA 175 & MA 180.

For more information about accreditation please contact:
Commission on Accreditation of Allied Health Education Programs (CAAHEP)
25400 U.S. Highway 19 North, Suite 158
Clearwater, FL 33763
727-210-2350
mail@caahep.org
www.caahep.org

SAMPLE SCHEDULE OF COURSES

Admission Prerequisites

Course #	Course Title	Credits
BIOL 105	**Basic Human Anatomy and Physiology**	4
HIT 104	**Medical Terminology**	4
	Total Credits: 8	

Medical Assisting Certificate (continued)

First Year - Fall Semester

Course #	Course Title	Credits
MA 134	**Medical Insurance Coding**	3
MA 140	**Medical Office Procedures**	3
MA 115	**Phlebotomy**	3
CIS 120	**Software Applications**	3
	Total Credits: 12	

First Year - Winter Semester

Course #	Course Title	Credits
MA 175*	**Medical Laboratory Techniques**	3
MA 180*	**Medical Office Clinical Procedures**	4
MA 155	**Medical Insurance Billing**	3
HIT 114	**Pharmacology for Health Professionals**	2
	Total Credits: 12	

First Year - Spring Session

Course #	Course Title	Credits
MA 196*	**Office Practicum**	3
	Total Credits: 3	

PROGRAM TOTAL 35 CREDITS

*Courses open only to students who are officially admitted to the Medical Assisting Program.

Medical Assisting Program AGS Degree

Schoolcraft program code # AGS.00042

The medical assisting curriculum objective is to prepare competent, entry-level medical assistants in the cognitive (knowledge), psychomotor (skills), and affective (behavior) learning domains. 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.

Any student wishing to pursue an associate degree can apply all 35 credits from the Medical Assisting Certificate toward an Associate in General Studies (AGS) degree. Depending on the desired career path, discuss other options for an associate degree with an academic advisor.

"The Medical Assisting Program of Schoolcraft College is accredited by the Commission on Accreditation of Allied Health Education Programs (www.caahep.org) upon the recommendation of Medical Assisting Education Review Board (MAERB)." 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.

Not all courses are offered each semester. Students should work with an academic advisor to develop a schedule that will work for them. Students planning to transfer should check the transfer institution's requirements/guides or discuss their options with an academic advisor. Number of credits may vary depending on the course selection. Note: Students must begin MA 196 within six months of completing MA 175 & MA 180.

For more information about accreditation please contact:
Commission on Accreditation of Allied Health Education Programs (CAAHEP)
25400 U.S. Highway 19 North, Suite 158
Clearwater, FL 33763
727-210-2350
mail@caahep.org
www.caahep.org

SAMPLE SCHEDULE OF COURSES

Admission Prerequisites

Course #	Course Title	Credits
BIOL 105	**Basic Human Anatomy and Physiology**	4
HIT 104	**Medical Terminology**	4
	Total Credits: 8	

Medical Assisting Program AGS Degree (continued)

First Year - Fall Semester

Course #	Course Title	Credits
MA 134	**Medical Insurance Coding**	3
MA 140	**Medical Office Procedures**	3
MA 115	**Phlebotomy**	3
CIS 120	**Software Applications**	3
English Communication	**Select first within a set of General Education English Communication courses****	3
	Total Credits: 15	

First Year - Winter Semester

Course #	Course Title	Credits
MA 175*	**Medical Laboratory Techniques**	3
MA 180*	**Medical Office Clinical Procedures**	4
MA 155	**Medical Insurance Billing**	3
HIT 114	**Pharmacology for Health Professionals**	2
English Communication	**Select second within a set of General Education English Communication courses****	3
	Total Credits: 15	

First Year - Spring Session

Course #	Course Title	Credits
MA 196*	**Office Practicum**	3
	Total Credits: 3	

Second Year - Fall Semester

Course #	Course Title	Credits
Humanities	**Select General Education Humanities course****	3
Mathematics	**Select General Education Mathematics course****	3
Science	**Select General Education Science course****	3
Social Science	**Select General Education Social Science course****	3
	Total Credits: 12	

Medical Assisting Program AGS Degree (continued)

Second Year - Winter Semester

Course #	Course Title	Credits
Humanities	**Select General Education Humanities course****	1
Social Science	**Select General Education Social Science course****	3
Elective	**Select course supportive of occupational and academic goals**	3
	Total Credits: 7	

PROGRAM TOTAL 60 CREDITS

*Courses open only to students who are officially admitted to the Medical Assisting Program.
**Please check Schoolcraft General Education requirements to determine course options.

Medical Imaging

Credentials

Radiologic Technology AAS Degree	67-68 cr.
Diagnostic Medical Sonography AAS Degree	67-68 cr.

Major Description

Medical Imaging programs at Schoolcraft College prepare students for successful careers in the field of Radiology. These programs utilize strong curriculum, quality clinical experiences, and a commitment to undergraduate education in the creation of images and treatment of patients using highly sophisticated equipment and techniques.

Schoolcraft College offers an Associate of Applied Science degree in Radiologic Technology. Radiographers are healthcare professionals responsible for producing images of the bones and organs of the human body. They operate radiologic equipment utilizing ionizing radiation, and are responsible for creating high quality radiographs. These medical images are used to diagnose and treat diseases. Upon successful completion of this program students will be qualified to sit for the registry in their field of study.

In addition, an Associate of Applied Science degree in Diagnostic Medical Sonography (Ultrasound) is offered. Diagnostic Medical Sonography is a branch of diagnostic medical imaging. DMS is a medical procedure that uses high frequency sound waves (ultrasound) to produce visual images of organs, tissues, or blood flow. These dynamic images are produced using non-ionizing ultrasound creating 2D and 3D images under the guidance of a licensed physician.

Radiologic Technology AAS Degree

Schoolcraft program code #AAS.00283

Radiologic Technology is an area of medicine that uses ionizing radiation to provide diagnostic images of a patient's body under the supervision of a Radiologist. Radiologic technologists learn to position patients for x-ray exams, provide radiation safety for patients and others, and produce a quality diagnostic image. The curriculum features a combination of didactic coursework, hands-on lab work, and supervised clinical experience providing a solid foundation in the field of Radiology services.

The Radiologic Technology program provides the knowledge that will enable students to enter the workforce as entry-level technologists. The didactic and clinical learning experiences require approximately 40 hours of participation per week in the second year of the program.

Educational facilities located within Schoolcraft College include state-of art classroom and clinical training resources designed to promote an exceptional educational experience.

Successful completion of the program requirements qualifies the student to take the national credential examination offered by the American Registry of Radiologic Technologists, A.R.R.T. Satisfactory achievement of this examination qualifies the graduate to practice as a Registered Radiologic Technologist, R.T.(R).

Mission:

The mission of the Schoolcraft College Radiologic Technology program is to serve the community by providing an education setting where students will receive the essential foundation for a career in radiology science. Graduates will exemplify qualities of excellence in patient care, professionalism, safety and ethical behavior thereby enhancing the healthcare experience of the patients we serve.

Program Goals:

- To prepare competent entry-level radiographers in the cognitive (knowledge), psychomotor (skills), and affective (behavior) learning domains.
- Offer an educational experience that promotes effective communication skills, critical thinking abilities, and professionalism.
- Provide an educational program that enhances career opportunities and encourages a desire for life-long learning.
- Develop Radiographers that function as a compassionate and competent part of the healthcare team and represent the commitment to excellence that Schoolcraft College strives to achieve.
- Prepare students to take and pass the ARRT examination.

This program requires a special admissions process. Contact the Admissions and Welcome Center at 734-462-4426/ admissions@schoolcraft.edu or the Advising Department at 734-462-4429 (option 4)/eadvise@schoolcraft.edu to complete an application.

Students who satisfactorily complete the program requirements with a minimum of a 3.0 grade in each Radiology, Mathematics, Biology and Physics class will qualify for an associate in applied science degree.

Not all courses are offered each semester. Students should work with an academic advisor to develop a schedule that will work for them. Students planning to transfer should check the transfer institution's requirements/guides or discuss their options with an academic advisor. Number of credits may vary depending on the course selection.

SAMPLE SCHEDULE OF COURSES

Admission Prerequisites*: These courses must be completed prior to admission to the Radiologic Technology AAS program. Students must achieve a 3.0 or higher in RAD 100, RAD 105, Mathematics, Biology and Physics for acceptance.

First Year - Fall Semester

Course #	Course Title	Credits
HIT 100*	**Introduction to Medical Terminology**	2
RAD 100*	**Introduction to Radiologic Sciences**	2
Mathematics*	**Select one**	4
MATH 102	**Technical Mathematics**	
MATH 113 or a higher mathematics course	**Intermediate Algebra for College Students**	
BIOL 236*	**Human Anatomy and Physiology*** **	5
	Total Credits: 13	

First Year - Winter Semester

Course #	Course Title	Credits
RAD 105*	**Radiation Safety**	2
COMA 103	**Fundamentals of Speech**	3
PHYS 123*	**Applied Physics**	5
Social Science	**Select One**	3-4
ANTH 112	**Introduction to Anthropology**	
GEOG 133	**World Regional Geography**	
PSYCH 201	**Introductory Psychology**	
SOC 201	**Principles of Sociology**	
SOC 205	**Social Problems**	
SOC 209	**Marriage and Family**	
SOC 210	**Cultural Diversity**	
SOC 220	**Urban Sociology**	
	Total Credits: 13-14	

Admission to Program Required for All RAD Courses Below**

First Year – Spring/Summer Session

RAD courses are 15 weeks.

Course #	Course Title	Credits
RAD 110**	**Patient Care and Assessment**	3
RAD 115**	**Digital Imaging and Acquisition**	2
RAD 200**	**Radiation Physics and Radiobiology**	3
English	**Select One**	3
ENG 101	**English Composition 1**	
ENG 102	**English Composition 2**	
	Total Credits: 11	

Second Year - Fall Semester

Course #	Course Title	Credits
RAD 210**	**Radiology Procedures 1**	6
RAD 215**	**Radiology Clinical Education 1**	6
	Total Credits: 12	

Second Year - Winter Semester

Course #	Course Title	Credits
RAD 230**	**Radiology Procedures 2**	6
RAD 235**	**Radiology Clinical Education 2**	6
	Total Credits: 12	

Second Year – Spring Session

RAD courses are 7 weeks.

Course #	Course Title	Credits
RAD 240**	**Advanced Imaging**	2
RAD 250**	**Radiologic Technology Capstone**	1
PHIL 257	**Bioethics**	3
	Total Credits: 6	

PROGRAM TOTAL 67-68 CREDITS

If a student is a current Registered Radiologic Technologist, R.T.(R) through the American Registry of Radiologic Technologists, A.R.R.T., they may be eligible to earn Prior Learning Credit for all listed RAD courses (39 credits) plus HIT 100 and mathematics. The remaining credits must be earned at Schoolcraft College to obtain an AAS. Please consult the Program Director for more information.

****Students may also take the BIOL 237-238 Anatomy and Physiology course sequence, please meet with an advisor for recommendations.*

Diagnostic Medical Sonography AAS Degree

Schoolcraft program code #AAS.00281

Diagnostic Medical Sonography (DMS) is a branch of diagnostic medical imaging. DMS, also called ultrasonography or sonography, is a diagnostic medical procedure that uses high frequency sound waves (ultrasound) to produce dynamic visual images of organs, tissues, or blood flow inside the body. Sonography is a radiation-free imaging modality.

The Diagnostic Medical Sonography program (DMS) provides the knowledge that will enable students to enter the workforce as entry-level sonographers. The program includes didactic, directed hands-on laboratory and professionally supervised clinical training in general sonography (defined as abdomen, obstetric, gynecologic, superficial organs, and other appropriate areas).

Educational facilities located within Schoolcraft College include state-of-art classroom and clinical resources designated to promote an exceptional educational experience. Students that satisfactorily complete this 24-month program will earn an associate degree in applied science from Schoolcraft College. Upon completion of the program graduates sit for the American Registry in Diagnostic Medical Sonography (ARDMS) exam. Successful passing of this exam results in being certified as a Registered Diagnostic Medical Sonographer (RDMS).

Mission:

The mission of the Schoolcraft College Diagnostic Medical Sonography program is to serve the community by providing an educational setting where students will receive the essential foundation for a career in diagnostic medical sonography science. Graduates will exemplify qualities of excellence in patient care, professionalism, safety, and ethical behavior thereby enhancing the healthcare experience of the patients we serve.

Program Goals:

- To prepare competent entry-level general sonographers in the cognitive (knowledge), psychomotor (skills), and affective (behavior) learning domains.
- Offer an educational experience that promotes effective communication skills, critical thinking abilities, and professionalism.
- Provide an educational program that enhances career opportunities and encourages a desire for life-long learning.
- Develop Diagnostic Medical Sonographers that function as a compassionate and competent part of the healthcare team and represent the commitment to excellence that Schoolcraft College strives to achieve.
- Prepare the students to take and pass the ARDMS examination in Ultrasound Physics and Instrumentation, Abdomen, Obstetrics & Gynecology, and Musculoskeletal sonography.

This program requires a special admissions process. Contact the Admissions and Welcome Center at 734-462-4426/ admissions@schoolcraft.edu or the Advising Department at 734-462-4429 (option 4)/eadvise@schoolcraft.edu to complete an application.

Students who satisfactorily complete the program requirements with a minimum of a 3.0 grade in each DMS, Mathematics, Biology and Physics class will qualify for an associate in applied science degree.

Not all courses are offered each semester. Students should work with an academic advisor to develop a schedule that will work for them. Students planning to transfer should check the transfer institution's

requirements/guides or discuss their options with an academic advisor. Number of total program credits may vary depending on course selection.

SAMPLE SCHEDULE OF COURSES

Admission Prerequisites*: These courses must be completed prior to admission to the Diagnostic Medical Sonography AAS program. Students must achieve a 3.0 or higher in DMS 100, Fundamentals of Speech, Mathematics, Biology and Physics for acceptance.

First Year - Fall Semester

Course #	Course Title	Credits
HIT 100*	**Introduction to Medical Terminology**	2
COMA 103*	**Fundamentals of Speech**	3
Mathematics*	**Select one**	4
MATH 102	**Technical Mathematics**	
MATH 113 or a higher mathematics course	**Intermediate Algebra for College Students**	
BIOL 236*	**Human Anatomy and Physiology*** **	5
	Total Credits: 14	

First Year - Winter Semester

Course #	Course Title	Credits
DMS 100*	**Introduction to Diagnostic Medical Sonography**	3
PHIL 257	**Bioethics**	3
PHYS 123*	**Applied Physics**	5
Social Science	**Select One**	3-4
ANTH 112	**Introduction to Anthropology**	
GEOG 133	**World Regional Geography**	
PSYCH 201	**Introductory Psychology**	
SOC 201	**Principles of Sociology**	
SOC 205	**Social Problems**	
SOC 209	**Marriage and Family**	
SOC 210	**Cultural Diversity**	
SOC 220	**Urban Sociology**	
	Total Credits: 14-15	

Admission to Program Required for All DMS Courses Below**

First Year – Spring/Summer Session

DMS courses are 15 weeks.

Course #	Course Title	Credits
DMS 110**	**Sonography Physics and Instrumentation**	4
DMS 120**	**Abdominal Sonography**	3
DMS 150**	**Sonography Lab 1**	3
English	**Select One**	3
ENG 101	**English Composition 1**	
ENG 102	**English Composition 2**	
	Total Credits: 13	

Second Year - Fall Semester

Course #	Course Title	Credits
DMS 160**	**Obstetrics and Gynecology Sonography**	3
DMS 180**	**Advanced Sonography**	3
DMS 200**	**Sonography Lab 2**	3
DMS 210**	**Sonography Clinical 1**	4
	Total Credits: 13	

Second Year - Winter Semester

Course #	Course Title	Credits
DMS 220**	**Sonography Clinical 2**	6
	Total Credits: 6	

Second Year – Spring/Summer Session

DMS courses are 15 weeks.

Course #	Course Title	Credits
DMS 230**	**Sonography Clinical 3**	6
DMS 250**	**Diagnostic Medical Sonography Capstone**	1
	Total Credits: 7	

PROGRAM TOTAL 67-68 CREDITS

If a student is a current Registered Diagnostic Medical Sonographer, RDMS through the American Registry in Diagnostic Medical Sonography, ARDMS, they may be eligible to earn Prior Learning Credit for all listed DMS courses (39 credits) plus HIT 100 and mathematics. The remaining credits must be earned at Schoolcraft College to obtain an AAS. Please consult the Program Director for more information.

****Students may also take the BIOL 237-238 Anatomy and Physiology course sequence, please meet with an advisor for recommendations.*

Schoolcraft College | 60 YEARS

2021-2022 CREDENTIAL YEAR

Metallurgy and Materials Science

Credentials

Metallurgy: Applied Physical Certificate	29 cr.
Metallurgy and Materials AAS Degree	61-66 cr.
Materials Science Post-Associate Certificate	16 cr.

Major Description

The relationships among composition, processing, structure, properties, and performance of industrial materials are the focus of the Schoolcraft College Metallurgy and Materials Science department. Since 1966, the department has been providing students with knowledge of metals and other materials used in processes and industries including automotive, aerospace, appliance, building construction, energy production and distribution, and consumer products. Measurement, a critical precursor to control, is emphasized in the academic curriculum that features significant hands-on laboratory activity. Lectures expound on the qualitative aspects of underlying physical principle.

The department offers students the opportunity to learn on an impressive assemblage of material testing and characterization equipment, including a state-of-the-art scanning electron microscope used for high-magnification inspection and compositional analysis. Program options include:

• Metallurgy: Applied Physical Certificate: This program allows those who are currently employed in the field with an opportunity to develop or reinforce skills needed to advance in the laboratory or supporting organizations.

• Metallurgy and Materials Science Associate of Applied Science (AAS) degree: This is the only two-year program of its kind in the state of Michigan. It gives students broad knowledge of materials testing, manufacturing, and research and development needed to contribute to high performance in positions ranging from laboratory technician to plant manager.

• Materials Science Post-Associate Certificate: This program allows professionals who are currently employed in the field with an opportunity to expand their knowledge of current technologies applied to laboratory practice and other materials-related careers.

Metallurgy: Applied Physical Certificate

Schoolcraft program code # 1YC.00124

The Applied Physical Metallurgy Certificate program provides current metallurgical practitioners with an opportunity to reinforce technical skills and acquire the academic foundation needed for professional advancement. The program is geared toward part-time students and applies the materials science construct "Composition plus processing leads to structure, properties, and performance as defined by the customer."

Students who satisfactorily complete the program requirements qualify for a certificate of program completion.

Not all courses are offered each semester. Students should work with an academic advisor to develop a schedule that will work for them. Students planning to transfer should check the transfer institution's requirements/guides or discuss their options with an academic advisor. Number of credits may vary depending on the course selection.

SAMPLE SCHEDULE OF COURSES

First Year - Fall Semester

Course #	Course Title	Credits
MET 103	**Introduction to Materials Science**	3
CHEM 104	**Fundamentals of Chemistry**	4
MATH 102	**Technical Mathematics**	4
ENG 116	**Technical Writing**	3
	Total Credits: 14	

First Year - Winter Semester

Course #	Course Title	Credits
MET 116	**Introduction to Physical Metallurgy**	3
MFG 102	**Basic Machining Processes**	3
CIS 120	**Software Applications**	3
MET 153	**Metallography**	3
CAD 120	**Mechanical Blueprint Reading with Sketching**	3
	Total Credits: 15	

PROGRAM TOTAL 29 CREDITS

Metallurgy and Materials Science AAS Degree

Schoolcraft program code # AAS.00184

The desired outcome of the Metallurgy and Materials Science AAS Degree program is to prepare students to knowledgeably, safely, and responsibly contribute to metallurgical and material laboratory functions in engineering, manufacturing, and research and development organizations in a variety of industries. In addition, the knowledge gained could be applied in sales, purchasing, marketing, management, quality or other materials-related activities. The emphasis is on the basic theory and tools of metallurgical analysis and characterization techniques. Electives may be selected to nurture burgeoning interests in a specific area of materials science, business, basic sciences, manufacturing, or welding in preparation for further academic work or imminent employment.

Metallurgy and Materials Science graduates can apply fundamental knowledge to the processing, testing, and characterization of industrial materials by a variety of techniques. 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.

Not all courses are offered each semester. Students should work with an academic advisor to develop a schedule that will work for them. Students planning to transfer should check the transfer institution's requirements/guides or discuss their options with an academic advisor. Number of credits may vary depending on the course selection.

SAMPLE SCHEDULE OF COURSES

First Year - Fall Semester

Course #	Course Title	Credits
MET 103	**Introduction to Materials Science**	3
CHEM 104	**Fundamentals of Chemistry**	4
MATH 102	**Technical Mathematics**	4
English	**Select one:**	3
ENG 100	**Communication Skills**	
ENG 101	**English Composition 1**	
	Total Credits: 14	

First Year - Winter Semester

Course #	Course Title	Credits
ENG 116	**Technical Writing**	3
CAD 120	**Mechanical Blueprint Reading with Sketching**	3
MET 116	**Introduction to Physical Metallurgy**	3
CIS 120	**Software Applications**	3
MET 153	**Metallography**	3
	Total Credits: 15	

Metallurgy and Materials Science AAS Degree (continued)

First Year - Spring Session

Course #	Course Title	Credits
MFG 102	**Basic Machining Processes**	3
WELD 110	**Introduction to Welding Basics for Fabrication**	3
	Total Credits: 6	

Second Year - Fall Semester

Course #	Course Title	Credits
MET 212*	**Heat Treatment**	3
MET 216*	**Mechanical Testing**	3
MET 248*	**Scanning Electron Microscopy and X-Ray Microanalysis**	3
ENGR 100	**Introduction to Engineering and Technology**	3
Elective	**Select from list below**	2-4
	Total Credits: 14-16	

Second Year - Winter Semester

Course #	Course Title	Credits
Elective	**Select from list below**	3-4
MET 281*	**Special Problems in Materials Science**	3
Social Science	**Select General Education Social Science course**	3-4
Recommended:	**PSYCH 153 Human Relations**	
Humanities	**Select General Education Humanities course**	3-4
Recommended:	**COMA 103 Fundamentals of Speech**	
	Total Credits: 12-15	

Metallurgy and Materials Science AAS Degree (continued)

Electives

Course #	Course Title	Credits
BIOL 140	**Scanning Electron Microscopy**	4
BUS 103	**Organizing a Small Business**	3
CAD 130	**Geometric Dimensioning and Tolerance**	3
ELECT 131	**Basic Measurement and Reporting Skills**	3
MET 160*	**Composite Materials**	3
MET 272*	**Corrosion Testing**	3
MET 291	**Metallurgy Internship**	3
MFG 103	**Basic Computer Numerical Control (CNC)**	3
MFG 105	**Manufacturing Processes**	4
MFG 106	**Basic Mastercam**	3
OSH 111	**Occupational Safety and Health for General Industry**	2
PLAST 130	**Introduction to Plastic Materials**	3
PLAST 131	**Introduction to Plastic Processing**	3
QM 106	**Introduction to Quality Improvement Tools**	3
QM 107	**Quality Planning and Team Building**	3
WELD 262	**Welding Metallurgy**	3

PROGRAM TOTAL 61-66 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

The Materials Science Post-Associate Certificate is designed for working technical professionals who need specific training in metallurgical technologies or laboratory practices.

This program is geared toward part-time students and will enhance the student's ability to contribute in metallurgical technology and laboratory settings. In addition, the program will benefit certain personnel in management, supervision, sales, quality, purchasing, or other materials-related technical support functions.

Prior to admission, students must have earned a minimum of an accredited associate degree in applied science. Prerequisite and co-requisite requirements must be honored or evidence of prior learning proficiency must be demonstrated. Please contact the appropriate administrator to discuss options. 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).

Not all courses are offered each semester. Students should work with an academic advisor to develop a schedule that will work for them. Students planning to transfer should check the transfer institution's requirements/guides or discuss their options with an academic advisor.

Program Courses

Completion of a minimum of 16 credit hours is required. Courses can be taken through independent study.

A student is required to take the three courses listed below:

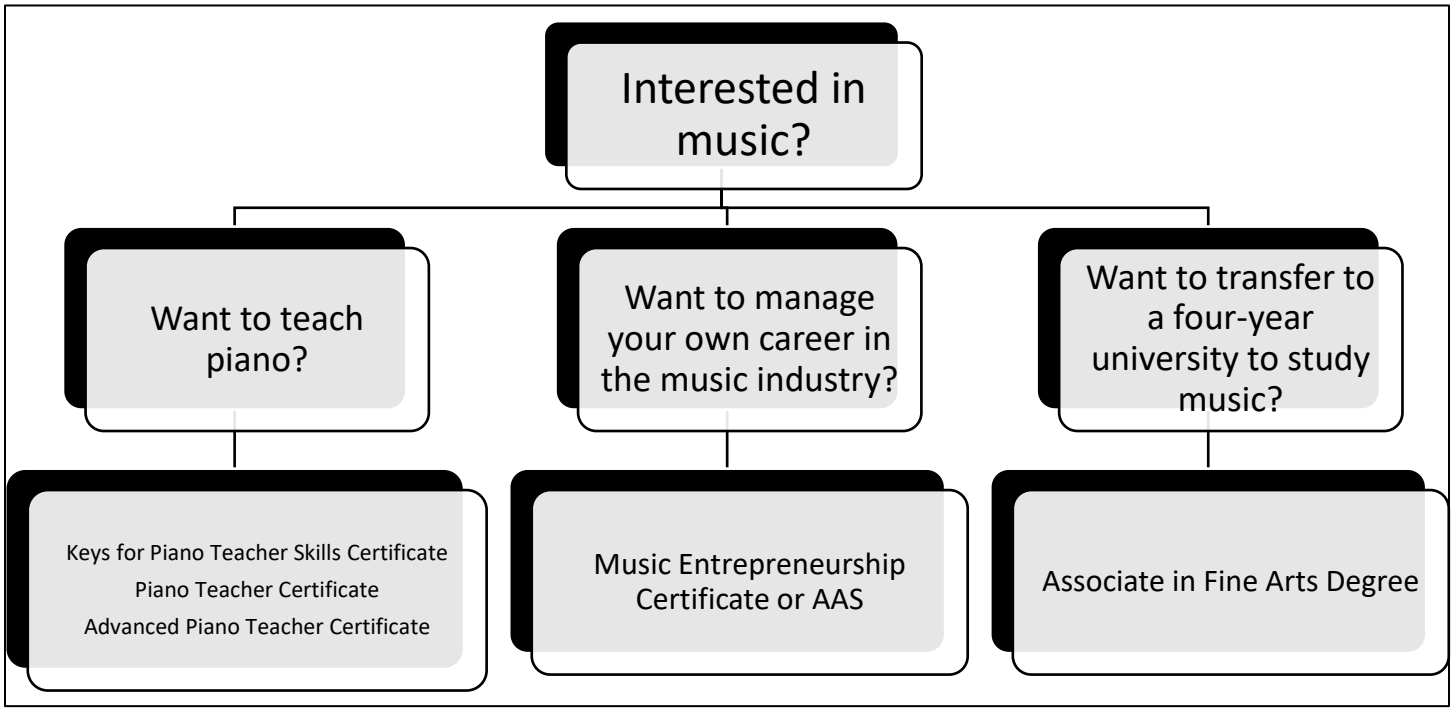
Course #	Course Title	Credits
MET 212*	**Heat Treatment**	3
MET 216*	**Mechanical Testing**	3
MET 281*	**Special Problems in Materials Science**	3

A student may choose from any of the courses listed below:

Course #	Course Title	Credits
MET 160*	**Composite Materials**	3
MET 248	**Scanning Electron Microscopy and X-ray Microanalysis**	3
MET 272*	**Corrosion Testing**	3
MET 291	**Metallurgy Internship**	3
MFG 105	**Manufacturing Processes**	4
PLAST 130	**Introduction to Plastic Materials**	3
PLAST 131	**Introduction to Plastic Processing**	3
WELD 262	**Welding Metallurgy**	3

**These classes are offered on a rotational basis. Contact Metallurgy faculty for current and projected offerings.*

Music



Credentials

Keys for Piano Teacher Skills Certificate	16 cr.
Keys for Piano Teacher Program AGS Degree	60 cr.
Piano Teacher Certificate	28 cr.
Piano Teacher Program AGS Degree	60 cr.
Piano Teacher Advanced Certificate	30 cr.
Piano Teacher Advanced Program AGS Degree	60 cr.
Music Entrepreneurship Certificate	31-32 cr.
Music Entrepreneurship AAS	60-64 cr.
Associate in Fine Arts	60 cr.

Major Description

Schoolcraft's Music department offers several options for individuals interested in the field of music.

There are **four certificate options** to provide opportunities for students who plan to make music their profession or want to learn more about piano teaching as a career:

- If you are interested in managing your own music career, then the Music Entrepreneurship Certificate program may be for you. This program will help you to develop the necessary music and business skills to help navigate today's evolving music industry.

- If you dream of sharing your love for the piano with others, then Schoolcraft's three unique piano teacher certificate programs are perfect for you. The programs offer 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. All applicants must audition in order to enter the piano teacher certificate programs. The piano teacher programs will help you to:

    - Prepare for a career of teaching piano in music academies, community education programs, out of your own studio, or in the homes of your students.
    - 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 Associations and the Royal Conservatory.

There are also multiple options for students seeking an **associate degree** in the music discipline. Depending on the desired career path, discuss options for an associate degree in music with an academic advisor:

- Students interested in transferring to a four-year university can also work toward an **Associate in Fine Arts (AFA)** degree with an emphasis in music performance or music history/culture, as well as other areas within the Fine Arts.
- Students seeking to manage their own music careers can earn a **Music Entrepreneurship AAS**.
- Students can apply all of the credits from any of the four certificate programs toward an **Associate in General Studies (AGS)** degree.

Music: Keys for Piano Teachers Skills Certificate

Schoolcraft program code # CRT.00345

Keys for Piano Teachers is designed for current piano teachers or those interested in entering the profession. The program introduces pianists to teaching materials and techniques and provides opportunities to improve their keyboard techniques for piano instruction. In addition, students are given opportunities to observe children enrolled in group classes on campus. The program provides the opportunity to enroll in a variety of electives such as Music History, Music Technology and non-music courses.

In order to enter Keys for Piano Teachers, each applicant must audition to demonstrate an appropriate level of musicianship. MUSIC 121 Class Piano 1 and MUSIC 104 Basic Materials in Music Theory may help to develop the skills necessary to successfully pass the audition. Contact the Music department for further information.

Students who satisfactorily complete the program requirements, and receive recommendation of the music faculty, qualify for a certificate of program completion.

Applied Music has an added fee.

Not all courses are offered each semester. Students should work with an academic advisor to develop a schedule that will work for them. Students planning to transfer should check the transfer institution's requirements/guides or discuss their options with an academic advisor. Number of credits may vary depending on the course selection.

SAMPLE SCHEDULE OF COURSES

First Year - Fall Semester

Course #	Course Title	Credits
MUSIC 201	**Keyboard Skills for Piano Teachers 1**	2
MUSIC 247	**Piano Teaching Techniques and Materials 1**	3
MUSIC 143	**Practice Teaching and Practicum in Piano Teaching 1**	2
Electives	**Select Music courses not already taken from the list (minimum 9 credits)**	9
	TOTAL CREDITS: 16	

Music: Keys for Piano Teachers Skills Certificate (continued)

Electives

Course #	Course Title	Credits
MUSIC 105	**Music Appreciation**	3
MUSIC 131	**Applied Music - Piano 1**	2
MUSIC 133	**Applied Music - Voice 1**	2
MUSIC 135	**Applied Music - Instrumental 1**	2
MUSIC 137	**Sight Singing and Ear Training 1**	2
MUSIC 140**	**Jazz Lab Band - Improvisation 1**	2
MUSIC 149	**Popular Music Culture in America**	3
MUSIC 153	**Music Theory 1**	3
MUSIC 155	**History of Broadway**	3
MUSIC 164	**Music History 1 - 17th and 18th Centuries**	3
MUSIC 165	**Music History 2 - 19th and 20th Centuries**	3
MUSIC 168**	**Synthesizer Ensemble**	3
MUSIC 171	**Music Technology 1**	3
HUM 106	**Introduction to Art and Music**	1

PROGRAM TOTAL 16 CREDITS

**Requires audition

Music: Keys for Piano Teachers Program AGS Degree

Schoolcraft program code # AGS.00042

Keys for Piano Teachers is designed for current piano teachers or those interested in entering the profession. The program introduces pianists to teaching materials and techniques and provides opportunities to improve their keyboard techniques for piano instruction. In addition, students are given opportunities to observe children enrolled in group classes on campus. The program provides the opportunity to enroll in a variety of electives such as Music History, Music Technology and non-music courses.

In order to enter Keys for Piano Teachers, each applicant must audition to demonstrate an appropriate level of musicianship. MUSIC 121 Class Piano 1 and MUSIC 104 Basic Materials in Music Theory may help to develop the skills necessary to successfully pass the audition. Contact the Music department for further information.

Any student wishing to pursue an associate degree can apply all 16 credits from the Keys for Piano Teachers Skills Certificate toward an Associate in General Studies (AGS) degree. Depending on the desired career path, discuss other options for an associate degree with an academic advisor.

Applied Music has an added fee.

Not all courses are offered each semester. Students should work with an academic advisor to develop a schedule that will work for them. Students planning to transfer should check the transfer institution's requirements/guides or discuss their options with an academic advisor. Number of credits may vary depending on the course selection.

SAMPLE SCHEDULE OF COURSES

First Year - Fall Semester

Course #	Course Title	Credits
MUSIC 201	**Keyboard Skills for Piano Teachers 1**	2
MUSIC 247	**Piano Teaching Techniques and Materials 1**	3
MUSIC 143	**Practice Teaching and Practicum in Piano Teaching 1**	2
Electives	**Select Music courses not already taken from the list (minimum 9 credits)**	9
	TOTAL CREDITS: 16	

First Year - Winter Semester

Course #	Course Title	Credits
English Communication	**Select first within a set of General Education English Communication courses***	3
Mathematics	**Select General Education Mathematics course***	3
Science	**Select General Education Science course***	4
Electives	**Select courses supportive of occupational and academic goals**	6
	TOTAL CREDITS: 16	

Music: Keys for Piano Teachers Program AGS Degree (continued)

Second Year - Fall Semester

Course #	Course Title	Credits
English Communication	**Select second within a set of General Education English Communication courses***	3
Social Science	**Select General Education Social Science course***	3
Electives	**Select courses supportive of occupational and academic goals**	8
	TOTAL CREDITS: 14	

Second Year - Winter Semester

Course #	Course Title	Credits
Science	**Select General Education Science course***	3
Social Science	**Select General Education Social Science course***	3
Electives	**Select courses supportive of occupational and academic goals**	8
	TOTAL CREDITS: 14	

Electives

Course #	Course Title	Credits
MUSIC 105	**Music Appreciation**	3
MUSIC 131	**Applied Music - Piano 1**	2
MUSIC 133	**Applied Music - Voice 1**	2
MUSIC 135	**Applied Music - Instrumental 1**	2
MUSIC 137	**Sight Singing and Ear Training 1**	2
MUSIC 140**	**Jazz Lab Band - Improvisation 1**	2
MUSIC 149	**Popular Music Culture in America**	3
MUSIC 153	**Music Theory 1**	3
MUSIC 155	**History of Broadway**	3
MUSIC 164	**Music History 1 - 17th and 18th Centuries**	3
MUSIC 165	**Music History 2 - 19th and 20th Centuries**	3
MUSIC 168**	**Synthesizer Ensemble**	3
MUSIC 171	**Music Technology 1**	3
HUM 106	**Introduction to Art and Music**	1

PROGRAM TOTAL 60 CREDITS

*Please check Schoolcraft General Education requirements to determine course options.

**Requires audition

Music: Piano Teacher Certificate

Schoolcraft program code # 1YC.00115

The Piano Teacher Certificate program is designed for pianists to pursue professional careers as private piano teachers. The curriculum is structured to provide instruction in piano teaching materials and techniques as well as music theory and history. In addition, students are given numerous opportunities to observe and teach children enrolled in group piano classes on campus. (Two supervised teaching sessions of children are required.) The program is aligned with beginning and intermediate requirements provided in Michigan's Student Achievement Testing and the Royal Conservatory programs.

In order to enter the Piano Teacher Certificate program, each applicant must audition to demonstrate an appropriate level of musicianship. MUSIC 121 Class Piano 1 and MUSIC 104 Basic Materials in Music Theory may help to develop the skills necessary to successfully pass the audition. Contact the Music department for further information. Applicants having successfully completed the Keys for Piano Teachers Skills Certificate are automatically eligible and coursework will transfer.

Students who satisfactorily complete the program requirements, and upon recommendation of the music faculty, qualify for a certificate of program completion.

Applied Music has an added fee.

Not all courses are offered each semester. Students should work with an academic advisor to develop a schedule that will work for them. Students planning to transfer should check the transfer institution's requirements/guides or discuss their options with an academic advisor. Number of credits may vary depending on the course selection.

SAMPLE SCHEDULE OF COURSES

First Year - Fall Semester

Course #	Course Title	Credits
MUSIC 131	**Applied Music - Piano 1**	2
MUSIC 137	**Sight Singing and Ear Training 1**	2
MUSIC 143	**Practice Teaching and Practicum in Piano Teaching 1**	2
MUSIC 153	**Music Theory 1**	3
MUSIC 201	**Keyboard Skills for Piano Teachers 1**	2
MUSIC 247	**Piano Teaching Techniques and Materials 1**	3
	TOTAL CREDITS: 14	

Music: Piano Teacher Certificate (continued)

First Year - Winter Semester

Course #	Course Title	Credits
MUSIC 132	**Applied Music - Piano 2**	2
MUSIC 138	**Sight Singing and Ear Training 2**	2
MUSIC 144	**Practice Teaching and Practicum in Piano Teaching 2**	2
MUSIC 154	**Music Theory 2**	3
MUSIC 202	**Keyboard Skills for Piano Teachers 2**	2
MUSIC 257*	**Piano Teaching Techniques and Materials 2**	3
	TOTAL CREDITS: 14	

PROGRAM TOTAL 28 CREDITS

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

Music: Piano Teacher Program AGS Degree

Schoolcraft program code # AGS.00042

The Piano Teacher curriculum is designed for pianists to pursue professional careers as private piano teachers. It is structured to provide instruction in piano teaching materials and techniques as well as music theory and history. In addition, students are given numerous opportunities to observe and teach children enrolled in group piano classes on campus. (Two supervised teaching sessions of children are required.) The program is aligned with beginning and intermediate requirements provided in Michigan's Student Achievement Testing and the Royal Conservatory programs.

In order to enter Keys for Piano Teachers, each applicant must audition to demonstrate an appropriate level of musicianship. MUSIC 121 Class Piano 1 and MUSIC 104 Basic Materials in Music Theory may help to develop the skills necessary to successfully pass the audition. Contact the Music department for further information. Applicants having successfully completed the Keys for Piano Teachers Skills Certificate are automatically eligible and coursework will transfer.

Any student wishing to pursue an associate degree can apply all 28 credits from the Piano Teacher Certificate toward an Associate in General Studies (AGS) degree. Depending on the desired career path, discuss other options for an associate degree with an academic advisor.

Applied Music has an added fee.

Not all courses are offered each semester. Students should work with an academic advisor to develop a schedule that will work for them. Students planning to transfer should check the transfer institution's requirements/guides or discuss their options with an academic advisor. Number of credits may vary depending on the course selection.

SAMPLE SCHEDULE OF COURSES

First Year - Fall Semester

Course #	Course Title	Credits
MUSIC 131	**Applied Music - Piano 1**	2
MUSIC 137	**Sight Singing and Ear Training 1**	2
MUSIC 143	**Practice Teaching and Practicum in Piano Teaching 1**	2
MUSIC 153	**Music Theory 1**	3
MUSIC 201	**Keyboard Skills for Piano Teachers 1**	2
MUSIC 247	**Piano Teaching Techniques and Materials 1**	3
	TOTAL CREDITS: 14	

Music: Piano Teacher Program AGS Degree (continued)

First Year - Winter Semester

Course #	Course Title	Credits
MUSIC 132	**Applied Music - Piano 2**	2
MUSIC 138	**Sight Singing and Ear Training 2**	2
MUSIC 144	**Practice Teaching and Practicum in Piano Teaching 2**	2
MUSIC 154	**Music Theory 2**	3
MUSIC 202	**Keyboard Skills for Piano Teachers 2**	2
MUSIC 257*	**Piano Teaching Techniques and Materials 2**	3
	TOTAL CREDITS: 14	

Second Year - Fall Semester

Course #	Course Title	Credits
English Communication	**Select first within a set of General Education English Communication courses****	3
Mathematics	**Select General Education Mathematics course****	3
Science	**Select General Education Science course****	4
Social Science	**Select General Education Social Science course****	3
Electives	**Select courses supportive of occupational and academic goals**	3
	TOTAL CREDITS: 16	

Second Year - Winter Semester

Course #	Course Title	Credits
English Communication	**Select second within a set of General Education English Communication courses****	3
Science	**Select General Education Science course****	3
Social Science	**Select General Education Social Science course****	3
Electives	**Select courses supportive of occupational and academic goals**	7
	TOTAL CREDITS: 16	

PROGRAM TOTAL 60 CREDITS

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

**Please check Schoolcraft General Education requirements to determine course options.

Music: Piano Teacher Advanced Certificate

Schoolcraft program code # 1YC.00246

The Piano Teacher Advanced Certificate program is designed for pianists to advance their professional careers as private piano teachers. The curriculum is structured to provide advanced instruction in piano teaching materials and techniques as well as music theory and history. In addition, students are given numerous opportunities to observe and teach children enrolled in group piano classes on campus. (Two supervised teaching sessions of children are required.)

The program is aligned with intermediate and advanced requirements provided in Michigan's Student Achievement Testing and the Royal Conservatory programs. Successful completion of the Piano Teachers Certificate is required for admission to the Advanced Certificate program. Students who satisfactorily complete the program requirements, and upon recommendation of the music faculty, qualify for a certificate of program completion.

Applied Music has an added fee.

Not all courses are offered each semester. Students should work with an academic advisor to develop a schedule that will work for them. Students planning to transfer should check the transfer institution's requirements/guides or discuss their options with an academic advisor. Number of credits may vary depending on the course selection.

SAMPLE SCHEDULE OF COURSES

First Year - Fall Semester

Course #	Course Title	Credits
MUSIC 231	**Applied Music - Piano 3**	2
MUSIC 164	**Music History 1 - 17th and 18th Centuries**	3
MUSIC 243	**Practice Teaching and Practicum in Piano Teaching 3**	2
MUSIC 250	**Music Theory 3**	3
MUSIC 204	**Keyboard Skills for Piano Teachers 3**	2
MUSIC 277	**Piano Teaching Techniques and Materials 3**	3
	TOTAL CREDITS: 15	

First Year - Winter Semester

Course #	Course Title	Credits
MUSIC 232	**Applied Music - Piano 4**	2
MUSIC 165	**Music History 2 - 19th and 20th Centuries**	3
MUSIC 244	**Practice Teaching and Practicum in Piano Teaching 4**	2
MUSIC 252	**Music Theory 4**	4
MUSIC 205	**Keyboard Skills for Piano Teachers 4**	2
MUSIC 298	**Special Music Projects for Honors Studies-Performance/Composition/Research**	2
	TOTAL CREDITS: 15	

PROGRAM TOTAL 30 CREDITS

Music: Piano Teacher Advanced Program AGS Degree

Schoolcraft program code # AGS.00042

The Piano Teacher Advanced curriculum is designed for pianists to advance their professional careers as private piano teachers. The curriculum is structured to provide advanced instruction in piano teaching materials and techniques as well as music theory and history. In addition, students are given numerous opportunities to observe and teach children enrolled in group piano classes on campus. (Two supervised teaching sessions of children are required.)

The program is aligned with intermediate and advanced requirements provided in Michigan's Student Achievement Testing and the Royal Conservatory programs. Successful completion of the Piano Teachers Certificate is required for admission to the Advanced Certificate program.

Any student wishing to pursue an associate degree can apply all 30 credits from the Piano Teacher Advanced Certificate toward an Associate in General Studies (AGS) degree. Depending on the desired career path, discuss other options for an associate degree with an academic advisor.

Applied Music has an added fee.

Not all courses are offered each semester. Students should work with an academic advisor to develop a schedule that will work for them. Students planning to transfer should check the transfer institution's requirements/guides or discuss their options with an academic advisor. Number of credits may vary depending on the course selection.

SAMPLE SCHEDULE OF COURSES

First Year - Fall Semester

Course #	Course Title	Credits
MUSIC 231	**Applied Music - Piano 3**	2
MUSIC 164	**Music History 1 - 17th and 18th Centuries**	3
MUSIC 243	**Practice Teaching and Practicum in Piano Teaching 3**	2
MUSIC 250	**Music Theory 3**	3
MUSIC 204	**Keyboard Skills for Piano Teachers 3**	2
MUSIC 277	**Piano Teaching Techniques and Materials 3**	3
	TOTAL CREDITS: 15	

First Year - Winter Semester

Course #	Course Title	Credits
MUSIC 232	**Applied Music - Piano 4**	2
MUSIC 165	**Music History 2 - 19th and 20th Centuries**	3
MUSIC 244	**Practice Teaching and Practicum in Piano Teaching 4**	2
MUSIC 252	**Music Theory 4**	4
MUSIC 205	**Keyboard Skills for Piano Teachers 4**	2
MUSIC 298	**Special Music Projects for Honors Studies - Performance/Composition/Research**	2
	TOTAL CREDITS: 15	

Music: Piano Teacher Advanced Program AGS Degree (continued)

Second Year - Fall Semester

Course #	Course Title	Credits
English Communication	**Select first within a set of General Education English Communication courses***	3
Mathematics	**Select General Education Mathematics course***	3
Science	**Select General Education Science course***	4
Social Science	**Select General Education Social Science course***	3
Electives	**Select courses supportive of occupational and academic goals**	3
	TOTAL CREDITS: 16	

Second Year - Winter Semester

Course #	Course Title	Credits
English Communication	**Select second within a set of General Education English Communication courses***	3
Science	**Select General Education Science course***	3
Social Science	**Select General Education Social Science course***	3
Electives	**Select courses supportive of occupational and academic goals**	5
	TOTAL CREDITS: 14	

PROGRAM TOTAL 60 CREDITS

*Please check Schoolcraft General Education requirements to determine course options.

Music: Music Entrepreneurship Certificate

Schoolcraft program code # 1YC.00346

The Music Entrepreneurship Certificate is built for students who want to manage their own career in the music industry. There is a balance of courses in music and general business subjects to help students develop the skills necessary to be successful in the competitive world of today's music industry. This curriculum is designed for students who want to start their career in the music business, as well as for those students who are already working in the industry, but want to improve their opportunities for success.

Not all courses are offered each semester. Students should work with an academic advisor to develop a schedule that will work for them. Students planning to transfer should check the transfer institution's requirements/guides or discuss their options with an academic advisor. Number of credits may vary depending on the course selection.

SAMPLE SCHEDULE OF COURSES

First Year - Fall Semester

Course #	Course Title	Credits
MUSIC 150	**Introduction to Music Entrepreneurship**	3
MUSIC 137	**Sight Singing and Ear Training 1**	2
ENG 101	**English Composition 1**	3
BUS 103	**Organizing a Small Business**	3
MUSIC 153	**Music Theory 1**	3
MUSIC	Select one	2
MUSIC 131	**Applied Music – Piano 1**	
MUSIC 133	**Applied Music – Voice 1**	
MUSIC 135	**Applied Music – Instrumental 1**	
	TOTAL CREDITS: 16	

Music: Music Entrepreneurship Certificate (continued)

First Year - Winter Semester

Course #	Course Title	Credits
MUSIC 171	**Music Technology 1**	3
SRT 121	**Basic Sound Recording and Techniques 1**	3
BUS 104	**Operating a Small Business**	3
ACCOUNTING	Select one	4
ACCT 103	**Introduction to Accounting**	
ACCT 201	**Principles of Accounting 1**	
MUSIC	Select one	2-3
MUSIC 117	**Choir 1**	
MUSIC 141	**Wind Ensemble 1**	
MUSIC 142	**Jazz Band 1**	
MUSIC 168	**Synthesizer Ensemble 1**	
	TOTAL CREDITS: 15-16	

PROGRAM TOTAL 31-32 CREDITS

Music: Music Entrepreneurship AAS Degree

Schoolcraft program code # AAS.00347

The associate degree curriculum is designed to help students hone their music skills and develop their business skills to be successful in building and maintaining a self-managed career in the music industry. Courses in music and in general business subjects provide opportunities for students who are considering starting a career in the music business, as well as for students who are already working in the industry, but want to improve their chance for success.

Not all courses are offered each semester. Students should work with an academic advisor to develop a schedule that will work for them. Students planning to transfer should check the transfer institution's requirements/guides or discuss their options with an academic advisor. Number of credits may vary depending on the course selection.

SAMPLE SCHEDULE OF COURSES

First Year - Fall Semester

Course #	Course Title	Credits
MUSIC 150	**Introduction to Music Entrepreneurship**	3
MUSIC 137	**Sight Singing and Ear Training 1**	2
ENG 101	**English Composition 1**	3
BUS 103	**Organizing a Small Business**	3
MUSIC 153	**Music Theory 1**	3
MUSIC	Select one	2
MUSIC 131	**Applied Music – Piano 1**	
MUSIC 133	**Applied Music – Voice 1**	
MUSIC 135	**Applied Music – Instrumental 1**	
	TOTAL CREDITS: 16	

First Year - Winter Semester

Course #	Course Title	Credits
MUSIC 171	**Music Technology 1**	3
SRT 121	**Basic Sound Recording and Techniques 1**	3
BUS 104	**Operating a Small Business**	3
ACCOUNTING	Select one	4
ACCT 103	**Introduction to Accounting**	
ACCT 201	**Principles of Accounting 1**	
MUSIC	Select one	2-3
MUSIC 117	**Choir 1**	
MUSIC 141	**Wind Ensemble 1**	
MUSIC 142	**Jazz Band 1**	
MUSIC 168	**Synthesizer Ensemble 1**	
	TOTAL CREDITS: 15-16	

Music: Music Entrepreneurship AAS (continued)

Second Year - Fall Semester

Course #	Course Title	Credits
English Communications	**Select General Education English Communication course**	3
Recommended:	**ENG 106 – Business English**	
Mathematics	**Select General Education Mathematics course**	3
Recommended:	**MATH 101 – Business Mathematics**	
BUS 101	**Introduction to Business**	3
BUS 207	**Business Law**	3
Elective	**Select from list of other MUSIC, SRT, or BUS courses not previously taken**	2-3
	TOTAL CREDITS: 14-15	

Second Year - Winter Semester

Course #	Course Title	Credits
Social Science	**Select General Education Social Science course**	3
Recommended:	**PSYCH 153 – Human Relations OR**	
	SOC 210 – Cultural Diversity	
Science	**Select General Education Science course**	3-5
BUS 215	**E-Commerce**	3
MUSIC 154	**Music Theory 2**	3
MUSIC 172	**Music Technology 2**	3
	TOTAL CREDITS: 15-17	

ELECTIVES

Course #	Course Title	Credits
MUSIC 131	**Applied Music—Piano 1**	2
MUSIC 132	**Applied Music—Piano 2**	2
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 117	**Choir 1**	2
MUSIC 118	**Choir 2**	2
MUSIC 141	**Wind Ensemble 1**	2
MUSIC 241	**Wind Ensemble 2**	2

Music: Music Entrepreneurship AAS (continued)

ELECTIVES (continued)

MUSIC 142	**Jazz Band 1**	2
MUSIC 242	**Jazz Band 2**	2
MUSIC 149	**Popular Music in America**	3
MUSIC 155	**History of Broadway**	3
MUSIC 164	**Music History 1 – 17th and 18th Centuries**	3
MUSIC 165	**Music History 2 – 19th and 20th Centuries**	3
MUSIC 168	**Synthesizer Ensemble 1**	3
MUSIC 169	**Synthesizer Ensemble 2**	3
MUSIC 250	**Music Theory 3**	3
SRT 122	**Basic Sound and Recording Techniques 2**	3
SRT 150	**Ear Training for Recording Engineers**	2
BUS 204	**Personal Finance**	3
BUS 226	**Principles of Marketing**	3

PROGRAM TOTAL 60-64 CREDITS

Associate in Fine Arts Degree

Schoolcraft program code # AFA.00402

Schoolcraft's Associate of Fine Arts (AFA) degree is designed for students who intend to pursue a Bachelor's degree in any fine arts field. It allows the student to establish a strong academic foundation in arts and complete courses to fulfill general education requirements—all before transferring to a Bachelor's degree program at another college or university. The AFA allows students to focus on a particular discipline within the fine arts, including both music performance as well as music history/culture. Students interested in other areas of fine arts could substitute courses in art, creative writing, literature, theater, or humanities. See the degree requirements or talk to an academic advisor for details.

All courses must be completed with a minimum overall grade point average of 2.0 or better.

Not all courses are offered each semester. Students should work with an academic advisor to develop a schedule that will work for them. Students planning to transfer should check the transfer institution's requirements/guides or discuss their options with an academic advisor. Number of credits may vary depending on the course selection.

SAMPLE SCHEDULE OF COURSES

First Year - Fall Semester

Course #	Course Title	Credits
English Communication	**Select first within a set of General Education English Communication courses***	3
Mathematics	**Select General Education Mathematics course***	4
Humanities	**Select first General Education Humanities course***	3
Major Area of Study	**Select liberal arts courses from ART, HUM, MUSIC, THEA, and ENG (Creative Writing or Literature courses only).* See list below for recommended music courses.** For recommended courses in other areas of the fine arts, see the degree requirements or talk with an academic advisor.	3
	Total Credits: 13	

First Year - Winter Semester

Course #	Course Title	Credits
English Communication	**Select second within a set of General Education English Communication courses***	3
Social Science	**Select first General Education Social Science course***	3
Humanities	**Select second General Education Humanities course***	1
Major Area of Study	**Select liberal arts courses from ART, HUM, MUSIC, THEA, and ENG (Creative Writing or Literature courses only).* See list below for recommended music courses.** For recommended courses in other areas of the fine arts, see the degree requirements or talk with an academic advisor.	6
	Total Credits: 13	

Associate in Fine Arts Degree (continued)

First Year – Spring/Summer Session

Course #	Course Title	Credits
Science	**Select first General Education Science course**	3
Social Science	**Select second General Education Social Science course**	3
	Total Credits: 6	

Second Year – Fall Semester

Course #	Course Title	Credits
Science	**Select second General Education Science course**	4
Major Area of Study	**Select liberal arts courses from ART, HUM, MUSIC, THEA, and ENG (Creative Writing or Literature courses only).* See list below for recommended music courses.** For recommended courses in other areas of the fine arts, see the degree requirements or talk with an academic advisor.	6
Electives	**Select liberal arts or occupational courses that satisfy transfer and academic goals.***	3
	Total Credits: 13	

Second Year - Winter Semester

Course #	Course Title	Credits
Major Area of Study	**Select liberal arts courses from ART, HUM, MUSIC, THEA, and ENG (Creative Writing or Literature courses only).* See list below for recommended music courses.** For recommended courses in other areas of the fine arts, see the degree requirements or talk with an academic advisor.	3
Electives	**Select liberal arts or occupational courses that satisfy transfer and academic goals.***	12
	Total Credits: 15	

Recommended courses – Music History/Culture Track:

Course #	Course Title	Credits
MUSIC 105	Music Appreciation	3
MUSIC 149	Popular Music Culture in America	3
MUSIC 153	Music Theory 1	3
MUSIC 154	Music Theory 2	3
MUSIC 155	History of Broadway	3
MUSIC 160	Introduction to World Music	3
MUSIC 164	Music History 1 – 17th and 18th Centuries	3
MUSIC 165	Music History 2 – 19th and 20th Centuries	3
	Additional courses in the humanities, music history, and culture that satisfy transfer and academic goals and requirements.	

Recommended courses – Music Performance Track:

Course #	Course Title	Credits
MUSIC 121	Class Piano 1	2
MUSIC 137	Sight Singing and Ear Training 1	2
MUSIC 138	Sight Singing and Ear Training 2	2
MUSIC 153	Music Theory 1	3
MUSIC 154	Music Theory 2	3
	Additional courses in music performance that satisfy transfer and academic goals and requirements.	

PROGRAM TOTAL 60 CREDITS

*Please check Schoolcraft General Education and transfer institution program requirements to determine course options.

Nursing

Credentials

Nursing Assistant Training Program Skills Certificate *	16 cr.
Nursing—Practical Certificate (PN)	44.5 cr.
Nursing—Registered AAS Degree (RN)	63.5 cr.
Nursing—Licensed Practical Nurse to Registered Nurse Option (LPN to RN)	63.5 cr.

*Students may take the NATP 115 Nursing Assistant Course (6 credits) for eligibility to take the Michigan Nurse Aide Exam to be placed on the state registry.

Major Description

Schoolcraft offers students several options when preparing for a career in this vital healthcare field: nursing assistant training, practical nursing, advanced placement for licensed practical nurses, and registered nursing education.

- The nursing assistant course (6 credits) provides students with the opportunity for an entry-level healthcare position primarily in extended care facilities, home health agencies, or hospitals. The course is three days a week and offered each seven weeks. A five day a week (over four weeks) course is offered during the summer semester. Students who meet the nursing assistant course requirements or the Nursing Assistant Training Program skills certificate requirements are eligible to take the Michigan nursing assistant competency exam to be on the state registry. The nursing assistant preparation course is approved by the Michigan Department of Licensing and Regulatory Affairs (LARA) Bureau of Community and Health Systems. A minimum overall grade of 75% for theory and satisfactory completion of laboratory and clinical competencies is needed for successful course completion and eligibility to take the Michigan nursing assistant exam. Students must meet health and clinical requirements, have a negative drug screen on first attempt, and pass a criminal background check.

- The Nursing Assistant Training Program skills certificate includes the nursing assistant course and additional general education credits that prepare students for further studies in healthcare. Students need to attain a minimum of 16 credits for this certificate.

- The Nursing: Practical (PN) certificate is an option at the end of the first year of the registered nurse program. Students complete the first year courses plus a specific practical nursing leadership course during the summer semester. Preparation provides students with eligibility to take the National Council Licensure Examination for Practical Nursing (NCLEX-PN).

- The Nursing: Registered (RN) associate degree in applied science (AAS) program qualifies students to take the National Council Licensure Examination for Registered Nursing (NCLEX-RN) and provides the academic background needed for further education in a bachelor of science in nursing (BSN) degree program.

- Licensed Practical Nurse Advanced Placement option (LPN-RN) offers LPNs who are licensed in Michigan to apply for advanced placement into the second year of the associate degree in applied science (AAS) registered nursing program for eligibility to take the NCLEX-RN examination.

    - PN and RN nursing program courses must be taken in sequence and a minimum grade of 80% plus a satisfactory clinical performance evaluation in specific nursing courses are required for progression to the next course. Computerized testing is required in all nursing courses. Academic courses other than nursing must be completed according to program requirements or with a minimum grade of 2.0. Students are admitted to the practical or registered nursing program on an ongoing basis and start the program in the fall semester. Students must meet health and clinical requirements, have a negative drug screen on first attempt, and pass a criminal background check.

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:

LARA 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
517-335-0318
bhcsinfo@michigan.gov
www.michigan.gov/LARA

The nursing associate degree and practical programs are nationally accredited by the Accreditation Commission for Education in Nursing (ACEN). For further information, please contact:

Accreditation Commission for Education in Nursing (ACEN)
3343 Peachtree Road NE, Suite 850
Atlanta, GA 30326
404-975-5000
www.acen.org
info@acenursing.org

Nursing: Registered AAS Degree (RN)

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).

Students need to complete the pre requisite courses and meet other admission requirements. The nursing program has pre-admission and admission requirements that are reviewed annually. Students who do not complete the final admission requirements by scheduled deadlines will be deferred to another admission year. Students may only defer one time without having to repeat the application process. Nursing 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 completed according to application requirements. Computer lab use and testing is required in this program. See Computer Use policy 3110 at schoolcraft.edu for more information. Students must furnish and maintain uniforms and supplies as required by the department and clinical facilities. Students must meet health and clinical requirements, have a negative drug screen on first attempt, and pass a criminal background check. This program is offered at the Livonia Campus. Students are admitted once a year at the beginning of the fall semester.

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.

Not all courses are offered each semester. Students should work with an academic advisor to develop a schedule that will work for them. Students planning to transfer should check the transfer institution’s requirements/guides or discuss their options with an academic advisor. Number of credits may vary depending on the course selection.

Nursing: Registered AAS Degree (RN) (continued)

SAMPLE SCHEDULE OF COURSES

Admission Prerequisites and Supportive Courses*

Course #	Course Title	Credits
BIOL 236**	**Human Anatomy and Physiology with a minimum grade of 3.0**	5
PSYCH 201***	**Introductory Psychology with a minimum grade of 2.0**	4
Mathematics****	**Select one of the following, or a higher Math course, with a minimum grade of 2.0**	4
MATH 102	**Technical Mathematics**	
MATH 111	**Applications – Utility of Math**	
MATH 113	**Intermediate Algebra for College Students**	
	Total Credits: 13	

First Year - Fall Semester

Course #	Course Title	Credits
NURS 104*****	**Pharmacology for Nurses**	3
NURS 105	**Foundations in Nursing Practice 1**	4
NURS 106	**Foundations in Nursing Practice 2**	4.5
Humanities	**Select General Education Humanities course with a minimum grade of 2.0**	1
Recommended	**HUM 106 – Introduction to Art & Music**	
	Total Credits: 12.5	

First Year - Winter Semester

Course #	Course Title	Credits
NURS 107	**Medical-Surgical Nursing**	4.5
NURS 108	**Surgical-Medical Nursing**	4.5
English Communication†	**Select first within a set of General Education English Communication courses with a minimum grade of 2.0**	3
Recommended	**ENG 101 – English Composition 1**	
	Total Credits: 12	

First Year - Spring Session

Course #	Course Title	Credits
NURS 128	**Maternal-Child Nursing 1**	5
	Total Credits: 5♦	

Second Year - Fall Semester

Course #	Course Title	Credits
NURS 205	**Advanced Medical Surgical Nursing**	4.5
NURS 248	**Maternal-Child Nursing 2**	5
English Communication+	**Select second within a set of General Education English Communication courses with a minimum grade of 2.0**	3
Recommended	**ENG 102 - English Composition 2**	
	Total Credits: 12.5	

Second Year - Winter Semester

Course #	Course Title	Credits
NURS 246	**Psychiatric Mental Health Nursing**	4
NURS 250	**Advanced Concepts in Registered Nursing**	4.5
	Total Credits: 8.5♦	

PROGRAM TOTAL 63.5 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 may also take the BIOL 237-238 Anatomy and Physiology course sequence which may be preferred for BSN programs.

***PSYCH 201 Introduction to Psychology is a supportive course not a prerequisite course and may be taken later as long as it is completed at the start of the Nursing Program.

****Mathematics – students should meet with an advisor to determine courses that satisfy academic goals and BSN program requirements.

*****NURS 104 Nursing Pharmacology may be taken the Winter or Spring semester before the Fall semester if desired or may be taken in the Fall semester (for students already accepted into the nursing program).

♦ Students should work with an advisor if more credits are needed per semester to qualify for financial aid.

+ Please check Schoolcraft General Education requirements to determine course options.

Nursing: Practical Certificate (PN)

Schoolcraft program code# 1YC.00017

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). Students who wish to pursue this option must successfully complete the Advanced Concepts in Practical Nursing course at the end of the first academic year along with the other first year courses within the associate degree of nursing program.

Students need to complete the pre requisite courses and meet other admission requirements. The nursing program has pre-admission and admission requirements that are reviewed annually. Students who do not complete the final admission requirements by scheduled deadlines will be deferred to another admission year. Students may only defer one time without having to repeat the application process. Nursing 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 completed according to application requirements. Computer lab use and testing is required in this program. See Computer Use policy 3110 at schoolcraft.edu for more information. Students must furnish and maintain uniforms and supplies as required by the department and clinical facilities. Students must meet health and clinical requirements, have a negative drug screen on first attempt, and pass a criminal background check.

This program is offered at the Livonia Campus. Students are admitted once a year to the nursing career ladder curriculum (NCLC), at the beginning of the fall semester. Students selecting the practical nursing certificate option at the end of the first year of the NCLC sequence may then complete the registered nursing program without further application or admission requirements. 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.

Not all courses are offered each semester. Students should work with an academic advisor to develop a schedule that will work for them. Students planning to transfer should check the transfer institution’s requirements/guides or discuss their options with an academic advisor. Number of credits may vary depending on the course selection.

Nursing: Practical Certificate (PN) (continued)

SAMPLE SCHEDULE OF COURSES

Admission Prerequisites and Supportive Courses*

Course #	Course Title	Credits
BIOL 236**	**Human Anatomy and Physiology with a minimum grade of 3.0**	5
PSYCH 201***	**Introductory Psychology with a minimum grade of 2.0**	4
Mathematics****	**Select one of the following, or a higher Math course, with a minimum grade of 2.0**	4
MATH 102	**Technical Mathematics**	
MATH 111	**Applications – Utility of Math**	
MATH 113	**Intermediate Algebra for College Students**	
	Total Credits: 13	

First Year - Fall Semester

Course #	Course Title	Credits
NURS 104*****	**Pharmacology for Nurses**	3
NURS 105	**Foundations in Nursing Practice 1**	4
NURS 106	**Foundations in Nursing Practice 2**	4.5
	Total Credits: 11.5♦	

First Year - Winter Semester

Course #	Course Title	Credits
NURS 107	**Medical-Surgical Nursing**	4.5
NURS 108	**Surgical-Medical Nursing**	4.5
English Communication+	**Select first within a set of General Education English Communication courses with a minimum grade of 2.0**	3
Recommended	**ENG 101 - English Composition 1**	
	Total Credits: 12	

First Year - Spring Session

Course #	Course Title	Credits
NURS 128	**Maternal-Child Nursing 1**	5
	Total Credits: 5♦	

First Year - Summer Session

Course #	Course Title	Credits
NURS 139	**Advanced Concepts in Practical Nursing**	3
	Total Credits: 3♦	

PROGRAM TOTAL 44.5 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 may also take the BIOL 237-238 Anatomy and Physiology course sequence which may be preferred for BSN programs.

***PSYCH 201 Introduction to Psychology is a supportive course not a prerequisite course and may be taken later as long as it is completed by the start of the Nursing program.

****Mathematics – students should meet with an advisor to determine courses that satisfy academic goals and BSN program requirements.

*****NURS 104 Nursing Pharmacology may be taken the Winter or Spring semester before the Fall semester if desired or may be taken in the Fall semester (for students already accepted into the nursing program).

♦ Students should work with an advisor if more credits are needed per semester to qualify for financial aid.

+ Please check Schoolcraft General Education requirements to determine course options.

Licensed Practical Nurse to Registered Nurse Options (LPN to RN)

Schoolcraft program code # AAS.00000

Nursing courses are open only to students who are officially admitted to the nursing career ladder curriculum. Licensed practical nurses who are licensed in Michigan and are interested in becoming registered nurses (RNs) may apply to complete the second year of the associate in applied science (AAS) degree nursing program. 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).

Students need to complete the pre requisite courses and meet other admission requirements. The nursing program has pre-admission and admission requirements that are reviewed annually. Students who do not complete the final admission requirements by scheduled deadlines will be deferred to another admission year. Students may only defer one time without having to repeat the application process. Nursing 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 completed according to application requirements. Computer lab use and testing is required in this program. See Computer Use policy 3110 at schoolcraft.edu for more information. Students must furnish and maintain uniforms and supplies as required by the department and clinical facilities. Students must meet health and clinical requirements, have a negative drug screen on first attempt, and pass a criminal background check.

This program is offered at the Livonia Campus. Students are admitted on an ongoing basis to start the nursing courses at the beginning of the fall semester. The number of LPNs admitted depends on space availability and the number may vary per year.

Not all courses are offered each semester. Students should work with an academic advisor to develop a schedule that will work for them. Students planning to transfer should check the transfer institution’s requirements/guides or discuss their options with an academic advisor. Number of credits may vary depending on the course selection.

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.

Licensed Practical Nurse to Registered Nurse Options (LPN to RN) (continued)

SAMPLE SCHEDULE OF COURSES

Admission Prerequisites and Supportive Courses*

Course #	Course Title	Credits
LPN	**Have an active, unrestricted LPN license in the State of Michigan**	25.5
BIOL 236**	**Human Anatomy and Physiology with a minimum grade of 3.0**	5
PSYCH 201***	**Introductory Psychology with a minimum grade of 2.0**	4
English Communication+	**Select first within a set of General Education English Communication courses with a minimum grade of 2.0**	3
Recommended	**ENG 101 - English Composition 1**	
Mathematics	**Select one of the following, or a higher Math course, with a minimum grade of 2.0**	4
MATH 102	**Technical Mathematics**	
MATH 111	**Applications – Utility of Math**	
MATH 113	**Intermediate Algebra for College Students**	
	Total Credits: 41.5	

Second Year - Fall Semester

Course #	Course Title	Credits
NURS 205	**Advanced Medical Surgical Nursing**	4.5
NURS 248	**Maternal-Child Nursing 2**	5
English Communication+	**Select second within a set of General Education English Communication courses with a minimum grade of 2.0**	3
Recommended	**ENG 102 - English Composition 2**	
	Total Credits: 12.5	

Second Year - Winter Semester

Course #	Course Title	Credits
NURS 246	**Psychiatric Mental Health Nursing**	4
NURS 250	**Advanced Concepts in Registered Nursing**	4.5
Humanities	**Select General Education Humanities course with a minimum grade of 2.0**	1
Recommended	**HUM 106 - Introduction to Art and Music**	
	Total Credits: 9.5♦	

PROGRAM TOTAL 63.5 CREDITS

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

Licensed Practical Nurse to Registered Nurse Options (LPN to RN) (continued)

**Students may also take the BIOL 237-238 Anatomy and Physiology course sequence which may be preferred for BSN programs.

***PSYCH 201 Introduction to Psychology is a prerequisite course and must be completed for application submission.

****Mathematics – students should meet with an advisor to determine courses that satisfy academic goals and BSN program requirements.

♦Students should work with an advisor if more credits are needed per semester to qualify for financial aid.

+Please check Schoolcraft General Education requirements to determine course options.

Nursing: Nursing Assistant Training Program Skills Certificate

Schoolcraft program code # CRT.00321

The Nursing Assistant Course is open only to students who are officially admitted to the college. Contact the Admissions and Welcome Center at 734-462-4426 or admissions@schoolcraft.edu for more information.

The Nursing Assistant Course (6 credits) provides students with the opportunity for an entry-level healthcare position primarily in extended care facilities, home health agencies, or hospitals. The course is three days a week and offered each seven weeks in the fall, winter and spring semesters. A five day a week (over four weeks) course is offered during the summer semester. Students who meet the course requirements are eligible to take the Michigan nursing assistant exam to be on the state registry.

The nursing assistant course is approved by the Michigan Department of Licensing and Regulatory Affairs (LARA) Bureau of Community and Health Systems. A minimum overall grade of 75% for theory and satisfactory completion of laboratory and clinical competencies is needed for successful course completion and eligibility to take the Michigan nursing assistant exam. Students must meet health and clinical requirements, have a negative drug screen on first attempt, and pass a criminal background check.

The Schoolcraft College Nursing Assistant Training Program Skills Certificate is a minimum sixteen credit option that provides the nursing assistant with a college certificate that prepares students for further studies in healthcare. Students do not need to complete the certificate program to be eligible to take the state exam. Students who opt to complete the skills certificate need to complete the nursing assistant course (6 credits) and complete a minimum of another 10 general education credits for a minimum of at least 16 credits.

Students should work with an academic advisor to develop a schedule that will work for them and assist with meeting any financial aid requirements per semester. Students must meet health and clinical requirements, have a negative drug screen on first attempt, and pass a criminal background check. Computerized testing is required during this course. Students should also discuss course GPA requirements for future healthcare program requirements. Not all courses are offered each semester. Students should work with an academic advisor to develop a schedule that will work for them. Students planning to transfer should check the transfer institution's requirements/guides or discuss their options with an academic advisor. Number of credits may vary depending on the course selection.

Sample Schedule of Courses

Course #	Course Title	Credits
NATP 115	**Nursing Assistant Course**	6
Successful completion of NATP 115 Nursing Assistant Course allows for eligibility to take the Michigan Nurse Aide Exam to be placed on the state registry.		

Nursing: Nursing Assistant Training Program Skills Certificate (continued)

Select a minimum of 10 credits

Course #	Course Title	Credits
Science	**Select any Science course with a minimum grade of 3.0**	1-5
Recommended	****BIOL 236* - Human Anatomy and Physiology**	
English Communication+	**Select combination of General Education English Communication courses with a minimum grade of 2.0**	3-6
Recommended	**ENG 101 – English Composition 1 and ENG 102 – English Composition 2**	
Mathematics	**Select any Mathematics course with a minimum grade of 2.0**	3-5
Recommended	****MATH 102, 111, 113, or higher Math course**	
Social Science	**Select any Social Science course with a minimum grade of 2.0**	3-4
Recommended	****PSYCH 201 – Introductory Psychology**	
Humanities	**Select any Humanities course with a minimum grade of 2.0**	1-4

PROGRAM TOTAL 16 CREDITS

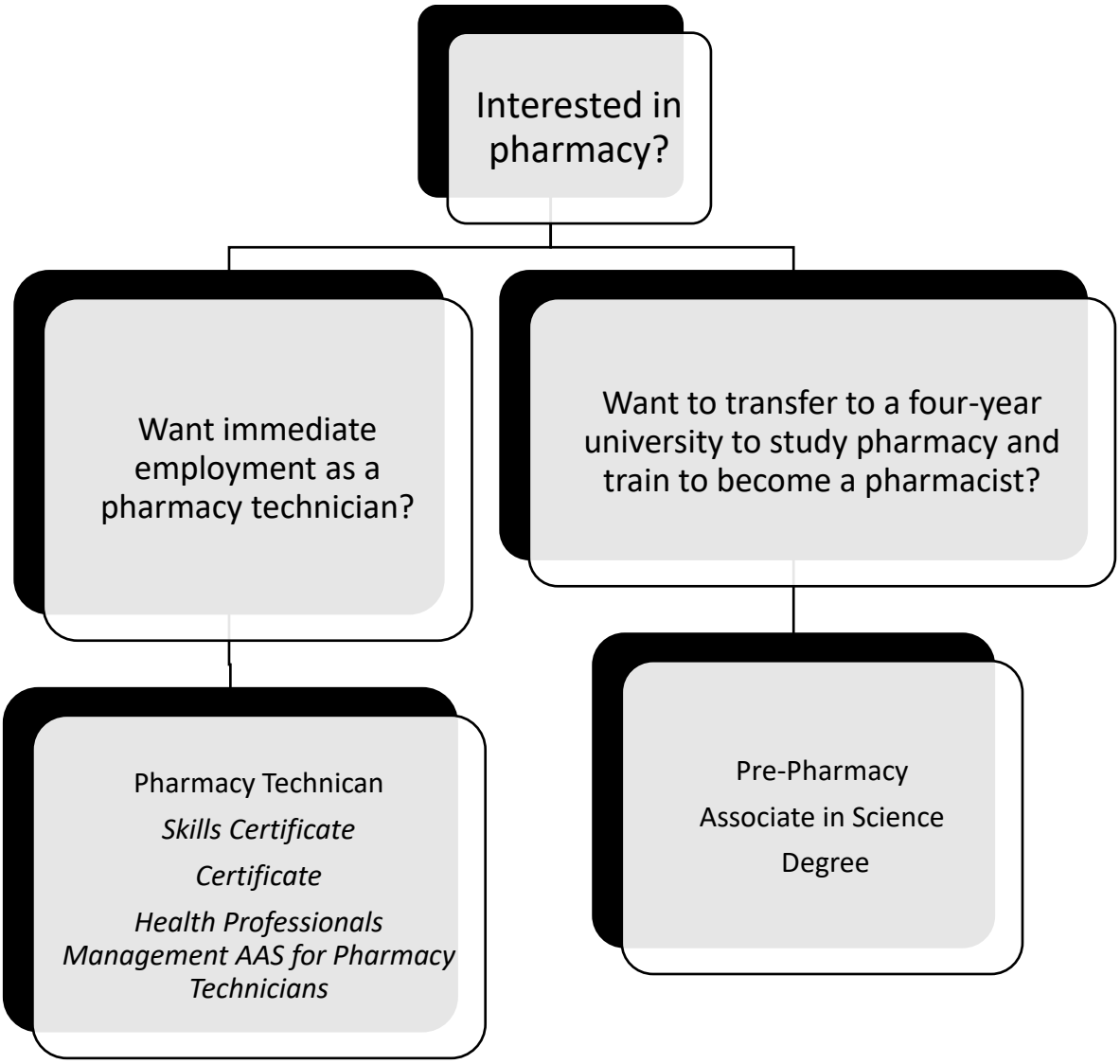
* Students who may transfer to a baccalaureate program should elect the BIOL 237–238 Anatomy & Physiology course sequence. BIOL 236 or the BIOL 237-238 combination must be completed with a 3.0 or better for future nursing program admission.

**Identified courses may apply toward the certificate PN, associate in applied science RN, or used toward other science based curriculums.

+Please check Schoolcraft College General Education requirements to determine course options.

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

Pharmacy



Credentials

Pharmacy Technician Skills Certificate	16 cr.
Pharmacy Technician Certificate	29 cr.
Pharmacy Technician Certificate - *with current Pharmacy Technician Certification*	29 cr.
Health Professionals Management AAS for Pharmacy Technicians	63-67 cr.
Pre-Pharmacy Associate in Science Transfer Degree	74 cr.

Major Description

The practice of Pharmacy is focused on ensuring the safe and effective use of medications through a pharmacy team comprised of both **Pharmacists** and **Pharmacy Technicians**. **Pharmacists** use their professional judgment as a vital part of the health care team by providing input and expertise into monitoring patient care therapies. **Pharmacy Technicians** work in various practice settings under the direct supervision of pharmacists, and assist pharmacists in preparing and dispensing oral, topical, intravenous and other prescription medications to patients or other health care professionals. Educational options at Schoolcraft College in the professional field of pharmacy include:

- **Pharmacy Technician Skills Certificate** (Entry-level Pharmacy Technician): An entry-level Pharmacy Technician receives training in a single practice setting. In a community pharmacy setting, such as drug stores, or an institutional setting, such as a hospital, pharmacy technicians will assist pharmacists in entering patient data into a computerized database, as well as preparing and dispensing medications. Additional responsibilities of a pharmacy technician in a community practice setting may include billing for medications, understanding and applying insurance requirements for billing of patient medications or supplies, interacting with patients and working as an integral part of the pharmacy team. Additional responsibilities of a pharmacy technician working in an institutional practice setting may include making medications that are administered to patients intravenously. The Pharmacy Technician Skills Certificate will allow the students to select coursework for either the community or institutional practice setting. This coursework will prepare the student to work in their chosen pharmacy environment through a combination of classroom learning, simulation lab training, and hands-on experience. After completing the course requirements of the Skills Certificate program, the student will be eligible and prepared to take the Pharmacy Technician Certification Board (PTCB) exam, that if successfully passed, will earn the student national Certification as a pharmacy technician. After earning Certification, the student is then eligible to apply for licensure as a pharmacy technician in the State of Michigan. This program is nationally accredited by the Pharmacy Technician Accreditation Commission which is a collaborative effort between the American Society of Health System Pharmacists and the Accreditation Council for Pharmacy Education.

  To enroll in the Pharmacy Technician Skills Certificate program, students will need to meet admission requirements as described in the Admissions Packet for this program.

- **Pharmacy Technician Certificate** (Advanced-level Pharmacy Technician): An advanced-level Pharmacy Technician receives expanded training for any practice setting and beginning, managerial skills for supervisory positions. This program will build upon those skills learned in the Skills Certificate program and prepare students to work as a pharmacy technician in any practice setting, including a community, hospital, compounding, or specialty pharmacy. Students who complete this program will have completed the first requirement of eligibility to become recognized as a PTCB Compounded Sterile Preparation Technician. To become recognized as a PTCB Compounded Sterile Preparation Technician, completion of (or enrollment in) a PTCB-recognized sterile compounding training program and one year of full-time continuous compounded sterile preparation (CSP) work experience, is required. These advanced-level practice settings require additional skills that will be taught in this program through a combination of classroom learning, simulation lab training, and hands-on experience. Students who are currently licensed as a pharmacy technician, may be eligible to apply their work experience toward the completion of this certificate. This program is nationally accredited by the Pharmacy Technician Accreditation Commission which is a collaborative effort between the American Society of Health System Pharmacists and the Accreditation Council for Pharmacy Education.

To enroll in the Pharmacy Technician Certificate program, students will need to meet admission requirements as described in the Admissions Packet for this program.

- **Associate in Health Professionals Management for Pharmacy Technicians:** Any student wishing to pursue an Associate Degree can apply all credits from the Pharmacy Technician Skills Certificate or Certificate programs toward an Associate in Health Professionals Management for Pharmacy Technicians degree. This degree may be desirable for students seeking to expand their knowledge and skills, and potential lead to Pharmacy Technician supervisory roles. Students may be eligible to earn credits for professional experiences and previously completed courses.

- **Associate of Science in Pre-pharmacy:** This Pre-pharmacy Associate's Degree is comprised of courses that are required for a student to apply to a college of pharmacy; a majority of Pre-pharmacy courses in this degree program are designed to be transferrable to a university pharmacy program. Students should consult with an academic advisor to ensure that their Schoolcraft courses will transfer to the desired university pharmacy program. Pharmacists can find positions in a variety of settings, such as community pharmacies, hospitals, clinics, long-term care facilities, and the armed services. They can also find employment in academic, research, pharmaceutical manufacturers, and public health organizations.

Pharmacy Technician Skills Certificate

Schoolcraft program code # CRT.00349

The **Pharmacy Technician Skills Certificate** (entry-level pharmacy technician) program is a nationally accredited program designed to prepare students interested in starting a career as a licensed pharmacy technician in either a community (drug store) pharmacy or institutional (hospital) practice setting. Classroom education is combined with direct application of principles in a simulation pharmacy lab. Through simulated case studies, pharmacy technician students will learn how to assess prescription orders as well as how to process and prepare these orders using order entry systems and medication dispensing techniques. Basic level math skills will be reviewed and utilized for calculating accurate medication dosing and other calculations required as part of the practice setting. Students will learn, first-hand, those skills required for the practice setting in which they wish to work. The program will combine simulation lab practice with actual practical experience that will provide hands-on training.

Students who satisfactorily complete the program requirements with a minimum of a 2.5 grade in each class will qualify for a certificate of program completion.

This program requires specific academic proficiencies or requirements to be admitted to the program. Contact the Admissions and Welcome Center at 734-462-4426 or admissions@schoolcraft.edu to complete an application.

Not all courses are offered each semester. Students should work with an academic advisor to develop a schedule that will work for them. Students planning to transfer should check the transfer institution's requirements/guides or discuss their options with an academic advisor. Number of credits may vary depending on the course selection.

SAMPLE SCHEDULE OF COURSES

First Year - Fall Semester

Course #	Course Title	Credits
PHT 102	**Pharmacy Practice and Healthcare**	4
PHT 104	**Pharmacology for Pharmacy Technicians**	3
Select one set		9
	PHT 114 - Community Pharmacy Simulation Lab ***AND*** **PHT 117 - Community Pharmacy Practicals**	
	OR	
	PHT 124 - Hospital Pharmacy Simulation Lab ***AND*** **PHT 127 - Hospital Pharmacy Practicals**	
	Total Credits: 16	

PROGRAM TOTAL 16 CREDITS

Pharmacy Technician Certificate

Schoolcraft program code # 1YC.00249

The **Pharmacy Technician Certificate** (advanced-level pharmacy technician) program is a nationally accredited program designed to prepare pharmacy technicians to work in any practice setting. Pharmacy Technicians with an advanced skill set can work alongside pharmacists in any practice setting, including drug stores, hospitals, compounding, specialty, and other medical settings to help prepare and distribute all medication types, including compounded medications, such as intravenous, chemotherapy or nuclear medications, to patients and other health care professionals. In this advanced practice program, technicians will build on the knowledge gained in the Skills Certificate program and learn advanced skills, such as screening prescription orders for accuracy and completeness, checking the work of other technicians before a final check by a pharmacist, or reconciling medications for patients admitted into a complex medical environment.

There are two ways to complete the Pharmacy Technician Certificate:

1. The traditional route of completing all courses.
2. Individuals who are currently certified as a Pharmacy Technician may be able to apply up to 16 credits toward the completion of the Pharmacy Technician Certificate. Contact the Pharmacy Technician Program Coordinator for further details.

Students who satisfactorily complete the program requirements with a minimum of a 2.5 grade in each class will qualify for a certificate of program completion.

This program requires specific academic proficiencies or requirements to be admitted to the program. Contact the Admissions and Welcome Center at 734-462-4426 or admissions@schoolcraft.edu to complete an application.

Not all courses are offered each semester. Students should work with an academic advisor to develop a schedule that will work for them. Students planning to transfer should check the transfer institution's requirements/guides or discuss their options with an academic advisor. Number of credits may vary depending on the course selection.

SAMPLE SCHEDULE OF COURSES

First Year - Fall Semester

Course #	Course Title	Credits
PHT 102	**Pharmacy Practice and Healthcare**	4
PHT 104	**Pharmacology for Pharmacy Technicians**	3
Select one set		9
	PHT 114 - Community Pharmacy Simulation Lab ***AND*** **PHT 117 - Community Pharmacy Practicals**	
	OR	
	PHT 124 - Hospital Pharmacy Simulation Lab ***AND*** **PHT 127 - Hospital Pharmacy Practicals**	
	Total Credits: 16	

Pharmacy Technician Certificate (continued)

First Year – Winter Semester

Course #	Course Title	Credits
PHT 122	**Advanced Pharmacy Practice**	4
Select one set	(Not previously taken)	9
	PHT 114 - Community Pharmacy Simulation Lab ***AND*** **PHT 117 - Community Pharmacy Practicals**	
	OR	
	PHT 124 - Hospital Pharmacy Simulation Lab ***AND*** **PHT 127 - Hospital Pharmacy Practicals**	
	Total Credits: 13	

PROGRAM TOTAL 29 CREDITS

Pharmacy Technician Certificate – *with current Pharmacy Technician Certification*

This certificate program is designed to allow students who possess current Pharmacy Technician Certification to apply up to 16 credits of their prior learning experiences toward the credits needed for the Pharmacy Technician Certificate. Contact the Pharmacy Technician Program Coordinator for further details.

The following courses will be accepted as completed based on current Pharmacy Technician Certification *(16 credits)*:

- PHT 102 – Pharmacy Practice and Healthcare *(4 credits)*
- PHT 104 – Pharmacology for Pharmacy Technicians *(3 credits)*
- PHT 114 – Community Pharmacy Simulation Lab and PHT 117 – Community Pharmacy Practicals OR PHT 124 – Hospital Pharmacy Simulation Lab and PHT 127 – Hospital Pharmacy Practicals *(9 credits)*

Remaining required program courses *(13 credits):*

- PHT 122 – Advanced Pharmacy Practice *(4 credits)*
- PHT 114 – Community Pharmacy Simulation Lab and PHT 117 – Community Pharmacy Practicals OR PHT 124 – Hospital Pharmacy Simulation Lab and PHT 127 – Hospital Pharmacy Practicals *(9 credits)*

Health Professionals Management AAS for Pharmacy Technicians

Schoolcraft program code # AAS.00229

The **Health Professionals Management AAS for Pharmacy Technicians** is designed to prepare health professionals to expand their knowledge and skill base potentially leading to a supervisory and/or training position. Additional credits, based on professional experience and other courses completed, may be applied on a case-by-case basis, not to exceed 45 credits total. Contact the appropriate instructional administrator for further details.

There are two ways to complete the Health Professionals Management AAS:

1. Individuals who hold certification as a Pharmacy Technician may be able to apply credits of their prior learning experiences toward the credits needed toward the completion of this AAS degree. Contact the Pharmacy Technician Program Coordinator for further details.
2. The traditional route of completing all courses.

Health Professionals Management AAS - with Prior Learning Experience

Students who have successfully passed the Pharmacy Technician Certification Board (PTCB) exam or the Exam for the Certification of Pharmacy Technicians (ExCPT) qualify for credit for prior learning and should contact the Program Coordinator or appropriate instructional administrator for more information.

The following courses will be accepted as completed based on current Pharmacy Technician Certification:

- HIT 104 – Medical Terminology (4 credits)
- PHT 102 – Pharmacy Practice and Healthcare (4 credits)
- PHT 104 – Pharmacology for Pharmacy Technicians (3 credits)

The following courses may be accepted as completed based on current Pharmacy Technician Certification:

- PHT 114 – Community Pharmacy Simulation Lab and PHT 117 – Community Pharmacy Practicals and/or PHT 124 – Hospital Pharmacy Simulation Lab and PHT 127 – Hospital Pharmacy Practicals (9 credits)
- Additional credits may be evaluated on a case-by-case basis

Remaining program required technical courses (27 credits):

- CIS 120 – Software Applications (3 credits)
- HIT 120 – Foundations of Health Information Management Technology (3 credits)
- HIT 130 – Legal Aspects of Health Information (3 credits)
- BUS 101 – Introduction to Business (3 credits)
- BUS 220 – Supervision (3 credits)
- BUS 230 – Human Resource Management (3 credits)
- Electives – Select from list (minimum 9 credits)

Health Professionals Management AAS for Pharmacy Technicians (continued)

Remaining program required general education courses (minimum 16 credits):

- English Communication *(6 credits)*
  - Recommended: ENG 101 – English Composition 1 *(3 credits)*
  - Recommended: ENG 102 – English Composition 2 *(3 credits)* – *or* – ENG 106 – Business English *(3 credits)*
- Mathematics *(3 – 4 credits)*
- Social Science *(3 credits)*
  - Recommended: PSYCH 153 – Human Relations *(3 credits)*
- Humanities *(1 credit)*
  - Recommended: HUM 106 – Introduction to Art and Music *(1 credit)*
- Science *(3-5 credits)*

Health Professionals Management AAS – Traditional Path (no Prior Learning)

Not all courses are offered each semester. Students should work with an academic advisor to develop a schedule that will work for them. Students planning to transfer should check the transfer institution's requirements/guides or discuss their options with an academic advisor. Number of credits may vary depending on the course selection.

SAMPLE SCHEDULE OF COURSES

First Year - Fall Semester

Course #	Course Title	Credits
PHT 102	**Pharmacy Practice and Healthcare**	4
PHT 104	**Pharmacology for Pharmacy Technicians**	3
Select one set		9
	PHT 114 - Community Pharmacy Simulation Lab ***AND*** **PHT 117 - Community Pharmacy Practicals**	
	OR	
	PHT 124 - Hospital Pharmacy Simulation Lab ***AND*** **PHT 127 - Hospital Pharmacy Practicals**	
	Total Credits: 16	

Health Professionals Management AAS for Pharmacy Technicians (continued)

First Year – Winter Semester

Course #	Course Title	Credits
English Communication	**Select first within a set of General Education English Communication courses*** Recommend: ENG 101 – English Composition 1	3
Mathematics	**Select General Education Mathematics course***	3 - 4
Social Science	**Select General Education Social Science course*** Recommend: PSYCH 153 – Human Relations	3 - 4
Humanities	**Select General Education Humanities course*** Recommend: HUM 106 – Introduction to Art and Music	1
HIT 104	**Medical Terminology**	4
	Total Credits: 14 - 16	

First Year – Spring/Summer Semester

Course #	Course Title	Credits
BUS 101	**Introduction to Business**	3
CIS 120	**Software Applications**	3
	Total Credits: 6	

Second Year – Fall Semester

Course #	Course Title	Credits
HIT 120	**Foundations of Health Information Management Technology**	3
	Electives – Select any combination from the list below (minimum 9 credits)	9
	Total Credits: 12	

Second Year - Winter Semester

Course #	Course Title	Credits
English Communication	**Select second within a set of General Education English Communication courses*** Recommend: ENG 102 – Composition 2 or ENG 106 – Business English	3
HIT 130	**Legal Aspects of Health Information**	3
BUS 220	**Supervision**	3
BUS 230	**Human Resource Management**	3
Science	**Select General Education Science course***	3-5
	Total Credits: 15 - 17	

Health Professionals Management AAS for Pharmacy Technicians (continued)

Electives

Course #	Course Title	Credits
	ACCT 103 – Introduction to Accounting ***OR*** **ACCT 201 – Principles of Accounting 1**	4
	PHT 114 - Community Pharmacy Simulation Lab *AND* **PHT 117 - Community Pharmacy Practicals** **(if not previously taken)** ***OR*** **PHT 124 - Hospital Pharmacy Simulation Lab AND** **PHT 127 - Hospital Pharmacy Practicals** **(if not previously taken)**	9
	PHT 122 – Advanced Pharmacy Practice	4
	CIS 180 – Spreadsheet Applications	3
	CIS 215 – Advanced Software Applications	3
	MA 134 – Medical Insurance Coding	3
	MA 140 – Medical Office Procedures	3
	MA 155 – Medical Insurance Billing	3
	BUS 217 – Business Management	3

TOTAL CREDITS 63-67

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

Pre-Pharmacy AS Degree

Schoolcraft program code # AS.00403

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.

The pre-pharmacy program provides general education courses at the freshman and sophomore level, with an emphasis on the sciences, in preparation for admission to a university doctoral pharmacy program. Admission to university doctoral pharmacy programs is highly competitive and the transferring institution must be consulted for additional pre-admission requirements.

This program outline provides the framework for a pre-pharmacy program, but it does not represent a final academic plan for any specific four-year college or university. Students need to be aware that many health profession educational programs require background screening. Students who satisfactorily complete all college and program requirements qualify for an Associate in Science degree.

Not all courses are offered each semester. Students should work with an academic advisor to develop a schedule that will work for them.

Students planning to transfer should check the transfer institution's requirements/guides or discuss their options with an academic 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.

SAMPLE SCHEDULE OF COURSES

First Year - Fall Semester

Course #	Course Title	Credits
PHARM 101	**Introduction to Pharmacy**	3
MATH 150	**Calculus with Analytic Geometry 1**	5
BIOL 120	**Principles of Biology 1**	5
CHEM 111	**General Chemistry 1**	4
	Total Credits: 17	

First Year - Winter Semester

Course #	Course Title	Credits
ENG 101	**English Composition 1**	3
BIOL 130	**Principles of Biology 2**	5
CHEM 117	**General Chemistry 2 and Qualitative Analysis**	5
Social Science*	**Select General Education Social Science course**	3
	Total Credits: 16	

Pre-Pharmacy AS Degree (continued)

First Year - Spring Session

Course #	Course Title	Credits
Humanities*	**Select General Education Humanities course**	3
Social Science*	**Select General Education Social Science course**	3
	Total Credits: 6	

Second Year - Fall Semester

Course #	Course Title	Credits
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	

Second Year - Winter Semester

Course #	Course Title	Credits
CHEM 214	**Organic Chemistry 2**	5
BIOL 238	**Principles of Human Anatomy and Physiology 2**	4
PHYS 182	**General Physics 2**	4
Humanities*	**Select General Education Humanities course**	1
	Total Credits: 14	

Second Year - Spring Session

Course #	Course Title	Credits
BIOL 243	**Microbiology**	4
PHARM 201	**Capstone - Portfolio Preparation**	1
	Total Credits: 5	

PROGRAM TOTAL 74 CREDITS

Physical Education

Credentials

Movement Science Certificate	24 cr.
Movement Science AAS Degree	60-63 cr.

Major Description

The Movement Science program is designed to begin preparing students for the work and challenges facing the kinesiology professional. Academic preparation in kinesiology provides the foundation for a wide range of careers in fields that are projected to grow, including, but not limited to, exercise physiologist, personal trainer, fitness manager, worksite wellness coordinator, physical therapist, physical therapist assistant, athletic trainer, and group exercise instructor. The Movement Science programs meet the needs of both students seeking career training programs leading to an industry-accepted credential (e.g., personal trainer or group exercise instructor), and those seeking transfer to a four-year institution.

Students will gain an understanding of the principles of exercise physiology and motor development and have the opportunity to apply that knowledge to fitness assessment and exercise techniques. The entrepreneurial aspects of fitness careers will also be explored.

Movement Science Certificate

Schoolcraft program code # 1YC.00214

The certificate in Movement Science prepares students for entry level positions in the fitness field. Students will have significant preparation toward certification testing as a personal trainer or group exercise instructor. The certificate coursework can later be incorporated in the associate degree if students are interested in furthering their education.

Students who successfully complete all program courses qualify for a certificate of program completion.

Not all courses are offered each semester. Students should work with an academic advisor to develop a schedule that will work for them. Students planning to transfer should check the transfer institution's requirements/guides or discuss their options with an academic advisor. Number of credits may vary depending on the course selection.

SAMPLE SCHEDULE OF CLASSES

First Year - Fall Semester

Course #	Course Title	Credits
BIOL 101	**General Biology**	4
PE 111	**Introduction to Kinesiology**	3
PE 112	**Introduction to Exercise Physiology**	3
PE 121*	**First Aid and Personal Safety**	2
	Total Credits: 12	

First Year - Winter Semester

Course #	Course Title	Credits
BIOL 237	**Principles of Human Anatomy and Physiology 1**	4
PE 202	**Lifestyle Fitness - Wellness**	2
PE 143	**Fitness Tests and Measurements**	3
PE 147	**Exercise Techniques**	3
	Total Credits: 12	

PROGRAM TOTAL 24 CREDITS

*Students may be granted credit for this course for prior certification and content knowledge. See this webpage for general information: http://www.schoolcraft.edu/admissions/prior-learning-credits Contact the Dean's office for information specific to this course.

Movement Science AAS Degree

Schoolcraft program code #AAS.00284

The associate degree in Movement Science provides students with a solid foundation to begin a career in the fitness field. It offers a combination of theory and applied classes, combined with an internship in the fitness field. Students completing this program will be well positioned to transfer to a four-year institution in fields such as exercise science, kinesiology, athletic training, and sports management, among others. Students also will be well prepared to take national certification exams for personal fitness trainers and group exercise instructors.

Students who satisfactorily complete all college and program requirements qualify for an associate in applied science degree.

Not all courses are offered each semester. Students should work with an academic advisor to develop a schedule that will work for them. Students planning to transfer should check the transfer institution's requirements/guides or discuss their options with an academic advisor. Number of credits may vary depending on the course selection.

SAMPLE SCHEDULE OF CLASSES

First Year - Fall Semester

Course #	Course Title	Credits
BIOL 101	**General Biology**	4
PE 111	**Introduction to Kinesiology**	3
ENG 101	**English Composition 1**	3
PE 112	**Introduction to Exercise Physiology**	3
	Total Credits: 13	

First Year - Winter Semester

Course #	Course Title	Credits
BIOL 237	**Principles of Human Anatomy and Physiology 1**	4
PE 143	**Fitness Tests and Measurements**	3
PE 147	**Exercise Techniques**	3
PE 202	**Lifestyle Fitness - Wellness**	2
	Total Credits: 12	

First Year - Spring/Summer Session

Course #	Course Title	Credits
PSYCH 153	**Human Relations**	3
Mathematics*	**Select any general education mathematics class**	3-5
	Total Credits: 6-8	

Movement Science AAS Degree (continued)

Second Year - Fall Semester

Course #	Course Title	Credits
BIOL 238	**Principles of Human Anatomy and Physiology 2**	4
PE 207	**Facilities Operations**	3
ENG 102	**English Composition 2**	3
Business	**Select One**	3
BUS 101	**Introduction to Business**	
BUS 103	**Organizing a Small Business**	
BUS 120	**Strategic Selling**	
	Total Credits: 13	

Second Year - Winter Semester

Course #	Course Title	Credits
PE 212	**Applied Exercise Physiology**	3
COMA 103	**Fundamentals of Speech**	3
PE 225	**Motor Development**	3
PE 121**	**First Aid and Personal Safety**	2
Elective***		2-3
	Total Credits: 13-14	

Second Year - Spring/Summer Session

Course #	Course Title	Credits
PE 291	**Movement Science Internship**	3
	Total Credits: 3	

PROGRAM TOTAL 60-63 CREDITS

*Students planning to transfer should take MATH 111, 119, or higher.

** Students may be granted credit for this course for prior certification and content knowledge. See this webpage for general information: http://www.schoolcraft.edu/admissions/prior-learning-credits Contact the Dean's office for information specific to this course.

***Recommended electives include any other PE class or BIOL 115 Nutrition. Students interested in group exercise may want to consider PE 115 Aerobic Dance Fitness and students interested in education may want to consider PE 240 Physical Education for Elementary Teachers. Students planning to transfer may want to consider an MTA approved SOCIAL SCIENCES course.

Plastic Technology

Credentials

Plastic Technology Skills Certificate	16 cr.
Plastic Technology Certificate	30-32 cr.
Plastic Technology AAS degree	61-66 cr.

Major Description

Developed in conjunction with the area's leading plastic manufacturing companies, the Plastic Technology programs prepare students for employment in one of the largest manufacturing fields in the country. Plastic Technology courses in this program are taught by professionals in the industry, providing real-world experience so that students can acquire the working knowledge and skills to become a competent molding process technician. Students will learn techniques and processes involved in making and testing plastic parts as they gain hands-on experience with plastics manufacturing equipment.

Plastic Technology Skills Certificate

Schoolcraft College Program # CRT.00340

The Plastic Technology skills certificate introduces the student to the various processing techniques used to produce a finished plastic part. The student will also come away with knowledge of the different plastic materials most commonly used today. The program also includes an overview of the various quality improvement programs with an emphasis on teamwork and an overview of metal machining. This program will provide the student with the basic skills for employment at the entry level in the plastics industry.

Protective shop clothing and eye protection supplies required for the program will be purchased by the student.

Students who satisfactorily complete the program requirements qualify for a certificate of program completion. All program required courses must be completed with a grade of 2.0 or better.

Not all courses are offered each semester. Students should work with an academic advisor to develop a schedule that will work for them. Students planning to transfer should check the transfer institution's requirements/guides or discuss their options with an academic advisor. Number of credits may vary depending on the course selection.

SAMPLE SCHEDULE OF COURSES

First Year - Fall Semester

Course #	Course Title	Credits
PLAST 130	**Introduction to Plastic Materials**	3
QM 106	**Introduction to Quality Improvement Tools**	3
	Total Credits: 6	

First Year - Winter Semester

Course #	Course Title	Credits
PLAST 131	**Introduction to Plastic Processing**	3
MFG 102	**Basic Machining Processes**	3
MATH 102	**Technical Mathematics**	4
	Total Credits: 10	

PROGRAM TOTAL 16 CREDITS

Plastic Technology Certificate

Schoolcraft program code # 1YC.00219

The Plastic Technology certificate addresses the basic competencies and skills needed to meet the requirements for employment in the plastics industry. The program content is designed to train the student who is new to the plastics industry, and also to update the skills of seasoned workers in the plastic industry, with the most current technology. The curriculum will prepare the student to be employed in a quality or testing lab, as a production technician, or entry level process technician.

Protective shop clothing and eye protection supplies required for the program will be purchased by the student.

Students who satisfactorily complete the program requirements qualify for a certificate of program completion. All program required courses must be completed with a grade of 2.0 or better.

Not all courses are offered each semester. Students should work with an academic advisor to develop a schedule that will work for them. Students planning to transfer should check the transfer institution's requirements/guides or discuss their options with an academic advisor. Number of credits may vary depending on the course selection.

SAMPLE SCHEDULE OF CLASSES

First Year - Fall Semester

Course #	Course Title	Credits
PLAST 130	**Introduction to Plastic Materials**	3
MATH 102	**Technical Mathematics**	4
QM 106	**Introduction to Quality Improvement Tools**	3
PLAST 131	**Introduction to Plastic Processing**	3
CAD 120	**Mechanical Blueprint Reading with Sketching**	3
	Total Credits: 16	

First Year - Winter Semester

Course #	Course Title	Credits
MFG 102	**Basic Machining Processes**	3
PLAST 140	**Plastic Materials Testing**	3
PLAST 150	**Plastic Injection Molding Technology**	3
PLAST 160	**Process Control Systems for Plastic Manufacturing**	3
Elective	**Select one from list below**	2-4
	Total Credits: 14-16	

Plastic Technology Certificate (continued)

Electives

Course #	Course Title	Credits
CAD 130	**Geometric Dimensioning and Tolerance**	3
CAD 210	**CATIA - 3D and 2D Applications**	4
CAD 220	**SolidWorks - 3D and 2D Applications**	4
CAD 230	**NX – 3D and 2D Applications**	4
CIS 120	**Software Applications**	3
MET 160	**Composite Materials**	3
PLAST 291	**Plastic Technology Internship**	3
MFG 103	**Basic Computer Numerical Control (CNC)**	3
MFG 105	**Manufacturing Processes**	4
OSH 111	**Occupational Safety and Health for General Industry**	2

PROGRAM TOTAL 30-32 CREDITS

Plastic Technology AAS Degree

Schoolcraft program code # AAS.00220

The Plastic Technology AAS degree is designed to provide the student with skills in many of the critical facets of plastic manufacturing. The program includes the study of the most widely used thermoplastic processes with an emphasis on injection molding and on the most frequently used thermoplastic materials. Topics covered include: thermoplastic process troubleshooting, plastic materials and applications, mold/part design, quality improvement programs, process controls, CAD and metal finishing. The combined educational background will give the student an opportunity to meet the many needs of today's plastic manufacturing industry. This includes employment as a mold or part designer, process technician or entry level plastic process engineer.

Protective shop clothing and eye protection supplies required for the program will be purchased by the student.

Students who satisfactorily complete the program requirements qualify for an associate in applied science degree. All program required courses must be completed with a grade of 2.0 or better.

Not all courses are offered each semester. Students should work with an academic advisor to develop a schedule that will work for them. Students planning to transfer should check the transfer institution's requirements/guides or discuss their options with an academic advisor. Number of credits may vary depending on the course selection.

SAMPLE SCHEDULE OF CLASSES

First Year – Fall Semester

Course #	Course Title	Credits
PLAST 130	**Introduction to Plastic Materials**	3
MATH 102	**Technical Mathematics**	4
QM 106	**Introduction to Quality Improvement Tools**	3
PLAST 131	**Introduction to Plastic Processing**	3
	Total Credits: 13	

First Year – Winter Semester

Course #	Course Title	Credits
MFG 102	**Basic Machining Processes**	3
PLAST 140	**Plastic Materials Testing**	3
PLAST 150	**Plastic Injection Molding Technology**	3
CAD 120	**Mechanical Blueprint Reading with Sketching**	3
	Total Credits: 12	

First Year – Spring/Summer Session

Course #	Course Title	Credits
Social Science	**Select General Education Social Science course**	3-4
Recommended:	**PSYCH 153 Human Relations**	
ENG 100	**Communication Skills**	3
	Total Credits: 6-7	

Plastic Technology AAS Degree (continued)

Second Year – Fall Semester

Course #	Course Title	Credits
PLAST 251	**Applied Injection Molding**	3
PLAST 220	**Plastic Part Design**	3
ENG 116	**Technical Writing**	3
CHEM 104	**Fundamentals of Chemistry**	4
Elective	**Select one from list below**	2-4
	Total Credits: 15-17	

Second Year – Winter Semester

Course #	Course Title	Credits
PLAST 240	**Advanced Plastic Processing**	3
PLAST 210	**Plastic Mold Design Fundamentals**	3
PLAST 160	**Process Control Systems for Plastic Manufacturing**	3
Humanities	**Select General Education Humanities course**	3-4
Recommended:	**COMA 103 Fundamentals of Speech**	
Elective	**Select one from list below**	3-4
	Total Credits: 15-17	

Electives – Select two courses from the classes listed below to fulfill the elective requirement:

Course #	Course Title	Credits
CAD 130	**Geometric Dimensioning and Tolerance**	3
CAD 210	**CATIA – 3D and 2D Applications**	4
CAD 212	**CATIA – Surfacing**	4
CAD 220	**SolidWorks – 3D and 2D Applications**	4
CAD 230	**NX – 3D and 2D Applications**	4
CIS 120	**Software Applications**	3
MET 160	**Composite Materials**	3
MET 281	**Special Problems in Materials Science**	3
PLAST 291	**Plastic Technology Internship**	3
MFG 103	**Basic Computer Numerical Control (CNC)**	3
MFG 105	**Manufacturing Processes**	4
OSH 111	**Occupational Safety and Health for General Industry**	2
WELD 110	**Introduction to Welding Basics for Fabrication**	3
WELD 118	**Adhesive Joining Technology**	4

PROGRAM TOTAL 61-66 CREDITS

Real Estate Property Management

Credentials

Real Estate Property Management Skills Certificate	16 cr.
Real Estate Property Management Certificate	30 cr.
Real Estate Property Management AAS	60-63 cr.

Major Description

Real Estate Property Management involves the management of revenue-producing residential or commercial properties, including single-family homes, apartment complexes, office buildings, retail centers, medical facilities, and industrial warehouses. Property Management is a service industry in which property managers are expected to work closely with both the property owners and the residents of the property.

The primary responsibilities include:

1. Management of the physical property, including maintenance, operations, capital improvements, and sustainability
2. Human resources, including interacting with tenants, managing people who maintain and support the property's operations, and working with property owners
3. Marketing and leasing, including developing marketing plans and strategy, advertising and preparing property for rent, showing the property, negotiating leases, and establishing rents
4. Financial management, including budgeting, accounting, financial and investment analysis, and financing
5. Legal and risk management, including insurance, emergency planning, government regulations, contracts, and leasing.

Property Management is a multifaceted industry that is becoming more reliant on technology to increase operating efficiencies, maximize revenue, and monitor property performance. Property managers use industry-specific programs to generate financial reports, and to track data related to marketing, maintenance, insurance, payments, and tenant services.

Real Estate Property Management Skills Certificate

Schoolcraft College Program # CRT.00290

The Real Estate Property Management Skills Certificate provides a basis in the fundamentals of real estate. It introduces concepts related to property management and includes essential courses for a career in the property management industry. All courses may be applied toward the Real Estate Property Management Certificate and AAS Degree.

Students who successfully complete all program requirements qualify for a certificate of program completion.

Not all courses are offered each semester. Students should work with an academic advisor to develop a schedule that will work for them. Students planning to transfer should check the transfer institution's requirements/guides or discuss their options with an academic advisor. Number of credits may vary depending on the course selection.

SAMPLE SCHEDULE OF COURSES

First Year - Fall Semester

Course #	Course Title	Credits
RE 101	**Introduction to Property Management**	3
CIS 120	**Software Applications**	3
MATH 101	**Business Mathematics**	3
PSYCH 153	**Human Relations**	3
*RE 110	**Real Estate Pre-Licensure**	4

PROGRAM TOTAL 16 CREDITS

**Individuals with a current Michigan Real Estate Sales License qualify for credit for prior learning and should contact the Program Coordinator or appropriate instructional administrator for more information.*

Real Estate Property Management Certificate

Schoolcraft program code # 1YC.00291

The Real Estate Property Management Certificate provides a strong background in commercial and residential property management. The certificate program includes the curriculum classes that prepare students for work in entry-level residential and commercial property positions. All courses may be applied toward the Real Estate Property Management AAS Degree.

Students who successfully complete all program requirements qualify for a certificate of program completion.

Not all courses are offered each semester. Students should work with an academic advisor to develop a schedule that will work for them. Students planning to transfer should check the transfer institution's requirements/guides or discuss their options with an academic advisor. Number of credits may vary depending on the course selection.

SAMPLE SCHEDULE OF CLASSES

First Year - Fall Semester

Course #	Course Title	Credits
RE 101	**Introduction to Property Management**	3
CIS 120	**Software Applications**	3
MATH 101	**Business Mathematics**	3
PSYCH 153	**Human Relations**	3
*RE 110	**Real Estate Pre-Licensure**	4
	Total Credits: 16	

First Year - Winter Semester

Course #	Course Title	Credits
ENG 101	**English Composition 1**	3
BUS 101	**Introduction to Business**	3
RE 150	**Residential and Commercial Property Management**	4
ACCT 201	**Principles of Accounting 1**	4
	Total Credits: 14	

PROGRAM TOTAL 30 CREDITS

**Individuals with a current Michigan Real Estate Sales License qualify for credit for prior learning and should contact the Program Coordinator or appropriate instructional administrator for more information.*

Real Estate Property Management AAS Degree

Schoolcraft program code # AAS.00292

The Real Estate Property Management AAS program prepares students for a career in either residential or commercial property management. It is a multi-disciplinary curriculum, combining business, accounting, and real estate courses which prepares students for a successful career in property management by providing requisite skills in finance, marketing, law, communication, and human resources. In addition, students may participate in a property management internship to combine their knowledge with on-the-job experience.

Students who successfully complete all program requirements qualify for an Associate in Applied Science degree.

Not all courses are offered each semester. Students should work with an academic advisor to develop a schedule that will work for them. Students planning to transfer should check the transfer institution's requirements/guides or discuss their options with an academic advisor. Number of credits may vary depending on the course selection.

SAMPLE SCHEDULE OF CLASSES

First Year - Fall Semester

Course #	Course Title	Credits
RE 101	**Introduction to Property Management**	3
CIS 120	**Software Applications**	3
MATH 101	**Business Mathematics**	3
PSYCH 153	**Human Relations**	3
*RE 110	**Real Estate Pre-Licensure**	4
	Total Credits: 16	

First Year - Winter Semester

Course #	Course Title	Credits
ENG 101	**English Composition 1**	3
BUS 101	**Introduction to Business**	3
RE 150	**Residential and Commercial Property Management**	4
ACCT 201	**Principles of Accounting 1**	4
	Total Credits: 14	

Second Year - Fall Semester

Course #	Course Title	Credits
ENG 106	**Business English**	3
BUS 207	**Business Law 1**	3
BUS 226	**Principles of Marketing**	3
ACCT 202	**Principles of Accounting 2**	4
Science	**Select any general education science class**	3-5
	Total Credits: 16-18	

Real Estate Property Management AAS Degree (continued)

Second Year - Winter Semester

Course #	Course Title	Credits
COMA 200	**Interpersonal Communications**	3
CIS 180	**Spreadsheet Applications**	3
BUS 220	**Supervision**	3
Elective	**Select two courses from list**	5-6
	Total Credits: 14-15	

Electives

Course #	Course Title	Credits
RE 290	**Real Estate Internship**	3
BUS 202	**Business Ethics**	3
BUS 208	**Business Law 2**	3
CAD 120	**Mechanical Blueprint Reading with Sketching**	3
CIS 215	**Advanced Software Applications**	3
ENVR 206	**Environmental Law**	3
OSH 112	**Occupational Safety and Health for Construction**	2

PROGRAM TOTAL 60-63 CREDITS

**Individuals with a current Michigan Real Estate Sales License qualify for credit for prior learning and should contact the Program Coordinator or appropriate instructional administrator for more information.*

Sound Recording Technology

Credentials

Sound Recording Technology Certificate	32 cr.
Sound Recording Technology AAS Degree	64-66 cr.

Major Description

If you want to pursue a career in Sound Recording or enhance your personal recording skills, Schoolcraft offers both an associate degree and a certificate program that can help you reach your recording goals. Our options include:

- An associate degree that prepares students to earn a bachelor's degree in recording engineering at a four-year institution or to work at a recording studio or other media outlet.
- A certificate program that provides students skills to enable them to work at a recording studio or to improve live recording in their home studio.

Credits earned in the certificate program may also count towards an associate in applied science degree or transfer toward a bachelor's degree at a four-year institution.

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.

Students who satisfactorily complete the program requirements qualify for a certificate of program completion.

Not all courses are offered each semester. Students should work with an academic advisor to develop a schedule that will work for them. Students planning to transfer should check the transfer institution's requirements/guides or discuss their options with an academic advisor. Number of credits may vary depending on the course selection.

SAMPLE SCHEDULE OF COURSES

First Year - Fall Semester

Course #	Course Title	Credits
MUSIC 104	**Basic Materials in Music Theory**	3
MUSIC 105	**Music Appreciation**	3
MUSIC 121	**Class Piano 1**	2
SRT 121	**Basic Sound and Recording Techniques 1**	3
ELECT 131	**Basic Measurement and Reporting Skills**	3
	Total Credits: 14	

First Year - Winter Semester

Course #	Course Title	Credits
SRT 110	**Keyboard Skills for Recording Engineers**	1
MUSIC 171*	**Music Technology 1**	3
MUSIC 172*	**Music Technology 2**	3
SRT 122	**Basic Sound and Recording Techniques 2**	3
SRT 150	**Ear Training for Recording Engineers**	2
	Total Credits: 12	

Sound Recording Technology Certificate (continued)

First Year - Spring Session

Course #	Course Title	Credits
SRT 221	**Advanced Audio Production 1**	3
	Total Credits: 3	

First Year - Summer Session

Course #	Course Title	Credits
SRT 222	**Advanced Audio Production 2**	3
	Total Credits: 3	

PROGRAM TOTAL 32 CREDITS

** MUSIC 171 is a prerequisite to MUSIC 172. Students are encouraged to take the 7-week section of MUSIC 171 followed by the 7-week section of MUSIC 172. Students who do not follow this path could face additional semesters to degree completion.*

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 Record-ing Engineering or for apprenticeships at recording studios and various media venues. The program will teach the student the fundamentals and tech-niques 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. Students who satisfactorily complete all college and program requirements qualify for an associate in applied science degree.

Not all courses are offered each semester. Students should work with an academic advisor to develop a schedule that will work for them. Students planning to transfer should check the transfer institution's requirements/guides or discuss their options with an academic advisor. Number of credits may vary depending on the course selection.

SAMPLE SCHEDULE OF COURSES

First Year - Fall Semester

Course #	Course Title	Credits
HUM 106	**Introduction to Art and Music**	1
MUSIC 104	**Basic Materials in Music Theory**	3
MUSIC 121	**Class Piano 1**	2
SRT 121	**Basic Sound and Recording Techniques 1**	3
Mathematics	**Select one:**	4
MATH 102	**Technical Mathematics**	
MATH 113	**Intermediate Algebra for College Students**	
ENG 101	**English Composition 1**	3
	Total Credits: 16	

Sound Recording Technology AAS Degree (continued)

First Year - Winter Semester

Course #	Course Title	Credits
Music	**Select one:**	2-3
MUSIC 117	**Choir 1**	
MUSIC 168	**Synthesizer Ensemble 1**	
MUSIC 141	**Wind Ensemble 1**	
MUSIC 142	**Jazz Band 1**	
SRT 110	**Keyboard Skills for Recording Engineers**	1
SRT 122	**Basic Sound and Recording Techniques 2**	3
PHYS 123	**Applied Physics**	5
SRT 150	**Ear Training for Recording Engineers**	2
	Total Credits: 13-14	

First Year - Spring/Summer Session

Course #	Course Title	Credits
ENG 102	**English Composition 2**	3
COMA 103	**Fundamentals of Speech**	3
	Total Credits: 6	

Second Year - Fall Semester

Course #	Course Title	Credits
MUSIC 171	**Music Technology 1**	3
SRT 221	**Advanced Audio Production 1**	3
MUSIC 137	**Sight Singing and Ear Training 1**	2
ELECT 131	**Basic Measurement and Reporting Skills**	3
Social Science	**Select one:**	3-4
PSYCH 153	**Human Relations**	
PSYCH 201	**Introductory Psychology**	
	Total Credits: 14-15	

Sound Recording Technology AAS Degree (continued)

Second Year - Winter Semester

Course #	Course Title	Credits
MUSIC 138	**Sight Singing and Ear Training 2**	2
Music	**Select one:**	3
MUSIC 105	**Music Appreciation**	
MUSIC 149	**Popular Music Culture in America**	
MUSIC 172	**Music Technology 2**	3
SRT 222	**Advanced Audio Production 2**	3
GEOG 133	**World Regional Geography**	4
	Total Credits: 15	

PROGRAM TOTAL 64-66 CREDITS

Supply Chain Management

Credentials

Supply Chain Management Skills Certificate	16 cr.
Supply Chain Management Certificate	32 cr.
Supply Chain Management AAS	60-65 cr.

Major Description

The Supply Chain Management (SCM) program incorporates the involvement of all related activities from Operations, Logistics, Distribution, and Purchasing to effectively manage the organization's process of design through delivery of goods and services throughout the world.

This involves carefully managed planning and coordination with both internal and external business partners to ensure value is added through an efficient supply chain system.

Supply Chain Management Skills Certificate

Schoolcraft College Program # CRT.00338

The Supply Chain Management (SCM) Skills Certificate program prepares students for employment opportunities within Supply Chain Management or those already working in the field that wish to further develop their skills and knowledge.

Areas of focus within the program will concentrate on fundamental skills and knowledge in business, math, interpersonal communications, and spreadsheet skills.

Students who satisfactorily complete the program requirements qualify for a certificate of program completion. All program required courses must be completed with a grade of 2.0 or better.

Not all courses are offered each semester. Students should work with an academic advisor to develop a schedule that will work for them. Students planning to transfer should check the transfer institution's requirements/guides or discuss their options with an academic advisor. Number of credits may vary depending on the course selection.

SAMPLE SCHEDULE OF COURSES

First Year - Fall Semester

Course #	Course Title	Credits
BUS 101	**Introduction to Business**	3
CIS 120	**Software Applications**	3
ENG 101	**English Composition 1**	3
MATH 113	**Intermediate Algebra for College Students**	4
SCM 100	**Introduction to Supply Chain Management**	3

PROGRAM TOTAL 16 CREDITS

Supply Chain Management Certificate

Schoolcraft program code # 1YC.00339

The Supply Chain Management (SCM) Certificate program prepares students for employment opportunities within Supply Chain Management or those already working in the field that wish to further develop their skills and knowledge.

The students that are able to complete this certificate program will be in a position to successfully perform tasks within the SCM organization. Students will be able to enhance their knowledge and skills in communications, business, economics, and quality, while gaining practical knowledge and basic functions in the areas of Logistics, Distribution, and Purchasing.

Students who satisfactorily complete the program requirements qualify for a certificate of program completion. All program required courses must be completed with a grade of 2.0 or better.

Not all courses are offered each semester. Students should work with an academic advisor to develop a schedule that will work for them. Students planning to transfer should check the transfer institution's requirements/guides or discuss their options with an academic advisor. Number of credits may vary depending on the course selection.

SAMPLE SCHEDULE OF CLASSES

First Year - Fall Semester

Course #	Course Title	Credits
BUS 101	**Introduction to Business**	3
CIS 120	**Software Applications**	3
ENG 101	**English Composition 1**	3
MATH 113	**Intermediate Algebra for College Students**	4
SCM 100	**Introduction to Supply Chain Management**	3
	Total Credits: 16	

First Year - Winter Semester

Course #	Course Title	Credits
CIS 180	**Spreadsheet Applications**	3
COMA 103	**Fundamentals of Speech**	3
MATH 122	**Elementary Statistics**	4
SCM 200	**Supply Chain Logistics and Distribution**	3
SCM 220	**Supply Chain Purchasing**	3
	Total Credits: 16	

PROGRAM TOTAL 32 CREDITS

Supply Chain Management AAS Degree

Schoolcraft program code # AAS.00341

The Supply Chain Management (SCM) Associate of Applied Science (AAS) program prepares students for employment opportunities within Supply Chain Management as well as the potential to transfer to a Bachelor's program. This program will prepare students to become leaders within this industry toward career opportunities from design through to final distribution. Students will learn how to effectively manage all activities throughout the SCM industry. Included in this program will be the study of specific key interconnected areas such as supplier selection and sourcing, manufacturing, warehousing/inventory management, and efficiency in material distribution.

Students who satisfactorily complete the program requirements qualify for an associate in applied science degree. All program required courses must be completed with a grade of 2.0 or better.

Not all courses are offered each semester. Students should work with an academic advisor to develop a schedule that will work for them. Students planning to transfer should check the transfer institution's requirements/guides or discuss their options with an academic advisor. Number of credits may vary depending on the course selection.

SAMPLE SCHEDULE OF CLASSES

First Year - Fall Semester

Course #	Course Title	Credits
BUS 101	**Introduction to Business**	3
CIS 120	**Software Applications**	3
ENG 101	**English Composition 1**	3
MATH 113	**Intermediate Algebra for College Students**	4
SCM 100	**Introduction to Supply Chain Management**	3
	Total Credits: 16	

First Year - Winter Semester

Course #	Course Title	Credits
CIS 180	**Spreadsheet Applications**	3
COMA 103	**Fundamentals of Speech**	3
MATH 122	**Elementary Statistics**	4
SCM 200	**Supply Chain Logistics and Distribution**	3
SCM 220	**Supply Chain Purchasing**	3
	Total Credits: 16	

Supply Chain Management AAS Degree (continued)

Second Year - Fall Semester

Course #	Course Title	Credits
ACCT 201	**Principles of Accounting 1**	4
English	**Select One**	3
ENG 102	**English Composition 2**	
ENG 106	**Business English**	
ECON 202	**Principles of Microeconomics**	4
QM 106	**Introduction to Quality Improvement Tools**	3
SCM 230	**Supply Chain Operations**	3
	Total Credits: 17	

Second Year - Winter Semester

Course #	Course Title	Credits
Science	**Select General Education Science Course**	3-5
Social Science	**Select One**	3-4
PSYCH 153	**Human Relations**	
GEOG 133	**World Regional Geography**	
QM 107	**Quality Planning and Team Building**	3
	Elective – select one not previously taken	2-4
	Total Credits: 11-16	

Electives – Select one course from the classes listed below to fulfill the elective requirement:

Course #	Course Title	Credits
SCM 290	**Supply Chain Management Internship**	3
BUS 202	**Business Ethics**	3
BUS 207	**Business Law 1**	3
CIS 171	**Intro to Networking**	3
ECON 201	**Principles of Macroeconomics**	4
GEOG 133	**World Regional Geography**	4
PSYCH 153	**Human Relations**	3
OSH 111	**Occupational Safety and Health for General Industry**	2

PROGRAM TOTAL 60-65 CREDITS

Schoolcraft College | 60 YEARS

2021-2022 CREDENTIAL YEAR

Theatre

Credentials

Theatre Program AA Degree	60 cr.

Major Description

Schoolcraft's theatre program balances live stage experience with liberal arts classes that may count toward an associate in arts degree and transfer toward a bachelor's degree at a four- year institution. Whether you want to be on stage or behind the scenes, the program provides students with a solid theatrical background, including:

- Acting
- Stagecraft
- Lighting
- Stage Makeup
- Theatre History

Students can gain additional experience by taking part in the two on-campus theatre productions each year and prepare to join the many Schoolcraft graduates who now work in the theatre, television and film industries.

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.

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.

Not all courses are offered each semester. Students should work with an academic advisor to develop a schedule that will work for them. Students planning to transfer should check the transfer institution's requirements/guides or discuss their options with an academic advisor. Number of credits may vary depending on the course selection.

SAMPLE SCHEDULE OF COURSES

First Year - Fall Semester

Course #	Course Title	Credits
ENG 101	**English Composition 1**	3
BIOL 101	**General Biology**	4
THEA 120	**Theatre Activities 1**	1
THEA 210	**Acting 1 - Theory and Elements**	3
THEA 101*	**Introduction to Theatre**	3
	Total Credits: 14	

First Year - Winter Semester

Course #	Course Title	Credits
ENG 102	**English Composition 2**	3
THEA 121	**Theatre Activities 2**	1
THEA 207	**Stagecraft and Lighting**	3
THEA 211	**Acting 2 - Theory and Elements**	3
Mathematics	**Select any four-credit 100-level course**	4
	Total Credits: 14	

Theatre Program AA Degree (continued)

Second Year - Fall Semester

Course #	Course Title	Credits
THEA 220	**Theatre Activities 3**	1
COMA 103	**Fundamentals of Speech**	3
HIST 153	**Contemporary America - U.S. History**	3
ENG 248*	**Introduction to Literature - Shakespeare**	3
POLS 105	**Survey of American Government**	3
THEA 231*	**History of Theatre 1**	3
	Total Credits: 16	

Second Year - Winter Semester

Course #	Course Title	Credits
THEA 221	**Theatre Activities 4**	1
THEA 241*	**Oral Interpretation of Literature**	3
ENG 245	**Introduction to Literature - Drama**	3
PSYCH 201	**Introductory Psychology**	4
THEA 232*	**History of Theatre 2**	3
THEA 204	**Stage Makeup**	2
	Total Credits: 16	

PROGRAM TOTAL 60 CREDITS

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

Welding Technology

Credentials

Fabrication Certificate	35-36 cr.
Pre-Apprenticeship Certificate	27 cr.
Fabrication Technology AAS Degree	61-67 cr.

Major Description

Schoolcraft's welding program provides students with both hands-on welding skills and knowledge of metallurgy and other materials. The program offers two welding certificates in addition to an associate degree in applied science. 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 oxy-gas 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 pre-apprenticeship certificate, through a partnership with local trade unions, will help ensure that students have the skills, knowledge and training necessary to be safe on the jobsite, competitive in the workplace and satisfied in their careers.

Welding: Fabrication Certificate

Schoolcraft program code # 1YC.00127

The welding fabrication program prepares students for employment under classifications such as welders and/or industrial fabrications. 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.

Students who satisfactorily complete the program requirements qualify for a certificate of program completion.

Not all courses are offered each semester. Students should work with an academic advisor to develop a schedule that will work for them. Students planning to transfer should check the transfer institution's requirements/guides or discuss their options with an academic advisor. Number of credits may vary depending on the course selection.

SAMPLE SCHEDULE OF COURSES

First Year - Fall Semester

Course #	Course Title	Credits
WELD 110	**Introduction to Welding Basics for Fabrication**	3
WELD 113	**Shielded Metal Arc Welding (S.M.A.W.)**	3
WELD 115	**Gas Metal 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: 12	

First Year - Winter Semester

Course #	Course Title	Credits
Mathematics	**Select General Education Mathematics course**	3-4
Recommended	**MATH 102 - Technical Mathematics**	
WELD 120	**Advanced Processes - Stick Electrode and M.I.G. Welding**	3
WELD 130	**Advanced Processes - Gas Tungsten**	3
MET 103	**Introduction to Materials Science**	3
WELD 205	**Welder's Print Reading**	2
	Total Credits: 14-15	

First Year - Spring Session

Course #	Course Title	Credits
WELD 206	**Welding Inspection and Qualification**	2
WELD 223	**Fabrication**	4
Exam Preparation	**Select from list**	3
	Total Credits: 9	

Exam Preparation (Select one)

Course #	Course Title	Credits
WELD 210	**Preparation for Welder Certification in Shielded Metal Arc Welding (S.M.A.W.)**	3
WELD 211	**Preparation for Welder Certification in Gas Metal 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
WELD 225	**Pre-Apprenticeship Welder Certification**	3

PROGRAM TOTAL 35-36 CREDITS

Welding: Pre-Apprenticeship Certificate

Schoolcraft program code #1YC.00129

The road to becoming a welding Journeyman starts with apprenticeship training. Schoolcraft College accomplishes that mission by providing training, leadership, and partnership with local trade unions in order to uphold union values and the principles of service and professionalism. Coursework will prepare students for union apprenticeship by providing instruction in fundamental welding equipment and techniques, project planning, layout, fabrication, safety and technical math. Students completing the coursework successfully will also earn American Welding Society certification in at least one welding procedure. The pre-apprenticeship certificate will help ensure that students have the skills, knowledge, and training necessary to be safe on the jobsite, competitive in the workplace and satisfied in their careers. This certificate creates an 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.

Students who satisfactorily complete the program requirements qualify for a certificate of program completion.

Exams for certificate will be provided on an individual basis.

Not all courses are offered each semester. Students should work with an academic advisor to develop a schedule that will work for them. Students planning to transfer should check the transfer institution's requirements/guides or discuss their options with an academic advisor. Number of credits may vary depending on the course selection.

SAMPLE SCHEDULE OF COURSES

First Year - Fall Semester

Course #	Course Title	Credits
WELD 110	**Introduction to Welding Basics for Fabrication**	3
WELD 113	**Shielded Metal Arc Welding (S.M.A.W.)**	3
WELD 115	**Gas Metal Arc Welding (G.M.A.W./M.I.G.)**	3
MATH 102	**Technical Mathematics**	4
	Total Credits: 13	

First Year - Winter Semester

Course #	Course Title	Credits
WELD 120	**Advanced Processes - Stick Electrode and M.I.G. Welding**	3
WELD 205	**Welder's Print Reading**	2
WELD 225	**Pre-Apprenticeship Welder Certification**	3
OSH	**Select one:**	2
OSH 111	**Occupational Safety and Health for General Industry**	
OSH 112	**Occupational Safety & Health for Construction (recommended)**	
	Total Credits: 10	

Welding: Pre-Apprenticeship Certificate (continued)

First Year - Spring Session

Course #	Course Title	Credits
WELD 223	**Fabrication**	4
	Total Credits: 4	

PROGRAM TOTAL 27 CREDITS

Welding: Fabrication 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.

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.

Exams will also be provided on an individual basis. Not all courses are offered each semester. Students should work with an academic advisor to develop a schedule that will work for them. Students planning to transfer should check the transfer institution's requirements/guides or discuss their options with an academic advisor. Number of credits may vary depending on the course selection.

SAMPLE SCHEDULE OF COURSES

First Year - Fall Semester

Course #	Course Title	Credits
ENG 100	**Communication Skills**	3
MET 103	**Introduction to Materials Science**	3
WELD 110	**Introduction to Welding Basics for Fabrication**	3
WELD 113	**Shielded Metal Arc Welding (S.M.A.W.)**	3
WELD 115	**Gas Metal Arc Welding (G.M.A.W./M.I.G.)**	3
	Total Credits: 15	

First Year - Winter Semester

Course #	Course Title	Credits
ENG 116	**Technical Writing**	3
Mathematics	**Select General Education Mathematics course**	3-4
MATH 102	**Technical Mathematics (recommended)**	
WELD 119	**Gas Tungsten Inert Arc Welding (G.T.A.W./ T.I.G.)**	3
WELD 120	**Advanced Processes - Stick Electrode and M.I.G. Welding**	3
WELD 205	**Welder's Print Reading**	2
	Total Credits: 14-15	

Welding: Fabrication Technology AAS Degree (continued)

First Year - Spring Session

Course #	Course Title	Credits
WELD 206	**Welding Inspection and Qualification**	2
Social Science	**Select General Education Social Science course**	3-4
PSYCH 153	**Human Relations (recommended)**	
	Total Credits: 5-6	

Second Year - Fall Semester

Course #	Course Title	Credits
MFG 102	**Basic Machining Processes**	3
WELD 130	**Advanced Processes - Gas Tungsten**	3
OSH	**Select one:**	2
OSH 111	**Occupational Safety and Health for General Industry**	
OSH 112	**Occupational Safety & Health for Construction (recommended)**	
Humanities	**Select General Education Humanities course**	3-4
COMA 103	**Fundamentals of Speech (recommended)**	
	Total Credits: 11-12	

Second Year - Winter Semester

Course #	Course Title	Credits
Elective	**Select one**	3-4
WELD 291	**Welding Internship**	
WELD 240	**Computer Numerical Control (CNC) Shape Cutting and Automation**	
WELD 223	**Fabrication**	4
WELD 262	**Welding Metallurgy**	3
Science	**Select General Education Science course**	3-5
	Total Credits: 13-16	

Second Year - Spring Session

Course #	Course Title	Credits
Exam Preparation*	**Select from list**	3
	Total Credits: 3	

*EXAM PREPARATION: (SELECT ONE)

Course #	Course Title	Credits
WELD 210	**Preparation for Welder Certification in Shielded Metal Arc Welding (S.M.A.W.)**	3
WELD 211	**Preparation for Welder Certification in Gas Metal Arc Welding (G.M.A.W./M.I.G.)**	3
WELD 212	**Preparation for Welder Certification in Gas Tungsten Arc Welding G.T.A.W./T.I.G.**	3
WELD 214	**Preparation for Welder Certification in Pipe Welding**	3
WELD 225	**Pre-Apprenticeship Welder Certification**	3

PROGRAM TOTAL 61-67 CREDITS

ACCT 103 Introduction to Accounting

Explore Course Information Online

4 Cr. Hrs.

4 Lecture Hours

Prerequisites: None.

In this course, you will learn about the basic accounting cycle for a sole proprietorship in the service or merchandising industry. You will account for cash, sales, purchases, payroll and payroll taxes.

ACCT 138 Income Tax Preparation

2 Cr. Hrs.

2 Lecture Hours

Prerequisites: 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 Cr. Hrs.

2 Lecture Hours

Prerequisites: 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 Cr. Hrs.

4 Lecture Hours

Prerequisites: None.
Recommended: CIS 120. MATH 45 or ACCT 103 or minimum score of 16 ACT-Math, 22 SAT-Math, 60 CPT-Arithmetic or 240 NGA-Arithmetic. COLLS 50 or ACCT 103 or minimum score of 15 ACT-Reading, 22 SAT-Reading, 57 CPT-Reading Comprehension or 237 NGA-Reading.

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 Cr. Hrs.

4 Lecture Hours

Prerequisites: ACCT 201. CIS 120.

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 206 Accounting Internship

3 Cr. Hrs.

1 Lecture Hours

12/40 Off-site Hours without Faculty

Prerequisites: 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 accountancy 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 faculty 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 Cr. Hrs.

4 Lecture Hours

Prerequisites: 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 Cr. Hrs.

4 Lecture Hours

Prerequisites: ACCT 202.

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 Cr. Hrs.

4 Lecture Hours

Prerequisites: ACCT 202. CIS 180.
Recommended: ACCT 263.

Concepts of cost accounting as a management tool to support business decision making, control and planning will be introduced. The course will explore understanding cost behavior and how to use that understanding to predict future costs. The course focuses on actual and standard cost methods as applied to job and process cost systems; accounting for materials, labor and manufacturing overhead; direct costing method; variance analysis; and cost accounting cases. The use of accounting information to make managerial decisions will be covered.

ACCT 238 Federal Tax Accounting

4 Cr. Hrs.

4 Lecture Hours

Prerequisites: None.
Recommended: ACCT 201.

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 262 Payroll Accounting

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: CIS 120. ACCT 201.

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 Cr. Hrs.

3 Lecture Hours

Prerequisites: ACCT 103 or ACCT 201.
Recommended: CIS 120.

In this course, you will gain hands on experience in setting up an accounting information system for a small business using QuickBooks software. This course will apply the financial accounting concepts learned in your previous courses using the QuickBooks 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 330 Managerial Accounting for a Food Service Operation

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: ACCT 103 or ACCT 201. CIS 120.

In this course you will apply managerial accounting concepts utilized in planning, analyzing and interpreting the results of a business within a food service operation. This course will include: operating budgets, cost controls for inventory, labor and other expense, variance analysis, financial performance evaluation and problem solving. This course will integrate web-based learning tools and spreadsheet applications.

AHE 101 Introduction to Healthcare

1 Cr. Hrs.

1 Lecture Hours

Prerequisites: None.

This course provides a comprehensive review of the healthcare industry. Trends and changes related to healthcare facilities such as acute care hospitals, specialty hospitals, nursing homes, health maintenance organizations, hospice and home healthcare will be covered. The course will also deal with the impact and use of computers in the delivery and documentation of healthcare and the role of the medical professional in response to the healthcare delivery system.

ANTH 112 Introduction to Anthropology
3 Cr. Hrs.
3 Lecture Hours
Prerequisites: None.

This course provides an introduction to the origin and diversity of humans, which includes the evolution of humans and their cultures, contemporary cultural diversity, linguistics and applied anthropology. Biological and cultural adaptations are emphasized.

ANTH 117 Introduction to Archaeology

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: 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 120 Introduction to Physical Anthropology

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: None.

This course provides a survey of biological anthropology – the study of human beings and their ancestors within an evolutionary framework. The biocultural approach highlights the ways biology, culture and behavior interact. We will cover the basics of genetics and evolutionary theory; study primate physical characteristics and social behaviors; and investigate human biological variation and adaptation to the environment. This evidence will be used to trace human evolution: from the earliest primates to the first bipedal hominids to modern humans.

ANTH 201 Cultural Anthropology

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: None.

This course provides an introduction to the anthropological concepts, theories and methods used in the study of sociocultural systems throughout the world. Topics such as linguistics, subsistence, economics, family and marriage, kinship, religion and politics are examined to reveal both commonalities and diversity among cultures. The course focuses on the role of anthropology in understanding modern problems such as inequality, globalization, the environment, human health and illness.

ANTH 211 Myth, Magic, World Religions

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: None.
Recommended: ANTH 112 or ANTH 201.

This course provides a survey of religious traditions, including magic and witchcraft, using anthropological concepts and theories. Ethnographic and archaeological examples from both indigenous and world religions are compared, showing commonalities and diversity among cultures. Topics include the function and meaning of religious elements such as myth, ritual, symbols, altered states of consciousness and religious specialists. The historical background and cultural context of religious traditions are emphasized, including perspectives of both cultural insiders and outsiders. The role of religion in culture change, conflict and peace is explored.

ANTH 214 Native American Traditions

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: None.
Recommended: ANTH 112 or ANTH 201.

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.

ARB 101 Elementary Arabic 1

4 Cr. Hrs.

4 Lecture Hours

Prerequisites: None.

This course is intended for students who have no previous education in Arabic. The course will cover basic vocabulary and grammar patterns and will 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 Cr. Hrs.

4 Lecture Hours

Prerequisites: None.
Recommended: ARB 101 with a minimum grade of 2.0 or one year of high school Arabic or equivalent language knowledge.

This course is a continuation of ARB 101 and continues to review basic Arabic vocabulary and 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 cultures of the Middle East will be an integral part of the course.

ARB 201 Intermediate Arabic 1

4 Cr. Hrs.

4 Lecture Hours

Prerequisites: None.
Recommended: ARB 102 with a minimum grade of 2.0 or two years of high school Arabic or equivalent language knowledge.

This course is a continuation of ARB 102 and continues to cover vocabulary and 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 cultures of the Middle East will be an integral part of the course.

ARB 202 Intermediate Arabic 2

4 Cr. Hrs.

4 Lecture Hours

Prerequisites: None.
Recommended: ARB 201 with a minimum grade of 2.0 or three years of high school Arabic or equivalent language knowledge.

This course is a continuation of ARB 201 and continues to cover vocabulary and 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 cultures of the Middle East will be an integral part of the course.

ART 113 Art Education

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: None.
Recommended: PSYCH 249.

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. This course requires all students must meet the requirements of a criminal background check.

ART 115 Art History 1

4 Cr. Hrs.

4 Lecture Hours

Prerequisites: None.

This art history course examines the development of western art from Prehistory through the 14th century with emphasis on various societies, artists and art forms including painting, sculpture and architecture.

ART 116 Art History 2

4 Cr. Hrs.

4 Lecture Hours

Prerequisites: 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 117 Foundations of Metal Sculpture

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: None.

This course will explore the theory of contemporary sculpture with metal. Emphasis will be on theory of sculpture and how the different methods of welding, fabricating and forming metal apply to the principles of design in sculpture. The required assignments will help develop an understanding of fabrication techniques, conceptual thinking as well as artistic insight. This class is flexible enough to accommodate the entry-level or the advanced artist.

ART 120 Drawing: Theory and Elements

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: None.

This course examines the elements of drawing in noted art works. Students study how artists use spatial and value relationships to create art and then summarize basic approaches to drawing and media.

ART 121 2D Design: Elements and Principles of Two-Dimensional Design

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: None.

This course examines the elements and theories of two-dimensional design. Students investigate two-dimensional works of art for effective application of the elements and principles of design. In addition, color theory is studied.

ART 122 3D Design: Elements and Principles of Three-Dimensional Design

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: None.

This course provides an introduction to the elements and principles of three-dimensional design. Students analyze three-dimensional works of art for the effective application of the elements and principles of three-dimensional design.

ART 127 Illustration: Theory and Elements

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: ART 120 or consent of department.

This course introduces students to illustration as an art form. Students examine the theories, purposes, techniques and applications of illustration. Students study art works of professional illustrators on how they used various techniques to tell a story or express an idea.

ART 128 The Human Figure in Art 1: Theory and Elements

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: ART 120 or consent of department.

This course introduces how the human form has been represented by various artists throughout history. In addition, students study the superficial muscular and skeletal systems of the human form as revealed by various contexts of light and shadow.

ART 133 Ceramics 1: Theory and Elements

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: None.

This course introduces the theories, elements and applications that identify ceramics as an art form. Students study the basic techniques used by published clay artists and those in art history sources.

ART 134 Ceramics 2: Theory and Elements

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: ART 133.

This course is a continuation of ART 133 where theories and elements comprising the art form of ceramics are interpreted. Students examine advanced techniques and materials utilized by published artists and those in art history sources.

ART 201 Art Appreciation

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: None.

This course provides an introduction to the vast and complex world of the visual arts produced throughout history. Students will explore the art, artifact and architecture created in "prehistoric" times through the early 21st century. Students will also investigate various methods and materials utilized by artists, makers and builders throughout time.

ART 216 Women in Art

4 Cr. Hrs.

4 Lecture Hours

Prerequisites: 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 217 Advanced Metal Sculpture

3 Cr. Hrs.

2 Lecture Hours

3 Laboratory Hours

Prerequisites: ART 117.

This studio course is designed for the advanced artist. Emphasis will be on the different methods of welding, fabricating, and forming of metal and how these methods are applied to the principles of design in sculpture. Students will have the opportunity to investigate alternative metal fabrication techniques and processes for sculpture.

ART 221 Watercolor Painting 1: Theory and Elements

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: ART 120 or Consent of department.

This course examines the fundamental theories, techniques and processes utilized in watercolor and water-based media. In addition, students study the elements watercolor artists incorporated into their published works of art.

ART 222 Watercolor Painting 2: Theory and Elements

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: ART 221.

This course is a continuation of ART 221 where emphasis is on critiquing published works of art for watercolor and water-based media techniques and processes. Students also investigate how artists utilize the elements in watercolor and water-based media to create a variety of effects.

ART 227 Outdoor Metal Sculpture

3 Cr. Hrs.

2 Lecture Hours

3 Laboratory Hours

Prerequisites: ART 117.

This studio course will explore the world of outdoor metal sculpture. Emphasis will be on metal fabrication, how materials weather, installation of sculpture, and an understanding of how sculpture interacts with an outdoor space. Students will apply fabrication and sculptural design skills to create outdoor sculpture.

ART 228 The Human Figure in Art 2: Theory and Elements

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: ART 128.

This course furthers the study of the role of the human form in the history of art by analyzing modern works. In addition, students critique figure drawings of accomplished artists on how the superficial muscular and skeletal systems of the human form affect the surface topography in various contexts.

ART 231 Painting 1: Theory and Elements

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: ART 120 or Consent of department.
Recommended: ART 128.

This course introduces the student to painting as an art form. Students examine theories, techniques and processes utilized in abstract, conceptual and representational compositions of renowned artists.

ART 233 Ceramics 3: Theory and Elements

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: ART 134.

This course is a continuation of ART 134 where theories and elements of ceramics as an art form are critiqued. Students analyze advanced techniques used by published clay artists when creating complex works of art.

ART 234 Ceramics 4: Theory and Elements

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: ART 233.

This course is a continuation of ART 233 where multiple theories, elements and applications of ceramics are synthesized. In addition, students analyze and critique published complex ceramic works of art for theories, techniques and applications.

ART 235 Painting 2: Theory and Elements

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: ART 231.

This course is a continuation of ART 231. Students will critique the techniques and processes utilized by published artists. In addition, students explore how artists develop a focused approach both thematically and technically in their work.

ART 246 Sculpture 1: Theory and Elements

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: None.

This course explores sculptures as an art form in art history. Students study materials, processes and methods used to create important sculptural works, utilizing both traditional and experimental methods.

ART 247 Sculpture 2: Theory and Elements

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: ART 246.

This course is a continuation of ART 246 where students analyze elements and techniques of renowned artists' sculptures. In addition, sculptural media and advanced techniques used in various forms are evaluated.

ART 248 Portfolio Preparation

1 Cr. Hrs.

1 Lecture Hours

Prerequisites: Consent of department.

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.

BDT 101 Brewing Science

4 Cr. Hrs.

2 Lecture Hours

2 Laboratory Hours

Prerequisites: Students must be at least 18 years of age to take this course [MCL 436.1703 Section 703, (13)].
Recommended: BIOL 101. MATH 47.

This course is designed to cover concepts of biology, biochemistry, chemistry and physics that are key to brewing and distillation processes. Special attention will be given to the biology, chemistry and physics of the brewing process, including enzymatic and biochemical reactions associated with malting, mashing, fermentation and maturation. The byproducts of cellular metabolism, chemical reactions and physical processes that influence flavor development and flavor defects in finished craft beverages will be explored.

BDT 110 Brewhouse Operations and Technology

4 Cr. Hrs.

2 Lecture Hours

2 Laboratory Hours

Prerequisites: Students must be at least 18 years of age to take this course [MCL 436.1703 Section 703, (13)].
Recommended: BDT 101 or consent of department.

This course provides students with the knowledge and skills required to successfully plan, develop, maintain, manage and operate the facilities and specialized equipment in a commercial brewery. Production operation of a working brewery, safety, regulatory compliance and application of the brewing process to a commercial brewing operation will be the focus. Product development, large batch material handling, cleaning, sanitation and maintenance will also be covered. Content areas are covered in lectures, while practical skills are practiced in a brewery setting. The course requires the student to complete 30 lab hours which must be scheduled with the instructor outside of lecture time in the Production Brewery Lab.

BDT 121 Beer Styles and Flavor Evaluation

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: Students must be at least 18 years of age to take this course [MCL 436.1703 Section 703, (13)].
Recommended: BDT 101.

This course introduces the history of beer, beer styles and the factors contributing to flavor development and flavor defects. Focus will be given to understanding and evaluating foundation and modern beer styles and the role of ingredients and the brewing process on the final products' characteristics. Students will critically evaluate 50 beer styles as catalogued by the Beer Judge Certification Program, and their ingredients, using a sensory evaluation process.

BDT 140 Marketing and Operations Management

2 Cr. Hrs.

2 Lecture Hours

Prerequisites: Students must be at least 18 years of age to take this course [MCL 436.1703 Section 703, (13)].

This course provides students with an introduction to the business of commercial alcoholic beverage production, its historical development and the planning and resources required to market and distribute brewed or distilled products. Emphasis is placed on the nature of the craft beverage market including trends that drive the industry and the consumer. The history of the 3-Tier System, Control State regulations and liquor control laws that shape the nature of manufacturing, distributing and retailing alcoholic beverages and their effects on marketing strategies are examined, including development of strategies and how to set appropriate levels of promotional effort, pricing and other considerations for generating sales.

BDT 210 Cellaring, Packaging and Quality Management

4 Cr. Hrs.

2 Lecture Hours

2 Laboratory Hours

Prerequisites: Students must be at least 18 years of age to take this course [MCL 436.1703 Section 703, (13)]. BDT 110 or may be taken concurrently.

This course will cover aspects of fermentation management, packaging and analytical techniques that result in a quality finished product. Management of the brewhouse systems, fermentation processes, finishing, carbonating, packaging and related quality management procedures are emphasized. Techniques and equipment used to assess quality are covered, with emphasis on managing the fermentation process from yeast pitching to final packaging.

BDT 220 Advanced Brewing and Distillation

4 Cr. Hrs.

2 Lecture Hours

2 Laboratory Hours

Prerequisites: Students must be at least 18 years of age to take this course [MCL 436, 1703 Section 703, (13)]. BDT 101. BDT 110.

This course focuses on advanced brewing processes and the relationship of brewing to distillation. Specialty beer production, formula development and scaling, quality control and management of a craft beverage production facility are covered. Topics include original recipe development, brewing specialty beers using advanced brewing techniques, lab analysis, production techniques and packaging. The principles and production techniques involved in the distillation of grains, fruits and other fermented products associated with craft beverage production, distillation technology, sensory evaluation, quality control, engineering and craft distillery management are also covered.

BDT 231 Craft Beer Management and Service

4 Cr. Hrs.

2 Lecture Hours

2 Laboratory Hours

Prerequisites: Students must be at least 18 years of age to take this course [MCL 436.1703 Section 703, (13)]. BDT 101 or BDT 121.

This course introduces service and management of beverages served in hospitality operations, especially draft beer. The course is designed to give students the tools necessary in order to work in or manage a craft beer-centric restaurant, bar or brewery tasting room. Topics include the history of the three-tier system, Control State regulations and liquor control, beer service, procurement, beer styles, beer and food pairing, draft system selection, maintenance and troubleshooting, staff training and responsible alcohol service. Students prepare for and take the Cicerone® Certification Program's Beer Server Certificate exam and TIPS® ("Training for Intervention Procedures") alcohol server certification as part of this course. Lab hours include mandatory beer service in the American Harvest Brewpub and attending one three-hour line cleaning session.

BIOL 50 Basic Biology

4 Cr. Hrs.

4 Lecture Hours

Prerequisites: 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 Cr. Hrs.

4 Lecture Hours

3 Laboratory Hours

Prerequisites: 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 Cr. Hrs.

4 Lecture Hours

3 Laboratory Hours

Prerequisites: None.
Recommended: BIOL 50 or successful completion (2.0+) of introductory high school biology.

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 Cr. Hrs.

3 Lecture Hours

Prerequisites: 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 Cr. Hrs.

3 Lecture Hours

Prerequisites: 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 Cr. Hrs.

4 Lecture Hours

Prerequisites: None.
Recommended: BIOL 50 or successful completion (2.0+) of introductory high school biology.

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 107 Introduction to Microbiology

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: None.
Recommended: BIOL 50 or successful completion (2.0+) of introductory high school biology.

This course is a non-laboratory study of the fundamentals of microbiology. Bacteria, fungi, protozoa, viruses and multicellular parasites are studied with special emphasis on those that cause human disease. Aspects of microbial classification, physiology, metabolism, genetics, growth, control mechanisms and antimicrobial chemotherapy are examined. The modes of infectious disease transmission and immune defenses of the human body against microbial pathogens are described. The application of scientific principles to healthcare settings and public health efforts to control infection, including vaccination and appropriate use of antimicrobics, will be explored.

BIOL 114 Basic Human Nutrition

1 Cr. Hrs.

1 Lecture Hours

Prerequisites: 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 life cycle will be explored. Disease processes that require special nutritional support are studied.

BIOL 115 Nutrition

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: 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

5 Cr. Hrs.

4 Lecture Hours

3 Laboratory Hours

Prerequisites: BIOL 101 or successful completion (2.0 +) of introductory high school biology and chemistry.
Recommended: CHEM 111.

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 process of scientific inquiry, biochemistry, cell structure, membrane transport, metabolism, cell reproduction, molecular genetics, biotechnology, principles of inheritance and evolution.

BIOL 130 Principles of Biology 2

5 Cr. Hrs.

4 Lecture Hours

3 Laboratory Hours

Prerequisites: BIOL 120 with a minimum grade of 2.0.

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

4 Cr. Hrs.

1 Lecture Hours

3 Laboratory Hours

Prerequisites: 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

5 Cr. Hrs.

4 Lecture Hours

3 Laboratory Hours

Prerequisites: None.
Recommended: BIOL 101 is strongly recommended. Institutional research has shown that students who successfully complete BIOL 101 prior to taking BIOL 236 perform significantly better in the course.

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

4 Cr. Hrs.

3 Lecture Hours

2 Laboratory Hours

Prerequisites: None.
Recommended: BIOL 101 is strongly recommended. Institutional research has shown that students who successfully complete BIOL 101 prior to taking BIOL 237 perform significantly better in the course.

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.

BIOL 238 Principles of Human Anatomy and Physiology 2

4 Cr. Hrs.

3 Lecture Hours

2 Laboratory Hours

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 240 Anatomy and Physiology Review

2 Cr. Hrs.

2 Lecture Hours

Prerequisites: BIOL 237 and BIOL 238 or BIOL 236 or BIOL 105.

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 243 Microbiology

4 Cr. Hrs.

3 Lecture Hours

4 Laboratory Hours

Prerequisites: BIOL 101 or BIOL 120.

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 116 Biomedical Instrumentation Terminology and Safety 1

3 Cr. Hrs.

2 Lecture Hours

1 Laboratory Hours

Prerequisites: 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 130 Introduction to Biomedical Imaging

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: None.

This is an introductory course for BMET students or professionals working in the field who want to learn about biomedical imaging. The students will explore the topics of biomedical imaging, including safety, standards, terminology and radiology modalities. They also will be introduced to a variety of clinical imaging applications in use today.

BMET 204 Biomedical Instrumentation Terminology and Safety 2

4 Cr. Hrs.

2 Lecture Hours

2 Laboratory Hours

Prerequisites: Acceptance into BMET program. BMET 116 with a minimum grade of 3.0.

This course is intended to provide students with knowledge of medical equipment in the hospital setting, equipment management, equipment maintenance and other fundamental principles related to Biomedical Engineering Technology.

BMET 256 Biomedical Equipment Internship 1

3 Cr. Hrs.

1 Lecture Hours

24/40 Off-site Hours without Faculty

Prerequisites: Acceptance into BMET Program. BMET 116 with a minimum grade of 3.0 if not taken previously. BMET 204 with a minimum grade of 3.0 if not taken previously.

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 faculty 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 257 Biomedical Equipment Internship 2

3 Cr. Hrs.

1 Lecture Hours

24/40 Off-site Hours without Faculty

Prerequisites: Acceptance into BMET Program. BMET 116 with a minimum grade of 3.0. BMET 204 with a minimum grade of 3.0. BMET 254 with a minimum grade of 3.0.

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 faculty and the employer will jointly evaluate the student, which will then serve as a basis for a final grade. (Usually 15 weeks)

BUS 101 Introduction to Business

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: ENG 101 or may be taken concurrently or minimum score of 18 ACT-English, 25 SAT-Writing and Language, 71 CPT-Sentence Skills or 250 NGA-Writing.

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 Cr. Hrs.

3 Lecture Hours

Prerequisites: ENG 101 or may be taken concurrently or minimum score of 18 ACT-English, 25 SAT-Writing and Language, 71 CPT-Sentence Skills or 250 NGA-Writing.
Recommended: BUS 122.

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 Cr. Hrs.

3 Lecture Hours

Prerequisites: ENG 101 or minimum score of 22 ACT-English, 29 SAT-Writing and Language, 108 CPT-Sentence Skills or 276 NGA-Writing.
Recommended: BUS 103 or may be taken concurrently.

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 Cr. Hrs.

3 Lecture Hours

Prerequisites: ENG 101 or minimum score of 22 ACT-English, 29 SAT-Writing and Language, 108 CPT-Sentence Skills or 276 NGA-Writing.

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 Cr. Hrs.

3 Lecture Hours

Prerequisites: ENG 101 or may be taken concurrently or minimum score of 18 ACT-English, 25 SAT-Writing and Language, 71 CPT-Sentence Skills or 250 NGA-Writing.

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 Cr. Hrs.

3 Lecture Hours

Prerequisites: 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 202 Business Ethics

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: BUS 101. ENG 101 or minimum score of 22 ACT-English, 29 SAT-Writing and Language, 108 CPT-Sentence Skills or 276 NGA-Writing.

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 Cr. Hrs.

3 Lecture Hours

Prerequisites: ENG 101 or minimum score of 22 ACT-English, 29 SAT-Writing and Language, 108 CPT-Sentence Skills or 276 NGA-Writing.

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 207 Business Law 1

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: ENG 101 or minimum score of 22 ACT-English, 29 SAT-Writing and Language, 108 CPT-Sentence Skills or 276 NGA-Writing.

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 Cr. Hrs.

3 Lecture Hours

Prerequisites: BUS 207. ENG 101 or minimum score of 22 ACT-English, 29 SAT-Writing and Language, 108 CPT-Sentence Skills or 276 NGA-Writing.

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 E-Commerce

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: BUS 101. ENG 101 or minimum score of 22 ACT-English, 29 SAT-Writing and Language, 108 CPT-Sentence Skills or 276 NGA-Writing.

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 technology infrastructure, planning and implementing a Web presence, marketing on the Web, business-to-business strategies, social networking, mobile commerce, online auctions, ethical and regulatory issues, Web server hardware/software, security and payment systems.

BUS 217 Business Management

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: BUS 101. ENG 101 or minimum score of 22 ACT-English, 29 SAT-Writing and Language, 108 CPT-Sentence Skills or 276 NGA-Writing.

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 Cr. Hrs.

3 Lecture Hours

Prerequisites: 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 Cr. Hrs.

3 Lecture Hours

Prerequisites: BUS 101. ENG 101 or minimum score of 22 ACT-English, 29 SAT-Writing and Language, 108 CPT-Sentence Skills or 276 NGA-Writing.

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 Cr. Hrs.

3 Lecture Hours

Prerequisites: BUS 101. ENG 101 or minimum score of 22 ACT-English, 29 SAT-Writing and Language, 108 CPT-Sentence Skills or 276 NGA-Writing.

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 Cr. Hrs.

3 Lecture Hours

Prerequisites: BUS 101. ENG 101 or minimum score of 22 ACT-English, 29 SAT-Writing and Language, 108 CPT-Sentence Skills or 276 NGA-Writing.

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.

BUS 292 Business Internship

3 Cr. Hrs.

1 Lecture Hours

12/40 Off-site Hours without Faculty

Prerequisites: BUS 101 with a minimum grade of 3.0 and two additional Schoolcraft Business courses, consent of Department and an overall GPA of 2.5.

This is an applied course within Occupational Programs specializing in the field of business 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. The final grade will be based on a joint evaluation by the faculty 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 attending a resume workshop at the Career Center, submission of a resume with a cover letter and interviews.

BUS 303 Entrepreneurship 1

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: BUS 101. ACCT 201 or ACCT 103.

This course is designed to prepare students to start a small business. Students will explore various forms of business ownership and approaches to starting a business. Students will develop a business plan including marketing strategies, financial projections and operating plans.

BUS 304 Entrepreneurship 2

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: BUS 101.

This course is designed to prepare students to own and operate a small business. Students will explore and apply aspects of small business ownership including e-commerce, business ethics, business law, sources of financing, international business, inventory control, risk management and human resources.

BUS 426 Marketing Strategies

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: BUS 101. BUS 103 or BUS 303.

In this course, rather than analyzing another company's marketing plan, you will develop your own original marketing plan for an approved company. Students will conduct marketing research, develop marketing objectives, identify target markets and segments, analyze the product mix and lines strategies, evaluate service quality, develop pricing strategies, create appropriate traditional and non-traditional promotional methods and research potential suppliers.

CAB 100 Student Success Seminar

1 Cr. Hrs.

1 Lecture Hours

Prerequisites: 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 Cr. Hrs.

3 Lecture Hours

Prerequisites: 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.

CAB 102 Student Success and Career Development

2 Cr. Hrs.

2 Lecture Hours

Prerequisites: None. This course is an institutional requirement for students who are attending college for the first time.

This course is designed to help clarify education and career direction while maximizing potential for success in both college and the workplace. Students will explore personal learning styles, habits and strategies which can improve college and career performance. Further, students will enhance personal, education and career awareness through exploration of their interests, attitudes, traits and skills utilizing various activities and assessment tools. Topics covered include college terminology and resources, effective study techniques, time management, goal setting, decision making, professionalism, diversity and exploration of college majors and potential careers.

CAD 120 Mechanical Blueprint Reading with Sketching

3 Cr. Hrs.

2 Lecture Hours

1 Laboratory Hours

Prerequisites: 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 and interpretation of engineering drawings and technical sketching. Topics introduced include orthographic projection, pictorials, sectioning, auxiliary views, dimension and tolerance practices and various symbols.

CAD 130 Geometric Dimensioning and Tolerance

3 Cr. Hrs.

2 Lecture Hours

1 Laboratory Hours

Prerequisites: CAD 120. MATH 102 or MATH 113.

The student will learn to interpret blueprints with emphasis placed on Geometric Dimensioning and Tolerance. This course will introduce national and international geometric standards of form, profile, orientation, runout and location tolerances used in the manufacturing processes. Curriculum includes emphasis on print reading and measurements. This course can be used to prepare for the ASME GD&T Certification exam.

CAD 140 AutoCAD - 2D Application

4 Cr. Hrs.

2 Lecture Hours

2 Laboratory Hours

Prerequisites: CAD 120 or drafting knowledge/experience.

This course is designed for the proficient drafter who wants to obtain experience with Computer Aided Design (CAD). Topics to be covered 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 210 CATIA - 3D and 2D Applications

4 Cr. Hrs.

2 Lecture Hours

2 Laboratory Hours

Prerequisites: CAD 120 or consent of Department.

This first level CATIA course will cover the basics of creating, editing and storing 3D models. The construction and constraining of assemblies will be covered as will the creation of detail and assembly drawings using the drafting package.

CAD 212 CATIA - Advanced Topics

4 Cr. Hrs.

2 Lecture Hours

2 Laboratory Hours

Prerequisites: CAD 210.

This course is designed to present higher level part modeling commands for CATIA Modeler. Particular attention will be paid to surfacing.

CAD 220 SolidWorks - 3D and 2D Applications

4 Cr. Hrs.

2 Lecture Hours

2 Laboratory Hours

Prerequisites: CAD 120 or drafting knowledge/experience.

This first level SolidWorks course will cover the basics of creating, editing and storing 3D models. The construction and constraining of assemblies will be covered as will the creation of detail and assembly drawings using the drafting package.

CAD 230 NX - 3D and 2D Applications

4 Cr. Hrs.

2 Lecture Hours

2 Laboratory Hours

Prerequisites: CAD 120 or drafting knowledge/experience.

This first level NX course will cover the basics of creating, editing and storing 3D models. The construction and constraining of assemblies will be covered as will the creation of detail and assembly drawings using the drafting package.

CAD 270 Machine Elements and Design

4 Cr. Hrs.

3 Lecture Hours

1 Laboratory Hours

Prerequisites: CAD 210 or CAD 220 or CAD 230.

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.

CAD 275 Tool, Die and Fixture Design

4 Cr. Hrs.

2 Lecture Hours

2 Laboratory Hours

Prerequisites: CAD 130. CAD 270.

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.

CAD 280 CAD Capstone Project

3 Cr. Hrs.

1 Lecture Hours

3 Laboratory Hours

Prerequisites: MET 103. MFG 105. CAD 130. CAD 270.

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.

CAD 291 Computer Aided Design Internship

3 Cr. Hrs.

1 Lecture Hours

12/40 Off-site Hours without Faculty

Prerequisites: ENGR 100. CAD 103. CAD 211 with a minimum grade of 3.0 or CAD 221 with a minimum grade of 3.0. Overall minimum GPA of 2.5. Consent of department.

This is an applied course within Occupational Programs specializing in the field of Computer-Aided Design (CAD) 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 a mechanical design or engineering department. The final grade will be based on a joint evaluation by the faculty 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.

CBPA 103 Introduction to Baking and Pastry Skills and Techniques

2 Cr. Hrs.

2 Lecture Hours

Prerequisites: None.

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

20 Cr. Hrs.

5 Lecture Hours

15 Laboratory Hours

Prerequisites: CBPA 103. CUL 102 or current ServSafe certification.

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

15 Cr. Hrs.

3.75 Lecture Hours

11.25 Laboratory Hours

Prerequisites: CBPA 103. CUL 102 or current ServSafe certification.

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.

CGT 109 Design Concepts and Technology

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: 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 Cr. Hrs.

3 Lecture Hours

Prerequisites: CGT 109 or 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 Cr. Hrs.

3 Lecture Hours

Prerequisites: CGT 109 or 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 Cr. Hrs.

3 Lecture Hours

Prerequisites: None.
Corequisites: CGT 109 if not taken previously.
Recommended: Computer experience.

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 Cr. Hrs.

3 Lecture Hours

Prerequisites: None.
Corequisites: CGT 109 if not taken previously. CGT 123 if not taken previously. CGT 125 if not taken previously.
Recommended: Computer experience. CGT 127 if not taken previously.

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 2D Animation and Interactive Media

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: CGT 136 with a minimum grade of 2.0 or Consent of department.
Recommended: Individuals currently in industry may be eligible to waive the prerequisites. Discuss options with the department. CGT 127 with a minimum grade of 2.0.

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 Cr. Hrs.

3 Lecture Hours

Prerequisites: CGT 123 with a minimum grade of 2.0.

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 158 Sound Design

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: 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 concepts. Attention is also given to aesthetic considerations such as sound design in foreign films and video games.

CGT 161 History of Graphic Design

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: 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 Cr. Hrs.

3 Lecture Hours

Prerequisites: CGT 136 with a minimum grade of 2.0.
Recommended: CGT 127 with a minimum grade of 2.0.

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 Cr. Hrs.

3 Lecture Hours

Prerequisites: None.
Recommended: Computer experience.

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 Cr. Hrs.

3 Lecture Hours

Prerequisites: CGT 109 with a minimum grade of 2.0. CGT 123 with a minimum grade of 2.0. CGT 125 with a minimum grade of 2.0. CGT 127 with a minimum grade of 2.0.

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 Cr. Hrs.

3 Lecture Hours

Prerequisites: CGT 247 with a minimum grade of 2.0 and CGT 168 or may be taken concurrently, or Consent of department.

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

3 Cr. Hrs.

1 Lecture Hours

2 Laboratory Hours

Prerequisites: CGT 208 or may be taken concurrently, or Consent of department.

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 212 Advanced Interactive Media

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: CGT 141 with a minimum grade of 2.0 or Consent of department.

This course provides an in-depth exposure to scripting used in interactive media. Students will learn to write scripts which extend and enhance non-linear, computer-based projects. 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 scripting techniques before beginning this class.

CGT 213 Advanced 2D Animation

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: CGT 141 with a minimum grade of 2.0 or Consent of department.

This course provides an in-depth exposure to 2D animation. Students will learn and extend their skills in a variety of 2D animation and visual communication techniques. Students will learn to manage a large scale 2D animation project by creating a project for computer-based training, marketing or entertainment. Students should have a working knowledge of keyframe/tweening techniques before beginning this course.

CGT 215 Motion Graphics 1-After Effects

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: CGT 247 with a minimum grade of 2.0.
Corequisites: CGT 168 if not taken previously.

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 Cr. Hrs.

3 Lecture Hours

Prerequisites: CGT 109 with a minimum grade of 2.0. CGT 123 with a minimum grade of 2.0. CGT 125 with a minimum grade of 2.0. CGT 127 with a minimum grade of 2.0.

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 Cr. Hrs.

3 Lecture Hours

Prerequisites: CGT 226 with a minimum grade of 2.0.

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 Development and Design 3

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: CGT 163 with a minimum grade of 2.0.

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 Cr. Hrs.

3 Lecture Hours

Prerequisites: 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 Cr. Hrs.

3 Lecture Hours

Prerequisites: CGT 215 with a minimum grade of 2.0.

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 Cr. Hrs.

3 Lecture Hours

Prerequisites: None.
Corequisites: CGT 109 if not taken previously. CGT 123 if not taken previously. CGT 125 if not taken previously. CGT 127 if not taken previously.

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 Cr. Hrs.

3 Lecture Hours

Prerequisites: CGT 234 or may be taken concurrently, or CGT 252 or may be taken concurrently.
Corequisites: CGT 231 if not taken previously.

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 Cr. Hrs.

3 Lecture Hours

Prerequisites: CGT 254 with a minimum grade of 2.0.

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 Cr. Hrs.

3 Lecture Hours

Prerequisites: CGT 247 with a minimum grade of 2.0.

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 Cr. Hrs.

3 Lecture Hours

Prerequisites: None.
Corequisites: CGT 246 if not taken previously.

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 Cr. Hrs.

3 Lecture Hours

Prerequisites: CGT 234 or may be taken concurrently.
Corequisites: CGT 231 if not taken previously.

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 271 Computer Graphics Technology Internship

3 Cr. Hrs.

1 Lecture Hours

12/40 Off-site Hours without Faculty

Prerequisites: Consent of department. CGT 234 or may be taken concurrently or CGT 252 or may be taken concurrently. Overall minimum GPA of 2.5.
Corequisites: CGT 231 if not taken previously.

This is an applied course within Occupational Programs specializing in the field of Computer Graphics Technology 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 a graphic design, media developer or similar position. The final grade will be based on a joint evaluation by the faculty 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.

CGT 298 Honors Studies

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: Consent of department. Minimum overall Schoolcraft GPA of 3.5. CGT 234 or may be taken concurrently, or CGT 252 or may be taken concurrently.
Corequisites: CGT 231 if not taken previously.

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.

CHEM 51 Basic Chemistry

4 Cr. Hrs.

4 Lecture Hours

2 Laboratory Hours

Prerequisites: MATH 53 or minimum score of 19 ACT-Math, 25 SAT-Math, 78 CPT-Elementary Algebra or 250 NGA-Quantitative Reasoning, Algebra and Statistics.

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

4 Cr. Hrs.

3 Lecture Hours

2 Laboratory Hours

Prerequisites: None.
Recommended: Students will benefit from current or prior enrollment in 100-level or above core culinary classes (CUL 144 , CUL 124 , CUL 125 , CUL 142 , CUL 128 , CUL 143 , CUL 227 , CUL 215 , CUL 244 , CUL 240 , CUL 242 or CUL 243).

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 Cr. Hrs.

4 Lecture Hours

3 Laboratory Hours

Prerequisites: MATH 53 or minimum score of 19 ACT-Math, 25 SAT-Math, 78 CPT-Elementary Algebra or 250 NGA-Quantitative Reasoning, Algebra and Statistics.

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 Cr. Hrs.

4 Lecture Hours

3 Laboratory Hours

Prerequisites: High school chemistry with a minimum grade of 2.0 or CHEM 51 with a minimum grade of 2.0 or CHEM 104 with a minimum grade of 2.0. MATH 113 or may be taken concurrently.

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

5 Cr. Hrs.

4 Lecture Hours

4 Laboratory Hours

Prerequisites: CHEM 111 with a minimum grade of 2.0.

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

4 Cr. Hrs.

3 Lecture Hours

3 Laboratory Hours

Prerequisites: 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

5 Cr. Hrs.

4 Lecture Hours

4 Laboratory Hours

Prerequisites: CHEM 117 with a minimum grade of 2.0.

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

5 Cr. Hrs.

4 Lecture Hours

4 Laboratory Hours

Prerequisites: CHEM 213 with a minimum grade of 2.0.

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 Cr. Hrs.

4 Lecture Hours

Prerequisites: None.

This course is intended for students who have no previous education in Chinese. The course will cover basic vocabulary and grammar patterns and will 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 Cr. Hrs.

4 Lecture Hours

Prerequisites: None.
Recommended: CHIN 101 with a minimum grade of 2.0 or one year of high school Chinese or equivalent language knowledge.

This course is a continuation of CHIN 101 and continues to review the basic vocabulary and 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 Chinese culture will be an integral part of the course.

CHIN 201 Intermediate Chinese 1

4 Cr. Hrs.

4 Lecture Hours

Prerequisites: None.
Recommended: CHIN 102 with a minimum grade of 2.0 or two years of high school Chinese or equivalent language knowledge.

This course is a continuation of CHIN 102 and continues to cover vocabulary and 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 202 Intermediate Chinese 2

4 Cr. Hrs.

4 Lecture Hours

Prerequisites: None.
Recommended: CHIN 201 with a minimum grade of 2.0 or three years of high school Chinese or equivalent language knowledge.

This course is a continuation of CHIN 201 and continues to cover vocabulary and 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 Chinese culture will be an integral part of the course.

CIS 105 Computer Orientation

1 Cr. Hrs.

1 Lecture Hours

Prerequisites: 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 Cr. Hrs.

3 Lecture Hours

Prerequisites: 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, as well as in your personal life using your digital devices. A variety of topics will be addressed, such as computer hardware and software, the internet and Web resources, networking and security, databases and information systems and mobile computing.

CIS 120 Software Applications

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: 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 Cr. Hrs.

2 Lecture Hours

Prerequisites: 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 129 Introduction to Programming Logic

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: 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 Cr. Hrs.

3 Lecture Hours

Prerequisites: 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 Cr. Hrs.

3 Lecture Hours

Prerequisites: 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 Cr. Hrs.

3 Lecture Hours

Prerequisites: CIS 171 or CNT 210.

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 176 Visual Basic.NET

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: 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 Cr. Hrs.

3 Lecture Hours

Prerequisites: None.
Recommended: CIS 115. Basic knowledge of computer hardware and software.

This course is designed to prepare students to administer and support Windows computers in a work environment according to Microsoft and industry best practices. A hands-on approach to common Windows applications and tools is used and include Windows fundamentals, command line interface use, installation and configuration of Windows and basic network configurations.

CIS 180 Spreadsheet Applications - Current Software

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: None.
Recommended: CIS 120 or computer experience.

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 Cr. Hrs.

3 Lecture Hours

Prerequisites: 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 Cr. Hrs.

2 Lecture Hours

Prerequisites: 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 Cr. Hrs.

3 Lecture Hours

Prerequisites: CIS 120.

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 Cr. Hrs.

2 Lecture Hours

Prerequisites: 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 Cr. Hrs.

3 Lecture Hours

Prerequisites: 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 Cr. Hrs.

3 Lecture Hours

Prerequisites: None.
Recommended: CIS 120 or computer experience.

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 235 Managing and Troubleshooting PCs

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: 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; operating system fundamentals; and DOS.

CIS 238 JavaScript

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: CIS 185 or CGT 136.

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 250 Systems Development and Design

4 Cr. Hrs.

4 Lecture Hours

Prerequisites: Completed (9) nine total credit hours of Computer Information Systems and/or Computer Networking Technology courses.

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 251 IT Project Management

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: 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 Cr. Hrs.

3 Lecture Hours

Prerequisites: None.
Recommended: Basic knowledge of computer hardware and software. CIS 115 or CNT 133.

This course is designed to prepare students to administer and support Linux computers in accordance with recommendations of the Linux Professional Institute's LPIC-1, Linux Administrator certification as well as the CompTIA Linux+ certification. A hands-on approach to common Linux applications is used and include Linux fundamentals, maintenance tasks on the command line, installation and configuration of Linux and basic network configurations.

CIS 273 TCP/IP and Network Architectures

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: CIS 171 or CNT 210.

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 274 Advanced Linux

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: CIS 255.

This course is designed to prepare students to administer small to medium-sized mixed networks with Linux operating systems in accordance with recommendations of the Linux Professional Institute's LPIC-2, Linux Engineer certification. Students will cover topics integral to administering larger networks such as system administration, storage, networking, security and fundamental services.

CIS 290 Object-Oriented Programming With Java

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: 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 Cr. Hrs.

3 Lecture Hours

Prerequisites: 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 Cr. Hrs.

3 Lecture Hours

Prerequisites: 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 Cr. Hrs.

3 Lecture Hours

Prerequisites: 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 Cr. Hrs.

3 Lecture Hours

Prerequisites: 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 Cr. Hrs.

3 Lecture Hours

Prerequisites: 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

3 Cr. Hrs.

2 Lecture Hours

2 Laboratory Hours

Prerequisites: 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.

CJ 210 Criminal Procedure

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: None.

This course will give an overview of criminal procedure and the criminal justice system. It will deal with arrests, search, seizure and identification procedures. It will also deal with the trial, pre- and post-, as well as the appeal process. We will examine the 4th, 5th and 6th Amendments to the United States Constitution.

CJ 211 Criminal Law

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: None.

This course is a study of the elements of criminal law, its purposes and function. Students will study the elements necessary to establish crime and criminal intent, sources of criminal law, criminal responsibility and general court procedures. Students will be able to differentiate between the three types of jurisdiction, explore the physical and mental requirements of a criminal act and compare the affirmative defenses available. The course will cover homicide and other assaultive crimes, sex offenses and other offenses to the family relationship, theft, robbery and burglary. Students will be able to recognize crimes such as forgery, false imprisonment, extortion and bribery, as well as crimes involving narcotic drugs and alcoholic beverages.

CJ 212 Criminology

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: None.

This course is designed to identify the theories of crime causation, behavioral systems in crime (organized white collar crime) and the nature and extent of crime. Emphasis will be given to law as social control, history and philosophy of punishment and contemporary correctional techniques.

CJ 221 Juvenile Justice

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: None.

The purpose of this course is to study problems of juvenile delinquency and the theories that explain juvenile delinquency. Attention will be given to the work of youth agencies, legislative involvement and new approaches to the prevention of juvenile crime.

CJ 287 Police Academy

21 Cr. Hrs.

13 Lecture Hours

40 Laboratory Hours

Prerequisites: Consent of department before acceptance to the Police Academy.

This course is designed to prepare recruits in the proper techniques of investigation, crime scene process, patrol procedures, operations and techniques. Emphasis will be placed on conflict mediation, report writing, detention and prosecution of prisoners. First aid, investigations, evidence collection, disaster control, civil disorders and tactical operations will be covered in the course. (40 hrs. minimum weekly)

CM 107 Food and Culture

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: None.

This course is a cross cultural, interdisciplinary investigation in the relationships between the foods humans prepare and consume and the cultures they build. The course will demonstrate the ways intellectual, social, religious and political events affect the preparation of food in various civilizations and at various periods in human history.

CM 109 Hospitality Law

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: 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 Cr. Hrs.

3 Lecture Hours

Prerequisites: 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 Cr. Hrs.

3 Lecture Hours

Prerequisites: 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.

CM 309 Culinary Law

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: ENG 102.

This course provides students with an opportunity to interpret the general concepts of the law as related to culinary operations. Various aspects of the law will be explored, including torts, contracts, business structures and property rights. Emphasis will be on the ramifications of the law associated with the rights and responsibilities of employees, guests and restaurant owners under diverse situations.

CNT 115 Cybersecurity Fundamentals

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: None.
Recommended: CIS 115 or computer experience.

This course is designed to provide students with a fundamental understanding of cybersecurity in preparation for a career in information technology or related field. Students will cover topics integral to cybersecurity including key terms, concepts and technologies. Specific topics include threats and adversaries, cryptography, network defense and policy concerns.

CNT 130 Computer Hardware and Troubleshooting

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: None.
Recommended: CIS 115 or computer experience.

This course is designed to prepare students for maintaining and troubleshooting personal computers (PCs) and other technology devices. Topics include hardware, networking, mobile devices and troubleshooting. Students will carry out hardware maintenance and device configuration with a focus on customer support fundamentals and meeting requirements.

CNT 133 Computer Software and Troubleshooting

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: None.
Recommended: CIS 115 or computer experience.

This course is designed to prepare students for maintaining and troubleshooting personal computers (PCs) and other technology devices. Topics include operating systems, security, software troubleshooting and operational procedures. Students will explore software used to configure and troubleshoot devices with a focus on fundamental security concerns and operational best practices.

CNT 136 Computer User Support

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: CNT 130. CNT 133.

This course is designed to prepare students for the dynamic and challenging environment of help desk and end user support. With a focus on communication and organizational skills, students are presented with best practices and procedures necessary for providing quality support for technology end users. Students will use help desk management software and be challenged with real-life scenarios encountered in business environments.

CNT 173 Wireless Local Area Networks

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: CIS 171 or CNT 210.

This course is designed to provide students a fundamental understanding of wireless data communication technologies, RF behavior, security aspects and network components as they apply to Wireless Local Area Network (WLAN) administration. Students will perform basic configuration and troubleshooting of WLAN hardware peripherals and protocols used in small business and enterprise deployments.

CNT 176 Cloud Network Technologies

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: CIS 171 or CNT 210.

Cloud technologies have become an integral part of nearly every information technology infrastructure. This course is designed to provide students with the knowledge and skills to understand cloud networking technologies and use best practices related to implementing business technologies in cloud environments.

CNT 179 Physical Networking

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: None.
Recommended: CIS 115 or computer experience.

This course is designed to introduce the student to physical aspects of networking technologies and telecommunication support that converge in modern integrated business data environment. The student will practice cabling fundamentals, industry best practices and maintaining a network/telecommunications system.

CNT 180 Ethical Hacking and System Defense

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: CNT 115.
Recommended: CIS 255.

This course is designed to familiarize students with an offensive security mindset toward defending networks and systems from the bad actors in cyberspace. Students will explore ethical hacking techniques and tools to better understand how to protect resources from various adversaries and attacks. Additional areas of focus include legal considerations, defensive technologies and security incident response.

CNT 210 CCNA Networking 1

4 Cr. Hrs.

4 Lecture Hours

Prerequisites: None.
Recommended: Basic knowledge and/or experience in the field of IT or successful completion of CIS 115.

This is the first of four courses designed to prepare students for the Cisco Certified Network Associate (CCNA) certification. Fundamental networking topics including structure, functions, components, media, addressing and common protocols are introduced. Students will perform basic network device configuration.

CNT 220 CCNA Networking 2

4 Cr. Hrs.

4 Lecture Hours

Prerequisites: CNT 210 with a minimum grade of 2.0.

This is the second of four courses designed to prepare students for the Cisco Certified Network Associate (CCNA) certification. Students will configure and troubleshoot switching and routing technologies used in small to medium networks. Topics include virtual LANs (VLANs), routing, dynamic routing protocols and basic security topics.

CNT 230 CCNA Networking 3

4 Cr. Hrs.

4 Lecture Hours

Prerequisites: CNT 220 with a minimum grade of 2.0.

This is the third of four courses designed to prepare students for the Cisco Certified Network Associate (CCNA) certification. In this course, network topics are expanded to include components, technologies and protocols that are used to create and manage larger and more complex networks. Students will implement and troubleshoot advanced routing configurations, technologies that improve the performance and reliability of local area networks and additional protocols needed within networks.

CNT 240 CCNA Networking 4

4 Cr. Hrs.

4 Lecture Hours

Prerequisites: CNT 230 with a minimum grade of 2.0.

This is the final course designed to prepare students for the Cisco Certified Network Associate (CCNA) certification. Course topics include wide area network (WAN) and virtual private network (VPN) technologies and other services such as Simple Network Management Protocol (SNMP) and NetFlow. Students will configure and troubleshoot network technologies that are required in complex networks.

CNT 244 Cybersecurity Operations

3 Cr. Hrs.

2 Lecture Hours

2 Laboratory Hours

Prerequisites: CNT 115. CNT 220.
Recommended: CIS 178. CIS 255. CIS 172.

This course is designed to provide students with the knowledge and skills needed to successfully handle the tasks, duties and responsibilities of an entry-level security analyst working in a Security Operations Center (SOC). Topics covered include operating systems and network infrastructure, network and endpoint attacks, cryptography, monitoring and analysis and incident response.

CNT 250 Server Administration 1

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: None.
Recommended: CIS 115 or CNT 133. Basic knowledge of computer hardware and software.

This course is designed to prepare students to implement a Windows server infrastructure in an existing business networking environment. Students will explore and perform tasks relating to the configuration and management of services and infrastructure using Windows server software.

CNT 253 Server Administration 2

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: CNT 250.

This course is designed to prepare students to administer a Windows server infrastructure in an enterprise networking environment. Students will explore and perform advanced tasks relating to the configuration and management of services and infrastructure using Windows server software.

CNT 260 Information Assurance and Security

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: CNT 115.
Recommended: Completion of at least nine credit hours of CIS or CNT courses.

This course is designed to supplement technical knowledge and skills with a fundamental understanding of information assurance (IA); security design principles; and the rules, guidelines and laws that must be observed when securing information systems. Specific topics include the security life-cycle, access control models, vulnerability and risk assessment strategies, fundamental security design principles and other related concepts. Applicable laws and policies and responsibilities related to cyber defense are also covered.

CNT 262 Perimeter Defense

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: CIS 172.

This course builds upon a foundation of networking knowledge to cover network defense principles, technologies and methods used to secure the perimeters of networks that are becoming increasingly relied upon to provide shared access of resources between remote networks and devices. Topics covered include network security threats, layering of security mechanisms/Defense in Depth, access control and reporting, advanced TCP/IP concepts, placement of defenses and cryptography. Students will also explore network security components such as firewalls, intrusion detection and virtual private networks.

CNT 264 Security Testing Methods

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: CNT 115. CIS 255.
Recommended: CNT 180.

This course provides students with a deeper understanding of system security by exploring principles and techniques used to actively test systems for security weaknesses and their impact (often referred to as penetration testing). Topics covered include test planning, reconnaissance, execution, reporting and mitigation of weaknesses that occur from software misconfigurations or programming errors. Students will use open source security testing software to carry out security testing in an appropriate environment.

CNT 293 Network Design

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: CNT 220.
Recommended: CNT 240.

This course is designed to build upon knowledge of network functionality and provide skills used to design routed and switched network infrastructures for small business or basic enterprise networks. Students will work through network design fundamentals including use of appropriate technologies and the importance of modularity, hierarchy, scalability, resiliency and other design considerations.

COLLS 50 College Reading

4 Cr. Hrs.

4 Lecture Hours

Prerequisites: Minimum score of 11 ACT-Reading, 18 SAT-Reading, 32 CPT-Reading Comprehension or 220 NGA-Reading.

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 53 Critical Reading and Thinking Applications

4 Cr. Hrs.

4 Lecture Hours

Prerequisites: COLLS 50 or minimum score of 15 ACT-Reading, 22 SAT-Reading, 57 CPT-Reading Comprehension or 237 NGA-Reading.

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 Cr. Hrs.

1 Lecture Hours

Prerequisites: Consent of 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 130 Applied Learning Theory for Nursing Majors

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: COLLS 53 with a minimum grade of 2.0 or minimum score of 18 ACT-Reading, 25 SAT-Reading, 70 CPT-Reading Comprehension or 250 NGA-Reading.
Recommended: BIOL 101.

This course is designed to prepare nursing students for the demands of the nursing program. Emphasis will be placed on developing and applying critical reading, thinking and learning strategies to nursing content. Topics covered in the course are reading speed/comprehension, reading study system, lecture note taking, time/goal management, test preparation/test taking and mathematics, as well as assistance with TEAS preparation. This course will help students prepare to handle courses offered throughout the entire nursing program.

COMA 103 Fundamentals of Speech

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: 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.

COMA 105 Introduction to Communication Studies

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: None.

This survey course is designed to introduce students to Communication as a field of study. Students will learn about theories and research that are fundamental to human communication. Topics of study will include identity, persuasion and influence and how these ideas affect contexts like interpersonal, intercultural, small group and organizational communication, as well as the media. Students will also learn how to apply communication concepts in a variety of settings.

COMA 200 Interpersonal Communications

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: None.
Recommended: COMA 103 or COMA 105.

This course lays the foundation for understanding interpersonal communication in personal, professional and social situations. Topics include, but are not limited to, nonverbal communication, perception of self and others, conflict management, listening skills, social media and interpersonal communication, construction of messages using appropriate language, relationships, the role of gender, and communication ethics. Students will explore interpersonal concepts through a variety of strategies and techniques which may include group work, individual presentations, personal reflections and essays that will enhance their understanding of interpersonal communication.

COMA 202 Small Group Communication

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: None.
Recommended: COMA 103 or COMA 105.

This is a foundational course that introduces students to key concepts and theories of effective small group communication. Topics may include leadership models, characteristics of effective teams, decision making and problem-solving processes, group norms, cultural and team diversity and types and roles of teams. Students will explore concepts through a variety of team presentations and projects that will enhance their understanding of small group communication.

COMA 212 Organizational Communication

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: None.
Recommended: COMA 103 or COMA 105.

This is an introductory course that covers key concepts and theories of organizational communication. Topics may include communication models for leaders and teams, the impact of globalization and technology, the role of power, decision-making, organizational culture and conflict management. Students will explore concepts through a variety of strategies and techniques which may include examining case studies, preparing team and individual presentations and writing essays that will enhance their understanding of organizational communication.

COMA 230 Introduction to Mass Communication

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: 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.

COMA 240 Intercultural Communication

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: None.
Recommended: COMA 105.

This course is designed to enhance foundational knowledge in the discipline of communication studies. Students will learn the value of studying intercultural communication in an increasingly diverse and interrelated world. Topics of study will also include how culture influences identity, worldview, the global marketplace and the media, as well as conflict and barriers to effective communication across cultures. Students will practice skills necessary for cultural sensitivity and communication competence.

COR 110 Introduction to Corrections

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: None.

This course blends theory and operational knowledge for corrections. Students learn about the early development of corrections, sentencing, prisons, probation, parole, prisoner rights, community corrections, the role of the correctional officer and current concerns.

CUL 102 Culinary Sanitation

2 Cr. Hrs.

2 Lecture Hours

Prerequisites: 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 and safety: biological, chemical and physical hazards, cross-contamination, personal hygiene, sanitation, safety regulations and the use and care of equipment. Hazard Analysis Critical Control Point (HACCP) and Occupational Safety and Health Administration (OSHA) guidelines and standards, as they apply to the hospitality industry, will be introduced. Upon successful completion of this course, the student will be prepared to take the National Restaurant Association ServSafe Food Protection Manager Certification exam.

CUL 103 Introduction to Professional Cooking Skills and Technique

4 Cr. Hrs.

1 Lecture Hours

4 Laboratory Hours

Prerequisites: None.

This course will provide the aspiring chef 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.

CUL 124 Breakfast and Pantry

3 Cr. Hrs.

1 Lecture Hours

4 Laboratory Hours

Prerequisites: CUL 102 or current ServSafe certification. CUL 103.
Corequisites: CUL 125. CUL 144.

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.

CUL 125 Pastries 1

3 Cr. Hrs.

1 Lecture Hours

5 Laboratory Hours

Prerequisites: CUL 102 or current ServSafe certification. CUL 103.
Corequisites: CUL 124. CUL 144.

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.

CUL 128 Introduction to Food Techniques

3 Cr. Hrs.

1 Lecture Hours

3 Laboratory Hours

Prerequisites: CUL 102 or current ServSafe certification. CUL 103.
Corequisites: CUL 142. CUL 143.

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.

CUL 142 Butchery

3 Cr. Hrs.

1 Lecture Hours

3 Laboratory Hours

Prerequisites: CUL 102 or current ServSafe certification. CUL 103.
Corequisites: CUL 128. CUL 143.

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.

CUL 143 Dining Room Service

3 Cr. Hrs.

1 Lecture Hours

4 Laboratory Hours

Prerequisites: CUL 102 or current ServSafe certification. CUL 103.
Corequisites: CUL 128. CUL 142.

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.

CUL 144 Baking

3 Cr. Hrs.

1 Lecture Hours

4 Laboratory Hours

Prerequisites: CUL 102 or current ServSafe certification. CUL 103.
Corequisites: CUL 124. CUL 125.

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.

CUL 215 Charcuterie

3 Cr. Hrs.

1 Lecture Hours

4 Laboratory Hours

Prerequisites: CUL 124. CUL 125. CUL 128. CUL 142. CUL 143. CUL 144.
Corequisites: CUL 227. CUL 244.

Students in this course will acquire professional skills in variations of hors d'oeuvres and savories, seasonings, condiments and stuffed meats and curing, pickling and smoking of meat, fish and poultry. Proficiencies in sausage-making, garde manger, pâtés, terrines, galantines and stuffed meats are also taught.

CUL 227 Restaurant Cooking and Preparation

3 Cr. Hrs.

1 Lecture Hours

4 Laboratory Hours

Prerequisites: CUL 124. CUL 125. CUL 128. CUL 142. CUL 143. CUL 144.
Corequisites: CUL 215. CUL 244.

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.

CUL 240 Pastries 2

3 Cr. Hrs.

1 Lecture Hours

4 Laboratory Hours

Prerequisites: CUL 124. CUL 125. CUL 128. CUL 142. CUL 143. CUL 144.
Corequisites: CUL 242. CUL 243.

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.

CUL 241 Culinary Nutrition

2 Cr. Hrs.

2 Lecture Hours

Prerequisites: None.

This course explores nutrition and the relationship between nutrition and health. Topics such as vegetarianism, food fads, obesity, weight control and portion sizes are studied. Students will learn how to apply nutritional concepts in menu planning in order to prepare healthful foods that are pleasing to both the eye and the palate to cater to the growing number of health-minded customers.

CUL 242 À la Carte

3 Cr. Hrs.

1 Lecture Hours

4 Laboratory Hours

Prerequisites: CUL 124. CUL 125. CUL 128. CUL 142. CUL 143. CUL 144.
Corequisites: CUL 240. CUL 243.

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.

CUL 243 Storeroom Operations

2 Cr. Hrs.

1 Lecture Hours

2 Laboratory Hours

Prerequisites: CUL 124. CUL 125. CUL 128. CUL 142. CUL 143. CUL 144.
Corequisites: CUL 240. CUL 242.

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.

CUL 244 International and American Cuisine

6 Cr. Hrs.

2 Lecture Hours

7 Laboratory Hours

Prerequisites: CUL 124. CUL 125. CUL 128. CUL 142. CUL 143. CUL 144.
Corequisites: CUL 215. CUL 227.

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 entrées, 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.

CUL 260 Competitive Ice Carving

3 Cr. Hrs.

2 Lecture Hours

2 Laboratory Hours

Prerequisites: 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 carvings will be accomplished. This is an elective course.

CUL 267 Chocolatier

3 Cr. Hrs.

1 Lecture Hours

3 Laboratory Hours

Prerequisites: Current ServSafe certification. CUL 103 or CBPA 103 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 centerpieces and chocolate truffle making. This is an elective course.

CUL 295 Salon Competition 1

3 Cr. Hrs.

2 Lecture Hours

2 Laboratory Hours

Prerequisites: Consent of department.

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.

CUL 297 Salon Competition 2

4 Cr. Hrs.

2 Lecture Hours

3 Laboratory Hours

Prerequisites: CUL 295.

A continuation of Salon Competition 1 for students who have decided to compete at state, national and/or international level culinary competition(s). The students must have demonstrated proficiency for competition in Salon Competition 1 to be

approved as participants in this advanced course. Selected students form a College Culinary Team and, as such, can represent Schoolcraft College in culinary competition(s).

CUL 303 Culinary Program Practicals

5 Cr. Hrs.

1 Lecture Hours

4 Laboratory Hours

Prerequisites: Current ServSafe Certification. CIS 120. Completion of an accredited ACFEF culinary program or consent of department. College level reading or a minimum score of 18 ACT-Reading, 25 SAT-Reading, 70 CPT-Reading Comprehension or 250 NGA-Reading. College level writing or a minimum score of 22 ACT-English, 29 SAT-Writing and Language, 108 CPT-Sentence Skills or 276 NGA-Writing. College level math or a minimum score of 19 ACT-Math, 25 SAT-Math, 78 CPT-Elementary Algebra or 250 NGA-Quantitative Reasoning, Algebra and Statistics.

This course is designed to be an orientation to the Culinary bachelor degree programs. Students will demonstrate proper culinary skills. Learning strategies will focus on knife handling skills, team skills and professionalism, safety and sanitation, financial control practices, equipment utilization, identification of food products, nutritional guidelines, cold food garde-manger, butchery skills, an awareness of international cuisines and cultures and a high level of understanding of culinary techniques. Application of appropriate technology for a career in the Culinary Arts, along with critical research skills, will be addressed.

CUL 350 Food Safety Management

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: CUL 102 or consent of department.

This course prepares the student to manage personnel and equipment to ensure food safety. Students will learn to purchase, receive, store and distribute food supplies and equipment following established sanitation and quality standards. They will utilize HACCP guidelines to protect food during all phases of preparation, holding and transportation. Application of safety and sanitation regulations related to physical resources and routine maintenance inspection of equipment will be covered. Management skills to assure employee compliance, safe workflow, training, proper food production and safe equipment use will be emphasized.

CUL 360 Purchasing Control

2 Cr. Hrs.

2 Lecture Hours

1 Laboratory Hours

Prerequisites: CUL 303 or consent of department.

Upon successful completion of this course, the student will have an advanced understanding of the purchasing cycle, business control plans, competitive bidding techniques, purchasing specifications, cash control, budgetary planning, equipment purchasing, cost controls, bidding and receiving. This will be accomplished using industry specific software designed to create a more profitable business operation.

CUL 495 Culinary and Dietary Operations Capstone

1 Cr. Hrs.

1 Lecture Hours

Prerequisites: ACCT 330. BUS 220. CUL 350. CUL 360. NFS 320. NFS 480.
Corequisites: NFS 491 if not taken previously.

This capstone course allows students to develop diet plans and menus based on their understanding of human physiology and the dietary needs and restrictions of consumers. These diet plans and menus will present evidence of the student's ability to analyze financial and physical resources; demonstrate leadership, quantitative, technology and communication skills; and recommend proper safety methods. Successful completion of this course will exhibit the student's proficiency in optimizing operational activities within a culinary establishment while developing appropriate diet plans and menus using available resources.

DMS 100 Introduction to Diagnostic Medical Sonography

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: COLLS 53 with a minimum grade of 2.0 or minimum score of 18 ACT-Reading, 25 SAT-Reading, 70 CPT-Reading Comprehension or 250 NGA-Reading. ENG 55 with a minimum grade of 2.0 or minimum score of 18 ACT-English, 25 SAT-Writing and Language, 71 CPT-Sentence Skills or 250 NGA-Writing.

This course introduces the student to the field of Diagnostic Medical Sonography (ultrasound). Students learn the history of medical ultrasound, scope of practice, terminology, legal and ethical issues, patient care and sonography compared to other imaging modalities. Communication, professionalism, ergonomics, vitals, certification, infection control and accreditation are addressed.

DMS 110 Sonography Physics and Instrumentation

4 Cr. Hrs.

4 Lecture Hours

Prerequisites: Acceptance into Diagnostic Medical Sonography Program. PHYS 123 with a minimum grade of 3.0. DMS 100 with a minimum grade of 3.0.
Corequisites: DMS 120. DMS 150.

This course provides history and knowledge of equipment operations for ultrasound. Fundamentals of acoustic physics, instrumentation, transducer types and parameters, biological effects and Doppler principles will be covered.

DMS 120 Abdominal Sonography

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: Acceptance into Diagnostic Medical Sonography Program. DMS 100 with a minimum grade of 3.0.
Corequisites: DMS 110. DMS 150.

Study of the abdomen and small parts anatomy utilizing ultrasound. This includes physiology, pathology, pathophysiology, patient care and imaging techniques. The focus is on normal and abnormal anatomy sonographic patterns. Emphasis is placed on clinical history, physical assessment and correct exam protocol. This course will explore preparation for intraoperative surgical procedure scanning and infection control measures.

DMS 150 Sonography Lab 1

3 Cr. Hrs.

2 Lecture Hours

4 Laboratory Hours

Prerequisites: Acceptance into Diagnostic Medical Sonography Program. DMS 100 with a minimum grade of 3.0.
Corequisites: DMS 110. DMS 120.

This lab experience will introduce students to sonographic imaging, equipment, transducer orientation and imaging concepts. This course covers the human anatomy from a cross-sectional perspective in the transverse, longitudinal, coronal and oblique planes. Emphasis will be on the abdomen, obstetrics and gynecologic ultrasound procedures.

DMS 160 Obstetrics and Gynecology Sonography

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: DMS 150 with a minimum grade of 3.0.

In this course, gynecologic, obstetric and fetal anatomy utilizing ultrasound are studied. This includes physiology, pathology, pathophysiology, patient care and imaging techniques. The focus is on normal and abnormal anatomy sonographic patterns. Emphasis is placed on clinical history, physical assessment and correct exam protocol.

DMS 180 Advanced Sonography

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: DMS 150 with a minimum grade of 3.0.

In this course, musculoskeletal and vascular ultrasound imaging are studied. Imaging of neonatal and infant brain and small body parts are also included. This includes physiology, pathology, pathophysiology, patient care and imaging techniques. The focus is on normal and abnormal anatomy sonographic patterns. Additionally, this course will review procedures performed with ultrasound guidance and interventional procedures.

DMS 200 Sonography Lab 2

3 Cr. Hrs.

2 Lecture Hours

4 Laboratory Hours

Prerequisites: DMS 150 with a minimum grade of 3.0.
Corequisites: DMS 210. DMS 160 if not taken previously. DMS 180 if not taken previously.

In this course, skills learned in Sonography Lab 1 are expanded. Experience is gained in advanced scanning to include vascular and small parts. Students will learn how to follow protocols and create technical impressions. Students analyze correlations with clinical diagnostic imaging techniques. The role of the sonographer, radiologist and referring physician in diagnostic patient care are discussed.

DMS 210 Sonography Clinical 1

4 Cr. Hrs.

2 Lecture Hours

24 Off-site Hours without Faculty

Prerequisites: DMS 150 with a minimum grade of 3.0.
Corequisites: DMS 200. DMS 160 if not taken previously. DMS 180 if not taken previously.

This clinical course provides students with the opportunity to learn scanning skills in a clinical setting. The student will be supervised by qualified sonographers. This is the first of three clinical courses that provides students with progressive experience and observation in a clinical rotation. This is a 15-week rotation to include a minimum of 390 clinical hours.

DMS 220 Sonography Clinical 2

6 Cr. Hrs.

3 Lecture Hours

37 Off-site Hours without Faculty

Prerequisites: DMS 210 with a minimum grade of 3.0.

This course continues to add experience to the student's ability to perform ultrasound procedures under the direct supervision of a qualified sonographer. This is the second of three courses designed to broaden technical skills in a clinical setting. Clinical competencies will correspond to completed didactic work performed in the lab. Students will be evaluated utilizing performance standards. This is a 15-week rotation to include a minimum of 600 clinical hours.

DMS 230 Sonography Clinical 3

6 Cr. Hrs.

3 Lecture Hours

36 Off-site Hours without Faculty

Prerequisites: DMS 220 with a minimum grade of 3.0.

In the final semester of clinical applications, students will be expected to perform advanced exams within the ultrasound department. Clinical competencies will correspond to completed didactic work performed in the lab. Students will be evaluated utilizing performance standards. This is a 15-week rotation to include a minimum of 585 clinical hours.

DMS 250 Diagnostic Medical Sonography Capstone

1 Cr. Hrs.

1 Lecture Hours

Prerequisites: DMS 220 with a minimum grade of 3.0.
Corequisites: DMS 230 if not taken previously.

This course is designed as a capstone learning experience to prepare students for the ARDMS, American Registry for Diagnostic Medical Sonography, exam. Exam content and test taking strategies will be discussed. Students also prepare for professional employment by synthesizing knowledge, skills and attitudes learned in the Diagnostic Medical Sonography program.

ECE 100 Foundations of Early Childhood Education

2 Cr. Hrs.

2 Lecture Hours

Prerequisites: None.
Corequisites: ECE 110 if not taken previously or EDUC 110 if not taken previously.

Students will be provided an introduction to the field of Early Childhood Education. This introduction includes theories of child development, information on key professional and regulatory organizations, relevant laws and regulations, discussion on opportunities within this field, the National Association for the Education of Young Children (NAEYC) code of ethical conduct, the NAEYC Standards, the Michigan Core Competencies for the field, Child Protection Law and developmentally appropriate practices. Students will spend time observing and analyzing a variety of early childhood programs. Students will complete observations of five different early childhood settings. Michigan Central Registry Clearance by the Michigan Department of Human Services is required. This course requires all students must meet the requirements of a criminal background check.

ECE 110 Child Development

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: Minimum score of 18 ACT-Reading, 25 SAT-Reading, 70 CPT-Reading Comprehension or 250 NGA-Reading. Minimum score of 18 ACT-English, 25 SAT-Writing and Language, 71 CPT-Sentence Skills or 250 NGA-Writing.

This course is designed to provide students an overview of development from the prenatal time period through emerging adulthood. The course will concentrate on physical, cognitive, social and emotional development in the prenatal, infancy, toddler, preschool, middle childhood, adolescence and emerging adulthood. Emphasis is placed on understanding development in the context of educational settings. Students will complete observations of three different children. A Michigan Central Registry Clearance by the Michigan Department of Human Services may be required. This course requires all students must meet the requirements of a criminal background check.

ECE 120 Creative Activities

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: None.
Corequisites: ECE 110 if not taken previously or EDUC 110 if not taken previously.

The purpose of this course is to introduce students to the stages of creative development in children. Open-ended processes, multi-media materials and creative activities across the arts curriculum that are appropriate for children and persons with developmental challenges will be emphasized. Students will be exposed to the importance of the arts and aesthetic environments related to the educational experience.

ECE 135 Preschool Education with Field Experiences

5 Cr. Hrs.

4 Lecture Hours

1 Off-site Hours with Faculty

4 Off-site Hours without Faculty

Prerequisites: ECE 110 or EDUC 110.

This course is designed to assist students in knowing and understanding the characteristics and needs of the preschool child and methods by which they are met. There will be a focus on stages of development and typical behaviors. Students will use their own knowledge and other resources to design, implement and evaluate meaningful, challenging curriculum for children. Students will have a 60 hour field experience working directly with preschool children. Michigan Central Registry Clearance by the Michigan Department of Human Services and a current TB test are required for this course. This course requires all students must meet the requirements of a criminal background check.

ECE 145 Infant and Toddler Education with Field Experiences

5 Cr. Hrs.

4 Lecture Hours

1 Off-site Hours with Faculty

4 Off-site Hours without Faculty

Prerequisites: ECE 110 or EDUC 110.

This course is designed to prepare students to provide care for infants and toddlers in group settings. Students will learn the essential ingredients in infant and toddler education and will be exposed to matching teaching 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. Students will have a 60 hour field experience working directly with infants and toddlers. Michigan Central Registry Clearance by the Michigan Department of Human Services and a current TB test are required for this course. This course requires all students must meet the requirements of a criminal background check.

ECE 150 Before and After School Programming for Children

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: ECE 110 or EDUC 110.

This course is designed to identify the developmental tasks of middle childhood (ages 6-12) and will provide strategies for supporting healthy growth and development. Emphasis will be on understanding the needs of students who attend before and after school programs. Programming that enhances creativity, independence and academic achievement will be explored. Students will complete an observation at a before and after school program. Michigan Central Registry Clearance by the Michigan Department of Human Services is required for this course. This course requires all students must meet the requirements of a criminal background check.

ECE 160 Child Development Associate CDA Credential Assessment Preparation

1 Cr. Hrs.

1 Lecture Hours

Prerequisites: ECE 100. ECE 120. ECE 135 with a minimum grade of 2.5 or ECE 145 with a minimum grade of 2.5. Consent of department.

This course is designed to support the CDA Candidate in preparation for the final assessment process. To be awarded the Child Development Associate - CDA - credential, a candidate must present evidence to The Council for Early Childhood Professional Recognition. The CDA credential is a national credential in the field of early childhood education for persons currently working in the field. For more information on the CDA Credential visit www.cda.council.org. Enrollment in this course is for students who are currently employed in the field of early childhood education. Michigan Central Registry Clearance is required for this course. This course requires all students must meet the requirements of a criminal background check.

ECE 170 Curriculum, Assessment and Technology

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: ECE 110 or EDUC 110.

The focus of this course is on understanding curriculum and its development, assessment methodologies and technology use in education. Students will be exposed to educational curricula, best assessment practices and resources for the educator for technology use within the classroom. Students will explore current tools and issues related to technology use in education.

ECE 180 Child and Family Welfare Services

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: None.
Corequisites: ECE 110 if not taken previously or EDUC 110 if not taken previously.

This class explores the importance and complex characteristics of diverse families and communities. There will be a focus on identifying needs of families and strength-based methods through which those needs are met. Emphasis is placed on understanding the importance of child protection and the impact of abuse and neglect. This is a program required service learning course. Michigan Central Registry Clearance by the Michigan Department of Human Services is required for this course. This course requires all students must meet the requirements of a criminal background check.

ECE 230 Classroom Behavior - Understanding Social Competence

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: ECE 110 or EDUC 110.

The course is designed to introduce students to the role of social competence in the lives of children. Students are introduced to the development of social competence, principles of group functioning, behavior expectations and appropriate strategies of behavior management in the classroom and the impacts of trauma on children's behavior. In addition, the role of educators for promoting self-regulation, peer relationships and healthy problem solving techniques for children is explored. Emphasis is placed on respecting children and understanding influences on child behavior. This is a program required service learning course. Michigan Central Registry Clearance by the Michigan Department of Human Services is required for this course. This course requires all students must meet the requirements of a criminal background check.

ECE 240 Administration of Early Childhood Programs

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: ECE 110 or EDUC 110.

This course will cover methods of administering an early childhood education program reflecting best practices in the field. Included will be current laws, regulations, ethical guidelines and other professional standards related to early childhood practice. Establishing an original program will be related to understanding the business need for comprehensive development of guidelines for children, staff and families taking part in the program. Students will interview an administrator of an early childhood education program. Michigan Central Registry Clearance by the Michigan Department of Human Services is required for this course. This course requires all students must meet the requirements of a criminal background check.

ECE 250 Literacy and Numerical Thinking

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: ECE 110 or EDUC 110.

This course explores literacy and numerical thinking in children. An emphasis will be placed on constructivist and sociolinguistic views of learning. Experiential exercises, course readings and activity development will provide students with opportunities to plan developmentally appropriate learning activities, to record observations of children and to generate analysis that support literacy and numerical thinking development. Students will have hands-on learning experiences to share their lessons on literacy and numerical thinking with children. Michigan Central Registry Clearance by the Michigan Department of Human Services is required for this course. This course requires all students must meet the requirements of a criminal background check.

ECE 265 Early Childhood Advanced Practical Experiences

4 Cr. Hrs.

2 Lecture Hours

1 Off-site Hours with Faculty

10 Off-site Hours without Faculty

Prerequisites: ECE 135 with a minimum grade of 2.5. ECE 145 with a minimum grade of 2.5.

Students will have a supervised practical experience working directly with children in an early childhood preschool classroom. Students will spend 150 hours over the semester in their practical field placement. They will have increased responsibility planning and implementing activities for children as well as directing the overall day. Emphasis will be placed on working as a contributing member of a teaching team. Michigan Central Registry Clearance by the Michigan Department of Human Services and a current TB test are required for this course. This course requires all students must meet the requirements of a criminal background check.

ECE 280 Emerging Educator

1 Cr. Hrs.

1 Lecture Hours

Prerequisites: Consent of department.

This course is the final requirement in the Early Childhood Education and Special Needs Para Educator AAS Degree programs. Students will demonstrate competencies in their designated programs of study by creating a portfolio. Students need to contact the Early Childhood and Special Education department to confirm their eligibility to take this course prior to registration.

ECON 103 Introductory Economics

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: MATH 47 or a minimum score of 19 ACT-Math, 25 SAT-Math, 75 CPT-Arithmetic, 28 CPT-Elementary Algebra, 260 NGA-Arithmetic or 230 NGA-Quantitative Reasoning, Algebra and Statistics.

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 Cr. Hrs.

4 Lecture Hours

Prerequisites: MATH 47 or a minimum score of 19 ACT-Math, 25 SAT-Math, 75 CPT-Arithmetic, 28 CPT-Elementary Algebra, 260 NGA-Arithmetic or 230 NGA-Quantitative Reasoning, Algebra and Statistics.

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 Cr. Hrs.

4 Lecture Hours

Prerequisites: MATH 47 or a minimum score of 19 ACT-Math, 25 SAT-Math, 75 CPT-Arithmetic, 28 CPT-Elementary Algebra, 260 NGA-Arithmetic or 230 NGA-Quantitative Reasoning, Algebra and Statistics.

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.

EDUC 101 Introduction to Education

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: Minimum score of 18 ACT-Reading, 25 SAT-Reading, 70 CPT-Reading Comprehension or 250 NGA-Reading. Minimum score of 18 ACT-English, 25 SAT-Writing and Language, 71 CPT-Sentence Skills or 250 NGA-Writing.

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 relevant fieldwork, which can be completed either in person or through video observations. This course requires all students must meet the requirements of a criminal background check.

EDUC 110 Child Development

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: Minimum score of 18 ACT-Reading, 25 SAT-Reading, 70 CPT-Reading Comprehension or 250 NGA-Reading. Minimum score of 18 ACT-English, 25 SAT-Writing and Language, 71 CPT-Sentence Skills or 250 NGA-Writing.

This course is designed to provide students an overview of development from the prenatal time period through emerging adulthood. The course will concentrate on physical, cognitive, social and emotional development in the prenatal, infancy, toddler, preschool, middle childhood, adolescence and emerging adulthood. Emphasis is placed on understanding development in the context of educational settings. Students will complete observations of three different children. Michigan Central Registry Clearance by the Michigan Department of Human Services may be required for this course. This course requires all students must meet the requirements of a criminal background check.

EDUC 200 Children with Special Needs

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: None.
Corequisites: ECE 110 if not taken previously or EDUC 110 if not taken previously.
Recommended: Individuals who hold a current or prior teaching certificate or are enrolled in the Education Transfer Program may be eligible to substitute PSYCH 249 or waive the corequisite. Discuss options with the department.

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. Students will complete three observations of children with special needs. Michigan Central Registry Clearance by the Michigan Department of Human Services may be required for this course. This course requires all students must meet the requirements of a criminal background check.

EDUC 205 Promoting Learning in a Diverse Society, Using Family, School and Community Partnerships

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: EDUC 101.
Recommended: Individuals who hold a current or prior teaching certificate may be eligible to waive the prerequisite. Discuss options with the department.

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 relevant fieldwork, which can be completed either in person or through video observations. This course requires all students must meet the requirements of a criminal background check.

EDUC 210 Elementary Instructional Strategies

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: 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 relevant fieldwork, which can be completed either in person or through video observations. This course requires all students must meet the requirements of a criminal background check.

EDUC 220 Secondary Instructional Strategies

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: 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 relevant fieldwork, which can be completed either in person or through video observations. This course requires all students must meet the requirements of a criminal background check.

EDUC 230 Teaching Literacy in the Elementary Classroom 1

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: Admission to the Alternative Route to Interim Teacher Certification Program.

This course will focus on the stages of literacy development, reading and writing processes and a comprehensive look at research based literacy instruction in the elementary classroom. Instructional strategies to teach word recognition, reading comprehension and process writing will be examined in depth. The use of standards-based lesson planning and both formal and informal assessment to promote effective instruction is also covered. Students will learn how to utilize technology in the classroom to enhance literacy instruction and how to implement a system of management for comprehensive balanced literacy instruction. Strategies to identify and assist struggling readers will be explored. Students will complete relevant fieldwork, which can be completed either in person or through video observations. This course requires all students must meet the requirements of a criminal background check.

EDUC 240 Teaching Literacy in the Elementary Classroom 2

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: EDUC 230.

This course will focus on analyzing current national literacy projects that identify instructional strategies to foster 21st century literacy skills. Course topics include identifying and assisting struggling readers and writers, creating instructional activities that meet the needs of culturally and academically diverse students and evaluating assessments for the implementation of research-based practices. Knowledge of the stages of literacy development and its elements will be reinforced. This course requires all students must meet the requirements of a criminal background check.

EDUC 250 Teaching Literacy in the Secondary School

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: 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 relevant fieldwork, which can be completed either in person or through video observations. This course requires all students must meet the requirements of a criminal background check.

EDUC 270 Instructional Technology

3 Cr. Hrs.

1 Lecture Hours

2 Laboratory Hours

Prerequisites: EDUC 101. EDUC 200. EDUC 205. EDUC 110 or PSYCH 249.
Recommended: Individuals who hold a current or prior teaching certificate may be eligible to waive the prerequisites. Discuss options with the department.

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 280 The Professional Educator

1 Cr. Hrs.

1 Lecture Hours

Prerequisites: 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 291 Fieldwork Practicum

2 Cr. Hrs.

1 Lecture Hours

1 Off-site Hours with Faculty

4 Off-site Hours without Faculty

Prerequisites: 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. This course requires all students must meet the requirements of a criminal background check.

EDUC 296 Education Field-Based Internship in Instruction

2 Cr. Hrs.

1 Lecture Hours

4 Off-site Hours without Faculty

Prerequisites: Admission to the Alternate Route Program. EDUC 101. EDUC 210 or EDUC 220 with a grade of 3.0 or higher. Consent of department.

The course is focused on developing effective instructional skills, and requires a minimum of sixty (60) contact hours at the teacher's school or a school arranged by the Alternate Route for Teacher Certification (ARC) program. The final grade will be based on a joint evaluation by the course instructor and the College Instructional Coach. Students registered in this internship course are considered Schoolcraft College students with all rights, responsibilities and privileges of a student. A grade of 3.0 is required for successful completion of the course within the ARC program. This course requires all students must meet the requirements of a criminal background check.

EDUC 297 Education Field-Based Internship in Assessment

2 Cr. Hrs.

1 Lecture Hours

4 Off-site Hours without Faculty

Prerequisites: Admission to the Alternate Route Program. EDUC 101. EDUC 210 or EDUC 220 with a grade of 3.0 or higher. Consent of department.

The course is focused on developing effective learning assessment skills and requires a minimum of sixty (60) contact hours at the teacher's school or a school arranged by the Alternate Route for Teacher Certification (ARC) program. The final grade will be based on a joint evaluation by the course instructor and the College Instructional Coach. Students registered in this internship course are considered Schoolcraft College students with all rights, responsibilities and privileges of a student. A grade of 3.0 is required for successful completion of the course within the ARC program. This course requires all students must meet the requirements of a criminal background check.

EDUC 298 Education Field-Based Internship in Classroom Management

2 Cr. Hrs.

1 Lecture Hours

4 Off-site Hours without Faculty

Prerequisites: Admission to the Alternate Route Program. EDUC 101. EDUC 210 or EDUC 220 with a grade of 3.0 or higher. Consent of department.

The course is focused on developing effective classroom management skills and requires a minimum of sixty (60) contact hours at the teacher's school or a school arranged by the Alternate Route for Teacher Certification (ARC) program. The final grade will be based on a joint evaluation by the course instructor and the College Instructional Coach. Students registered in this internship course are considered Schoolcraft College students with all rights, responsibilities and privileges of a student. A grade of 3.0 is required for successful completion of the course within the ARC program. This course requires all students must meet the requirements of a criminal background check.

ELECT 131 Basic Measurement and Reporting Skills

3 Cr. Hrs.

1 Lecture Hours

2 Laboratory Hours

Prerequisites: 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 Cr. Hrs.

3 Lecture Hours

Prerequisites: 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

5 Cr. Hrs.

2 Lecture Hours

3 Laboratory Hours

Prerequisites: MATH 53 or minimum score of 19 ACT-Math, 25 SAT-Math, 78 CPT-Elementary Algebra or 250 NGA-Quantitative Reasoning, Algebra and Statistics.
Corequisites: ELECT 131 if not taken previously.

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

5 Cr. Hrs.

2 Lecture Hours

3 Laboratory Hours

Prerequisites: 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

3 Cr. Hrs.

1 Lecture Hours

2 Laboratory Hours

Prerequisites: None.
Corequisites: ELECT 138 if not taken previously.

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

3 Cr. Hrs.

1 Lecture Hours

2 Laboratory Hours

Prerequisites: None.
Recommended: Computer and keyboarding experience 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

4 Cr. Hrs.

2 Lecture Hours

2 Laboratory Hours

Prerequisites: ELECT 138.

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

5 Cr. Hrs.

2 Lecture Hours

3 Laboratory Hours

Prerequisites: None.
Recommended: 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

4 Cr. Hrs.

2 Lecture Hours

2 Laboratory Hours

Prerequisites: 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

3 Cr. Hrs.

1 Lecture Hours

2 Laboratory Hours

Prerequisites: 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

4 Cr. Hrs.

2 Lecture Hours

2 Laboratory Hours

Prerequisites: 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

3 Cr. Hrs.

1 Lecture Hours

2 Laboratory Hours

Prerequisites: ELECT 215. 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 equipments and systems will be explored.

ELECT 251 Programmable Logic and Industrial Controls

4 Cr. Hrs.

2 Lecture Hours

2 Laboratory Hours

Prerequisites: ELECT 138.
Recommended: Windows experience is 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

4 Cr. Hrs.

2 Lecture Hours

2 Laboratory Hours

Prerequisites: ELECT 251.

The student will use Allen-Bradley RSLogix 500 software to be interfaced with RSLinx 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 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 diagnosis hardware, configuration and programming problems.

ELECT 253 Individual Student Projects

3 Cr. Hrs.

1 Lecture Hours

2 Laboratory Hours

Prerequisites: Consent of 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 115 Emergency Medical Technology - Basic

10 Cr. Hrs.

7 Lecture Hours

6 Laboratory Hours

Prerequisites: None.

The Basic Emergency Medical Technician course is a 264.5 hour Michigan Department of Health and Human Services Bureau of EMS, Trauma and Preparedness approved course that provides the information and experience necessary to prepare the student to take the National Registry Basic EMT Certification Exam. Students learn the role and responsibilities of an emergency medical technician in providing emergency care. Content areas are covered in lectures, practical skills practiced in a laboratory setting along with observations and experience that will be gained in a clinical and/or internship setting.

EMT 185 ECG Cardiac Monitor Technician

4 Cr. Hrs.

4 Lecture Hours

Prerequisites: None.
Recommended: BIOL 101 with a minimum GPA or 3.0. BIOL 236 with a minimum GPA of 3.0. EMT 115 with a minimum GPA of 2.7.

This 60-hour course prepares participants to work in the allied health field as a Cardiac Monitor Technician. The course covers the basics of cardiac anatomy and physiology while concentrating on the electrophysiology of the cardiac conduction system. Participants will learn how to apply and interpret basic three-lead cardiac rhythms. The course will end with basic cardiac management including Basic Life Support (CPR).

EMT 210 Paramedic Technology - Module 1

10 Cr. Hrs.

8 Lecture Hours

4 Laboratory Hours

Prerequisites: BIOL 101. BIOL 236. EMT 115.

This course provides information and experience to prepare the student for EMT 220. In addition, the EMT 210 course is designed to give students extensive knowledge and practical application that adds to the knowledge and skills acquired in the Basic EMT course. This course includes advanced practice with a focus on preparatory entry-level paramedic skills. Content will be presented in the form of lectures, 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 Health and Human Services Bureau of EMS, Trauma and Preparedness. 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 exam, the candidate will be eligible for State Licensing.

EMT 220 Paramedic Technology - Module 2

10.5 Cr. Hrs.

8 Lecture Hours

5 Laboratory Hours

Prerequisites: Valid and current State of Michigan Basic EMT License. EMT 210.

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 Health and Human Services Bureau of EMS, Trauma and Preparedness. 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

9 Cr. Hrs.

6 Lecture Hours

6 Laboratory Hours

Prerequisites: Valid and current State of Michigan Basic EMT License. EMT 220.

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 Health and Human Services Bureau of EMS, Trauma and Preparedness. 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 290 Paramedic Field Internship

2 Cr. Hrs.

1 Lecture Hours

20/40 Off-site Hours without Faculty

Prerequisites: EMT 230. Valid and current AHA Basic Life Support for Health Care Providers Certification. Valid and current AHA Advanced Life Support Provider Certification. Valid and current State of Michigan Basic EMT License.

This final semester, formally known as the field internship, will serve as the capstone project for the paramedic program. During the capstone, the student will serve as a Team Leader. The Team Leader's responsibilities are delegated by direct observation and under the responsibility of an approved and trained preceptor who is appropriately licensed and credentialed to work in an approved EMS system. The student will be evaluated on his or her ability to perform skills as a competent entry-level paramedic. The capstone will serve as the final evaluation of the student prior to completion of the program and eligibility to take the National Registry of Emergency Medical Technicians-Paramedic credentialing exam. At the conclusion of the program, the expectation is the student will be prepared as a competent entry-level Emergency Medical Technician-Paramedic in knowledge, skills and behavior.

ENG 50 Modern English Grammar

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: Minimum score of 10 ACT-English, 17 SAT-Writing and Language, 35 CPT-Sentence Skills or 220 NGA-Writing.

This course is designed to prepare students for composition courses. The course content focuses on major grammatical concepts and writing. Students will develop basic writing and editing skills.

ENG 55 Building Writing Skills

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: ENG 50 with a minimum grade of 2.0 or minimum score of 15 ACT-English, 22 SAT-Writing and Language, 51 CPT-Sentence Skills or 237 NGA-Writing.

This course is designed to prepare students for composition courses. The course focuses on the writing process, paragraph development, revision and grammar. Students will enhance their writing and editing skills.

ENG 100 Communication Skills

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: Minimum score of 15 ACT-English, 22 SAT-Writing and Language, 51 CPT-Sentence Skills or 237 NGA-Writing.

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 Cr. Hrs.

3 Lecture Hours

Prerequisites: ENG 55 with a minimum grade of 2.0 or minimum score of 18 ACT-English, 25 SAT-Writing and Language, 71 CPT-Sentence Skills or 250 NGA-Writing.

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 Cr. Hrs.

3 Lecture Hours

Prerequisites: ENG 101 with a minimum grade of 2.0 or minimum score of 22 ACT-English, 29 SAT-Writing and Language, 108 CPT-Sentence Skills or 276 NGA-Writing.

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 Cr. Hrs.

3 Lecture Hours

Prerequisites: ENG 55 with a minimum grade of 2.0 or minimum score of 18 ACT-English, 25 SAT-Writing and Language, 71 CPT-Sentence Skills or 250 NGA-Writing.

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 Cr. Hrs.

3 Lecture Hours

Prerequisites: ENG 101 with a minimum grade of 2.0 or minimum score of 22 ACT-English, 29 SAT-Writing and Language, 108 CPT-Sentence Skills or 276 NGA-Writing.
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 Cr. Hrs.

3 Lecture Hours

Prerequisites: ENG 55 with a minimum grade of 2.0 or minimum score of 18 ACT-English, 25 SAT-Writing and Language, 71 CPT-Sentence Skills or 250 NGA-Writing.

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 120 Introduction to Literary Studies

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: ENG 55 with a minimum grade of 2.0 or minimum score of 18 ACT-English, 25 SAT-Writing and Language, 71 CPT-Sentence Skills or 250 NGA-Writing.

This survey course is designed to introduce students to the field of literary studies. Students will learn to analyze the fundamental genres of literature including fiction, poetry and drama from a variety of historical and cultural contexts. This course enables students to develop their critical thinking and writing skills as related to the reading and interpretation of literature.

ENG 170 Modern Literature By and About Women

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: ENG 55 with a minimum grade of 2.0 or minimum score of 18 ACT-English, 25 SAT-Writing and Language, 71 CPT-Sentence Skills or 250 NGA-Writing.

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 Cr. Hrs.

4 Lecture Hours

Prerequisites: ENG 101 with a minimum grade of 2.0 or minimum score of 22 ACT-English, 29 SAT-Writing and Language, 108 CPT-Sentence Skills or 276 NGA-Writing.
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 Cr. Hrs.

3 Lecture Hours

Prerequisites: ENG 101 with a minimum grade of 2.0 or minimum score of 22 ACT-English, 29 SAT-Writing and Language, 108 CPT-Sentence Skills or 276 NGA-Writing.
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 1

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: ENG 101 with a minimum grade of 2.0 or minimum score of 22 ACT-English, 29 SAT-Writing and Language, 108 CPT-Sentence Skills or 276 NGA-Writing.
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 2

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: ENG 101 with a minimum grade of 2.0 or minimum score of 22 ACT-English, 29 SAT-Writing and Language, 108 CPT-Sentence Skills or 276 NGA-Writing.
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 Cr. Hrs.

3 Lecture Hours

Prerequisites: ENG 101 with a minimum grade of 2.0 or minimum score of 22 ACT-English, 29 SAT-Writing and Language, 108 CPT-Sentence Skills or 276 NGA-Writing.
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 Cr. Hrs.

3 Lecture Hours

Prerequisites: ENG 101 with a minimum grade of 2.0 or minimum score of 22 ACT-English, 29 SAT-Writing and Language, 108 CPT-Sentence Skills or 276 NGA-Writing.
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.

ENG 244 Introduction to Literature - Poetry

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: ENG 101 with a minimum grade of 2.0 or minimum score of 22 ACT-English, 29 SAT-Writing and Language, 108 CPT-Sentence Skills or 276 NGA-Writing.
Recommended: ENG 102 and college-level reading.

This course develops standards for critical evaluation to increase the understanding and appreciation of poetry. Students read and analyze poetry and its forms from early to modern times.

ENG 245 Introduction to Literature - Drama

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: ENG 101 with a minimum grade of 2.0 or minimum score of 22 ACT-English, 29 SAT-Writing and Language, 108 CPT-Sentence Skills or 276 NGA-Writing.
Recommended: ENG 102 and college-level reading.

Students will read and discuss a number of plays, especially those written since 1850. This course is designed to develop standards for critical evaluation and increase understanding and appreciation of drama as a literary form.

ENG 246 Introduction to Literature - Novel

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: ENG 101 with a minimum grade of 2.0 or minimum score of 22 ACT-English, 29 SAT-Writing and Language, 108 CPT-Sentence Skills or 276 NGA-Writing.
Recommended: ENG 102 and college-level reading.

The course examines classic, unique, and emerging examples of novels. Students use elements of fiction to critically evaluate novels, thereby expanding their understanding and appreciation for prose fiction.

ENG 248 Introduction to Literature - Shakespeare

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: ENG 101 with a minimum grade of 2.0 or minimum score of 22 ACT-English, 29 SAT-Writing and Language, 108 CPT-Sentence Skills or 276 NGA-Writing.
Recommended: ENG 102 and college-level reading.

This course develops standards for critical evaluation using elements of drama and poetry. Students read and analyze selected Shakespearean works to understand and appreciate one of Western civilization's greatest playwrights.

ENG 251 American Literature from Colonial Times to the Civil War

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: ENG 101 with a minimum grade of 2.0 or minimum score of 22 ACT-English, 29 SAT-Writing and Language, 108 CPT-Sentence Skills or 276 NGA-Writing.
Recommended: ENG 102 and college-level reading.

Students read and analyze significant literary works that illustrate the changing currents of thought and expression that dominated American life from colonial times to the Civil War.

ENG 252 American Literature from the Late Nineteenth Century to the Present

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: ENG 101 with a minimum grade of 2.0 or minimum score of 22 ACT-English, 29 SAT-Writing and Language, 108 CPT-Sentence Skills or 276 NGA-Writing.
Recommended: ENG 102 and college-level reading.

Students read and analyze significant literary works that illustrate the changing currents of thought and expression that have dominated American life from the Civil War to the present.

ENG 275 World Literature - Casebook Studies of Universal Themes

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: ENG 101 with a minimum grade of 2.0 or minimum score of 22 ACT-English, 29 SAT-Writing and Language, 108 CPT-Sentence Skills or 276 NGA-Writing.
Recommended: ENG 102 and college-level reading.

This course will examine a variety of international literary works pertaining to common literary themes. Such themes will be explored through poetry, drama, fiction and/or non-fiction. Works not originally written in English will be read in translation.

ENG 280 The Nature of Language

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: ENG 101 with a minimum grade of 2.0 or minimum score of 22 ACT-English, 29 SAT-Writing and Language, 108 CPT-Sentence Skills or 276 NGA-Writing.
Recommended: ENG 102 and college-level reading.

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 100 Introduction to Engineering and Technology

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: None.

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 Statics

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: PHYS 211.

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 202 Mechanics of Materials

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: ENGR 201.

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 203 Dynamics

4 Cr. Hrs.

4 Lecture Hours

Prerequisites: ENGR 201.

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 107 Soil Mechanics

4 Cr. Hrs.

3 Lecture Hours

2 Laboratory Hours

Prerequisites: 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 233 Environmental Studies Field Experience

3 Cr. Hrs.

1 Lecture Hours

3 Off-site Hours without Faculty

Prerequisites: Completion of any three of the following courses with a minimum grade of 3.0 and an overall minimum GPA of 2.5 and consent of department: ENVR 107. ENVR 245. GEOG 135. GEOG 225. GEOG 230.

This field experience provides students with an opportunity to apply the skills and knowledge learned in other environmental studies or sciences courses to off-campus experiences in government, private industry or nonprofit organizations at an off-site location for a minimum of 45 hours throughout the semester. The final grade will be based on a joint evaluation by the faculty and the field experience supervisor. Students registered in this course are considered Schoolcraft College students with all rights, responsibilities and privileges of a student. Field experiences may be paid or unpaid based upon placement. Department permission is required before registering for this course.

ENVR 245 Applications in Geographic Information Systems

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: GEOG 225.

This course examines intermediate level use of geographic information systems (GIS), including spatial analysis, such as classification, density analysis, overlay analysis, geoprocessing, measuring geographic distribution and analyzing patterns. Spatial data is used to describe and analyze spatial problems in natural and social sciences. GIS is used in decision making in a variety of fields, including planning, natural resource management, policy and economics. Course requirements include the

completion of GIS labs and a final course project. The project consists of a conference presentation-ready product of an individually selected topic related to a geographic problem. Development of a project topic, construction of a hypothesis and selection of research strategy are accomplished through consultation and faculty-directed study throughout the semester.

ESL 60 Reading and Vocabulary 1

4 Cr. Hrs.

3 Lecture Hours

1 Laboratory Hours

Prerequisites: Placement is determined by test scores on the CPT Accuplacer English as a Second Language Test.

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.

ESL 64 Listening and Speaking 1

4 Cr. Hrs.

3 Lecture Hours

1 Laboratory Hours

Prerequisites: Placement is determined by test scores on the CPT Accuplacer English as a Second Language Test. Students also may be required to complete a speaking skills assessment.

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.

ESL 67 Grammar and Writing 1

4 Cr. Hrs.

3 Lecture Hours

1 Laboratory Hours

Prerequisites: Placement is determined by test scores on the CPT Accuplacer English as a Second Language Test.

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.

ESL 70 Reading and Vocabulary 2

4 Cr. Hrs.

3 Lecture Hours

1 Laboratory Hours

Prerequisites: ESL 60 with a minimum grade of 2.0 or Placement is determined by test scores on the CPT Accuplacer English as a Second Language Test.

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.

ESL 74 Listening and Speaking 2

4 Cr. Hrs.

3 Lecture Hours

1 Laboratory Hours

Prerequisites: ESL 64 with a minimum grade of 2.0 or Placement is determined by test scores on the CPT Accuplacer English as a Second Language Test. Students also may be required to complete a speaking skills assessment.

This course for English-language learners is the second in a guided series of ESL listening and speaking skills classes. The content of this course, taught in group and language lab settings, teaches students to develop fluency and accuracy in speaking through group presentations and spoken interactions with teachers and classmates. They will learn to apply strategies

for comprehending and processing short-spoken passages on familiar topics. Students improve their ability to talk about personal and informal topics in social and academic settings.

ESL 77 Grammar and Writing 2

4 Cr. Hrs.

3 Lecture Hours

1 Laboratory Hours

Prerequisites: ESL 67 with a minimum grade of 2.0 or Placement is determined by test scores on the CPT Accuplacer English as a Second Language Test.

This course for English-language learners is the second in a guided series of ESL grammar and writing classes. The content of this course, taught in group and language lab settings, focuses on developing basic English grammar and writing skills. Students will be able to write well developed paragraphs demonstrating the appropriate application of grammar rules.

ESL 78 English for Business Purposes

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: ESL 60 with a minimum grade of 3.0, ESL 64 with a minimum grade of 3.0 and ESL 67 with a minimum grade of 3.0 or Placement is determined by test scores on the CPT Accuplacer English as a Second Language Test.

This is an elective course for English-language learners which is designed for both pre-work and working ESL students who want to improve their communication in a professional setting. This course will focus on the cultural and professional aspects of American business interaction and help students develop some of the essential skills necessary for success. Using an integrative approach, business vocabulary, grammar and some pronunciation will also be included. Topics include interviewing, participating in a meeting and messaging. Special emphasis is placed on giving professional presentations.

ESL 79 American English Pronunciation

3 Cr. Hrs.

2 Lecture Hours

1 Laboratory Hours

Prerequisites: ESL 64 with a minimum grade of 3.0 or Placement is determined by test scores on the CPT Accuplacer English as a Second Language Test.

This is an elective course for English-language learners to improve speech intelligibility as well as understanding of American English. Students from a variety of language backgrounds will identify individual pronunciation needs, be instructed in the basics of English pronunciation, and be guided from controlled practice into natural communication. This class, taught in group and language lab settings, concentrates on building and improving pronunciation through the communicative approach.

ESL 80 Reading and Vocabulary 3

4 Cr. Hrs.

3 Lecture Hours

1 Laboratory Hours

Prerequisites: ESL 70 with a minimum grade of 2.0 or Placement is determined by test scores on the CPT Accuplacer English as a Second Language Test.

This course for English-language learners is the third in a guided series of ESL reading and vocabulary skills classes. This course, taught in both group and language lab settings, focuses on academic reading and vocabulary development for college success in a new culture. Students will explore and develop higher level strategies to improve reading comprehension and efficiency, academic word power and critical thinking skills.

ESL 84 Listening and Speaking 3

4 Cr. Hrs.

3 Lecture Hours

1 Laboratory Hours

Prerequisites: ESL 74 with a minimum grade of 2.0 or Placement is determined by test scores on the CPT Accuplacer English as a Second Language Test. Students also may be required to complete a speaking skills assessment.

This course for English-language learners is the third in a guided series of ESL listening and speaking skills classes. The content of this course focuses on students' increasing proficiency as they learn to use informal versus academic vocabulary and grammar in appropriate context. They develop a more critical stance toward their own oral interactions and those of their classmates and apply evaluative criteria to individual and group presentations.

ESL 87 Grammar and Writing 3

4 Cr. Hrs.

3 Lecture Hours

1 Laboratory Hours

Prerequisites: ESL 77 with a minimum grade of 2.0 or Placement is determined by test scores on the CPT Accuplacer English as a Second Language Test.

This course for English-language learners is the third in a guided series of ESL grammar and writing classes. In this class, taught in group and language lab settings, students continue to develop their knowledge of appropriate grammatical structures, academic vocabulary, and will begin essay writing.

ESL 110 Reading and Vocabulary 4

4 Cr. Hrs.

3 Lecture Hours

1 Laboratory Hours

Prerequisites: ESL 80 with a minimum grade of 2.0 or Placement is determined by test scores on the CPT Accuplacer English as a Second Language Test.

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 evaluate argumentative and expository authentic materials. Students will apply culturally appropriate techniques to selected projects and materials, test-taking tasks and textbooks.

ESL 114 Listening and Speaking 4

4 Cr. Hrs.

3 Lecture Hours

1 Laboratory Hours

Prerequisites: ESL 84 with a minimum grade of 2.0 or Placement is determined by test scores on the CPT Accuplacer English as a Second Language Test. Students also may be required to complete a speaking skills assessment.

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.

ESL 117 Grammar and Writing 4

4 Cr. Hrs.

3 Lecture Hours

1 Laboratory Hours

Prerequisites: ESL 87 with a minimum grade of 2.0 or Placement is determined by test scores on the CPT Accuplacer English as a Second Language Test.

This course for English-language learners is the fourth in a guided series of ESL grammar and writing classes. In this class, taught in group and language lab settings, students will develop academic essays which integrate limited research.

ESL 130 Capstone Course

4 Cr. Hrs.

3 Lecture Hours

1 Laboratory Hours

Prerequisites: ESL 110 with a minimum grade of 2.0, ESL 114 with a minimum grade of 2.0 and ESL 117 with a minimum grade of 2.0 or Placement is determined by test scores on the CPT Accuplacer English as a Second Language Test. Students also may be required to complete a speaking skills assessment.

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.

FIN 420 Financial Management

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: BUS 304.

In this course, you will apply financial concepts utilized in analyzing a business operation to improve performance and to facilitate decision making. This course will include: financial management, financial analysis, time value of money techniques, financial markets, debt and equity financing, project and investment evaluation and decision making, capital structure, financial planning and forecasting and business risk. This course will integrate web-based learning tools and spreadsheet applications.

FIRE 101 Principles of Emergency Services

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: None.

This course provides an overview to fire protection and emergency services, career opportunities in fire protection and related fields. The culture and history of emergency services is explored. Students will learn to analyze fire loss. The organization and function of public and private fire protection services are examined. Fire departments as part of local government are examined as well as the laws and regulations affecting the fire service. Fire service nomenclature, specific fire protection functions, basic fire chemistry and physics are explored. Fire protection systems, fire strategy and tactics and life safety initiatives are examined. Students who successfully complete this course may apply to be recognized by the U.S. Fire Administration through the Fire and Emergency Services Higher Education (FESHE) initiative.

FIRE 105 Fire Behavior and Combustion

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: None.

This course explores the theories and fundamentals of how and why fires start, spread, and are controlled. This course explores the physical and chemical properties and characteristics of fire. Fire suppression agents, techniques and methods are discussed and explored. Students who successfully complete this course may apply to be recognized by the U.S. Fire Administration through the Fire and Emergency Services Higher Education (FESHE) initiative.

FIRE 112 Fire Fighter 1 - Basic Fire Suppression

10 Cr. Hrs.

6 Lecture Hours

4 Laboratory Hours

Prerequisites: Michigan state law mandates that persons taking this course must be at least 18 years of age and have a valid Michigan driver's license.

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 is 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 119 Fire Fighter 2 - Advanced Fire Suppression

10 Cr. Hrs.

7 Lecture Hours

3 Laboratory Hours

Prerequisites: FIRE 112 with a grade of 2.0 or higher. Michigan state law mandates that persons taking this course must be at least 18 years of age and have a valid Michigan driver’s license.

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.

FIRE 124 Fire Academy

20 Cr. Hrs.

13 Lecture Hours

7 Laboratory Hours

Prerequisites: Michigan state law mandates that persons taking this course must be at least 18 years of age and have a valid Michigan driver's license.

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.

FIRE 125 Building Construction for the Fire Service

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: None.

This course examines the components of building construction related to firefighter and life safety. The elements of construction and design are explored. Analysis of these structural elements are shown to be key factors when inspecting buildings, preplanning fire operations and operating at emergencies. Students who successfully complete this course may apply to be recognized by the U.S. Fire Administration through the Fire and Emergency Services Higher Education (FESHE) initiative.

FIRE 128 Fire Fighting - Hydraulics and Water Supply

4 Cr. Hrs.

4 Lecture Hours

Prerequisites: 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 131 Fire Fighting - Tactics and Strategy

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: None.
Recommended: FIRE 112 or FIRE 124.

This course examines firefighting tactics and strategies related to various types of fires in diverse locations. Topics include safety concepts, company operations, fire dynamics, types of construction, special fires and fire protection systems. Actions to be taken before and after an incident will be explored.

FIRE 132 Fire Prevention

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: None.

This course provides fundamental knowledge relating to the field of fire prevention. Topics include: history and philosophy of fire prevention, organization and operation of a fire prevention bureau, use and application of codes and standards, plans review, fire inspections, fire and life safety education and fire investigation. Students who successfully complete this course may apply to be recognized by the U.S. Fire Administration through the Fire and Emergency Services Higher Education (FESHE) initiative.

FIRE 136 Fire Protection Systems

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: None.

This course provides information relating to the features of design and operation of fire alarm systems. This course explores water-based and special hazard fire suppression systems. This course also examines water supply for fire protection and the application of portable fire extinguishers. Students who successfully complete this course may apply to be recognized by the U.S. Fire Administration through the Fire and Emergency Services Higher Education (FESHE) initiative.

FIRE 200 Fire and Arson Investigation

4 Cr. Hrs.

4 Lecture Hours

Prerequisites: 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 Cr. Hrs.

3 Lecture Hours

Prerequisites: 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 Cr. Hrs.

3 Lecture Hours

Prerequisites: FIRE 119 or FIRE 124.

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.

FIRE 221 Principles of Fire and Emergency Services Safety and Survival

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: None.

This course introduces the basic principles and history related to the national firefighter life safety initiatives. The class examines the need for cultural and behavior change throughout the emergency services. This class introduces the 16 Life Safety Initiatives. Students who successfully complete this course may apply to be recognized by the U.S. Fire Administration through the Fire and Emergency Services Higher Education (FESHE) initiative.

FR 101 Elementary French 1

4 Cr. Hrs.

4 Lecture Hours

Prerequisites: None.

This course is intended for students with no previous education in French. You will learn basic vocabulary and grammar patterns and will 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 Cr. Hrs.

4 Lecture Hours

Prerequisites: None.
Recommended: FR 101 with a minimum grade of 2.0 or one year of high school French or equivalent language knowledge.

This course is a continuation of FR 101 and continues to review the basic French vocabulary and 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 French and Francophone culture will be an integral part of the course.

FR 201 Intermediate French 1

4 Cr. Hrs.

4 Lecture Hours

Prerequisites: None.
Recommended: FR 102 with a minimum grade of 2.0 or two years of high school French or equivalent language knowledge.

This course is a continuation of FR 102 and continues to cover vocabulary and 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 French and Francophone culture will be an integral part of the course.

FR 202 Intermediate French 2

4 Cr. Hrs.

4 Lecture Hours

Prerequisites: None.
Recommended: FR 201 with a minimum grade of 2.0 or three years of high school French or equivalent language knowledge.

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.

GEOG 105 Earth Science for Elementary Teachers

4 Cr. Hrs.

3 Lecture Hours

2 Laboratory Hours

Prerequisites: 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. This course requires all students must meet the requirements of a criminal background check.

GEOG 133 World Regional Geography

4 Cr. Hrs.

4 Lecture Hours

Prerequisites: 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

4 Cr. Hrs.

3 Lecture Hours

2 Laboratory Hours

Prerequisites: 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 Cr. Hrs.

3 Lecture Hours

Prerequisites: 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 Cr. Hrs.

3 Lecture Hours

Prerequisites: 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, biodiversity and deforestation, erosion and contamination of soil resources, degradation of water resources, air pollution, conventional and alternative energy sources, global climate change and waste management.

GEOG 217 Water Resources

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: 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 Cr. Hrs.

4 Lecture Hours

Prerequisites: 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.

GEOG 230 Energy Resources

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: None.

This course presents an overview of energy resources and policies. Learners will analyze the global distribution and use of energy resources. They also will examine the advantages and disadvantages of different energy resources, including exploration of sustainable energy systems and alternative energy sources. Course topics include energy units, energy conservation, fossil fuels, renewable energy sources, nuclear power, electricity, air pollution, energy policies and global climate change.

GEOL 133 Physical Geology

4 Cr. Hrs.

3 Lecture Hours

3 Laboratory Hours

Prerequisites: None.

Physical Geology is the study of the geological processes that affect the earth. This includes a survey of what the earth is made of (rocks, minerals, etc.), how it works on the inside (plate tectonics, earthquakes, volcanic eruptions) and the processes that act upon it from the outside (streams, glaciers, wind, etc.). Identification of common rocks and minerals and the interpretation of topographic maps are part of the required laboratory exercises. An all-day Saturday field trip is optional.

GEOL 134 Historical Geology

4 Cr. Hrs.

3 Lecture Hours

3 Laboratory Hours

Prerequisites: 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

4 Cr. Hrs.

3 Lecture Hours

2 Laboratory Hours

Prerequisites: GEOL 133.

Mineralogy teaches the basics of crystal formation, crystal symmetry and crystal chemistry 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.

GER 101 Elementary German 1

4 Cr. Hrs.

4 Lecture Hours

Prerequisites: None.

This course is intended for students who have no previous education in German. The course will cover basic vocabulary and grammar patterns and will 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 Cr. Hrs.

4 Lecture Hours

Prerequisites: None.
Recommended: GER 101 with a minimum grade of 2.0 or one year of high school German or equivalent language knowledge.

This course is a continuation of GER 101 and continues to review the basic vocabulary and 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 German culture will be an integral part of the course.

GER 201 Intermediate German 1

4 Cr. Hrs.

4 Lecture Hours

Prerequisites: None.
Recommended: GER 102 with a minimum grade of 2.0 or two years of high school German or equivalent language knowledge.

This course is a continuation of GER 102 and continues to cover vocabulary and 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 German culture will be an integral part of the course.

GER 202 Intermediate German 2

4 Cr. Hrs.

4 Lecture Hours

Prerequisites: None.
Recommended: GER 201 with a minimum grade of 2.0 or three years of high school German or equivalent language knowledge.

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.

HIST 134 Ancient World

4 Cr. Hrs.

4 Lecture Hours

Prerequisites: 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 Cr. Hrs.

4 Lecture Hours

Prerequisites: 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 Cr. Hrs.

3 Lecture Hours

Prerequisites: 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 Cr. Hrs.

3 Lecture Hours

Prerequisites: 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 Cr. Hrs.

3 Lecture Hours

Prerequisites: 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 Cr. Hrs.

3 Lecture Hours

Prerequisites: 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 antebellum 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 Cr. Hrs.

3 Lecture Hours

Prerequisites: 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 Cr. Hrs.

3 Lecture Hours

Prerequisites: 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.

HIT 100 Introduction to Medical Terminology

2 Cr. Hrs.

2 Lecture Hours

Prerequisites: 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 Cr. Hrs.

4 Lecture Hours

Prerequisites: 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 114 Pharmacology for Health Professionals

2 Cr. Hrs.

2 Lecture Hours

Prerequisites: 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 117 ICD-10-CM/PCS

3 Cr. Hrs.

2 Lecture Hours

2 Laboratory Hours

Prerequisites: None.
Corequisites: HIT 118 if not taken previously. HIT 120 if not taken previously.

This course provides an introduction to basic ICD-10-CM/PCS coding theory. 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. ICD-10-CM and PCS Official Guidelines for Coding and Reporting for hospital inpatient and outpatient services will be utilized. Laboratory activities focus on the application of the related skills with accuracy and completeness using manual and computerized methods.

HIT 118 Human Diseases

4 Cr. Hrs.

4 Lecture Hours

Prerequisites: BIOL 236. HIT 104.
Recommended: CIS 120.

This course includes the study of the pathology and general health management of diseases and injuries across the life span. Topics include the fundamental concepts and processes of human disease such as inflammation, infection, neoplasia, degeneration, aging, congenital and genetic disorders, immune deficiency and autoimmune disorders. Idiopathic, traumatic, stress-related, substance abuse-related and iatrogenic disorders will also be studied. The student will develop an understanding of common diagnostic work-ups including laboratory tests and imaging. The types of treatments for diseases, which may include pharmacology, surgery and other therapies, are also covered.

HIT 120 Foundations of Health Information Management Technology

3 Cr. Hrs.

3 Lecture Hours

1 Laboratory Hours

Prerequisites: CIS 120. HIT 104.

This course provides an introduction to the U.S. healthcare industry and to the health information management profession. Topics include an overview of the evolution of healthcare systems in the U.S. and trends for the future. Health record content, documentation requirements, secondary data sources and the influence of accrediting and regulatory bodies that govern health information will be reviewed. Information processes and relationships among organizational departments and healthcare providers will also be addressed. The educational and certification requirements for health information professionals will be examined. Hands-on laboratory activities will help the student to gain proficiency in basic health information functions. Electronic health record applications will be utilized.

HIT 130 Legal Aspects of Health Information

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: HIT 120.
Corequisites: ENG 102 if not taken previously or ENG 106 if not taken previously.

This course provides the student with an understanding of the American legal system, legal terminology and the requirements concerning the compilation and maintenance of health information. Topics include how health information is used and when it can be disclosed based on state and federal regulations and statutes, including the privacy and security rules resulting from the Health Insurance Portability and Accountability Act (HIPAA). The patient's right to privacy, patient consent and advance directives, retention directions, ethical issues in health care and health information management are also explored.

HIT 162 Professional Practice Experience Simulation

2 Cr. Hrs.

2 Lecture Hours

2 Laboratory Hours

Prerequisites: ENG 101 with a minimum grade of 2.0. MATH 111 with a minimum grade of 2.0.
Corequisites: HIT 117 if not taken previously.

This course provides the Health Information student with simulated professional practice experience (PPE). The student will have the opportunity to observe and interact with Health Information Management professionals in a variety of healthcare settings both on-campus and off-campus. Virtual lab activities will be used to enhance the development of professional practices.

HIT 210 Healthcare Statistics for Health Information Management

3 Cr. Hrs.

2 Lecture Hours

2 Laboratory Hours

Prerequisites: HIT 117. HIT 162.

This course introduces students to terminology, definitions and computational methodology most frequently used in health statistics. Descriptive statistical concepts are also explored. Topics examined include healthcare data collection, report generation, data analysis and interpretation, data presentation techniques, as well as measures of central tendency, frequency distribution and standard deviation.

HIT 213 Health Information Technology Seminar

1 Cr. Hrs.

1 Lecture Hours

Prerequisites: None.
Corequisites: HIT 210 if not taken previously. HIT 224 if not taken previously. HIT 232 if not taken previously. HIT 234 if not taken previously. HIT 235 if not taken previously. HIT 240 if not taken previously. HIT 242 if not taken previously.

This course will assist the student in preparation for the Registered Health Information Technician (RHIT) 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. This course should be taken in the last semester of the student's program.

HIT 222 Basic Ambulatory Coding

3 Cr. Hrs.

2 Lecture Hours

2 Laboratory Hours

Prerequisites: None.
Corequisites: HIT 118 if not taken previously. HIT 120 if not taken previously.

This course is designed to prepare a student to code in the ambulatory setting using Current Procedural Terminology (CPT). Topics include ambulatory 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.

HIT 224 Quality Management in Healthcare

2 Cr. Hrs.

2 Lecture Hours

1 Laboratory Hours

Prerequisites: HIT 130. HIT 162.

This course is designed for the student to review methods by which a healthcare organization measures, assesses and improves the quality, safety and effectiveness of healthcare services. Topics explored include traditional quality assessment, performance improvement methodologies, utilization/resource/case management, risk management, infection control, credentialing and the role of oversight agencies. Patient satisfaction as an important and commonly used indicator for measuring the quality in health care will also be covered. Lab activities will include data abstraction and analysis for quality reporting and use of electronic applications.

HIT 231 Ambulatory Coding Practicum

2 Cr. Hrs.

1 Lecture Hours

1 Laboratory Hours

Prerequisites: None.
Corequisites: HIT 117 if not taken previously. HIT 234 if not taken previously. HIT 240 if not taken previously.

This course will provide practical hands-on experience with Current Procedural Terminology (CPT) coding of health/medical records and case scenarios. The student will apply official coding guidelines to a variety of clinical cases and record types such as ambulatory, emergency, outpatient and physician office and ancillary services. Evaluation and Management (E/M) leveling will be performed. HCPCS Level 2 codes will also be applied. The student will research references in solving coding problems. Manual and computerized systems for procedure and service coding will be reviewed.

HIT 232 Computer Applications in Healthcare

2 Cr. Hrs.

2 Lecture Hours

Prerequisites: HIT 162.

This course is an introduction to the theory and practical methodology of healthcare information systems. Topics include basics of electronic health records (EHRs) and general healthcare computer systems. Common software applications, system selection and implementation, data quality, storage and retrieval, security and privacy are covered. Health information exchange and new roles in HIM will also be explored.

HIT 234 Intermediate Ambulatory Coding

3 Cr. Hrs.

2 Lecture Hours

2 Laboratory Hours

Prerequisites: HIT 222.

This course includes advanced 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 analyze clinical data for the purpose of coding and reimbursement in the ambulatory setting including the physician office. Manual and computerized methods for code assignment will be used.

HIT 235 Intermediate ICD-10-CM/PCS

3 Cr. Hrs.

2 Lecture Hours

2 Laboratory Hours

Prerequisites: HIT 114. HIT 117.

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. Students will further develop their skills in building codes in the ICD-10 procedure coding system. Students will accurately and ethically assign codes for diagnoses, services and procedures that are documented in the health/medical record. Lab activities will include manual and electronic methods of code assignment.

HIT 236 ICD Coding Practicum

2 Cr. Hrs.

1 Lecture Hours

1 Laboratory Hours

Prerequisites: None.
Corequisites: HIT 235 if not taken previously. HIT 240 if not taken previously.

This course will provide practical hands-on experience in assigning ICD-10-CM/PCS codes to health/medical records and case scenarios. The student will apply official coding guidelines to a variety of clinical cases and record types such as hospital inpatient, outpatient surgery, physician office and ancillary services. The student will research references in solving coding problems. Manual and computerized systems for diagnosis and procedure coding and DRG grouping will be used.

HIT 240 Healthcare Reimbursement Methodologies

2 Cr. Hrs.

2 Lecture Hours

Prerequisites: HIT 117. 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 and

compliance/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 242 Organization and Management

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: HIT 162.
Corequisites: HIT 210 if not taken previously. HIT 224 if not taken previously.

Health information professionals make decisions that demand sound 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. Emphasis will be on management of Human Resources and operations, as well as budgeting and operational financial management. The concept of management vs. leadership will be addressed. Project management and team leadership concepts will also be introduced.

HIT 262 Professional Practice Experience

2 Cr. Hrs.

1 Lecture Hours

4/20 Off-site Hours without Faculty

Prerequisites: Acceptance into the HIT Program. HIT 130. (Legal)
Corequisites: HIT 222 if not taken previously.

This course provides a professional practice experience (PPE) of a minimum of 40 hours for the student under the guidance of a health information management professional. The student will have the opportunity to apply knowledge and skills learned in the classroom to real-world health information functions. Students will utilize technical skills necessary to maintain a health information service, observe employee interactions and interact with health care professionals. Students will learn about professionalism in the workplace and will be required to create a professional resume.

HS 101 Introduction to Homeland Security

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: 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 Cr. Hrs.

3 Lecture Hours

Prerequisites: 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 Cr. Hrs.

3 Lecture Hours

Prerequisites: 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 Cr. Hrs.

3 Lecture Hours

Prerequisites: 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.

HS 202 Introduction to Emergency Management

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: None.

This course will provide an overview of emergency management as a career field, discipline and approach to dealing with all-hazards emergency/disaster response. This course will examine major disasters in history and concepts, theory and terminology associated with emergency management.

HS 203 Intelligence Analysis and Security Management

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: None.

This course will provide a study of the U.S. government's intelligence community as well as an overview of intelligence processes. This study will include a historical look at intelligence and some of its milestones. Discussed will be key terms, concepts and perspectives. Students will be exposed to the relationship of intelligence with law enforcement and homeland security and how some intelligence processes may be applied to emergency management and pre-incident planning.

HUM 106 Introduction to Art and Music

1 Cr. Hrs.

1 Lecture Hours

Prerequisites: 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 151 World Masterpieces (Prehistory-1400)

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: 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 1400. The course will cover the major periods/styles in art and music history: Prehistory, Mesopotamian, Egyptian, Greek, Roman/Early Christian, Romanesque, Gothic and Proto-Renaissance. 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 152 World Masterpieces (1400-Present)

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: None.

This course serves as an introduction to some of the great works of art and music in the Western world from 1400 to the present. The course will cover the major periods/styles in art and music history: Early, High and Late Renaissance, Baroque, Classical, Romantic, Modern (1900-1945), Post-Modern (1945-2000) and Contemporary. 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 Cr. Hrs.

3 Lecture Hours

Prerequisites: 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 Cr. Hrs.

3 Lecture Hours

Prerequisites: None.
Corequisites: Sign up for the international tour.

This course is a humanistic study of music and art 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 also 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 Cr. Hrs.

3 Lecture Hours

Prerequisites: None.
Corequisites: 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'Orsay (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 Cr. Hrs.

3 Lecture Hours

Prerequisites: None.
Corequisites: 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 Cr. Hrs.

3 Lecture Hours

Prerequisites: None.
Corequisites: 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 Cr. Hrs.

3 Lecture Hours

Prerequisites: 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.

HUM 212 Mass Media and Popular Culture

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: None.

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.

HUM 215 Humanities through the Arts

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: 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.

ITAL 101 Elementary Italian 1

4 Cr. Hrs.

4 Lecture Hours

Prerequisites: None.

This course is intended for students who have no previous education in Italian. The course will cover basic vocabulary and grammar patterns and will 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.

ITAL 102 Elementary Italian 2

4 Cr. Hrs.

4 Lecture Hours

Prerequisites: None.
Recommended: ITAL 101 with minimum grade 2.0 or one year of high school Italian or equivalent language knowledge.

This course is a continuation of ITAL 101 and continues to review the basic Italian vocabulary and 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.

MA 115 Phlebotomy

3 Cr. Hrs.

2 Lecture Hours

1 Laboratory Hours

Prerequisites: BIOL 105 or consent of department.

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.

MA 134 Medical Insurance Coding

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: None.
Corequisites: HIT 104 if not previously taken.

This course introduces the student to insurance coding guidelines developed for use with the International Classification of Diseases (ICD-10-CM) and Current Procedural Terminology (CPT). The course is designed to develop basic 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 Cr. Hrs.

3 Lecture Hours

Prerequisites: 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 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 Cr. Hrs.

3 Lecture Hours

Prerequisites: MA 134. 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. Applying the guidelines of CPT, ICD-10 CM and Health Insurance Portability and Accountability Act (HIPAA) must be demonstrated by the student.

MA 161 Phlebotomy Internship

2 Cr. Hrs.

1 Lecture Hours

1 Laboratory Hours

4 Off-site Hours without Faculty

Prerequisites: MA 115 with a minimum grade of 3.0 and completion within the last two months or consent of department. HIT 104.
Corequisites: CIS 105 if not taken previously. MA 140 if not taken previously.

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 175 Medical Laboratory Techniques

3 Cr. Hrs.

2 Lecture Hours

1 Laboratory Hours

Prerequisites: HIT 104 with a minimum grade of 2.0. MA 115 with a minimum grade of 2.0. MA 140 with a minimum grade of 2.0.
Corequisites: MA 180.

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 and patient preps. Note: Students must begin MA 196 within six months of completing MA 175 and MA 180.

MA 180 Medical Office Clinical Procedures

4 Cr. Hrs.

3 Lecture Hours

3 Laboratory Hours

Prerequisites: HIT 104 with a minimum grade of 2.0. MA 140 with a minimum grade of 2.0. CIS 120 with a minimum grade of 2.0. MATH 45 with a minimum grade of 2.0 or a minimum score of 16 ACT Math, 22 SAT Math, 60 CPT Math, or 220 NGA Quantitative Reasoning Algebra and Statistics. ENG 50 with a minimum grade of 2.0 or a minimum score of 15 ACT English, 22 SAT Writing and Language, 51 CPT Sentence Skills or 237 NGA Writing. COLLS 50 with a minimum grade of 2.0 or a minimum score of 15 ACT English, 22 SAT Writing and Language, 57 CPT Sentence Skills or 237 NGA Writing.
Corequisites: HIT 114 if not taken previously. MA 155 if not taken previously. MA 175.

This course is designed to introduce the student to all clinical aspects of working in an ambulatory care setting. The following is a short list of what students will learn in this course: examination techniques (including vital signs), medication administration, minor surgery procedures, sterilization procedures, how to perform medical tests, first aid, maintenance of equipment and special dietary needs. Students will spend an additional three hours per week in a lab setting. Note: Students must begin MA 196 within six months of completing MA 175 and MA 180.

MA 196 Office Practicum

3 Cr. Hrs.

1 Lecture Hours

12 Off-site Hours without Faculty

Prerequisites: HIT 114 with a minimum grade of 2.0. MA 155 with a minimum grade of 2.0. MA 175 with a minimum grade of 2.0. MA 180 with a minimum grade of 2.0. All students must complete the following prior to registering: background check, drug screen, physical and immunizations.

The student will participate in a 180-hour non-paid externship under the direction of a physician and/or 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.

MATH 45 Basic Mathematics

4 Cr. Hrs.

4 Lecture Hours

Prerequisites: Minimum score of 11 ACT-Math, 15 SAT-Math, 23 CPT-Arithmetic or 220 NGA-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, percentages and proportions. In addition, several topics from geometry are included.

MATH 47 Prealgebra

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: MATH 45 with a minimum grade of 2.0 or a minimum score of 16 ACT-Math, 22 SAT-Math, 60 CPT-Arithmetic, 240 NGA-Arithmetic or 220 NGA-Quantitative Reasoning, Algebra and Statistics. Competence in arithmetic without the aid of a calculator.

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 53 Beginning Algebra

4 Cr. Hrs.

4 Lecture Hours

Prerequisites: MATH 47 with a minimum grade of 2.0 or a minimum score of 16 ACT-Math, 22 SAT-Math, 75-CPT-Arithmetic, 28 CPT-Elementary Algebra, 260 NGA-Arithmetic or 230 NGA-Quantitative Reasoning, Algebra and Statistics.

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 101 Business Mathematics

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: MATH 45 with a minimum grade of 2.0 or a minimum score of 16 ACT-Math, 22 SAT-Math, 60 CPT-Arithmetic or 240 NGA-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 Cr. Hrs.

4 Lecture Hours

Prerequisites: MATH 47 with a minimum grade of 2.0 or a minimum score of 16 ACT-Math, 22 SAT-Math, 75 CPT-Arithmetic, 28 CPT-Elementary Algebra, 260 NGA-Arithmetic or 230 NGA-Quantitative Reasoning, Algebra and Statistics.

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 Cr. Hrs.

4 Lecture Hours

Prerequisites: MATH 53 with a minimum grade of 2.5 or a minimum score of 19 ACT-Math, 25 SAT-Math, 100 CPT-Elementary Algebra, 270 NGA-Arithmetic or 250 NGA-Quantitative Reasoning, Algebra and Statistics.

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. This course requires all students must meet the requirements of a criminal background check.

MATH 106 Mathematics for Elementary Teachers 2

4 Cr. Hrs.

4 Lecture Hours

Prerequisites: 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. This course requires all students must meet the requirements of a criminal background check.

MATH 111 Applications - Utility of Math

4 Cr. Hrs.

4 Lecture Hours

Prerequisites: MATH 47 with a minimum grade of 2.0 or a minimum score of 16 ACT-Math, 22 SAT-Math, 75 CPT-Arithmetic, 28 CPT-Elementary Algebra, 260 NGA-Arithmetic or 230 NGA-Quantitative Reasoning, Algebra and Statistics.

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 Cr. Hrs.

4 Lecture Hours

Prerequisites: MATH 53 with a minimum grade of 2.0 or a minimum score of 19 ACT-Math, 25 SAT-Math, 78 CPT-Elementary Algebra or 250 NGA-Quantitative Reasoning, Algebra and Statistics.

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 Cr. Hrs.

3 Lecture Hours

Prerequisites: MATH 113 with a minimum grade of 2.0 or a minimum score of 23 ACT-Math, 29 SAT-Math, 63 CPT-College-Level Math or 230 NGA-Advanced Algebra and Functions.

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 Cr. Hrs.

4 Lecture Hours

Prerequisites: MATH 113 with a minimum grade of 2.0 or a minimum score of 23 ACT-Math, 29 SAT-Math, 63 CPT-College-Level Math or 265 NGA-Quantitative Reasoning, Algebra and Statistics.

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 Cr. Hrs.

4 Lecture Hours

Prerequisites: MATH 113 with a minimum grade of 2.0 or a minimum score of 23 ACT-Math, 29 SAT-Math, 63 CPT-College-Level Math or 230 NGA-Advanced Algebra and Functions.
Recommended: MATH 126 is recommended for business and social science majors.

The function concept, polynomial, rational, exponential and logarithmic functions, curve sketching, graphical analysis of functions, graphical solutions and business applications are the topics included in this course.

MATH 129 Precalculus

5 Cr. Hrs.

5 Lecture Hours

Prerequisites: MATH 113 with a minimum grade of 2.0 and MATH 119 with a minimum grade of 2.0 or Minimum score of 23 ACT-Math, 29 SAT-Math, 63 CPT-College-Level Math or 260 NGA-Advanced Algebra and Functions.
Recommended: MATH 129 is recommended for engineering, science and math majors.

Topics covered in this course include the function concept, polynomial, rational, exponential, logarithmic, rapid review of trigonometric and inverse trigonometric functions, solving equations, curve sketching, complex numbers, coordinate geometry and conic sections. The prevailing theme is applications and graphical solutions.

MATH 135 Finite Mathematics

4 Cr. Hrs.

4 Lecture Hours

Prerequisites: MATH 126 with a minimum grade of 2.0 or a minimum score of 23 ACT-Math, 29 SAT-Math, 103 CPT-College-Level Math or 250 NGA-Advanced Algebra and Functions.

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 Cr. Hrs.

4 Lecture Hours

Prerequisites: MATH 126 with a minimum grade of 2.0 or a minimum score of 23 ACT-Math, 29 SAT-Math, 103 CPT-College-Level Math or 250 NGA-Advanced Algebra and Functions.

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 Cr. Hrs.

5 Lecture Hours

Prerequisites: MATH 129 with a minimum grade of 2.0 or a minimum score of 23 ACT-Math, 29 SAT-Math, 103 CPT-College-Level Math or 280 NGA-Advanced Algebra and Functions.

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 Cr. Hrs.

5 Lecture Hours

Prerequisites: MATH 150 with a minimum grade of 2.0.
Recommended: MATH 230 may be taken concurrently.

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 Cr. Hrs.

4 Lecture Hours

Prerequisites: 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 240 Calculus With Analytic Geometry 3

5 Cr. Hrs.

5 Lecture Hours

Prerequisites: MATH 151 with a minimum grade of 2.0.

Vectors in the plane, vectors in three-space, solid analytic geometry, partial derivatives, line integrals, multiple integrals and applications are the topics covered in this course.

MATH 252 Differential Equations

5 Cr. Hrs.

5 Lecture Hours

Prerequisites: 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.

MET 103 Introduction to Materials Science

3 Cr. Hrs.

3 Lecture Hours

1 Laboratory Hours

Prerequisites: None.

This course provides a broad introduction to materials science. Using the scientific method, the physical, mechanical and chemical properties of metallic, polymeric, ceramic and composite materials are related to their atomic structure and bonding.

MET 116 Introduction to Physical Metallurgy

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: CHEM 104. ENG 116 or may be taken concurrently. MATH 102. MET 103.

This course introduces the physical metallurgy of ferrous and non-ferrous metals, the history and production of alloys and fabricated metal products, material selection and failure analysis. It provides the foundation for the subsequent laboratory-based courses.

MET 153 Metallography

3 Cr. Hrs.

1 Lecture Hours

3 Laboratory Hours

Prerequisites: CAD 103 or may be taken concurrently. CIS 120 or may be taken concurrently. MET 116 or may be taken concurrently.

This course provides experience in the use of laboratory equipment and methods for studying and reporting microstructures of ferrous, non-ferrous and specialty materials. Proper operation of equipment and instrumentation for sectioning, mounting, polishing, etching, microscopy and image analysis is emphasized, as are safety, etiquette and communication in the laboratory.

MET 160 Composite Materials

3 Cr. Hrs.

2 Lecture Hours

2 Laboratory Hours

Prerequisites: MET 103. ENG 116. CHEM 104.

This course introduces the various classes, manufacturing methods and applications of composite materials used in industry. The mechanical, physical and chemical properties of reinforced polymer matrix, metal matrix and ceramic matrix composites are explored.

MET 212 Heat Treatment

3 Cr. Hrs.

2 Lecture Hours

2 Laboratory Hours

Prerequisites: ENGR 100 or may be taken concurrently. MET 153. MFG 102 or may be taken concurrently. WELD 110 or may be taken concurrently.

This course explores the application of phase diagrams, time-temperature-transformation diagrams, thermal treatments and metallography to predict, control and characterize equilibrium and non-equilibrium structures resulting from thermally activated diffusive and displacive phase transformations.

MET 216 Mechanical Testing

3 Cr. Hrs.

2 Lecture Hours

2 Laboratory Hours

Prerequisites: ENGR 100 or may be taken concurrently. MET 153. MFG 102 or may be taken concurrently.

This course applies theories of elasticity and plasticity as well as mechanisms of strengthening and fracture to the mechanical testing of materials by various loading and measurement techniques. In addition, common forming methods are discussed.

MET 248 Scanning Electron Microscopy and X-ray Microanalysis

3 Cr. Hrs.

2 Lecture Hours

2 Laboratory Hours

Prerequisites: MET 153 or consent of department.

This course introduces the fundamentals of Scanning Electron Microscopy (SEM) and X-ray Microanalysis used for materials characterization and failure analysis. Topics include microscopy systems and components, safety and maintenance, applications in fractography and materials characterization and failure analysis.

MET 272 Corrosion Testing

3 Cr. Hrs.

2 Lecture Hours

2 Laboratory Hours

Prerequisites: ENGR 100 or may be taken concurrently. MET 116.

This course introduces basic electrochemistry and the eight forms of corrosion. Laboratory instruction in standard immersion, atmospheric, cabinet and other corrosion test and analysis methods is provided.

MET 281 Special Problems in Materials Science

3 Cr. Hrs.

1 Lecture Hours

3 Laboratory Hours

Prerequisites: MET 212. MET 216. MET 248 or may be taken concurrently.

This course involves the execution of an applied research project involving materials processing and/or analysis. Literature review, hypothesis development, experimental design, experimentation and data analysis culminate in formal written and oral presentations.

MET 291 Metallurgy Internship

3 Cr. Hrs.

1 Lecture Hours

12/40 Off-site Hours without Faculty

Prerequisites: MET 153 with a minimum grade of 3.0, consent of department and an overall GPA of 2.5.

This is an applied course within Occupational Programs specializing in the field of metallurgy (MET) 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 a metallurgy or related department. The final grade will be based on a joint evaluation by the faculty 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.

MFG 102 Basic Machining Processes

3 Cr. Hrs.

2 Lecture Hours

4 Laboratory Hours

Prerequisites: 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)

3 Cr. Hrs.

2 Lecture Hours

4 Laboratory Hours

Prerequisites: 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 set up 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 Cr. Hrs.

4 Lecture Hours

Prerequisites: 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

3 Cr. Hrs.

2 Lecture Hours

2 Laboratory Hours

Prerequisites: MFG 102 or consent of department.

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) solid-model tool path verification to detect potential machining errors. The students will also study drilling, solid modeling, pocketing and circle boring.

MFG 202 Advanced Machining Processes

3 Cr. Hrs.

1 Lecture Hours

3 Laboratory Hours

Prerequisites: MFG 102.

This course will cover advanced machining processes. The students will be exposed to advanced manual machine operator skills to prepare them for what they will experience in a real world machining job environment. Particular course emphasis will be on developing skills related to precision machining processes, stamping die repair, maintaining machines, maintaining tools and producing an end product. There is a focus on using lathes, mills and grinders.

MFG 203 Advanced Computer Numerical Control (CNC)

3 Cr. Hrs.

2 Lecture Hours

4 Laboratory Hours

Prerequisites: 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

3 Cr. Hrs.

4 Laboratory Hours

Prerequisites: MFG 106 or consent of department.

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 effects 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

3 Cr. Hrs.

3 Laboratory Hours

Prerequisites: MFG 203. 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.

MFG 212 Coordinate Measuring Machine

2 Cr. Hrs.

1 Lecture Hours

1 Laboratory Hours

Prerequisites: MFG 102. CAD 130.

This course will cover fundamental Coordinate Measuring Machine (CMM) processes. The students will be exposed to CMM machines for checking parts to prepare them for what they would experience in a real world machining job environment. Particular course emphasis will be on setting up and operating a CMM machine to check parts. We will be using CMM software, including PC-DMIS and Zeiss, on Brown and Sharpe and FaroArm machines.

MFG 213 Machining Speeds and Feeds

2 Cr. Hrs.

1 Lecture Hours

1 Laboratory Hours

Prerequisites: MFG 102. MFG 103. MFG 203.

This course will cover machining speeds and feeds of various materials. The students will learn to calculate cutting speeds and feeds as they would experience in a real world machining job environment. Particular course emphasis will be on calculating spindle speeds, feed rates, surface feet per minute and horsepower requirements for different materials. There also will be a focus on radial chip production and analysis.

MFG 291 Manufacturing Internship

3 Cr. Hrs.

1 Lecture Hours

12/40 Off-site Hours without Faculty

Prerequisites: Minimum of three MFG courses with a minimum average grade of 3.0 and an overall minimum GPA of 2.5 or consent of department.

This is an applied course within Occupational Programs specializing in the field of manufacturing (MFG) 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 a manufacturing or related 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.

MUSIC 104 Basic Materials in Music Theory

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: 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 Cr. Hrs.

3 Lecture Hours

Prerequisites: 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

4 Cr. Hrs.

3 Lecture Hours

2 Laboratory Hours

Prerequisites: 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. This course requires all students must meet the requirements of a criminal background check.

MUSIC 114 Voice Class 1 Elements - Beginners

2 Cr. Hrs.

2 Lecture Hours

Prerequisites: 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 Cr. Hrs.

2 Lecture Hours

Prerequisites: MUSIC 114.

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 Cr. Hrs.

2 Lecture Hours

1 Laboratory Hours

Prerequisites: Consent of department.
Recommended: This course requires an audition prior to registration. Please contact the Music department for details.

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 Cr. Hrs.

2 Lecture Hours

1 Laboratory Hours

Prerequisites: MUSIC 117.

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 Cr. Hrs.

2 Lecture Hours

Prerequisites: None.

This is the first class 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 Cr. Hrs.

2 Lecture Hours

Prerequisites: MUSIC 121 or consent of department.
Recommended: This course requires an audition prior to registration. Please contact the Music department for details.

This is the second class 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 131 Applied Music - Piano 1

2 Cr. Hrs.

1 Lecture Hours

1 Laboratory Hours

Prerequisites: None.

This class is for students who have previous experience in piano performance. 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

2 Cr. Hrs.

1 Lecture Hours

1 Laboratory Hours

Prerequisites: MUSIC 131.

This class is for students who have previous experience in piano performance. 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

2 Cr. Hrs.

1 Lecture Hours

1 Laboratory Hours

Prerequisites: 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

2 Cr. Hrs.

1 Lecture Hours

1 Laboratory Hours

Prerequisites: 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

2 Cr. Hrs.

1 Lecture Hours

1 Laboratory Hours

Prerequisites: 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

2 Cr. Hrs.

1 Lecture Hours

1 Laboratory Hours

Prerequisites: 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 Cr. Hrs.

2 Lecture Hours

Prerequisites: Consent of department.
Recommended: Please contact the Music department for details.

This course will focus on sight singing melodies. The course will also include simple rhythmic, melodic and harmonic dictations. There will be exploration of intervals; tonic and dominant chords in root position, first and second inversion; and non-harmonic tones.

MUSIC 138 Sight Singing and Ear Training 2

2 Cr. Hrs.

2 Lecture Hours

Prerequisites: 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 Cr. Hrs.

2 Lecture Hours

1 Laboratory Hours

Prerequisites: Consent of department.
Recommended: This course requires an audition prior to registration. Please contact the Music department for details.

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.

MUSIC 141 Wind Ensemble 1

2 Cr. Hrs.

2 Lecture Hours

1 Laboratory Hours

Prerequisites: Consent of the department.
Recommended: This course requires an audition prior to registration. Please contact the Music department for details.

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 Cr. Hrs.

2 Lecture Hours

1 Laboratory Hours

Prerequisites: Consent of department.
Recommended: This course requires an audition prior to registration. Please contact the Music department for details.

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

2 Cr. Hrs.

1 Lecture Hours

1 Laboratory Hours

Prerequisites: Consent of department.

Piano teachers will learn to create and present effective lesson plans. Topics include repertoire, theory concepts, rhythm, tone, touch and hand position for beginning piano study. Students will have the opportunity to observe other teachers as well as beginning piano students in the Schoolcraft Piano Academy and in the community. This course requires all students must meet the requirements of a criminal background check.

MUSIC 144 Practice Teaching and Practicum in Piano Teaching 2

2 Cr. Hrs.

1 Lecture Hours

1 Laboratory Hours

Prerequisites: MUSIC 143.

Piano teachers will learn to create and present effective lesson plans. Topics include repertoire, theory concepts, rhythm, tone, touch and hand position through the second semester of piano study. Students will have the opportunity to observe other teachers as well as early intermediate piano students in the Schoolcraft Piano Academy and in the community. This course requires all students must meet the requirements of a criminal background check.

MUSIC 149 Popular Music Culture in America

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: 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 150 Introduction to Music Entrepreneurship

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: None.

This course is an introduction to the inner workings of today's music industry and to the career opportunities that exist for musicians. It seeks to dispel some of the old myths concerning "making it" as a musician and replace them with practical information which will help musicians build a career. Students will be required to organize their priorities, set attainable long-term goals and create a professional portfolio. There will be an introduction to resources in music publishing, online sales, music streaming, music production, music video production, music law and management.

MUSIC 153 Music Theory 1

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: Consent of department.
Recommended: Please contact the Music department for details.

Harmonic progression; chords of root position, first inversion and second inversion will be examined in 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 Cr. Hrs.

3 Lecture Hours

Prerequisites: MUSIC 153.

This is the second course in the Music Theory sequence. Students will be introduced to chord progressions, harmonization, nondominant seventh chords, altered non-harmonic tones, secondary dominants and modulation to closely-related keys. Students will also explore music notation software. Students will create an original composition.

MUSIC 155 History of Broadway

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: 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 160 Introduction to World Music

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: None.

This course is an introduction to world music designed to increase understanding of performance practices and traditions from regions that may include Africa, Asia, the Middle East and the Americas. The focus of this course is an exploration of musical structure, style and function as it is expressed through and influenced by global cultures. Prior technical musical knowledge is not required, but outside listening and attendance at a live musical performance is required.

MUSIC 164 Music History 1 - 17th and 18th Centuries

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: None.

This course provides a detailed survey of literature, history and musical materials of the Baroque and Classical eras. The functions and characteristics of music in the 17th and 18th centuries will be explored. Composers, musical compositions and musical performances of this era will be examined.

MUSIC 165 Music History 2 - 19th and 20th Centuries

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: None.

This course provides a detailed survey of history and literature of music of the Romantic and 20th century eras. The functions and characteristics of music in the 19th and 20th centuries will be explored. Composers, musical compositions and musical performances of this era will be examined.

MUSIC 168 Synthesizer Ensemble 1

3 Cr. Hrs.

2 Lecture Hours

1 Laboratory Hours

Prerequisites: MUSIC 121 or Consent of department.
Recommended: This course requires an audition prior to registration. Please contact the Music department for details.

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

3 Cr. Hrs.

2 Lecture Hours

1 Laboratory Hours

Prerequisites: MUSIC 168.

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 Cr. Hrs.

3 Lecture Hours

Prerequisites: MUSIC 104 and MUSIC 121 or Consent of department.

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 Cr. Hrs.

3 Lecture Hours

Prerequisites: 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 Cr. Hrs.

2 Lecture Hours

Prerequisites: 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, the Royal Conservatory of Music (Canada) and other recognized testing organizations.

MUSIC 202 Keyboard Skills for Piano Teachers 2

2 Cr. Hrs.

2 Lecture Hours

Prerequisites: 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, the Royal Conservatory of Music (Canada) and other recognized testing organizations.

MUSIC 204 Keyboard Skills for Piano Teachers 3

2 Cr. Hrs.

2 Lecture Hours

Prerequisites: 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, the Royal Conservatory of Music (Canada) and other recognized testing organizations.

MUSIC 205 Keyboard Skills for Piano Teachers 4

2 Cr. Hrs.

2 Lecture Hours

Prerequisites: 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, the Royal Conservatory of Music (Canada) and other recognized testing organizations.

MUSIC 214 Voice Class 3 Performance - Advanced

2 Cr. Hrs.

2 Lecture Hours

Prerequisites: MUSIC 116.

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 Cr. Hrs.

2 Lecture Hours

Prerequisites: MUSIC 214.

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 Cr. Hrs.

2 Lecture Hours

1 Laboratory Hours

Prerequisites: MUSIC 118.

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 Cr. Hrs.

2 Lecture Hours

1 Laboratory Hours

Prerequisites: MUSIC 217.

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 231 Applied Music - Piano 3

2 Cr. Hrs.

1 Lecture Hours

1 Laboratory Hours

Prerequisites: MUSIC 132.

This class is for students who have previous experience in piano performance. 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

2 Cr. Hrs.

1 Lecture Hours

1 Laboratory Hours

Prerequisites: MUSIC 231.

This class is for students who have previous experience in piano performance. 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

2 Cr. Hrs.

1 Lecture Hours

1 Laboratory Hours

Prerequisites: 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

2 Cr. Hrs.

1 Lecture Hours

1 Laboratory Hours

Prerequisites: 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.

MUSIC 235 Applied Music - Instrumental 3

2 Cr. Hrs.

1 Lecture Hours

1 Laboratory Hours

Prerequisites: 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

2 Cr. Hrs.

1 Lecture Hours

1 Laboratory Hours

Prerequisites: 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 Cr. Hrs.

2 Lecture Hours

1 Laboratory Hours

Prerequisites: MUSIC 140.

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.

MUSIC 241 Wind Ensemble 2

2 Cr. Hrs.

2 Lecture Hours

1 Laboratory Hours

Prerequisites: MUSIC 141.

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 Cr. Hrs.

2 Lecture Hours

1 Laboratory Hours

Prerequisites: MUSIC 142.

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 243 Practice Teaching and Practicum in Piano Teaching 3

2 Cr. Hrs.

1 Lecture Hours

1 Laboratory Hours

Prerequisites: MUSIC 144.

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. Students will have the opportunity to observe other teachers and students, as well as to teach late intermediate to early advanced piano students in the Schoolcraft Piano Academy and in the community. This course requires all students must meet the requirements of a criminal background check.

MUSIC 244 Practice Teaching and Practicum in Piano Teaching 4

2 Cr. Hrs.

1 Lecture Hours

1 Laboratory Hours

Prerequisites: 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. Students will have the opportunity to observe other teachers and students, as well as to teach advanced piano students in the Schoolcraft Piano Academy and in the community. This course requires all students must meet the requirements of a criminal background check.

MUSIC 245 Wind Ensemble 3

2 Cr. Hrs.

2 Lecture Hours

1 Laboratory Hours

Prerequisites: MUSIC 241.

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 Cr. Hrs.

2 Lecture Hours

1 Laboratory Hours

Prerequisites: MUSIC 245.

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 Cr. Hrs.

3 Lecture Hours

Prerequisites: Consent of department.

This course explores the relationship between childhood development and beginning piano study. The content and structure of a beginning piano student's preparation will be examined. This introductory level course emphasizes techniques and methods for teaching the beginning piano student, including the following topics: developing a professional piano studio, setting up a small business, understanding laws and ethics of music teaching, elementary methods and materials, repertoire, supplemental materials and functional skills and knowledge of professional organizations. This course requires all students must meet the requirements of a criminal background check.

MUSIC 248 Jazz Band 3

2 Cr. Hrs.

2 Lecture Hours

1 Laboratory Hours

Prerequisites: MUSIC 242.

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 Cr. Hrs.

2 Lecture Hours

1 Laboratory Hours

Prerequisites: MUSIC 248.

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 250 Music Theory 3

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: 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 mediants and modulation to foreign keys. Students will also analyze 18th- and 19th-century compositions.

MUSIC 252 Music Theory 4

4 Cr. Hrs.

4 Lecture Hours

Prerequisites: 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

2 Cr. Hrs.

1 Lecture Hours

1 Laboratory Hours

Prerequisites: 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 fifth semester of piano study. This course requires all students must meet the requirements of a criminal background check.

MUSIC 256 Practice Teaching and Practicum in Piano Teaching 6

2 Cr. Hrs.

1 Lecture Hours

1 Laboratory Hours

Prerequisites: 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 sixth semester of piano study. This course requires all students must meet the requirements of a criminal background check.

MUSIC 257 Piano Teaching Techniques and Materials 2

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: MUSIC 247 or consent of department.

This course explores the relationship between development and intermediate piano study. The content and structure of an intermediate piano student's preparation will be examined. This is the second course in a series and emphasizes techniques and methods for the intermediate piano student, including the following topics: intermediate methods and materials, repertoire, supplemental and functional skills and the knowledge of professional organizations. This course requires all students must meet the requirements of a criminal background check.

MUSIC 263 Practice Teaching and Practicum in Piano Teaching 7

2 Cr. Hrs.

1 Lecture Hours

1 Laboratory Hours

Prerequisites: 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. This course requires all students must meet the requirements of a criminal background check.

MUSIC 264 Practice Teaching and Practicum in Piano Teaching 8

2 Cr. Hrs.

1 Lecture Hours

1 Laboratory Hours

Prerequisites: 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. This course requires all students must meet the requirements of a criminal background check.

MUSIC 268 Synthesizer Ensemble 3

3 Cr. Hrs.

2 Lecture Hours

1 Laboratory Hours

Prerequisites: MUSIC 169.

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

3 Cr. Hrs.

2 Lecture Hours

1 Laboratory Hours

Prerequisites: MUSIC 268.

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 Cr. Hrs.

3 Lecture Hours

Prerequisites: MUSIC 257 or consent of department.

This course explores the relationship between childhood development, late intermediate and early advanced piano study. The content and structure of an intermediate to advance piano student's preparation will be examined. This is the third course in the series and emphasizes techniques and methods for teaching the intermediate and early advanced piano student, including the following topics: advanced methods and materials, repertoire, supplemental materials and functional skills and knowledge of professional organizations. This course requires all students must meet the requirements of a criminal background check.

MUSIC 282 Applied Music - Piano 5

2 Cr. Hrs.

1 Lecture Hours

1 Laboratory Hours

Prerequisites: MUSIC 232.

This is the fifth 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 283 Applied Music - Piano 6

2 Cr. Hrs.

1 Lecture Hours

1 Laboratory Hours

Prerequisites: 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

2 Cr. Hrs.

1 Lecture Hours

1 Laboratory Hours

Prerequisites: 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

2 Cr. Hrs.

1 Lecture Hours

1 Laboratory Hours

Prerequisites: 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

2 Cr. Hrs.

1 Lecture Hours

1 Laboratory Hours

Prerequisites: 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

2 Cr. Hrs.

1 Lecture Hours

1 Laboratory Hours

Prerequisites: 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

2 Cr. Hrs.

1 Lecture Hours

1 Laboratory Hours

Prerequisites: 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

2 Cr. Hrs.

1 Lecture Hours

1 Laboratory Hours

Prerequisites: 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

2 Cr. Hrs.

1 Lecture Hours

1 Laboratory Hours

Prerequisites: MUSIC 236.

This is the fifth 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 291 Applied Music - Instrumental 6

2 Cr. Hrs.

1 Lecture Hours

1 Laboratory Hours

Prerequisites: MUSIC 290.

This is the sixth 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 292 Applied Music - Instrumental 7

2 Cr. Hrs.

1 Lecture Hours

1 Laboratory Hours

Prerequisites: 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

2 Cr. Hrs.

1 Lecture Hours

1 Laboratory Hours

Prerequisites: 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 Cr. Hrs.

2 Lecture Hours

Prerequisites: Consent of department.
Recommended: Please contact the Music department for details.

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. Topics and structure will vary based on the individual student's skills and goals.

MUSIC 299 Special Music Projects for Honors Studies - Performance/Composition/Research

2 Cr. Hrs.

2 Lecture Hours

Prerequisites: Consent of department.
Recommended: Please contact the Music department for details.

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.

NATP 115 Nursing Assistant Course

6 Cr. Hrs.

3.5 Lecture Hours

4.5 Laboratory Hours

3 Off-site Hours with Faculty

Prerequisites: The Nursing Assistant course is open only to students who are officially admitted to the college.

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. This course requires all students must meet the requirements of a criminal background check, negative drug screen on first attempt and meet specific clinical agency uniform and health requirements. Students must also meet classroom, laboratory and clinical attendance requirements.

NFS 320 Evolution of Dietary Needs throughout the Lifecycle

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: CHEM 100. BIOL 115, BIOL 105 or CUL 241.

Students will learn to examine the nutritional requirements for each phase of the lifecycle. This will include nutritional needs, appropriate food group balance, portion sizes, difference in nutritional requirements by gender, appropriate supplements, illnesses related to nutritional deficiencies and the development of menu plans.

NFS 360 Ensuring a Sustainable Food Supply

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: ENG 102.
Recommended: BIOL 101.

This course examines the plan of action necessary to ensure a sustainable worldwide food supply. Topics include sustainable agriculture, organic farming, genetically modified organisms, the Farm Bill and hydroponic gardening. In addition, related restaurant initiatives such as buying locally, organic recycling and Green Certification are explored. Off-site educational opportunities may be included in this course.

NFS 440 Exploring Specialized Diets

3 Cr. Hrs.

3 Lecture Hours

1 Laboratory Hours

Prerequisites: BIOL 105. CHEM 100. BIOL 115 or CUL 241. CHEM 104 or CHEM 111.

This course evaluates a variety of specialized diets. This course will prepare students to select and recommend foods according to established science-based nutrition guidelines. Medical nutrition therapy concepts will relate both normal nutrition and modifying menus for nutrition therapy for treatment of disorders and disease. The process of digestion, body systems, health conditions and diet planning will be highlighted. Food allergies and alternative therapies will be discussed.

NFS 480 Clinical Nutrition

3 Cr. Hrs.

3 Lecture Hours

1 Laboratory Hours

Prerequisites: ENG 102. NFS 440.

This course prepares students to act as a dietary manager as part of the nutrition care team. This course reviews the nutrition care process, highlighting necessary skills to select and recommend foods based on institutional guidelines, using appropriate tools to assess nutritional adequacy and planning menus based on needs of clients or populations. Topics include nutrition education, documenting in the health record and providing feedback and evaluation to the healthcare team. Note: Students must begin NFS 490 within one year of completing NFS 480.

NFS 491 Clinical Nutrition Internship

2 Cr. Hrs.

1 Lecture Hours

4 Off-site Hours without Faculty

Prerequisites: NFS 480 and departmental approval.

This internship course gives students the opportunity to apply skills learned in Clinical Nutrition and Exploring Specialized Diets. Students will intern a minimum of 50 hours with a registered dietitian. They will have the opportunity to assess and document nutrition-related information, implement physician's dietary orders and review the effectiveness of the nutrition plan. In addition, students will work within a larger group of medical professionals to develop skills in communicating appropriate client information.

NURS 104 Pharmacology for Nurses

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: 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 105 Foundations in Nursing Practice 1

4 Cr. Hrs.

2.5 Lecture Hours

4.5 Laboratory Hours

Prerequisites: 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 with practice in laboratory settings.

NURS 106 Foundations in Nursing Practice 2

4.5 Cr. Hrs.

2.5 Lecture Hours

6 Off-site Hours with Faculty

Prerequisites: NURS 105.

This course provides a continuation to Foundations of Nursing Practice 1. 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 107 Medical-Surgical Nursing

4.5 Cr. Hrs.

2.5 Lecture Hours

6 Off-site Hours with Faculty

Prerequisites: NURS 104. NURS 106.

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 surgical 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 108 Surgical-Medical Nursing

4.5 Cr. Hrs.

2.5 Lecture Hours

6 Off-site Hours with Faculty

Prerequisites: NURS 104. NURS 106.

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 medical alterations within the practical and registered nurse scope of practice. Theoretical content focuses on musculoskeletal, neurological, respiratory, gastrointestinal and immune 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

5 Cr. Hrs.

2.5 Lecture Hours

7.5 Off-site Hours with Faculty

Prerequisites: NURS 104. NURS 106.

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

3 Cr. Hrs.

1.5 Lecture Hours

4.5 Off-site Hours with Faculty

Prerequisites: NURS 107. NURS 108. NURS 128. PSYCH 201.

This capstone course emphasizes 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 select advanced physiological and psychiatric mental health alterations 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 205 Advanced Medical Surgical Nursing

4.5 Cr. Hrs.

2.5 Lecture Hours

6 Off-site Hours with Faculty

Prerequisites: NURS 107. NURS 108. 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

4 Cr. Hrs.

2 Lecture Hours

6 Off-site Hours with Faculty

Prerequisites: NURS 107, NURS 108, NURS 128 and PSYCH 201.

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

5 Cr. Hrs.

2.5 Lecture Hours

7.5 Off-site Hours with Faculty

Prerequisites: NURS 107, NURS 108 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 250 Advanced Concepts in Registered Nursing

4.5 Cr. Hrs.

2 Lecture Hours

7.5 Off-site Hours with Faculty

Prerequisites: NURS 205. NURS 246. 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, research, 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.

OSH 111 Occupational Safety and Health for General Industry

2 Cr. Hrs.

2 Lecture Hours

0.5 Laboratory Hours

Prerequisites: None.

This course serves as a safety and health training program designed for general industry personnel. The course will cover employee rights, employer responsibilities, and how to file a complaint as well as how to identify, abate, avoid and prevent job related hazards. Federal Occupational Safety and Health Administration (OSHA) and Michigan Occupational Safety and Health Administration (MIOSHA) standards that relate to hazard identification and control will be covered. This course is “OSHA-authorized.” Therefore, students who successfully complete the course are eligible for the OSHA 30 hour card in General Industry.

OSH 112 Occupational Safety and Health for Construction

2 Cr. Hrs.

2 Lecture Hours

0.5 Laboratory Hours

Prerequisites: None.

This course serves as a safety and health training program designed for construction personnel. The course will cover employee rights, employer responsibilities, and how to file a complaint as well as how to identify, abate, avoid and prevent critical construction related hazards. Federal Occupational Safety and Health Administration (OSHA) and Michigan Occupational Safety and Health Administration (MIOSHA) standards that relate to hazard identification and control will be covered. This course is “OSHA-authorized.” Therefore, students who successfully complete the course are eligible for the OSHA 30 hour card in Construction.

PE 104 Physical Fitness and Conditioning

2 Cr. Hrs.

1 Lecture Hours

1 Laboratory Hours

Prerequisites: None.

This course stresses vigorous body conditioning through progressive exercises, stretching, weight machine and free weight use. Cardiovascular fitness will be emphasized.

PE 106 Beginning Swimming

2 Cr. Hrs.

1 Lecture Hours

1 Laboratory Hours

Prerequisites: 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 111 Introduction to Kinesiology

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: None.

This lecture course will introduce the student to a conceptual model of kinesiology, the sub-disciplines within kinesiology, and how the sub-disciplines contribute to our understanding of the broad spectrum of human physical activity. Topics to be covered include: 1) a holistic overview of human physical activity, 2) understanding how physical activity is studied, 3) the introduction of possible careers in kinesiology and 4) the responsibilities of a kinesiology professional.

PE 112 Introduction to Exercise Physiology

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: None.

This course will introduce the student through lecture and practical demonstration to the fundamentals of exercise physiology. The topics will include cardiorespiratory, neuromuscular and endocrine anatomy; systems physiology; basic nutrition; metabolic pathways; and energy expenditure.

PE 114 Pilates Mat Work

2 Cr. Hrs.

1 Lecture Hours

1 Laboratory Hours

Prerequisites: 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

2 Cr. Hrs.

1 Lecture Hours

1 Laboratory Hours

Prerequisites: 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

2 Cr. Hrs.

1 Lecture Hours

1 Laboratory Hours

Prerequisites: 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 Cr. Hrs.

2 Lecture Hours

Prerequisites: 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

2 Cr. Hrs.

1 Lecture Hours

1 Laboratory Hours

Prerequisites: 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.

PE 141 Basketball

2 Cr. Hrs.

1 Lecture Hours

1 Laboratory Hours

Prerequisites: None.

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.

PE 143 Fitness Tests and Measurements

3 Cr. Hrs.

2 Lecture Hours

1 Laboratory Hours

Prerequisites: None.
Recommended: PE 112.

This course will introduce the student through lecture and practical demonstration to various fitness assessment protocols. Students will learn to critically analyze why a particular fitness test is utilized, the standard procedures for conducting the test and the analysis of the test results.

PE 147 Exercise Techniques

3 Cr. Hrs.

2 Lecture Hours

1 Laboratory Hours

Prerequisites: None.
Recommended: PE 112.

This course will introduce the student to proper resistance, cardiovascular, flexibility and neuromotor exercise techniques. Instructional method options will be introduced to facilitate teaching in both one-on-one and group exercise settings. This class will also provide instruction in how to lead and manage group exercise classes.

PE 153 Volleyball

2 Cr. Hrs.

1 Lecture Hours

1 Laboratory Hours

Prerequisites: None.

This course exposes students to the fundamentals and game strategies used in the game of volleyball. Emphasis will be placed on basic skills such as serving, passing and blocking. Students will have the opportunity to participate in competitive situations.

PE 194 Weight Training

2 Cr. Hrs.

1 Lecture Hours

1 Laboratory Hours

Prerequisites: None.

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.

PE 202 Lifestyle Fitness - Wellness

2 Cr. Hrs.

1 Lecture Hours

1 Laboratory Hours

Prerequisites: None.

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.

PE 207 Facilities Operations

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: None.
Recommended: PE 111.

This course will introduce the student to the full spectrum of fitness facility operations. Topics will include marketing, membership, budgeting, staffing, facility design, equipment selection, standard operation procedures, facility programming and risk management.

PE 212 Applied Exercise Physiology

3 Cr. Hrs.

2 Lecture Hours

1 Laboratory Hours

Prerequisites: PE 112. PE 143. PE 147.

This course will introduce the student through lecture and practical demonstration how to integrate exercise physiology, personal assessment data, exercise technique, standardized exercise guidelines and client goals into appropriate individual and group workout program designs across multiple fitness populations. Health behavior change models and interview and counseling techniques will be presented to help facilitate instructor-client communications.

PE 225 Motor Development

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: None.

This course will examine the progression/regression of motor skill development across the lifespan. Beginning with conceptual modeling of motor development, multiple factors influencing motor skill development will be examined. Assessment methods will be identified that facilitate benchmarking and monitoring change.

PE 240 Physical Education for Elementary Teachers

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: None.

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 P.E. at these levels. Students are required to make arrangements for observation of elementary classes during the latter part of the semester. This course requires all students must meet the requirements of a criminal background check.

PE 291 Movement Science Internship

3 Cr. Hrs.

1 Lecture Hours

12/40 Off-site Hours without Faculty

Prerequisites: PE 212 with a minimum grade of 3.0. Minimum overall GPA of 2.5 at Schoolcraft College. Consent of department.

This course will provide the student with a capstone opportunity to apply movement science theory and practice within a mentored environment. This is an applied course within Occupational Programs specializing in the field of movement science and is a cooperative assignment for students who have completed the prerequisites for this course. Employment will be approximately 12-40 hours per week at the employer's location. 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. An internship seminar every three weeks will provide students with the opportunity to share and evaluate their experience in a time-critical manner.

PHARM 101 Introduction to Pharmacy

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: None.

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.

PHARM 201 Capstone - Portfolio Preparation

1 Cr. Hrs.

1 Lecture Hours

Prerequisites: PHARM 101. Must have taken PCAT or registered to take it during this course.

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.

PHIL 243 An Introduction to Philosophy

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: None.

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.

PHIL 247 Logic

4 Cr. Hrs.

4 Lecture Hours

Prerequisites: None.

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.

PHIL 257 Bioethics

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: None.

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 healthcare, genetic engineering and the meaning of life/death and technology.

PHIL 265 Philosophy of Religion

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: None.

This course introduces students to the philosophical examination of religion and religious belief. Topics that may be covered include: the nature and existence of God, free will, the problem of evil, the relationship between science and religion, atheism, agnosticism, miracles, mysticism and immortality. Common arguments for the existence of God, such as ontological and cosmological arguments, may be explored, as well as Pascal's Wager.

PHIL 277 Ethical Problems

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: None.

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.

PHT 102 Pharmacy Practice and Healthcare

4 Cr. Hrs.

4 Lecture Hours

Prerequisites: MATH 53 with a minimum grade of 2.0 or a minimum score of 19 ACT-Math, 25 SAT-Math, 78 CPT-Elementary Algebra, or 250 NGA-Quantitative Reasoning, Algebra and Statistics. ENG 55 with a minimum grade of 2.0 or minimum score of 18 ACT-English, 25 SAT-Writing and Language, 71 CPT-Sentence Skills or 250 NGA-Writing. COLLS 53 with a minimum grade of 2.0 or minimum score of 18 ACT-English, 25 SAT-Writing and Language, 70 CPT-Sentence Skills or 250 NGA-Writing.

This course will provide pharmacy technician students with an overview of pharmacy within the health care system and the roles of pharmacy technicians in various practice settings. Specific activities of a pharmacy technician will be discussed and applied, as well as the laws that guide the work of a pharmacy technician. Contemporary issues in various practice settings within a pharmacy environment will be investigated. Educational requirements of a pharmacy technician and potential career paths will be explored as part of a developmental plan created during this course. All students in the Pharmacy Technician programs must meet the requirements of a criminal background check and drug screen before completing the required practical experiences.

PHT 104 Pharmacology for Pharmacy Technicians

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: MATH 53 with a minimum grade of 2.0 or a minimum score of 19 ACT-Math, 25 SAT-Math, 78 CPT-Elementary Algebra, or 250 NGA-Quantitative Reasoning, Algebra and Statistics. ENG 55 with a minimum grade of 2.0 or minimum score of 18 ACT-English, 25 SAT-Writing and Language, 71 CPT-Sentence Skills or 250 NGA-Writing. COLLS 53 with a minimum grade of 2.0 or minimum score of 18 ACT-English, 25 SAT-Writing and Language, 70 CPT-Sentence Skills or 250 NGA-Writing.

This course provides an overview of principles of pharmacology pertaining to medications used in the management of diseases. Basic anatomy and physiology will be explored relevant to the pharmacy technician's role and level of expected understanding. Diagnostic procedures and laboratory tests related to the diagnosis of diseases will be reviewed. Students will learn the indications, precautions, side effects and actions of drugs in therapeutic categories that act within physiological systems. All students in the Pharmacy Technician programs must meet the requirements of a criminal background check and drug screen before completing the required practical experiences.

PHT 114 Community Pharmacy Simulation Lab

5 Cr. Hrs.

1 Lecture Hours

4 Laboratory Hours

Prerequisites: None.
Corequisites: PHT 102 with a minimum grade of 2.5, if not taken previously. PHT 104 with a minimum grade of 2.5, if not taken previously.

This course is structured as a combination of a simulation lab and relevant lecture that will focus on those specific activities of a pharmacy technician that are used in a community pharmacy (drug store) environment. The simulation lab will prepare the pharmacy technician student to effectively operate within a pharmacy in a community setting. Through case studies, students will learn how to receive and process prescriptions or medication orders for completeness, accuracy and authenticity to ensure safety. All students in the Pharmacy Technician programs must meet the requirements of a criminal background check and drug screen before completing the required practical experiences.

PHT 117 Community Pharmacy Practicals

4 Cr. Hrs.

2 Lecture Hours

1.5 Off-site Hours with Faculty

13 Off-site Hours without Faculty

Prerequisites: All students must meet the requirements of a criminal background check and drug screen prior to the first day of class.
Corequisites: PHT 102 with a minimum grade of 2.5, if not taken previously. PHT 104 with a minimum grade of 2.5, if not taken previously. PHT 114 with a minimum grade of 2.5, if not taken previously.

The primary focus of this experiential rotation will be on the role of the pharmacy technician in the community (drug store) pharmacy environment. It will provide students with actual experience in this setting in which they may work as a pharmacy technician. The student will focus on those specific activities of a pharmacy technician that are used in a community pharmacy environment, including processing prescriptions, reconciling billing with insurance companies and interacting with patients. All students in the Pharmacy Technician programs must meet the requirements of a criminal background check and drug screen before completing the required practical experiences.

PHT 122 Advanced Pharmacy Practice

4 Cr. Hrs.

4 Lecture Hours

Prerequisites: PHT 102 with a minimum grade of 2.5. PHT 104 with a minimum grade of 2.5. PHT 114 with a minimum grade of 2.5 and PHT 117 with a minimum grade of 2.5 or PHT 124 with a minimum grade of 2.5 and PHT 127 with a minimum grade of 2.5.

This advanced level pharmacy technician course will provide pharmacy technician students with a deeper understanding of the dynamic healthcare environment and the opportunities for pharmacy technicians within this environment. Major trends, issues, goals and initiatives taking place in healthcare and the pharmacy profession will be presented and discussed. Supervisory methods, such as motivational theory, conflict management and human resource management, will be discussed in order to prepare the student for next-level supervisory roles within any practice setting. Finally, students will be certified in Basic Life Support for Healthcare Providers, which will round out their skill set for many advanced practice settings.

PHT 124 Hospital Pharmacy Simulation Lab

5 Cr. Hrs.

1 Lecture Hours

4 Laboratory Hours

Prerequisites: None.
Corequisites: PHT 102 with a minimum grade of 2.5, if not taken previously. PHT 104 with a minimum grade of 2.5, if not taken previously.

This course is structured as a combination of a simulation lab and relevant lecture that will focus on those specific activities of a pharmacy technician that are used in an institutional (e.g., hospital) environment. The simulation lab will prepare the pharmacy technician student to effectively operate within a pharmacy in an institutional compounding setting. Students will learn how to prepare medications requiring simple, moderate and high level sterile and non-sterile compounding as defined by current

standards. All students in the Pharmacy Technician programs must meet the requirements of a criminal background check and drug screen before completing the required practical experiences.

PHT 127 Hospital Pharmacy Practicals

4 Cr. Hrs.

2 Lecture Hours

1.5 Off-site Hours with Faculty

13 Off-site Hours without Faculty

Prerequisites: All students must meet the requirements of a criminal background check and drug screen prior to the first day of class. Corequisites: PHT 102 with a minimum grade of 2.5, if not taken previously. PHT 104 with a minimum grade of 2.5, if not taken previously. PHT 124 with a minimum grade of 2.5, if not taken previously.

The primary focus of this experiential rotation will be on the role of the pharmacy technician in the institutional (hospital) setting. It will provide students with actual experience in this setting in which they may work as a pharmacy technician. The student will focus on those specific activities of a pharmacy technician that are used in a hospital environment, such as aseptic compounding techniques for intravenous admixtures, including calculations required for accurate medication compounding. All students in the Pharmacy Technician programs must meet the requirements of a criminal background check and drug screen before completing the required practical experiences.

PHYS 104 Introduction to Astronomy

4 Cr. Hrs.

3 Lecture Hours

2 Laboratory Hours

Prerequisites: MATH 53 or a minimum score of 19 ACT-Math, 25 SAT-Math, 78 CPT-Elementary Algebra or 250 NGA-Quantitative Reasoning, Algebra and Statistics 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

5 Cr. Hrs.

4 Lecture Hours

2 Laboratory Hours

Prerequisites: MATH 102 or 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.

PHYS 181 General Physics 1

4 Cr. Hrs.

4 Lecture Hours

2 Laboratory Hours

Prerequisites: MATH 113 or higher.
Recommended: PHYS 123 or one year of high school physics.

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 Cr. Hrs.

4 Lecture Hours

2 Laboratory Hours

Prerequisites: 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 Cr. Hrs.

5 Lecture Hours

2 Laboratory Hours

Prerequisites: PHYS 123 or one year of high school physics. MATH 150 or high school calculus.

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 Cr. Hrs.

5 Lecture Hours

2 Laboratory Hours

Prerequisites: PHYS 211 with a minimum grade of 2.0.

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.

PLAST 130 Introduction to Plastic Materials

3 Cr. Hrs.

2 Lecture Hours

1 Laboratory Hours

Prerequisites: 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.

PLAST 131 Introduction to Plastic Processing

3 Cr. Hrs.

2 Lecture Hours

1 Laboratory Hours

Prerequisites: None.

This course provides an understanding of 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.

PLAST 140 Plastic Materials Testing

3 Cr. Hrs.

2 Lecture Hours

1 Laboratory Hours

Prerequisites: PLAST 130.

This course provides an in-depth analysis of plastic material's testing. Students will gain an understanding of plastic testing procedures and how they are applied to evaluating plastic materials performance characteristics. The student will also develop the ability to report, and demonstrate the ability to understand, the test results.

PLAST 150 Plastic Injection Molding Technology

3 Cr. Hrs.

2 Lecture Hours

1 Laboratory Hours

Prerequisites: PLAST 130. PLAST 131.

This course provides an understanding of the injection molding process. The student will learn about the injection molding process, including the components of the injection molding process, injection molding equipment, mold tooling, process control systems, basic part design principles, plastic materials, secondary processes and novel injection molding processes.

PLAST 160 Process Control Systems for Plastic Manufacturing

3 Cr. Hrs.

2 Lecture Hours

1 Laboratory Hours

Prerequisites: MATH 102. PLAST 131.

Plastic processing is a combination of knowledge, skill and experience. This course will provide a foundation for understanding how to reach the final desired result. It is necessary to understand how the machinery and the systems utilized in the production of plastic parts work, what the inputs to the process are and how they affect the final product.

PLAST 210 Plastic Mold Design Fundamentals

3 Cr. Hrs.

2 Lecture Hours

1 Laboratory Hours

Prerequisites: PLAST 130. PLAST 131. PLAST 150.

This course provides an understanding of plastic mold design. Emphasis will be focused on tool design for injection molding. The course will also include tool design for compression molding, blow molding, extrusion, thermoforming and the composite manufacturing processes.

PLAST 220 Plastic Part Design

3 Cr. Hrs.

2 Lecture Hours

1 Laboratory Hours

Prerequisites: PLAST 130. PLAST 131. PLAST 150.

This course provides an understanding of plastic part design. Students will learn design requirements, design features, quality and tolerances, plastic material selection for specific processes, part costs and rapid prototyping techniques. Emphasis will be placed on part design for injection molding. Part design for compression molding, blow molding, extrusion, thermoforming and composite manufacturing processes also will be covered.

PLAST 240 Advanced Plastic Processing

3 Cr. Hrs.

1 Lecture Hours

2 Laboratory Hours

Prerequisites: PLAST 130. PLAST 131.

This course provides an understanding of advanced plastic processing methods. The student will learn about additive manufacturing (e.g., 3D printing or rapid prototyping), micro injection molding, multi-laminate thermoforming, hybrid blow molding, multi-material co-extrusion and thermoset and thermoplastic composite compressing/laminating processes.

PLAST 251 Applied Injection Molding

3 Cr. Hrs.

.5 Lecture Hours

2.5 Laboratory Hours

Prerequisites: PLAST 150.

This course provides students with the knowledge and hands-on exposure to solve common issues encountered while operating an injection molding machine. Machine control parameters' effect on a materials processibility and part quality will be investigated. Students set-up processes on the injection molding machines and duplicate industrial standards to obtain the highest quality parts with the shortest possible cycle times. The course will also cover troubleshooting and process optimization.

PLAST 291 Plastic Technology Internship

3 Cr. Hrs.

1 Lecture Hours

12/40 Off-site Hours without Faculty

Prerequisites: PLAST 140, PLAST 220 and PLAST 251, each with a minimum grade of 3.0; consent of department; and an overall GPA of 2.5.

This is an applied course within Occupational Programs specializing in the field of plastic technology (PLAST) 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 a plastic technology or related department. The final grade will be based on a joint evaluation by the faculty 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.

POLS 105 Survey of American Government

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: 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 Cr. Hrs.

3 Lecture Hours

Prerequisites: 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 Cr. Hrs.

3 Lecture Hours

Prerequisites: 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 Cr. Hrs.

3 Lecture Hours

Prerequisites: 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 Cr. Hrs.

3 Lecture Hours

Prerequisites: 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

3 Cr. Hrs.

0.5 Lecture Hours

2.5 Laboratory Hours

Prerequisites: Consent of department.

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 groups 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.

PSYCH 153 Human Relations

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: 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 Cr. Hrs.

4 Lecture Hours

Prerequisites: 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 Cr. Hrs.

3 Lecture Hours

Prerequisites: 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 Cr. Hrs.

3 Lecture Hours

Prerequisites: 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 Cr. Hrs.

4 Lecture Hours

Prerequisites: 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 Cr. Hrs.

3 Lecture Hours

Prerequisites: 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 Cr. Hrs.

3 Lecture Hours

Prerequisites: 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 Cr. Hrs.

4 Lecture Hours

Prerequisites: 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 Cr. Hrs.

3 Lecture Hours

Prerequisites: 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 Cr. Hrs.

3 Lecture Hours

Prerequisites: None.

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.

PSYCH 259 Introduction to Sport Psychology

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: PSYCH 201 with a minimum grade of 2.0.

Introduction to Sport Psychology is an overview of basic concepts and principles essential to understanding the psychological and behavioral aspects of sport and exercise. Topics covered include the science of sport psychology, youth sports, motivation theory, leadership and coaching, team dynamics and aggression in sports. Students will explore current and future trends in this emerging field and examine the types of career opportunities connected to it.

QM 106 Introduction to Quality Improvement Tools

3 Cr. Hrs.

2 Lecture Hours

1 Laboratory Hours

Prerequisites: None.

This course is an introduction to quality improvement tools used in in business, technology and service industries. The selection, concept, process, interpretation and examples of various popular tools and techniques are covered in lecture and laboratory formats.

QM 107 Quality Planning and Team Building

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: 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.

RAD 100 Introduction to Radiology Sciences

2 Cr. Hrs.

2 Lecture Hours

Prerequisites: COLLS 53 with a minimum grade of 2.0 or minimum score of 18 ACT-Reading, 25 SAT-Reading, 70 CPT-Reading Comprehension or 250 NGA-Reading. ENG 55 with a minimum grade of 2.0 or minimum score of 18 ACT-English, 25 SAT-Writing and Language, 71 CPT-Sentence Skills or 250 NGA-Writing.

This course provides an orientation to the Radiologic Technology Program. Emphasis is on the student's role as a radiographer in the healthcare delivery system including, responsibilities, professional organizations, accreditation, regulatory agencies and program personnel. The course provides an overview of the foundations of radiology; practices and policies of healthcare organizations are also examined. Review of basic radiology equipment, radiation protection and radiology medical terminology will be included.

RAD 105 Radiation Safety

2 Cr. Hrs.

2 Lecture Hours

Prerequisites: BIOL 236 with a minimum grade of 3.0.
Corequisites: PHYS 123 if not previously taken within three years with a minimum grade of 3.0.

This course covers all aspects of radiation protection including the technologist's responsibilities for patients, personnel, the public and themselves. Radiation health and safety requirements of federal and state regulatory agencies, accreditation agencies and health organizations are included. Specific topics also include radiation safety methods and devices, as well as the detection and measurement of radiation dose.

RAD 110 Patient Care and Assessment

3 Cr. Hrs.

2 Lecture Hours

2 Laboratory Hours

Prerequisites: Acceptance into the Radiologic Technology Program. HIT 100. BIOL 236 with a minimum grade of 3.0. RAD 100 with a minimum grade of 3.0.

This course is designed to prepare the student for clinical practice and discuss the practitioner's role in the health care delivery system. Patient rights, informed consent, legal and ethical standards will be reviewed. Course content will include concepts of patient care, body mechanics, vital signs, aseptic technique, pharmacology, infection control and standard precautions. Contrast and medical emergencies are also discussed. This course explores diversity and the psychological needs of the patients and their families.

RAD 115 Digital Imaging and Image Acquisition

2 Cr. Hrs.

2 Lecture Hours

1 Laboratory Hours

Prerequisites: Acceptance into the Radiologic Technology Program. PHYS 123 with a minimum grade of 3.0. RAD 105 with a minimum grade of 3.0.

In this course, students will gain an understanding of the components, principles and operations of the digital imaging systems found in diagnostic radiology. Factors that impact image acquisition, display, archiving and retrieval are discussed. Study of the technical factors affecting image quality, processing of digital images and data management. Guidelines for selecting exposure factors, exposure numbers, exposure latitude and image brightness and contrast are discussed. This course will incorporate the process of image analysis and quality control. Students will develop and apply the critical thinking process to the art of image critique.

RAD 200 Radiation Physics and Radiobiology

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: Acceptance into the Radiologic Technology Program. PHYS 123 with a minimum grade of 3.0. RAD 105 with a minimum grade of 3.0.
Corequisites: RAD 115 if not previously taken.

Content establishes a basic knowledge of radiation production and characteristics of atomic structure and terminology. Also presented are the nature and characteristics of radiation, x-ray production and the fundamentals of photon interaction with matter. Information on electromagnetic radiation, beam characteristics, units of measure, tube housing, anodes and cathodes and x-ray circuitry are also presented.

RAD 210 Radiology Procedures 1

6 Cr. Hrs.

3 Lecture Hours

4 Laboratory Hours

Prerequisites: RAD 110 with a minimum grade of 3.0. RAD 115 with a minimum grade of 3.0. RAD 200 with a minimum grade of 3.0.
Corequisites: RAD 215.

This course introduces radiographic procedures consisting of positioning, projections, views, motion control, accessory equipment and patient considerations. It is an introduction to image analysis, technique, applications, and critique of images applied in classroom and lab settings. Image production, procedures and radiographic anatomy of chest, abdomen, upper extremity, shoulder and pelvic girdle are covered. Through the image evaluation component, students learn to identify radiographic anatomy, evaluate diagnostic quality, identify images that are of poor radiographic quality, as well as determine the appropriate corrective action for unacceptable images.

RAD 215 Radiology Clinical Education 1

6 Cr. Hrs.

1 Lecture Hours

32 Off-site Hours without Faculty

Prerequisites: RAD 110 with a minimum grade of 3.0. RAD 115 with a minimum grade of 3.0. RAD 200 with a minimum grade of 3.0.
Corequisites: RAD 210.

This clinical course will introduce the student to day-to-day operations of clinical practice. The focus will be on obtaining clinical competence by performing and documenting activities fundamental to Radiology. All students will perform examinations under the supervision of a qualified technologist. Rotations will allow students the opportunity to apply, practice and perfect skills necessary to function as a Radiology Technologist. Clinical competence of a procedure means students performed the procedure independently, consistently and effectively during the course of their clinical rotation. Critical thinking, professionalism and communicating effectively and compassionately are applied to clinical practice.

RAD 230 Radiology Procedures 2

6 Cr. Hrs.

3 Lecture Hours

4 Laboratory Hours

Prerequisites: RAD 210 with a minimum grade of 3.0.
Corequisites: RAD 235.

In this course, students will continue to gain proficiency in the performance of radiology exams. Image production, procedures and radiographic anatomy of head, spine, lower extremity and bony thorax are covered. Students will increase knowledge of positioning, projections, views, motion control, accessory equipment and patient considerations of these structures. Focal points will be on image analysis, technique, applications and critiquing of images learned in the classroom and lab. Through the image evaluation component, students will identify radiographic anatomy and evaluate diagnostic quality and corrective action for unacceptable images. Skills necessary to perform venipuncture will be included.

RAD 235 Radiology Clinical Education 2

6 Cr. Hrs.

1 Lecture Hours

32 Off-site Hours without Faculty

Prerequisites: RAD 215 with a minimum grade of 3.0.
Corequisites: RAD 230.

Students will develop independent clinical practice of procedures previously mastered. This course allows students to perform radiographic examinations under the supervision of a qualified Radiographer. Students will continue documenting and testing on studies that have been presented in Radiology Procedures 1 and 2. Emphasis will be placed on continued improvement of imaging skills. Clinical competence of a procedure means students performed the procedure independently, consistently and effectively during the course of their clinical rotation. Students will rotate through advanced imaging modalities to gain experience in MRI (magnetic resonance imaging), Ultrasound, Interventional Radiology and CT (computerized tomography).

RAD 240 Advanced Imaging

2 Cr. Hrs.

2 Lecture Hours

Prerequisites: RAD 210 with a minimum grade of 3.0. RAD 215 with a minimum grade of 3.0. RAD 230 with a minimum grade of 3.0. RAD 235 with a minimum grade of 3.0.

This course provides an overview of alternate imaging modalities including: Interventional Imaging, Neuro-Interventional, Cardiac-Interventional, Bone Densitometry, Radiation Therapy, Computed Tomography, Nuclear Medicine, Ultrasound, PET (positron emission tomography), Mammography and MRI (magnetic resonance imaging). Basic principles of operation, procedures and equipment will be reviewed. The course will familiarize the student with the various anatomic structures and their locations, including cross-sectional anatomy as demonstrated with advanced imaging modalities. An overview of billing and coding of these types of procedures will also be discussed.

RAD 250 Radiologic Technology Capstone

1 Cr. Hrs.

1 Lecture Hours

Prerequisites: RAD 210 with a minimum grade of 3.0. RAD 215 with a minimum grade of 3.0. RAD 230 with a minimum grade of 3.0. RAD 235 with a minimum grade of 3.0.

This course is designed as a capstone learning experience to prepare students for the American Registry Radiologic Technologists (ARRT) certification exam in radiography. Students also prepare for professional employment by synthesizing knowledge, skills and attitudes learned in the Radiologic Technology program. The ARRT Code of Ethics and Standards of Care will be reviewed, as well as exam security.

RE 101 Introduction to Property Management

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: None.

This introductory course provides an overview of property management and the role of the property manager. Topics include tenant relations, leases, risk, insurance and energy efficiency. Students also learn about the management of safety, environmental issues related to residential and commercial properties and how to recognize and address maintenance problems.

RE 110 Real Estate Pre-Licensure

4 Cr. Hrs.

4 Lecture Hours

Prerequisites: COLLS 50 with a minimum grade of 2.0 or minimum score of 15 ACT-Reading, 22 SAT-Reading, 57 CPT-Reading Comprehension or 237 NGA-Reading.
Corequisites: MATH 101 if not taken previously.

This course provides the fundamental concepts and terminology to enable students to pass the Michigan licensing examination and become successful real estate practitioners. Students learn the financial, economic and political aspects of real estate practice in Michigan. Topics include contracts, agency, title transfer, leasing, land use and taxation, Michigan law, fair housing and civil rights, the Americans with Disabilities Act and finance.

RE 150 Residential and Commercial Property Management

4 Cr. Hrs.

4 Lecture Hours

Prerequisites: RE 110 or consent of Department.

This course covers the day-to-day operation and management of residential and commercial properties. Students gain a comprehensive understanding of the principles, practices and skills needed to be a property manager. Topics covered include relationship building, problem identification and solution, operations and maintenance management, budgeting, leasing and lease administration, marketing, record keeping systems and federal and state laws.

RE 290 Real Estate Property Management Internship

3 Cr. Hrs.

1 Lecture Hours

12/40 Off-site Hours without Faculty

Prerequisites: RE 150 with a minimum grade of 3.0, consent of Department and an overall GPA of 2.5.

This is an applied course within Occupational Programs specializing in the field of real estate property management 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 a real estate property management 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 attending a resume workshop at the Career Center, submission of a resume with a cover letter and interviews.

ROBAT 101 Robot Tool Handling Operations and Programming

3 Cr. Hrs.

2 Lecture Hours

2 Laboratory Hours

Prerequisites: MATH 102.

This course serves as an applied introduction to HandlingTool software with an emphasis on safety, setup, recording and troubleshooting. The course will cover basic applications of the HandlingTool software which includes terminology, testing and refining the program. Robotic operations and hands-on application will be covered to simulate and run robotic programs. This course is a FANUC level one. Students who successfully complete the course and the FANUC eLearning modules are eligible for the FANUC certification in HandlingTool Operations and Programming.

SCM 100 Introduction to Supply Chain Management

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: None.

This supply chain management course clearly explains what supply chain management (SCM) is and how it can be essential for a company's success. By taking this course, you will learn about how a supply chain management system encompasses the flow of goods and services leading to the end user. You will be shown how to achieve excellence in supply chain management, which will make you a valuable asset for any business competing in a global environment.

SCM 200 Supply Chain Logistics and Distribution

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: SCM 100 or consent of Department.

This Logistics and Distribution course familiarizes the students with the basic concepts of product distribution and the terminology used in the logistics field. Students learn the process of planning effective product distribution and discuss methods of transportation and traffic management techniques. Other topics covered in introductory logistics classes may include inventory control, protective packaging and customer service.

SCM 220 Supply Chain Purchasing

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: SCM 100 or consent of Department.

This course covers the skills and knowledge needed within the purchasing department. The class explains how purchasing fits into the overall structure of an organization and its importance in maintaining efficiency. It will demonstrate how local and foreign economies, environmental factors and material shortages can affect the availability and pricing of goods. A key aspect of the purchasing function is negotiating with vendors and other businesses to source goods and services. This course demonstrates skills for successful negotiation. Students gain an understanding of human behavior and principles of verbal and non-verbal communication. This class reviews the laws and regulations that relate to purchasing. Because the purchasing department makes many legally binding agreements with vendors, contract law is emphasized.

SCM 230 Supply Chain Operations

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: SCM 100 or consent of Department. MATH 122.

This course explains the concepts and techniques of Supply Chain Management (SCM) Operations. This includes the following topics: operations management strategy, total quality management, warehouse location and layout, forecasting, aggregate planning, materials management, just-in-time systems, scheduling and project management. Operations and Supply Chain Management (OSCM) covers warehousing, manufacturing and service industries involving the functions of materials management, operations planning, distribution, logistics, retail, demand forecasting, order fulfillment and more.

SCM 291 Supply Chain Management Internship

3 Cr. Hrs.

1 Lecture Hours

12/40 Off-site Hours without Faculty

Prerequisites: SCM 200 with a minimum grade of 3.0 and consent of Department and an overall GPA of 2.5. SCM 220 with a minimum grade of 3.0 and consent of Department and an overall GPA of 2.5. SCM 230 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 Supply Chain Management 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 a supply chain management 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 attending a resume workshop at the Career Center, submission of a resume with a cover letter and interviews.

SOC 101 Introduction to Social Work

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: 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 orients students to the roles of the generalist social work 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 Cr. Hrs.

3 Lecture Hours

Prerequisites: 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 Cr. Hrs.

3 Lecture Hours

Prerequisites: None.
Recommended: SOC 201.

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 Cr. Hrs.

3 Lecture Hours

Prerequisites: 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 Cr. Hrs.

3 Lecture Hours

Prerequisites: None.
Recommended: ANTH 112 or SOC 201.

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 211 Sociology of Gender

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: None.

This course examines the social and cultural construction of gender differences and sociological theories of gender. It also explores the historical and contemporary statuses and roles of women and men in various institutions. In addition, this course surveys the conditions that affect the lives of global women and women in the United States who are from diverse backgrounds including social class, disability, race, ethnicity and religious minorities.

SOC 220 Urban Sociology

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: None.
Recommended: ANTH 112 or SOC 201.

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 Cr. Hrs.

3 Lecture Hours

Prerequisites: HUM 190.

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.

SPAN 101 Elementary Spanish 1

4 Cr. Hrs.

4 Lecture Hours

Prerequisites: None.

This course is intended for students who have no previous education in Spanish. The course will cover basic vocabulary and grammar patterns and will 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 Cr. Hrs.

4 Lecture Hours

Prerequisites: None.
Recommended: SPAN 101 with a minimum grade of 2.0 or one year of high school Spanish or equivalent language knowledge.

This course is a continuation of SPAN 101 and continues to review the basic Spanish vocabulary and 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 Hispanic culture will be an integral part of the course.

SPAN 201 Intermediate Spanish 1

4 Cr. Hrs.

4 Lecture Hours

Prerequisites: None.
Recommended: SPAN 102 with a minimum grade of 2.0 or two years of high school Spanish or equivalent language knowledge.

This course is a continuation of SPAN 102 and continues to cover vocabulary and 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 Hispanic culture will be an integral part of the course.

SPAN 202 Intermediate Spanish 2

4 Cr. Hrs.

4 Lecture Hours

Prerequisites: None.
Recommended: SPAN 201 with a minimum grade of 2.0 three years of high school Spanish or equivalent language knowledge.

This course is a continuation of SPAN 201 and continues to cover vocabulary and 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 Hispanic culture will be an integral part of the course.

SPE 100 Children with Special Needs

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: None.
Corequisites: ECE 110 if not taken previously or EDUC 110 if not taken previously.
Recommended: Individuals who hold a current or prior teaching certificate or are enrolled in the Education Transfer Program may be eligible to substitute PSYCH 249 or waive the corequisite. Discuss options with the department.

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. Students will complete three observations of children with special needs. Michigan Central Registry Clearance by the Michigan Department of Human Services may be required for this course. This course requires all students must meet the requirements of a criminal background check.

SPE 102 Introduction to Autism Spectrum Disorders

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: None.
Corequisites: ECE 110 or EDUC 110 if not previously taken.
Recommended: Individuals who hold a current or prior teaching certificate may be eligible to waive the corequisite. Discuss options with the department.

This course is designed to present students with an overview of Autism Spectrum Disorders (ASD). Included in the overview is the history of autism, identification of individuals with autism, exploring the major categories of autism and reviewing current theories and methodologies of working with individuals with autism. In addition, the course will review current legislation related to autism.

SPE 105 Introduction to Developmental Disabilities

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: None.
Corequisites: SPE 100 or EDUC 200 if not taken previously. ECE 110 or EDUC 110 if not taken previously.

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' potential uses and side effects, as well as other potential health and environmental issues for persons with cognitive impairments.

SPE 112 Applied Behavior Analysis

1 Cr. Hrs.

1 Lecture Hours

Prerequisites: None.
Corequisites: ECE 110 or EDUC 110 if not previously taken.
Recommended: Individuals who hold a current or prior teaching certificate may be eligible to waive the corequisite. Discuss options with the department. SPE 102.

The focus of this course is to provide an overview of Applied Behavior Analysis (ABA) for use with individuals with Autism Spectrum Disorders (ASD). Students will explore the key components of ABA, history of ABA and research on ABA. Focus on the process of becoming certified as an ABA technician, credentialing requirements for offering ABA services and ABA practices in a variety of settings will be covered.

SPE 115 Special Educational Programs and Supported Living

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: None.
Corequisites: SPE 100 or EDUC 200 if not taken previously. ECE 110 or EDUC 110 if not taken previously.

Students will become familiar with considerations of placement and training of persons with cognitive impairments, emotional impairments, learning impairments and physical disabilities. Attention will be given to the theory and principles of inclusion 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.

SPE 122 ASD Communication Strategies

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: None.
Corequisites: ECE 110 or EDUC 110 if not previously taken.
Recommended: SPE 102. Individuals who hold a current or prior teaching certificate may be eligible to waive the corequisite. Discuss options with the department.

This course is designed to cover the key aspects of communication issues related to individuals with Autism Spectrum Disorders (ASD). Students will explore different techniques for working with individuals with autism, review appropriate instructional materials and become familiar with the Individual Educational Plan (IEP) components. They also will become familiar with treatment options for individuals with speech and communication problems related to autism.

SPE 125 Learning Disabilities

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: None.
Corequisites: SPE 100 or EDUC 200 if not taken previously. ECE 110 or EDUC 110 if not taken previously.

This course is designed to acquaint the student with the perceptual and learning issues of persons with learning disabilities 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. Coursework explores specific recommendations for remediation and implications for school planning when working with students with learning disabilities. Current best practices in the field of special education provide the framework for the course.

SPE 132 ASD Instructional Procedures

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: None.
Corequisites: ECE 110 or EDUC 110 if not previously taken.
Recommended: SPE 102. Individuals who hold a current or prior teaching certificate may be eligible to waive the corequisite. Discuss options with the department.

This course is designed to provide an overview of the key aspects of instructional procedures for individuals with Autism Spectrum Disorders (ASD). Students will be exposed to theories and critical issues regarding instructional readiness, methods, assessment, objectives and goals for individuals with autism. They also will explore the components and role of an Individualized Education Plan (IEP) in relation to working with individuals with autism.

SPE 135 Emotional Impairment

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: ECE 110 or EDUC 110. SPE 100 or EDUC 200.

The purpose of this course is to acquaint students with concepts and materials related to the education of persons with emotional impairments. The major theories related to causes and treatment of emotional and behavior problems will be covered. Current best practices provide the foundation for studying strategies necessary for working with persons with emotional impairments.

SPE 142 ASD Behavior Implications

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: None.
Corequisites: ECE 110 or EDUC 110 if not previously taken.
Recommended: SPE 102. Individuals who hold a current or prior teaching certificate may be eligible to waive the corequisite. Discuss options with the department.

This course is designed to provide an overview of behavior implications for individuals with Autism Spectrum Disorders (ASD). Students will explore sensory issues in relationship to autism, become familiar with appropriate behavior management strategies that are rooted in respecting the individual, differentiate current theories of behavior strategies and create appropriate behavior monitoring assessments. They also will investigate the laws related to exclusion and restraint for individuals with autism.

SPE 155 Special Education Practical Experiences 1

3 Cr. Hrs.

2 Lecture Hours

1 Off-site Hours with Faculty

8 Off-site Hours without Faculty

Prerequisites: ECE 110 or EDUC 110.
Corequisites: SPE 220 if not taken previously.

Students will have a supervised practical field experience working directly with persons with special needs in a special needs setting. Students will complete 120 hours of field experiences. They will integrate classroom knowledge and teaching strategies with practical field experiences working directly with persons with special needs. Michigan Central Registry Clearance by the Michigan Department of Human Services and a current TB test are required for this course. This course requires all students must meet the requirements of a criminal background check.

SPE 210 Methods and Curricula for Persons with Developmental Disabilities

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: SPE 100 or EDUC 200. ECE 110 or EDUC 110.

This course will familiarize the student with the theoretical approaches of education for persons with special needs including a survey of various curricula. Emphasis is placed on understanding educational roles in the Individual Education Plan Process and the Individualized Family Service Plan requirements. Current best practices provide the framework for strategies employed when working with persons with developmental disabilities explored in this course.

SPE 220 Early Childhood Special Education

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: ECE 110 or EDUC 110.

Early childhood special education focuses on children with special needs birth to age eight. This course reviews categories of special needs for young children, available services, and the role of educators as team members who support the educational and care needs of children. Students will learn about the importance of working respectfully with families. Current best practices for identifying special needs in young children will be explored.

SPE 275 Special Education Practical Experiences 2

3 Cr. Hrs.

2 Lecture Hours

1 Off-site Hours with Faculty

10 Off-site Hours without Faculty

Prerequisites: SPE 100 or EDUC 200. SPE 125. SPE 155 with a minimum grade of 2.5. ECE 110 or EDUC 110.
Corequisites: SPE 210 if not taken previously. ECE 230 if not taken previously.

This course is designed to provide a continued supervised practical 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 complete 150 hours of field experiences. Michigan Central Registry Clearance by the Michigan Department of Human Services and a current TB test are required. This course requires all students must meet the requirements of a criminal background check.

SRT 110 Keyboard Skills for Recording Engineers

1 Cr. Hrs.

1 Lecture Hours

Prerequisites: 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 Cr. Hrs.

3 Lecture Hours

Prerequisites: 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 Cr. Hrs.

3 Lecture Hours

Prerequisites: 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 Cr. Hrs.

2 Lecture Hours

Prerequisites: SRT 121.

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 Cr. Hrs.

3 Lecture Hours

Prerequisites: SRT 122. 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 Cr. Hrs.

3 Lecture Hours

Prerequisites: SRT 221.

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.

THEA 101 Introduction to Theatre

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: None.

This is a survey course which examines all the elements of theatre. Topics covered include the 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 Cr. Hrs.

1 Lecture Hours

Prerequisites: None.

This course provides a brief introduction to all the elements of theatre. Topics explored include the 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 Cr. Hrs.

1 Lecture Hours

Prerequisites: THEA 120.

This course is the second in a series. It continues the exploration of all of 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 Cr. Hrs.

2 Lecture Hours

Prerequisites: 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 Cr. Hrs.

3 Lecture Hours

Prerequisites: 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 210 Acting 1 - Theory and Elements

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: None.

An introduction into the theories of acting. Students study the role of voice, body movement and character development as it relates to acting. In addition, students are introduced to modern drama and productions.

THEA 211 Acting 2 - Theory and Elements

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: THEA 210.

This is an advanced theatre course where students explore the theories and elements of acting. There is a focus on classical and modern plays, as well as on the critiquing of actors and performances. Students will develop their performance skills. In addition, students will explore the Stanislavski method and be introduced to reading and acting Shakespeare.

THEA 220 Theatre Activities 3

1 Cr. Hrs.

1 Lecture Hours

Prerequisites: THEA 121.

This course is the third in a series. It 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 Cr. Hrs.

1 Lecture Hours

Prerequisites: THEA 220.

This course is the fourth in a series. It 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 231 History of Theatre 1

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: None.

This course examines the development of dramatic art and practice from ancient times to the end of the 18th century. Emphasis is placed on the evolution of the physical theatre and dramatic forms in relation to contemporaneous production facilities and innovations. Greek, Roman, Medieval, Italian Renaissance, Elizabethan, Spanish, French and 18th century theatre periods are explored.

THEA 232 History of Theatre 2

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: None.

This course examines the development of dramatic art and practice from the beginning of the 19th century to the present. Emphasis is placed on the evolution of the physical theatre and dramatic forms in relation to contemporaneous production facilities and innovations. 19th century, Modern, Postwar and Contemporary periods are explored.

THEA 241 Oral Interpretation of Literature

3 Cr. Hrs.

3 Lecture Hours

Prerequisites: COMA 103 or THEA 210.

This course is designed to give students an understanding of Oral Interpretation of Literature. Students will have practical experience in interpretive readings in various types of literature and will also explore theory and techniques of interpretive reading of literature. The class emphasizes the performance of literature through the use of the voice and body.

WELD 110 Introduction to Welding Basics for Fabrication

3 Cr. Hrs.

2 Lecture Hours

2 Laboratory Hours

Prerequisites: 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 metal 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.

WELD 113 Shielded Metal Arc Welding (S.M.A.W.)

3 Cr. Hrs.

2 Lecture Hours

2 Laboratory Hours

Prerequisites: 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 Metal Arc Welding (G.M.A.W./M.I.G.)

3 Cr. Hrs.

2 Lecture Hours

2 Laboratory Hours

Prerequisites: None.

Theory and fundamentals of gas metal 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 119 Gas Tungsten Inert Arc Welding (G.T.A.W. / T.I.G.)

3 Cr. Hrs.

2 Lecture Hours

2 Laboratory Hours

Prerequisites: 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

3 Cr. Hrs.

2 Lecture Hours

2 Laboratory Hours

Prerequisites: WELD 113. WELD 115.

The student will gain additional knowledge and experience in both shielded metal and gas metal 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

3 Cr. Hrs.

2 Lecture Hours

2 Laboratory Hours

Prerequisites: WELD 119.

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 performed.

WELD 205 Welder's Print Reading

2 Cr. Hrs.

1 Lecture Hours

1 Laboratory Hours

Prerequisites: WELD 120 or may be taken concurrently.

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

2 Cr. Hrs.

1 Lecture Hours

1 Laboratory Hours

Prerequisites: 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 210 Preparation for Welder Certification in Shielded Metal Arc Welding

3 Cr. Hrs.

2 Lecture Hours

2 Laboratory Hours

Prerequisites: WELD 113 or consent of department.

Obtaining American Welding Society (AWS) Welder's Certification is desirable to gain acceptance into a welding-related skilled trade. Each skilled trade employment requires a unique certification, for which the student must learn skills needed for specific welding procedures and processes. This course will focus on developing the skills needed in the SMAW process to successfully pass an appropriate AWS Certified Welder performance test, along with passing a visual and destructive examination of their weldments. To receive credit in this class, students must successfully pass an AWS Certification test on a specified procedure required for their selected welding process.

WELD 211 Preparation for Welder Certification in Gas Metal Arc Welding

3 Cr. Hrs.

2 Lecture Hours

2 Laboratory Hours

Prerequisites: WELD 115 or consent of department.

Obtaining American Welding Society (AWS) Welder's Certification is desirable to gain acceptance into a welding-related skilled trade. Each skilled trade employment requires a unique certification, for which the student must learn skills needed for specific welding procedures and processes. This course will focus on developing the skills needed in several Semiautomatic processes/transfers to successfully pass an appropriate AWS Certified Welder performance test. Tests may be taken on ferrous or non-ferrous material, along with passing a visual and destructive examination of their weldments. To receive credit in this class, students must successfully pass an AWS Certification test on a specified procedure required for their selected welding process.

WELD 212 Preparation for Welder Certification in Gas Tungsten Arc Welding G.T.A.W./T.I.G.

3 Cr. Hrs.

2 Lecture Hours

2 Laboratory Hours

Prerequisites: WELD 119 or consent of department.

Obtaining American Welding Society (AWS) Welder's Certification is desirable to gain acceptance into a welding-related skilled trade. Each skilled trade employment requires a unique certification, for which the student must learn skills needed for specific welding procedures and processes. This course will focus on developing the skills needed in Gas Tungsten Arc Welding to successfully pass an appropriate AWS Certified Welder performance test. Tests may be taken on ferrous or non-ferrous material, along with passing a visual and destructive examination of their weldments. To receive credit in this class, students must successfully pass an AWS Certification test on a specified procedure required for their selected welding process.

WELD 214 Preparation for Welder Certification in Pipe Welding

3 Cr. Hrs.

2 Lecture Hours

2 Laboratory Hours

Prerequisites: WELD 130 or consent of department.

Obtaining American Welding Society (AWS) Welder's Certification is desirable to gain acceptance into a welding-related skilled trade. Each skilled trade employment requires a unique certification, for which the student must learn skills needed for specific welding procedures and processes. This course addresses competencies needed to become certified as a pipe welder. Shielded Metal Arc Welding, Gas Metal Arc Welding and Gas Tungsten Arc Welding can be used to produce these pipe welds. This course will focus on developing the skills needed to successfully pass an appropriate AWS Certified Welder performance test. Tests may be taken on ferrous or non-ferrous material, along with passing a visual and destructive examination of their weldments. To receive credit in this class, students must successfully pass an AWS Certification test on a specified procedure required for their selected welding process.

WELD 223 Fabrication

4 Cr. Hrs.

2 Lecture Hours

4 Laboratory Hours

Prerequisites: WELD 130 or consent of department. WELD 205.

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 225 Pre-Apprenticeship Welder Certification

3 Cr. Hrs.

1 Lecture Hours

3 Laboratory Hours

Prerequisites: WELD 113. WELD 115. WELD 120 or may be taken concurrently. All prerequisites may be waived through consent of department.

Obtaining American Welding Society (AWS) Welder's Certification is desirable to gain acceptance into a welding-related skilled trade apprenticeship program. Each skilled trade apprenticeship requires a unique certification, for which the student must learn skills needed for specific welding procedures and processes. This course will focus on developing the skills needed to successfully pass an appropriate AWS Certified Welder performance test, along with passing a visual and destructive examination of their weldments. To receive credit in this class, students must successfully pass an AWS Certification test on a specified procedure required for their selected welding trade.

WELD 240 Computer Numerical Control

4 Cr. Hrs.

2 Lecture Hours

4 Laboratory Hours

Prerequisites: WELD 120. WELD 205.

Introduction to the theory and application of programming and sequencing of numerical control automation and cutting equipment. Emphasis will be placed on utilizing incremental and absolute programming language applying G and M codes. Students will use computer software and nesting to create cutting paths as well as learn troubleshooting components of the automated equipment and programs. Welding skills developed in advanced arc welding and welding print reading will be applied.

WELD 262 Welding Metallurgy

3 Cr. Hrs.

1 Lecture Hours

2 Laboratory Hours

Prerequisites: MET 103.

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.

WELD 291 Welding Internship

3 Cr. Hrs.

1 Lecture Hours

12/40 Off-site Hours without Faculty

Prerequisites: Minimum of three WELD courses with a minimum average grade of 3.0, an overall minimum GPA of 2.5 and consent of department.

This is an applied course within Occupational Programs specializing in the field of welding and fabrication (WELD) 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 a welding and fabrication or related department. The final grade will be based on a joint evaluation by the faculty 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.

ADDENDUM – A

Effective May 2021

2021-2022 CREDENTIAL YEAR

Health Information Technology

Credentials

Health: Coding Specialist Certificate	39 cr.
Health Information Technology AAS Degree	66 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 applied 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.
- 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.

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 procedures 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 using International Classification of Diseases 10th Revision, Clinical Modification (ICD-10-CM) and inpatient procedures using the International Classification of Diseases 10th Revision, Procedure Coding System (ICD-10-PCS).
- Coding of ambulatory setting procedures and services using Current Procedural Terminology (CPT).
- 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.

A 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 and basic computer 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. The coding specialist certificate may be completed on a full-time or part-time basis.

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/admissions@schoolcraft.edu or the Advising Departments at 734-462-4429 (option 4)/eadvise@schoolcraft.edu to complete an application.

Not all courses are offered each semester. Students should work with an academic advisor to develop a schedule that will work for them. Students planning to transfer should check the transfer institution's requirements/guides or discuss their options with an academic advisor. Number of credits may vary depending on the course selection.

SAMPLE SCHEDULE OF COURSES

Admission Prerequisites

Course #	Course Title	Credits
BIOL 236* **	**Human Anatomy & Physiology**	5
HIT 104*	**Medical Terminology**	4
CIS 120*	**Software Applications**	3
	Total Credits: 12	

Health: Coding Specialist Certificate (continued)

First Year - Fall Semester

Course #	Course Title	Credits
HIT 120	**Foundations of Health Information Management Technology**	3
HIT 118	**Human Diseases**	4
HIT 114	**Pharmacology for Health Professionals**	2
HIT 117	**ICD-10-CM/PCS**	3
HIT 222	**Basic Ambulatory Coding**	3
	Total Credits: 15	

First Year - Winter Semester

Course #	Course Title	Credits
HIT 235	**Intermediate ICD-10-CM/PCS**	3
HIT 234	**Intermediate Ambulatory Coding**	3
HIT 236	**ICD Coding Practicum**	2
HIT 231	**Ambulatory Coding Practicum**	2
HIT 240	**Healthcare Reimbursement Methodologies**	2
	Total Credits: 12	

PROGRAM TOTAL 39 CREDITS

*Courses that must be taken prior to acceptance in the HIT program.

** BIOL 237 & BIOL 238 are accepted to replace BIOL 236. Students planning to transfer should consult with their academic advisor about these options. Please review all course prerequisites.

Health Information Technology AAS Degree

Schoolcraft program code # AAS.00153

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 experiences in a variety of healthcare facilities, such as acute care hospitals, ambulatory care centers, mental health facilities 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 healthcare 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 Registered Health Information Technician (RHIT) examination. The program is designed for the full-time or part-time student.

There are two ways to complete the Health Information Technology AAS Degree:

1. The traditional route of completing all courses.
2. Individuals who have successfully completed training, such as through the Medical Education & Training Campus, may be able to apply 19-45 credits toward the completion of a Health Information Technology AAS. Contact the appropriate instructional administrator for further details.

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 or the Advising Departments at 734-462-4429 (option 4)/eadvise@schoolcraft.edu to complete an application.

The Associate Degree Program in Health Information Technology at Schoolcraft College is accredited by the Commission on Accreditation for Health Informatics and Information Management Education (CAHIIM). For additional information contact:

CAHIIM
233 N. Michigan Ave. 21st Floor
Chicago, Illinois 60611-5800
info@cahiim.org | www.cahiim.org | 312-233-1100

Not all courses are offered each semester. Students should work with an academic advisor to develop a schedule that will work for them. Students planning to transfer should check the transfer institution's requirements/guides or discuss their options with an academic advisor. Number of credits may vary depending on the course selection.

SAMPLE SCHEDULE OF COURSES

Admission Prerequisites

These courses must be completed prior to admission to the Health Information Technology AAS program. Students must achieve a 2.0 or higher in CIS 120, BIOL 236**, and HIT 104 for acceptance.

Health Information Technology AAS Degree (continued)

First Year - Fall Semester

Course #	Course Title	Credits
HIT 104*	**Medical Terminology**	4
BIOL 236* **	**Human Anatomy & Physiology**	5
CIS 120*	**Software Applications**	3
ENG 101	**English Composition 1**	3
	Total Credits: 15	

First Year - Winter Semester

Course #	Course Title	Credits
HIT 117	**ICD-10-CM/PCS**	3
HIT 118	**Human Diseases**	4
HIT 120	**Foundations of Health Information Management Technology**	3
MATH 111	**Applications - Utility of Math**	4
	Total Credits: 14	

First Year - Spring Session

Course #	Course Title	Credits
HIT 114	**Pharmacology for Health Professionals**	2
HIT 162	**Professional Practice Experience Simulation**	2
	Total Credits: 4	

Second Year - Fall Semester

Course #	Course Title	Credits
English	**Select one:**	3
ENG 102***	**English Composition 2**	
ENG 106	**Business English**	
HIT 210	**Healthcare Statistics for Health Information Management**	3
HUM 106	**Introduction to Art and Music**	1
HIT 130	**Legal Aspects of Health Information**	3
HIT 222	**Basic Ambulatory Coding**	3
HIT 232	**Computer Applications in Healthcare**	2
	Total Credits: 15	

Health Information Technology AAS Degree (continued)

Second Year - Winter Semester

Course #	Course Title.	Credits
HIT 224	**Quality Management in Healthcare**	2
HIT 242	**Organization and Management**	3
HIT 240	**Healthcare Reimbursement Methodologies**	2
HIT 235	**Intermediate ICD-10-CM/PCS**	3
HIT 234	**Intermediate Ambulatory Coding**	3
	Total Credits: 13	

Second Year - Spring Session

Course #	Course Title	Credits
HIT 262	**Professional Practice Experience**	2
PSYCH 153	**Human Relations**	3
	Total Credits: 5	

Elective (Optional)

NOTE: Federal Financial Aid may not be available for these courses. Please contact the Financial Aid office for other potential sources of aid.

Course #	Course Title	Credits
HIT 213	**Health Information Technology Seminar**	1
HIT 231	**Ambulatory Coding Practicum**	2
HIT 236	**ICD Coding Practicum**	2

PROGRAM TOTAL 66 CREDITS

* Courses that must be taken prior to acceptance in the HIT program

** BIOL 237 & BIOL 238 are accepted to replace BIOL 236. Students planning to transfer should consult with their academic advisor. Please review all course prerequisites.

*** Any student desiring transfer credit should take ENG 102. Please review all course prerequisites.