# ALPENA
## COMMUNITY COLLEGE


# College Catalog
# 2019-2020

# Alpena Community College
# 2019-2020 Academic Catalog

### Catalog Volume 62 — January 2019

This catalog is for informational purposes only and is not to be considered a binding contract between Alpena Community College and individual students.

Information in this catalog was accurate as of January 2019 and is subject to change without notice. This publication — which details policies, procedures, rights, responsibilities, programs, and course descriptions — is intended to be used along with WebAdvisor® and the schedule published each semester to provide current information on registration and course offerings.

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665 Johnson Street
Alpena, Michigan 49707-1495
Telephone: 989.356.9021

**Oscoda Campus**
5800 Skeel Avenue
Oscoda, Michigan 48750-1587
Telephone: 989.739.1445

Call toll free in Michigan: 888.468.6222
ACC Website: www.alpenacc.edu

## BOARD OF TRUSTEES

Alpena Community College is a public institution that operates under the supervision of a locally-elected Board of Trustees. The seven members of the board serve six-year terms. Current members are:

John Briggs, Chairperson
Thomas Townsend, Vice Chairperson
Joseph Gentry II, Treasurer
Teresa Duncan
Susan Stender
Lisa Hilberg
Florence Stibitz

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## A Message from the President

Greetings and welcome to Alpena Community College. Since 1952, ACC has provided high-quality, low-cost, post-secondary educational opportunities to the people of Northeast Michigan. Thousands of students have discovered the value of an ACC education, including:

- Dual-enrolled high school juniors and seniors seeking college credit for transfer purposes
- Young people exploring careers through Early College opportunities
- Vocational students seeking hands-on coursework leading to good jobs and outstanding careers
- Transfer students taking the first two years of a baccalaureate degree closer to home at about one third the cost of a typical state university
- Unemployed workers seeking retraining to transition back into the workforce
- Adults pursuing a dream of a new career
- Workers seeking specific skills upgrades to advance their careers
- Adults engaged in lifelong learning
- People from all walks of life exploring the opportunities higher education provides

ACC is renowned for quality instruction. Faculty and staff, focused on student learning and motivated by student success, stand ready to help you reach your goals. A rich menu of certificates and degree programs is offered on our main campus in Alpena. Educational opportunities are also provided at the Oscoda Campus. Concrete Technology, Utility Technology, and Marine Technology are notable examples of unique occupational programs offered at ACC. For students intending to transfer to larger universities for bachelor and advanced degrees, there is no better place to begin than ACC. Quality of instruction, small class sizes, accessibility to instructors, support services, and **low cost** all combine to create an educational experience that delivers value that lasts a lifetime.

Thank you for choosing ACC. We look forward to beginning our journey together.

Sincerely,

Dr. Don MacMaster, President

## GETTING TO COLLEGE 101

1. Choose a Program and Apply to ACC

   Look through this catalog and the ACC website to learn more about ACC's academic programs. We encourage you to talk to instructors and ACC staff about academic requirements, employment opportunities, needed skills, and details about each program. We want you to make an informed, confident choice!

   Once you've identified an academic program, complete your application for admission. It only takes a few minutes, and it's FREE! Or, if you prefer, complete an online application at home at www.alpenacc.edu.

   Once you've received your acceptance letter, sign up for mandatory orientation. You can make reservations at www.alpenacc.edu MY ACC or by calling the Admissions Office at 989.358.7234 or toll free at 888.468.6222.

   Please note: ACC cannot process your financial aid or placement data without your completed application. Recommended Completion Date: Anytime! (Must be completed prior to ACCUPLACER Assessment, Mandatory Orientation, Financial Aid Processing, and Class Registration)

2. Apply for Financial Aid (FAFSA)

   Submit the Free Application for Federal Student Aid (FAFSA) online as soon as possible at www.fafsa.gov and list ACC as one of your college choices by including our code number, 002237.

3. Take the ACCUPLACER Placement Assessment

   ACCUPLACER is required for all new ACC students who *do not meet* ACT or SAT Reading, English, and Mathematics sub score requirements and wish to register for more than one course OR have not earned a minimum of 12 college credits including at least one college level course in either English or Mathematics AND all students who enroll for the first time in an English or mathematics course.

   To schedule an appointment, contact the Testing Center at 989.358.7209 (Alpena Campus) or 989.358.7445 (Oscoda Campus).

4. Academic Advising

   An advisor will be assigned to you after you submit your Application for Admission. Meet with an advisor at mandatory orientation to plan what courses you need to take to achieve your academic goals. Advisors have office hours during registration week to help you pick classes and register.

5. Register and Pay for Classes

   Check the ACC website or publications to determine when registration periods are open. Register at your earliest convenience for the best choices of class days and times.

   Thinking of a four-year College or University? The credits you earn at ACC transfer!
   Starting your education at ACC and then transferring to complete your bachelor's degree can save you thousands of dollars, and ACC offers numerous courses that transfer directly to four-year colleges and universities.

### STEPS FOR TRANSFER SUCCESS

1. Plan Ahead

   This is the single most important part of having a smooth transfer experience. If you know before starting ACC that you will want to transfer in the future, you're in an advantageous position. You can plan your course load with care, ensuring all of the classes you take will transfer into the program and school you have in mind.

2. Meet with an Advisor

   If you are planning to transfer to a four-year college or university, we encourage you to meet with an ACC academic advisor. Advisors have information available regarding transfer agreements, and can help you plan your classes accordingly. Getting regular advising from your academic advisor will help you complete

course requirements for an ACC certificate or degree and prepare for transfer to the college or university of your choice.

3. Evaluate Colleges

   Contact the colleges you are interested in and ask them for transfer information – many schools even have a transfer guide available online. Meet with college representatives when they visit ACC's campus and ask them about transferring and other admissions requirements.

4. Apply Early

   Know your chosen college's application requirements. Apply for Financial Aid, listing each institution in which you are interested on your FAFSA. Inquire about scholarships available to transfer students. Make housing decisions.

   Attend any orientation sessions that are offered by the transfer college/university.

ACC participates in the Michigan Transfer Agreement (effective Fall 2014) between public and private community colleges and universities in Michigan. This agreement provides ACC students more assurance of having completed their general education requirements when they transfer to a participating four-year college or university. Working closely with your academic advisor is recommended to assure meeting MTA requirements. To fulfill the Michigan Transfer Agreement, students must successfully complete at least 30 credits, with at least a 2.0 in each course. Students can visit www.michigantransfernetwork.org, a centralized web-based system that allows any student who has completed a course at any Michigan College or University to find the equivalency for that course at any other Michigan College or University.

## BACHELOR'S DEGREES AVAILABLE ON ACC'S MAIN CAMPUS

Did you know students can earn a bachelor's degree right on ACC's campus? The Madeline Briggs University Center is located just west of Van Lare Hall. Northwood University offers on-site programs, making it easier for students to transfer their credits to earn a Bachelor's Degree.

Northwood offers a Bachelor of Business Administration program with focuses on Accounting, Computer Information Management, Health Care Management, Management, Marketing, Entrepreneurship, Automotive Marketing and Management, Aftermarket Management, Operations and Supply Chain Management (minor only), Finance, and Franchising Management. A Bachelor of Science in Applied Management degree is also available through Northwood's Alpena location for students in technical fields such as Concrete Technology, Utility Technology, Nursing, Criminal Justice, Automotive Service and Repair, Welding Technology, etc.

For more information about Northwood University Bachelor's Degree programs contact:

Jason Barbeau
Alpena Program Center Manager
989.358.7302
barbeauj@northwood.edu

Alpena Community College offers a bachelor's degree in Electrical Systems Technology. Find program information in this catalog or contact the program advisor:

Steve Lewis
EPTC 156
989.358.7363
lewiss@alpenacc.edu

# ADMISSIONS

## ACCESS — AMERICANS WITH DISABILITIES ACT

Alpena Community College complies with Section 504 of the Rehabilitation Act of 1973 (PL 93-112), as amended (PL 93-516), and with the Americans with Disabilities Act of 1990 (ADA). These acts provide for equal opportunity in educational activities, programs, and facilities for students with disabilities.

Any student denied disability services may appeal the decision by following the Student Complaint Procedure as written in the Alpena Community College Student Handbook.

## DISABILITY SERVICES PROCEDURES

The Academic and Student Affairs Office in VLH 109 is the designated ACC office to coordinate disability services for all students with identified and documented disabilities. Disability services eligibility decisions and service plans are made on an individual basis.

Disability documentation is required before disability accommodation services can be provided. Students applying for disability accommodation services are urged to make the request early in the registration process. Adequate time is necessary to arrange for specific services.

1. Student contacts the Dean of Students and completes the disability services intake process.
2. Student provides documentation of disability from an appropriate licensed professional to the Dean of Students. (Guidelines for acceptable documentation can be found in the Access for Students with Disabilities policy, available on the ACC website and in the Academic and Student Affairs Office). All disability documentation will be maintained by the Dean of Students.
3. A decision regarding reasonable disability accommodation services is made by the Dean of Students and the student based on the documentation. Arrangements will be made to contact instructors regarding disability accommodation services, if appropriate. Students are encouraged to contact their instructors personally to discuss course expectations early in the semester.

More detailed information on Alpena Community College's disability accommodation services policies and procedures is available in the Access for Students with Disabilities publication available in the Academic and Student Affairs office or on the Alpena Community College website at www.alpenacc.edu .

## ADMISSIONS POLICY

Alpena Community College grants admission to all persons who have earned a High School Diploma, Certificate of Completion or G.E.D., or who are 18 years of age or older and who demonstrate the ability to benefit from a particular program of study. Ability to benefit may be demonstrated by those who:

Have satisfactory skills* as measured by institutional placement testing for reading, language, and numerical skills OR

Can produce Test of English as a Foreign Language (TOEFL) test score results of 500 or better when coming from a non-English speaking country.

The age requirement is waived for a high school student who:
Is a dually enrolled high school student** as provided for by the State School Aid Act, as amended OR

Is certified as having attained junior status toward graduation as determined by the high school or the home schooling association issuing the diploma. College course enrollment will be determined in accordance with Alpena Community College placement assessment results for reading, language, and numerical skills.

This admissions policy applies to admission to the College only and is intended to assure students of both opportunity and quality in programs. Admission to a specific curriculum or course is based on student interest, achievement, and test scores necessary for preparation to enter a specific program or course.

Placement assessment is required for:

All new Alpena Community College students who do not meet ACT or SAT Reading, English, and Mathematics sub-score requirements, and wish to register for more than one course*** (Note: placement assessments will only be given in the subject areas where sub-score minimums were not met) OR

Have not earned a minimum of 12 college credits including at least one college level course in either English or mathematics AND

All students who enroll for the first time in an English or mathematics course.

* **Satisfactory Skills** – Ability to Benefit: Persons taking the COMPASS Placement Assessment must achieve subtest scores of 32 (3 on e-write), 62, and 25 or higher on the Writing Skills, Reading, and Pre-algebra/Numerical Skills sections respectively OR ACCUPLACER scores of 3, 62, and 51 or higher on the WritePlacer, Reading, and Arithmetic sections respectively. These placement assessments may be taken no more than twice in a single semester. Individuals scoring below the minimum subtest scores in all three of the areas as described above must take the College's four course preparatory curriculum earning a C grade or above in each course, while not exceeding eight (8) credit hours, without advisor approval, in a given semester, prior to taking any other college level course. Those failing to meet the minimum scores in one or two areas described above need only take the preparatory course or courses corresponding to those areas (see table below).

** **Dual Enrollment** – Interested high school students should contact their high school principal or guidance counselor for further information.

*** **Placement Assessment** – Students who accumulate 6 credit hours by taking one course per semester will be required to take the ACCUPLACER Placement Assessment.

## PREPARATORY CURRICULUM TABLE

| Course Number | Course Title | Credit Hours | COMPASS Assessment | ACCUPLACER Assessment |
|---|---|---|---|---|
| CSS 095 | Effective Reading Strategies & Study Skills | 3.0 | Reading score is 0-61 | Reading score is 0-61 |
| CSS 100 | Becoming a Master Student | 2.0 | Must be taken when CSS 095, ENG 090 or ENG 102, and MTH 090 – all three discipline specific courses are required | Must be taken when CSS 095, ENG 090 or ENG 102, and MTH 090 (i.e. all three discipline specific courses) are required |
| ENG 090 | Fundamentals of Writing | 4.0 | Reading score is 0-61 & e-Write score is 1-2 | Reading score is 0-61 & WritePlacer score is 1-2 |
| ENG 102 | Basic English | 4.0 | Reading score is 62-68 & e-Write score is 4-5 | Reading score is 61-67 & WritePlacer score is 3-4 |
| ENG102ALP & ENG 111ALP | Basic English & English Composition I | 7.0 | Reading score is 68-80 & e-Write score is 4-5 | Reading score is 68-80 & WritePlacer score is 4-5 |
| MTH 090 | Arithmetic | 4.0 | Pre-Algebra score is 0-28 | Arithmetic score is 0-50 & Elementary Algebra score is 0-52 |

## APPLICATION PROCESS

Applications for Admission to Alpena Community College can be obtained in person from the Admissions Office (Van Lare Hall 111) or Registrar's Office (Van Lare Hall 108) on the main campus and at the Oscoda Campus Office. An online application can be completed through the College website at www.alpenacc.edu. Mail and telephone requests for applications are accepted at 989.358.7339 (Alpena Campus) and 989.358.7295 (Oscoda Campus). The application process involves submitting:

1. A completed Application for Admission
2. Transcripts of all high school and college work completed

The Scholastic Aptitude Test (SAT) is recommended, but not required. A foreign applicant must present a visa.

## DUAL ENROLLMENT AND CONCURRENT ENROLLMENT— HIGH SCHOOL STUDENTS

Legislation established a Dual Enrollment Program and Public Acts 159, 160, and 161 of 1996 set forth eligibility requirements for the program. Under the Dual Enrollment Program, eligible high school students may enroll in approved ACC classes and the local school district pays all tuition.

Alpena Community College encourages interested high school students and parents to contact their high school principal or guidance counselor for eligibility guidelines and dual enrollment information.

For a number of years Alpena Community College has also accepted enrollment by high school seniors who have a recommendation from the school principal or counselor, but do not qualify for dual enrollment. Concurrently enrolled high school students are responsible for payment of all tuition and fees.

## FORMER STUDENTS

Alpena Community College extends to all students a continuous matriculation; therefore, a former student (inactive for two or more years) needs only to submit a new admission application with re-admit checked for status. The only exception to this policy applies to students who have been formally dismissed. They must reapply through the office of the Vice President of Instruction. Please also read about the process of academic renewal.

## GUEST STUDENTS

A guest applicant is a student who is currently enrolled in a program at another college or university, and who wishes to complete a course at Alpena Community College as part of that program. Guest applicants may complete the regular application procedure, or complete a Guest Application Form, and receive permission to attend Alpena Community College. Guest Application Forms are usually available at the Registrar's Office of the student's home college or university. A student may not attend as a guest for two consecutive semesters.

## TRANSFER STUDENTS

Transfer students are welcome to apply for admission to Alpena Community College. Transcripts of college level course work may be submitted for evaluation to determine possible transfer of credit under the following policies:

1. Credits may be transferred from regionally accredited institutions only.
2. Only courses with a "C" (2.0) grade or higher are accepted in transfer.
3. Dependent on course content, generally courses 100 level and above are accepted in transfer.
4. Quarter credits or other units of credit transferred in will be converted to semester credits and must equal the required semester credits for the purpose of satisfying graduation requirements.
5. Course work older than seven years will not apply toward any occupational specialty area for an associate in applied science degree. Exceptions may be allowed with departmental recommendation based on departmental proficiency standards.

## FOREIGN STUDENTS

Alpena Community College requires applicants hoping to receive college credit for course work completed at foreign institutions to submit their credentials to Educational Credential Evaluators. Applications for Evaluation of Foreign Educational Credentials are available in the Registrar's Office. Students should request a course-by-course evaluation. The credentialing agency should be asked to forward one copy of the evaluation directly to ACC. Upon receipt of the report, the Registrar's Office will award appropriate transfer credit.

## HOUSING

College Park Apartments opened in 1997. These student townhouses are located on the north side of Johnson Street on the ACC Alpena Campus. The 16 four-person units are owned and managed by the College. Rental applications are available at www.alpenacc.edu under Admissions/Housing or contact the Director of Student Life and Campus Housing (VLH 109) at 989.358.7394.

For off-campus housing information, visit our website at www.alpenacc.edu under Admissions/Housing for maps, landlord contact information, unit addresses, and other details.

## NOTICE OF NONDISCRIMINATION

TITLE IX – NONDISCRIMINATION ON THE BASIS OF SEX — The College is required not to discriminate, and does not discriminate, on the basis of sex in its education programs, activities, employment, or admission policies pursuant to Title IX of the Education Amendment of 1972.

EQUAL EMPLOYMENT OPPORTUNITY — The College is an equal opportunity employer and is committed to recruit, employ, and promote personnel without regard to race, color, sex, age, religion, marital status, national origin, citizenship status, genetic information, marital status, familial, height, weight, or disability in compliance with federal and state statutes and regulations that pertain to non-discrimination in employment. The Human Resources Office administers the College's Equal Opportunity policies and practices. Contact that office with any concerns related to any form of prohibited discrimination. The College's EEO statement is published on the College website at www.alpenacc.edu.

THE COLLEGE INSTITUTIONAL STATEMENT OF NON- DISCRIMINATION — The College policies and practices for admission, employment, and activities comply with requirements of Title VII of the Civil Rights Act of 1964, Title IX of the Education Amendment of 1972, Section 504 of the Rehabilitation Act of 1973 as amended, the Age Discrimination in Employment Act of 1967 (ADEA), the Americans with Disability Act (ADA) of 1990 and the ADA Amendments Act of 2010; Title II of the Genetic Information Nondiscrimination Act of 2008. The College does not discriminate on the basis of race, color, religion, national origin, gender, sex, age, or disability. The College practices and policies also comply with the Michigan Persons with Disabilities Civil Rights Act (PDCRA) and the Michigan Elliott-Larson Civil Rights Act (ELCRA) which prohibits discrimination in hiring based on age, height, weight, marital status, and familial status in addition to race, color, religion, sex (which includes pregnancy), and national origin. For more information contact the Title IX, Section 504, the Age Discrimination Act and Title II coordinator: Carolyn Daoust, Title IX Coordinator/Director of Human Resources, VLH 102, at daoustc@alpenacc.edu or 989.358.7211.

## OFF-CAMPUS COURSES

Off-campus services to local communities make educational experiences available to students who do not have access to campus facilities. Persons or groups interested in off-campus courses should contact the Director of the TAACCCT Grant or the Director of the Oscoda Campus. Off-campus credit classes are currently offered each semester at community sites in Arenac, Iosco, Montmorency, and Presque Isle counties. Minimum enrollment of 10 students is required for classes to run.

## MANDATORY ORIENTATION

Mandatory orientation is held to familiarize new students with the College campus, faculty, programs of study, student services, and social opportunities. Academic advising, the placement and registration process, academic regulations, and social conduct are discussed during orientation. Students are informed of mandatory orientation dates after their application for admission has been accepted. Mandatory orientation reservations may be made on the ACC website under My ACC or by calling the Admissions Office at 989.358.7234.

## PLACEMENT ASSESSMENT

Placement assessment evaluates the student's basic skills in reading, writing, and mathematics in relation to the prerequisite requirements for college-level coursework. Results are used to make recommendations concerning course placement and the possible need for additional skills instruction. Assessment dates and times at the main campus in Alpena and the Oscoda Campus are published in the semester course schedule and are available on the Alpena Community College website.

Placement assessment is required for:

1. All new Alpena Community College students who do not have a high school diploma, G.E.D., or do not meet ACT or SAT Reading, English, and Mathematics sub-score requirements, and wish to register for

more than one course** (Note: placement assessment will only be given in the subject areas where sub-score minimums were not met) or

2. All students who have not earned a minimum of 12 college credits including one college level course in either English or mathematics, AND

3. All students who enroll for the first time in an English or mathematics course.

** Students who accumulate six credit hours by taking one course per semester will be required to take the ACCUPLACER Placement Assessment.

## ASSESSMENT AND PLACEMENT

### READING AND ENGLISH PLACEMENT

| High School Graduation GPA | Reading Placement | English Placement |
|---|---|---|
| 3.50 – 4.00 | None Required | ENG 121 or ENG 111 or ENG 120 |
| 3.00 – 3.49 | None Required | ENG 111 or ENG 120 |
| 2.99 or less | Refer to ACT English sub-score | Refer to ACT English sub-score |

**SAT Placement Guidelines**

| Reading | English/Writing | Reading Placement | English Placement |
|---|---|---|---|
| 36 – 40 | 36 – 40 | None required | ENG 121 or ENG 111 or ENG 120 |
| 25 – 35 | 25 – 35 | None required | ENG 111 or ENG 120 |
| 24 or less | 24 or less | Refer to Next-Gen ACCUPLACER or COMPASS reading score | Refer to WritePlacer or e-Write score |

| ACT English sub-score | Reading Placement | English Placement |
|---|---|---|
| 24 – 36 | None Required | ENG 121 or ENG 111 or ENG 120 |
| 18 – 23 | None Required | ENG 111 or ENG 120 |
| 17 or less | Refer to Next-Gen ACCUPLACER or COMPASS reading score | Refer to WritePlacer or e-Write score |

**Next-Generation ACCUPLACER Placement Guidelines**

| Reading | WritePlacer | Reading Placement | English Placement |
|---|---|---|---|
| 250 – 300 and | 7 or 8 | None Required | ENG 121 or ENG 111 or ENG 120 |
| 250 – 300 and | 5 or 6 | None Required | ENG 111 or ENG 120 |
| 235 – 249 and | 5 | CSS 098 and CSS 098L | ENG 102ALP and ENG 111ALP |
| or | | | |
| 235 – 300 and | 4 | | ENG 102ALP and ENG 111ALP |
| 200 – 234 and | 4 | CSS 098, CSS 098L, and | |
| or | | CSS 100 | ENG 102 |
| 200 – 300 and | 1 – 3 | | |
| 200 – 234 and | 1 or 2 | CSS 095, CSS 095L, and CSS 100 | To be determined after completion of CSS classes |

**COMPASS Reading and e-Write**

| Reading | | eWrite | Reading Placement | English Placement |
|---|---|---|---|---|
| 91 or above | and | 7 or 8 | None Required | ENG 121 or ENG 111 |
| 81 – 90 | and | 5 or 6 | None Required | ENG 111 |
| 68 – 80 | and | 4 or 5 | CSS 098 and CSS 098L | ENG 102ALP and ENG 111ALP |
| 62 – 68 | and | 3 or 4 | CSS 098, CSS 098L, and CSS 100 | ENG 102 |
| 0 – 61 | and | 1 or 2 | CSS 095, CSS 095L and CSS 100 | To be determined after completion of CSS classes |

## MATH PLACEMENT

| ACT Math sub-score: | Math Placement |
|---|---|
| 27 or above | Consult math instructor |
| 24 – 26 | MTH 121, MTH 122, or MTH 123 (see Math/Science Dept for specific course placement) |
| 18 – 23 | MTH 113 |
| 17 or less | Refer to ACCUPLACER or COMPASS |

| SAT Math: | Math Placement |
|---|---|
| 33 or above | Consult math instructor |
| 28.5 – 32.5 | MTH 121, MTH 122, or MTH 123 (see Math/Science Dept for specific course placement) |
| 26.5 – 28 | MTH 113 |
| 26 or less | Refer to ACCUPLACER or COMPASS |

| Next-Generation ACCUPLACER: | Math Placement |
|---|---|
| Advanced Algebra Functions: 263 or above | MTH 131 |
| Quantitative Reasoning, Algebra & Statistics: 250 or above | MTH 121, MTH 122, MTH 123, MTH 223 (see Math/Science Dept for specific course placement) |
| Quantitative Reasoning, Algebra & Statistics: 230-249 | MTH 113 |
| Arithmetic: 240 or above **AND** Quantitative Reasoning, Algebra & Statistics: 0-229 | MTH 102, MTH 110, MTH 115, BUS 125 |
| Arithmetic: 0 – 239 **AND** Quantitative Reasoning, Algebra & Statistics: 0-229 | MTH 090 |

| COMPASS: | Math Placement |
|---|---|
| Trigonometry: 50 – 100 | See Math Department for placement |
| Trigonometry: 0 – 49 | Use College Algebra score for placement |
| College Algebra: 50 – 100 | MTH 121, MTH 122, or MTH 123 |
| College Algebra: 0 – 49 | Use Algebra score for placement |
| Algebra: 37 – 100 | MTH 113 |
| Algebra: 0 – 36 | MTH 102, MTH 110, MTH 115, or BUS 125 |
| Pre-Algebra: 36 – 100 | MTH 102, MTH 110, MTH 115, or BUS 125 |
| Pre-Algebra: 29 – 35 | Decision Zone |
| Pre-Algebra: 25 – 28 | MTH 090 |
| Pre-Algebra: 0 – 24 | MTH 090 Required |

## BIOLOGY PLACEMENT GUIDELINES

| For students with | Placement |
|---|---|
| ONE year of high school biology with a "C" or higher within last five years or BIO 114 Introduction to Biology with a "C" or higher | BIO 110 Essentials of Anatomy & Physiology |
| No high school biology or high school biology with "C" or higher within the last five years or Advanced Placement of 3 in Biology. | BIO 114 Introduction to Biology with co-requisite of ENG 102 Basic English or eligibility placement in ENG 111 English Composition I |
| BIO 110 or BIO 114 or equivalent: CEM 100 or CEM 111 or equivalent recommended | BIO 140 Microbiology for the Health Sciences (for students pursuing associate degree level programs in the Allied Health Sciences; students planning to major/minor in biology or other pre-professional programs are advised to take BIO 227 |
| One year of high school biology with a "C" or higher within last five years or BIO 114 Introduction to Biology with a "C" or higher or Advanced Placement of 4 or 5 in biology AND one year of high school chemistry with a "C" or higher within the last five years or CEM 100 Introductory Chemistry or higher | BIO 161 General Biology placement and eligibility placement in ENG 111 English Composition I |
| Two years of high school biology or one year of high school biology plus LME 1120A and LME 1120B (AHS courses) with a "C" or higher within last five years or BIO 161 General Biology with a "C" or higher or BIO 110 with a "C" or higher or BIO 114 with a "C" or higher within last five years | BIO 201 Human Anatomy placement |

| For students with | Placement |
|---|---|
| BIO 201 Human Anatomy with a "C" or higher and CEM 111 General Chemistry (or higher) with a "C" or higher | BIO 203 Human Physiology placement |
| BIO 161 with a "C" or higher or CEM 111 with a "C" or higher AND BIO 110 with a "C" or higher or BIO 114 with a "C" or higher or one year of high school biology with a "C" or higher within the last five years | BIO 227 Microbiology (for students planning to major/minor in biology or other pre-professional programs) |

### CHEMISTRY PLACEMENT GUIDELINES

| For students with | Placement |
|---|---|
| One year of high school algebra with a "C" or higher or MTH 102 Elementary Algebra or concurrent enrollment in MTH 102 or instructor permission | CEM 100 Introductory Chemistry |
| One year of high school chemistry with a "C" or higher or CEM 100 Introductory Chemistry AND MTH 102 or equivalent or concurrent enrollment in MTH 102 or instructor permission | CEM 111 General Chemistry |
| Two years of high school chemistry with a "C" or higher or permission from instructor | CEM 121 General and Inorganic Chemistry |
| Advanced Placement (AP) | 3 = CEM 121 General and Inorganic Chemistry; 4 = CEM 121 General and Inorganic Chemistry and CEM 122 Inorganic Chemistry and Qualitative Analysis |

### RESIDENCY POLICY

It is the intent of Alpena Community College to make every reasonable effort to correctly classify students according to their residence. In this spirit, regulations approved by the Board of Trustees will determine a student's residence status in one of the three categories: in-district (graduate of Alpena High School; a resident of at least six months in the Alpena Public Schools District prior to initial enrollment), in-state, or out-of-state. Tuition will be paid according to residency status. See the Student Handbook for complete regulations and guidelines. It is the student's responsibility to discuss any question regarding residency with the Director of Admissions.

### SAFETY POLICIES, ANNUAL SECURITY REPORT, and ANNUAL FIRE SAFETY REPORT

Alpena Community College is committed to enhancing the safety and security of our campus communities. The College has adopted a number of policies and procedures which are designed to address issues of safety and security and to comply with federal and state laws and regulations, including but not limited to the Jeanne Clery Disclosure of Campus Security Policy and Campus Crime Statistics Act (the Clery Act), Title IX of the Education Amendments of 1972, the Higher Education Opportunity Act, and the Violence Against Women Reauthorization Act of 2013 (VAWA).

The College annually publishes an Annual Security Report & Annual Fire Safety Report, which contains the College's safety policies, procedures, programs, services available to the College community, risk reduction techniques, and tips for maintaining a safe and secure campus. This report also includes a disclosure of crime, arrest, and referral statistics that are reported to local police and the College's campus security authorities, as required by the Clery Act and VAWA. To review the Annual Security Report & Annual Fire Safety Report, or to learn more about the College's safety policies and procedures, please refer to the College website (www.alpenacc.edu/safety/ docs/acc_asr.pdf).

A copy of the Annual Security Report & Annual Fire Safety Report may also be obtained at the office of the Director of Human Resources, Van Lare Hall Room 102, or by calling 989.358.7211.

### STUDENT HANDBOOK

The Student Handbook provides information about what the College expects from students and what students can expect from the College. The Student Handbook contains the College's academic calendar, as well as information about planning for success, student services, campus life, and student activities. The Student

Handbook also contains many of the College's policies and procedures relating to academics, campus safety, and other matters, as well as the College's student code of conduct and student judiciary bylaws. Students should read and become familiar with this important information located at www.alpenacc.edu.

## STUDENT RIGHT-TO-KNOW ACT

The Student Right-to-Know Act of 1990, as amended by the Higher Education Technical Amendments of 1991, requires the College to track a cohort of first-time, full-time students for completion or graduation purposes. The completion figures in this report are for 316 new students who began their attendance at ACC in the Fall semester of 2013, 367 new students who began their attendance at ACC in the Fall semester of 2012, and 409 new students who began their attendance at ACC in the Fall semester of 2011. Individual program completion rates are available in the office of the Deans of Students, Van Lare Hall, Room 109. The completion rate shown is based on a student completing their program in 150% of the normal time frame for their program, thus a 4-semester program must be completed in six (6) semesters.

## COHORT COMPLETION RATES

Cohort Completion Rates — New Full-Time Students, Fall 2014

| **Cohort** | **2011-2012** | **2012-2013** | **2013-2014** | **2014-2015** |
|---|---|---|---|---|
| Students | 409 | 367 | 316 | 317 |
| Completers | 144 (35%) | 118 (32%) | 113 (36%) | 121 (38%) |
| Male Students | 205 | 206 | 117 | 177 |
| Completers | 81 (40%) | 67 (33%) | 60 (34%) | 76 (43%) |
| Female Students | 204 | 161 | 139 | 140 |
| Completers | 63 (31%) | 51 (32%) | 41 (29%) | 45 (32%) |
| Ethnic Breakdown | | | | |
| White Students | 387 | 338 | 297 | 290 |
| Completers | 140 (36%) | 115 (34%) | 108 (36%) | 115 (40%) |
| Black Students | 7 | 10 | 8 | 11 |
| Completers | 0 (0%) | 2 (20%) | 2 (25%) | 2 (18%) |
| Other Students | 11 | 10 | 6 | 11 |
| Completers | 2 (18%) | 0 (0%) | 2 (33%) | 4 (36%) |
| Native American Students | 4 | 5 | 6 | 5 |
| Completers | 2 (50%) | 0 (0%) | 1 (17%) | 2 (40%) |

Individual program completion rates are available to interested students through the Office of Academic and Student Affair

| Cohort | 2012-2013 | 2013-2014 | 2014-2015 | 2015-2016 |
|---|---|---|---|---|
| Scholarship Athletes (unduplicated count) | 39 | 55 | 47 | 49 |
| Male Athletes | 10 | 25 | 23 | 23 |
| Female Athletes | 29 | 30 | 24 | 26 |
| Completers | 24 (62%) | 31 (57%) | 18 (39%) | 30 (61%) |
| New Athletes | 28 | 34 | 32 | 38 |
| Completers | 17 (61%) | 16 (47%) | 17 (54%) | 18 (47%) |
| Men's Basketball Athletes | 15 | 15 | 12 | 14 |
| Completers | 8 (53%) | 5 (34%) | 6 (50%) | 7 (50%) |
| Caucasian | 11 | 4 | 4 | 10 |
| Completers | 8 (73%) | 4 (100%) | 2 (50%) | 3 (30%) |
| Black | 4 | 11 | 8 | 4 |
| Completers | 0 (0%) | 2 (19%) | 4 (50%) | 2 (50%) |
| Native American | 0 | 0 | 0 | 0 |
| Completers | N/A | N/A | N/A | N/A |
| Women's Basketball Athletes | 13 | 13 | 9 | 9 |
| Completers | 8 (62%) | 8 (62%) | 7 (78%) | 6 (67%) |
| Caucasian | 12 | 13 | 7 | 9 |
| Completers | 7 (58%) | 8 (62%) | 6 (86%) | 6 (67%) |
| Black | 2 | 0 | 2 | 0 |
| Completers | 1 (100%) | N/A | 1 (50%) | N/A |
| Men's Golf Athletes | 5 | | | |
| Completers | 3 (60%) | | | |
| Caucasian | 5 | | | |
| Completers | 3 (60%) | | | |
| Black | 0 | | | |
| Completers | N/A | | | |
| Women's Softball Athletes | 13 | 13 | 0 | 11 |
| Completers | 10 (77%) | 8 (62%) | N/A | 5 (45%) |
| Caucasian | 13 | 13 | 0 | 11 |
| Completers | 10 (77%) | 8 (62%) | N/A | 5 (45%) |
| Black | 0 | 0 | 0 | 0 |
| Completers | N/A | N/A | N/A | N/A |
| Native Americans | 0 | 0 | 0 | 0 |
| Completers | N/A | N/A | N/A | N/A |
| Women's Volleyball Athletes | 11 | 11 | 11 | 9 |
| Completers | 6 (55%) | 7 (64%) | 7 (64%) | 7 (78%) |
| Caucasian | 11 | 11 | 11 | 9 |
| Completers | 6 (55%) | 7 (64%) | 7 (64%) | 7 (78%) |
| Black | 0 | 0 | 0 | 0 |
| Completers | N/A | N/A | N/A | N/A |
| Cross Country Athletes | 8 | 14 | 9 | 9 |
| Completers | 7 (88%) | 8 (58%) | 7 (78%) | 5 (56%) |
| Caucasian | 8 | 14 | 9 | 9 |
| Completers | 7 (88%) | 8 (58%) | 7 (78%) | 5 (56%) |
| Black | 0 | 0 | 0 | 0 |
| Completers | N/A | N/A | N/A | N/A |

# COSTS

The Board of Trustees of Alpena Community College reserves the right to change any and all charges as conditions and circumstances warrant change.

Payment is by check, money order, Visa, MasterCard, Discover, American Express, or financial aid at the time of registration.

All charges are assessed and payable in United States currency at registration or as otherwise stated. Students are urged to use checks, credit cards, or money orders payable to Alpena Community College for the payment of charges. If checks and money orders are in excess of the required payments, the excess amount will be added to the student's account and may be used at the Bookstore for purchases during the enrollment period. Refunds and amounts left on student accounts after the enrollment period will be refunded to the student. Excess credit card amounts will be refunded to the credit card(s) used for 60 days from date used. Online payments now accepted through WebAdvisor®. Cash is accepted at the Alpena Campus; however, cash payments are not accepted at the Oscoda Campus.

Financial aid often makes it possible for people to take advantage of educational opportunities, and students are encouraged to apply to determine what type of assistance may be available. ACC participates in all federal and state educational grants, loans, work study, academic scholarships, and Veterans Benefits programs.

## TUITION

Tuition at Alpena Community College is based upon residence (see page 12 for residency policy) and is computed on contact hours. The total contact hours are those hours actually spent in lecture, laboratory, or recitation instruction. For example, a student who registers for BIO 114 4(3-2) is taking a 4 credit hour course which has 5 contact hours, 3 lecture and 2 lab.

## TUITION RATES

The following rates are for the 2019-20 academic year and are subject to change.

| | |
|---|---|
| In-District (Alpena Public Schools District) | $137.00 per contact hour* |
| In-State and Out-of-State | $217.00 per contact hour* |
| Bachelor Level | $325.00 per contact hour* |

## FEES

The following fees are for the 2019-20 academic year and are subject to change.

## STUDENT SERVICES FEE

A Student Services Fee of $6 per contact hour will be assessed for all enrollments on campus. The Student Services Fee is used to fund student activities and student groups through the Campus Activities Board of the Student Leadership Commission, to defray some costs of the Wellness Center and allow all credit students to use the Wellness Center, and to support the intercollegiate athletics program.

a. The fee is assessed to each "Add" of a course or courses.

b. No student will be assessed for more than 23 contact hours per semester.

c. During summer session, the fee is assessed on no more than 16 contact hours.

### FACILITIES MAINTENANCE FEE

A Facilities Maintenance Fee of $6 per contact hour will be assessed for all enrollments on and off campus. The Facilities Maintenance Fee is used for major repairs, replacements, and improvements to the College's buildings, equipment, and grounds to enhance the student's learning environment.

a. The fee is assessed to each "Add" of a course or courses.

b. No student will be assessed for more than 23 contact hours per semester.

c. During summer session, the fee is assessed on no more than 16 contact hours.

### TECHNOLOGY FEE

A Technology Fee of $4 per contact hour will be assessed on all enrollments for classes held at the Alpena Campus and the Oscoda Campus. The Technology Fee is used to expand, improve, and maintain the utilization of technology in the fulfillment of the overall mission of the College.

a. The fee is assessed to each "Add" of a course or courses.

b. No student will be assessed for more than 23 contact hours per semester.

c. During summer session, the fee is assessed on no more than 16 contact hours.

### ONLINE COURSES FEE

An Online Courses Fee of $30 per contact hour will be assessed on all online classes provided by Alpena Community College. The Online Courses Fee is used to cover the special costs of developing new online courses, limiting online class size, and providing extra faculty preparation compensation for online courses.

a. The fee is assessed to each "Add" of a course or courses.

b. No student will be assessed for more than 23 contact hours per semester.

c. During summer session, the fee is assessed on no more than 16 contact hours.

### SPECIAL COURSE FEES

A fee of $75 per art course will be applied to cover the cost of supplies. Other courses requiring a large amount of additional supplies, non-college facilities, equipment, or services (physical education, music, etc.) may require an additional fee that will be collected by the College, the agency, or the company providing the facilities, equipment, or services.

### RECORDS/REGISTRATION FEE

A non-refundable fee of $30 will be assessed when a student enrolls in Fall, Spring, or Summer Semester credit courses. Please note: drop/add fees, the graduation fee, and the fee for regular official transcripts have been eliminated.

### TRANSCRIPT FEE

Transcripts are provided at no cost. For rush service, please see the following fee.

### TRANSCRIPT RUSH SERVICE CHARGE

Ordinarily, transcripts are processed in one to three days upon receipt of the written request. Rush service is available for a $10.00 charge. The Records Assistant or Registrar will determine if this charge is necessary. Rush mailed transcripts will be prepared in time for the next outgoing mail. Rush transcripts to be picked up in person will be prepared immediately. If express mailing is requested, this fee will be added to the $10 charge. Rush service requests made by FAX will need to be charged to a credit card.

### ESTIMATED COST OF ATTENDANCE

The following chart gives the estimated cost of attending Alpena Community College for an academic year based on rates in effect when this catalog went to print. Rates are subject to change. The figures are based on an average full-time course load of 30 contact hours for two semesters and estimated average costs for additional

expenses. In-district expenses consider a student living at home, while in-state and out-of-state expenses consider a student living in campus housing. These are estimates given only to help in planning.

The following estimates are based on 2018-19 tuition and fee rates, which are subject to change.

| Expenses | In-District | In-State and Out-of-State |
|---|---|---|
| Tuition | $4,110 | $6,510 |
| Fees | 540 | 540 |
| Books and Supplies | 1,000 | 1,000 |
| Room and Board | 3,000 | 5,500 |
| Personal | 600 | 600 |
| Transportation | 800 | 800 |
| Total | $10,050 | $14,950 |

Some courses and programs of study, especially in technical and occupational areas, also require students to purchase supplies, equipment, clothing, or tools which are necessary for course work and which they will continue to use when employed. These items vary in cost and estimates for some programs are below.
Academic advisors for specific programs can provide additional information about the current costs for such investments. For example

Automotive Service and Repair (C): $1,000-$2,500
Utility Technician Training (C): $1,800
Nursing (C) or (AAS): $1,000 -$2,000

## REFUNDS

Full refunds (100%) — A refund of all paid tuition and fees (with the exception of the registration fee) will be issued providing a Drop/Add form is processed and in the possession of the Registrar's Office (Van Lare Hall 108) prior to 3:30 p.m. of the last day of the enrollment period of that semester, or if a miscellaneous course, prior to the end of the enrollment period of the course.

The "enrollment period" is defined as: not less than 1/10th of the calendar days between and including the first day of the semester and the final exam period. This college uses a Predominant Calendar System for determining the actual enrollment period for regularly scheduled semester courses (Fall, Spring, Summer). Other individually scheduled courses have independently determined enrollment periods.

The "enrollment period" starts with the first instructional day of a semester or miscellaneous course and ends when the appropriate number of calendar days have elapsed.

A request for refunds with documentation of extenuating circumstances must be submitted to the Vice President of Instruction.

**RETURN OF TITLE IV FUNDS (Federal Aid):** Students who completely withdraw from all courses prior to completing more than 60 percent of a semester will have their eligibility for aid recalculated based on the percent of the semester completed. This policy shall apply to all students who withdraw, drop out, receive failing grades in all courses or are dismissed from Alpena Community College (ACC) and receive financial aid from Title IV funds.

The term "Title IV Funds" refers to the following federal financial aid programs: Federal Direct Unsubsidized Loan, Federal Direct Subsidized Loan, Federal Direct PLUS Loans, Federal Perkins Loan, Federal Pell Grant, Federal Supplemental Educational Opportunity Grant, Iraq Afghanistan Service Grant.

Title IV Funds is earned in a prorated manner on a per diem basis up to and including the 60 percent point in the semester. Title IV Funds and all other aid are viewed as 100 percent earned after the 60 percent point in the semester.

The percentage of Title IV Funds earned shall be calculated as follows:

Number of days completed by student divided by

Total number of days in the semester

Equals Percent of Title IV Funds earned

The total number of days in the semester includes weekends, but does not include any scheduled breaks of more than five days.

A student's withdrawal date is determined by ACC as (1) the date the student began the withdrawal process or officially notified the Registrar's Office of intent to withdraw; or (2) the midpoint of the semester for a student who leaves without notifying ACC; or (3) the student's last date of attendance at a documented academically related activity.

If you did not receive all of the funds that you earned, you may be due a post-withdrawal disbursement. If your post-withdrawal disbursement includes loan funds, ACC must get your permission before we disburse them. You may choose to decline some or all of the loan funds so that you don't incur additional debt. ACC will automatically use all or a portion of your post-withdrawal disbursement of grant funds for tuition and fees charges. ACC needs your permission to use the post-withdrawal grant disbursement for all other school charges. If you do not give your permission, you will be offered the funds. However, it is be in your best interest to allow ACC to keep the funds to reduce your debt at the school.

**ACC'S PORTION TO BE RETURNED**—The percentage of Title IV Funds unearned (i.e., to be returned to the appropriate program) shall be 100 percent minus the percent earned. Any unearned aid to be returned by ACC is the lesser of (1) the entire amount of unearned aid or (2) the total institutional charges multiplied by the percentage of unearned aid.

ACC will calculate and return all Unearned Title IV Funds to the appropriate federal programs within 45 days of determining the official or unofficial withdrawal of the student. Unearned Title IV Funds shall be returned according to the following priority up to the amount received for the semester:

1. Direct Unsubsidized Loan
2. Direct Subsidized Loan
3. Perkins Loan
4. Direct PLUS Loan (Parent)
5. Federal Pell Grant
6. Federal SEOG
7. Iraq Afghanistan Service Grant

The student will be billed for any amount due to ACC resulting from the Return of Title IV Funds. Payment arrangements not made within 30 days will be turned over to a collection agency which may increase the original amount owed.

### NON-PAYMENT

Grades, transcripts, and other records may be withheld from those students who have not met all of their financial obligations.

### SENIOR CITIZEN TUITION WAIVER

A waiver of all tuition charges will be granted to College district residents 65 years of age or older. These students will be expected to pay all other fees associated with their enrollment. The Tuition Waiver is available only to individuals residing in the College district. The waiver is available the Friday before the semester begins.

## FINANCIAL AID

Financial aid is available to Alpena Community College students through a number of sources, including Title IV federal programs for qualifying students, State of Michigan Competitive Scholarships, Michigan Rehabilitation Services, Bureau of Indian Affairs (BIA), and special organizational scholarships and loans. Additional information on eligibility and application procedures — including completion of the Free Application for Federal Student Aid (FAFSA) — is available at the Financial Aid Office (VLH 107).

To be considered for financial aid, an applicant must be a High School graduate or have a G.E.D., complete the ACC admission application process, and be in a degree or eligible certificate program.

## SATISFACTORY ACADEMIC PROGRESS

All students receiving federal Title IV financial aid monies (Pell Grant, Supplemental Educational Opportunity Grant (SEOG), Federal Direct Student Loan, and College Work Study program) and all State of Michigan programs (Michigan Competitive Scholarship and Tuition Incentive Program) must meet the following academic standards in order to qualify for continued aid eligibility.

Satisfactory Academic Progress (SAP) will be measured at the end of each semester, including summer and also measures semesters where financial aid had not been received. A student must meet all three (3) of the following requirements to remain eligible for financial aid:

1. Grade Point Average (GPA). The following is the cumulative GPA requirements:

| Hours Completed | GPA |
|---|---|
| 0 – 15 | 1.7 |
| 16 – 30 | 1.8 |
| 31 – 45 | 1.9 |
| 46 and up | 2.0 |

2. Pace of Completion. All students must maintain a minimum pace of completion of 67%. Pace of completion is calculated by dividing the cumulative credit hours successfully completed by the cumulative number of attempted credit hours.
3. Maximum Timeframe.

   A student in a certificate program may not exceed 45 attempted credit hours.
   A student in an associate degree may not exceed 90 attempted credit hours.
   A student in a bachelor program may not exceed 180 attempted credit hours.

A student not meeting any one of the 3 requirements above is not meeting SAP. A student who fails to meet SAP at the end of a semester will lose their financial aid eligibility for their next semester of attendance. Exceptions are granted, on a semester basis, to students who are placed on either financial aid warning or financial aid probation.

A student meeting all 3 requirements of SAP at the start of a semester, and at the end of the same semester is not meeting either SAP requirements 1 or 2 will be placed on financial aid warning for their next semester of attendance. While on financial aid warning a student will continue to be eligible to receive financial aid. A student will not be placed on financial aid warning when they exceed the maximum timeframe.

Note: A first semester student at Alpena Community College is considered to be meeting requirements 1 and 2.

A student who is not meeting SAP, and not placed on financial aid warning may submit a financial aid appeal to the Financial Aid Office and, if the appeal is approved, the student will be placed on financial aid probation. While on financial aid probation a student will continue to be eligible to receive financial aid for a duration of only one semester. At the completion of the semester of financial aid probation the student must meet all three requirements of SAP or lose their financial aid eligibility until the requirements are met.

## DEFINITIONS

*Attempted credit hours:* The number of credit hours a student is enrolled in after the 'last day to drop with a full tuition refund' date for the semester.

*Audited course:* Audited course credits do not count as attempted or successfully completed credit hours and are not calculated into the GPA.

*Incomplete grade (I):* Incomplete grades are counted as attempted credits, but not successfully completed credit hours, and are not included in GPA calculations.

*NG grade:* A temporary grade assigned when a final grade has not been received by the grading deadline. Grade of NG are counted as attempted hours, but not as successfully completed credit hours. NG grades are not included in the GPA.

*Satisfactory/Unsatisfactory:* A grading option which allows coursework to be taken for credit, but not included in the GPA. A grade of S (satisfactory work) is included in the attempted and successfully completed credit hours. A grade of U (unsatisfactory work) is included in the attempted credit hours only.

*Remedial course:* Courses numbered below 100. Credits will be included in attempted and successfully completed if appropriate as determined by the grade received. Remedial course grades are included in the GPA.

*Repeated course:* The same course, or direct equivalent, taken in a subsequent semester. Each semester the attempted credit hours are counted, but only the best grade will be included in the GPA calculation (a 4-credit hour course taken twice will total 8 attempted credit hours, a maximum of 4 credit hours successfully completed and the GPA will include only the best grade of A through F). Note: Students may repeat a successfully completed course only one time utilizing financial aid.

*Successfully completed credit hours*: Credit hours that have been earned and have a grade value of A through D- or S.

*W grade:* Grade given when a student drops a course after the second week of the semester or withdraws completely from the college after the official add/drop period, resulting in a W grade being assigned for all dropped courses. W grades are counted as attempted, but are not successfully completed, credit hours. W grades are not included in the GPA.

### STUDENTS WITH TRANSFER CREDIT

Transfer credits accepted by Alpena Community College for your degree program are counted as both attempted and successfully completed credit hours for measuring pace of completion and maximum timeframe. Alpena Community College does not transfer in the GPA from another institution and it is not figured into the GPA for this policy.

### FINANCIAL AID APPEALS AND REINSTATEMENTS

Students not meeting SAP are able to reinstate their eligibility for financial aid by taking coursework in subsequent semester(s) and meeting all three SAP requirements again. The student re-establishes their financial aid eligibility when at the start of the semester all three SAP requirements are met. If completion of temporary grades (I or NG) or other transcript changes (e.g. grade changes) warrant reinstatement, the student should notify the Financial Aid Office at the time such changes occur.

Students not meeting the satisfactory progress requirements because of mitigating or extenuating circumstances (i.e. death of a relative, illness or injury of student, pursuing an additional degree, etc.) may request reinstatement of financial aid by submitting a Financial Aid Satisfactory Academic Progress Appeal Form along with the specified documentation described on the form. This form can be obtained from the Financial Aid Office or downloaded from the Financial Aid Office website at http://discover.alpenacc.edu/financial_aid/index.php.

Appeals should be submitted to the Financial Aid Office no later than a week prior to the start of the semester the student wishes to be considered for financial aid probation. If a student's appeal is approved, they will be placed on Financial Aid Probation and be eligible for financial aid for that semester. The Financial Aid Appeal Committee's decision is final and no further appeals can be made for that semester.

### GAINFUL EMPLOYMENT

The United States Department of Education has instituted new regulations on the for-profit and vocational education sectors effective July 1, 2011. Known as Gainful Employment, the regulations mandate that providers of vocational education participating in federal Title IV financial aid programs disclose graduation and job placement rates and median amount of student debt levels to prospective students.
For the most recent ACC Gainful Employment info, refer to the College's website at
http://discover.alpenacc.edu/reports/gainful_employment.php.

### DISBURSEMENT

Financial aid overage disbursements will be made as soon as possible after the conclusion of the drop/add period. All disbursements will be made at least once every enrollment period.

### FEDERAL FINANCIAL AID PROGRAMS

### FEDERAL PELL GRANT

A grant program which provides the base of all financial aid packages. Eligible full-time students can receive up to $5,920 per year. Prorated awards are also available to eligible students who are attending less than full time.

### FEDERAL SUPPLEMENTAL EDUCATION OPPORTUNITY GRANT (SEOG)

A grant program for students with exceptional financial need. The award cannot be less than $100 nor more than $4,000 per year.

### FEDERAL COLLEGE WORK-STUDY (CWS) PROGRAM

A program which provides jobs for students who have financial need, providing the student an opportunity to earn a part of their educational expenses. Jobs are provided both on and off campus. The pay rate can vary, and full-time employment may be available during non-enrollment periods (summer vacation, holiday breaks, etc.).

### FEDERAL DIRECT SUBSIDIZED LOAN PROGRAM

A federal loan program where the student directly applies for the loan through the college. The interest rate for 2017-18 is fixed at 3.76% and a new rate will be determined on July 1, preceding the new academic year. The subsidized loan is based on financial need and the interest on the loan is paid by the federal government while the student is enrolled at least half-time. Annual loan limits are $3,500 for first-year students and $4,500 for second-year students. Borrowing for students in a one-year certificate program may only receive one and a half years of subsidized loans, and associate degree students may only borrow three years of subsidized loans. Aggregate subsidized loan limit is $23,000.

### FEDERAL DIRECT UNSUBSIDIZED LOAN PROGRAM

A federal loan program where the student directly applies for the loan through the college. The interest rate for 2017-18 is fixed at 3.76% and a new rate will be determined on July 1, preceding the new academic year. The unsubsidized loan is not based on financial need and the interest on the loan is the borrower's responsibility. The student borrower must be enrolled at least half-time. Aggregate combined unsubsidized and subsidized loan limits for an undergraduate dependent student is $31,000 and an undergraduate independent student is $57,500.

### FEDERAL DIRECT PARENT LOANS FOR UNDERGRADUATE STUDENTS (PLUS)

PLUS loans are restricted to parents who borrow for their dependent children who are undergraduate students. Borrowing is based on a cost-less-aid formula with no annual or aggregate loan limits. Financial need is not a requirement. The interest rate for 2017-18 is fixed at 6.31% and a new rate will be determined on July 1, preceding the new academic year.

### STATE OF MICHIGAN FINANCIAL AID PROGRAMS

### MICHIGAN COMPETITIVE SCHOLARSHIP

This scholarship is available to Michigan residents attending public or private Michigan colleges and universities or approved non-profit Michigan vocational schools. Students must qualify by scoring 1200 or higher on the Scholastic Aptitude Test (SAT) assessment prior to college entry and release the scores to the State of Michigan. Because financial need is a factor in the award, a Free Application for Federal Student Aid (FAFSA) must be completed. The renewable award varies from $100 to $1,300 per year, not to exceed tuition costs.

### MICHIGAN TUITION INCENTIVE PROGRAM (TIP)

A State of Michigan program to encourage students to complete high school and continue their education at a local community college or selected four-year institution. The program pays for 24 semester hours of tuition and fees per year at the local community college. The student must have graduated from high school or earned a

G.E.D. certificate prior to age 20, be a U.S. citizen and a resident of Michigan. Further information is available in the Financial Aid Office in Van Lare Hall 107.

## TRANSFER GRANTS

### BESSER TRANSFER STUDENT GRANTS

Seven Michigan four-year colleges and universities have received a special grant from the Besser Foundation of Alpena, Michigan. These grants are to provide scholarships for students who have completed two years at Alpena Community College in good standing and are transferring and intend to complete their education at one of the following colleges or universities: Adrian College, Alma College, Michigan Technological University, Olivet College, Sienna Heights College, and Walsh Institute of Business. Further information can be obtained by contacting the four-year institution.

## SCHOLARSHIPS

A variety of scholarships have been established at Alpena Community College through the generosity of individuals, businesses, service clubs, organizations, and foundations. These scholarships reward student achievement, encourage leadership, recognize accomplishments, and provide needed financial assistance to many ACC students. Some scholarships honor or memorialize family members, friends, or organizations. Whatever the reason, the financial assistance helps students receive the necessary education to compete in today's world.

The ACC Scholarship Brochure includes information on over 160 different scholarship opportunities totaling over $160,000 in awards and is available after the second week in January. You can pick up a copy in the Financial Aid Office (Van Lare Hall 107), the Registrar's Office (Van Lare Hall 108), the Foundation Office (Besser Technical Center 125A), the Oscoda Campus office, and in area high school counseling offices. Before applying for a scholarship, students must apply for admission and complete the most current Free Application for Federal Student Aid (FAFSA) and list ACC as one of the colleges.

Applicants must have a high school diploma or G.E.D. or demonstrate the ability to benefit from a particular program of study. Some scholarships require letters of recommendation and/or essays and may be renewable for a second year provided all requirements are met. A student who wishes to be considered for specific scholarships must meet the specified qualifications and complete the ACC scholarship application form by the advertised date at the end of March, in order to be considered for the next fall semester scholarship awards.

Financial need is not always a requirement when applying for a scholarship. However, if you are applying for a scholarship where financial need must be demonstrated, results of the Free Application for Federal Student Aid (FAFSA) must be received by the Financial Aid Office prior to the scholarship application deadline. The Financial Aid office will do everything possible to help students find scholarships for which they are eligible.

Students will receive notification in May if they have been awarded a scholarship and the funds will be disbursed into the student's account in equal amounts for the fall and spring semesters. If the scholarship recipient does not attend the fall semester, the scholarship award will be forfeited.

In addition to those scholarships listed in the ACC Scholarship Brochure, other scholarships may be available. Many fraternal, civic, state, and national organizations and employers offer scholarships and issue information on application requirements and deadlines through their own publications, print and broadcast media, and high school counseling offices.

## SPECIAL AWARDS

### ANNA & JESSE BESSER RECOGNITION AWARDS

These two special awards are presented to the male and female student who have made outstanding contributions to the life of the College through scholarship, leadership, and expression of responsibility in solving social problems. Each receives a citation and a monetary award.

### JOHN M. GRANT FRONT RUNNER AWARD

Presented annually to a graduating male and female student who have each demonstrated unusual dedication in pursuit of higher education. This award salutes non-traditional students who deal not only with the usual challenges of college studies, but also juggle home, family, and work responsibilities.

## VETERANS

### EDUCATIONAL BENEFITS

Alpena Community College is approved by the Michigan Department of Education State Approving Agency for the training of veterans and other persons eligible under the educational benefits programs of the U.S. Department of Veterans Affairs (USDVA). Students must enroll at ACC in an approved degree program, or be enrolled as eligible guest students from another institution.

The Veterans Affairs Coordinator at Alpena Community College assists veterans with the process of applying for VA Education Benefits, certifies the enrollments of eligible students to the USDVA, and monitors the Standards of Progress for VA Education Benefits.

Veterans and service persons, their spouses and dependents, or their survivors may be eligible for educational benefits through:

- The Post 9/11 GI Bill, Chapter 33
- The New GI Bill — Selected Reserve Educational Assistance Program, Chapter 1600
- Post-Vietnam Era Veterans Educational Assistance Program (VEAP), Chapter 32
- New GI Bill — Active Duty Educational Assistance Program, Chapter 30
- Vocational Rehabilitation, Chapter 31
- Dependent's Educational Assistance, Chapter 35

Information about eligibility requirements and benefits is available in the office of the Financial Aid Director in Van Lare Hall or by accessing the USDVA Education website at http://www.gibill.va.gov .

The college is required to notify the USDVA of any transfer credit granted and the resulting reduction of training time necessary for the student to complete the degree objective. Students who have attended another college must have their transcripts sent to ACC as soon as possible for evaluation. ACC will evaluate transcripts and determine what courses will transfer and how many credits will apply to the student's degree program at ACC. Transfer credits will be reported in the student's Program Evaluation (WebAdvisor), which will also identify the remaining courses and credits required for the student's degree program at ACC.

### VETERANS ENROLLMENT CERTIFICATION

Eligible students can receive their VA education benefits only when the college certifies their enrollment to the Department of Veterans Affairs. Eligible students who wish to receive their benefits must submit a signed "Request for Certification for Veterans Benefits" to the Financial Aid Director. Students will receive VA education benefits only for the semesters for which they request certification. All students receiving VA education benefits must notify the Financial Aid Director immediately upon withdrawing from a class or discontinuing attendance in a class. Withdrawals or discontinued attendance may result in an overpayment of benefits.

### VETERANS CERTIFICATION GUIDELINES

1. It is the veteran's responsibility to file a completed Drop/Add form with the Registrar immediately upon dropping any classes or completely withdrawing from the institution.

   The veteran's last date of attendance shall be reported to the USDVA based on the date of drop or withdrawal as recorded by the Registrar. In those instances where the veteran did not report his/her change of status to the Registrar, the last date of attendance shall be determined by one of the following:

   a. The last activity date reflected in instructor's records.
   b. The last date papers were submitted.
   c. The last date an examination was taken.

2. Withdrawals, drops, and incompletes in classes may result in an over-payment of benefits from the USDVA. Non-attendance of classes may result in an over-payment of benefits from the USDVA.
3. A VETERAN CAN RECEIVE BENEFITS ONLY FOR COURSES THAT ARE NECESSARY FOR GRADUATION. Any deviations from the curriculum guidelines must have counselor recommendation. A veteran should not repeat a course in which he/she has previously earned a satisfactory grade and expect USDVA Benefit payments on such credit hours.
4. A veteran must be making satisfactory progress in his/her curriculum, and must meet minimum academic standards as defined in the Standards of Progress for VA Education Benefits policy.
5. Veterans transferring from another college must have their transcripts sent to ACC as soon as possible for evaluation. Veterans who fail to do this subject themselves to having their benefits terminated and an over-payment charged by the USDVA.
6. Advance pay:
    a. Must be requested at least 60 days before the first day of classes.
    b. Cannot be requested for consecutive semesters. There must be a full calendar month between attendance dates to request advance pay.
    c. Will be issued for the exact number of days in the first month of the semester, plus the full following month.
    d. Will cause a student to not receive any more checks until the student has completed the third month of the semester.

### STANDARDS OF PROGRESS FOR VA EDUCATION BENEFITS

The U.S. Department of Veterans Affairs requires that ACC establish and enforce Standards of Progress for all students receiving educational benefits from the VA. These standards are reviewed by the State Approving Agency and must be approved by the VA.

### REPORTING REQUIREMENTS

The college is also required to report to the VA all changes in enrollment status for students receiving benefits. These changes include dropping a class, withdrawing from classes, or failing a class. Such changes may result in a reduction of benefits paid to the student and possible repayment of benefits to the VA. All students receiving education benefits are required to immediately report any such changes in enrollment to the Veterans Affairs counselor at ACC.

All students receiving VA education benefits who receive a failing grade in a course are required to submit a written statement of their attendance in that course to the Veterans Affairs counselor at ACC. This statement must indicate whether or not the student attended that class for the entire semester, or their last date of attendance if they did not attend for the entire semester. If such a statement is not received from the student within five days of the receipt of his/her grade report, the college will notify the VA, and the VA may terminate the student's benefits for that class retroactive to the first day of classes in that semester.
All students receiving education benefits from the VA must satisfy the following academic standards:

1. All students must maintain a minimum 2.0 cumulative grade point average. A student whose cumulative GPA falls below 2.0 at the end of any semester will be placed on VA probation for the following semester.
2. A student who is on VA probation must raise their cumulative GPA to a minimum 2.0 to be taken off probation. A student on VA probation who earns a minimum 2.0 GPA for any one semester, but whose cumulative GPA is still below 2.0, will continue on VA probation.
3. When a student is on VA probation for two consecutive semesters, the college is required to notify the VA, and the student is no longer eligible to be certified by the college to receive VA education

benefits. The VA will discontinue education benefits effective on the last day of the second semester of probation.

4. Students whose benefits have been discontinued may appeal that action to the VA and may present any mitigating circumstances that may have contributed to the student's failure to satisfy the Standards of Progress.

5. A student will again be eligible to be certified by the college to receive VA education benefits when they raise their cumulative GPA to a minimum 2.0 and the college is able to determine that there is a reasonable likelihood that the student will be able to maintain satisfactory progress in the future. The student will be required to meet with the Registrar as part of this determination process.

   The student will also be required to submit a request to the VA to have their education benefits resumed. The student's request along with the enrollment certification from the college will be reviewed by the VA who will make the final decision and notify the student accordingly.

6. Students whose benefits are reinstated must continue to maintain a minimum 2.0 cumulative GPA. At the end of any semester in which their cumulative GPA falls below 2.0, they again will no longer be eligible to be certified by the college to receive VA education benefits, and the college will again be required to notify the VA.

## STATEMENT OF COMPLIANCE FOR TITLE 38 USC 3679(e)

In compliance with the Veterans Benefits and Transition Act of 2018, Alpena Community College (ACC) will not impose any penalty, including but not limited to, the assessment of late fees, the denial of access to classes, institutional facilities/resources, or require students to borrow additional funds for which interest or other charges are access, on any covered individual that is unable to meet his or her financial obligations because of a delayed disbursement of funds from the Veterans Administration (VA) for tuition payment under chapter 31 or 33. Effective July 1 2019.

A covered individual is any individual entitled to educational assistance for tuition payment under chapter 31, Vocational Rehabilitation and Employment, or chapter 33, Post 9/11 GI Bill benefits who has submitted to Alpena Community College:

1. A certificate of eligibility for entitlement to educational assistance no later than the first day of a course of education (a "certificate of eligibility" can also include a "Statement of Benefits" obtained from the VA website –eBenefits, or VAF 28-1905 from for chapter 31 authorization purposes), and
2. ACC's Request for Certification of Veteran Benefits to declare the individual's intent to use the benefits for the given semester, and
3. Payment for the remaining tuition and fee charges not covered by the anticipated VA tuition payment.

Students who need assistance with anything concerning their VA educational benefits should contact ACC's VA School Certifying Official, Robert Roose, located at Van Lare Hall room 107 or call 989.358.7229.

## CHILDREN OF VETERANS TUITION GRANT ACT 248, PA 2006

This program will provide up to $2,800 in tuition assistance per academic year to Michigan resident children of certain deceased or disabled members of the armed forces of the United States attending college in Michigan. Fulltime and certain part-time students are eligible. Information about the Children of Veterans Tuition Grant Act is available from the Coordinator of Veterans Affairs or:

Student Scholarships and Grants
P.O. Box 30462
Lansing, MI 48909-7962
888.447.2687, ext. 3-7120

# ACADEMIC INFORMATION

## ACADEMIC ADVISING

Every Alpena Community College student is assigned an academic advisor to assist him/her in selecting courses and developing a program of study that will satisfy his/her educational objective. Academic advisors are faculty members who instruct in the student's field of study or in a related area. Academic advising is required prior to registration for first-time students and is strongly recommended for all students. Questions concerning academic advising should be directed to the Vice President of Instruction or the Dean of Students.

## REGISTRATION

Registration for classes takes place before the start of each semester; dates and times are published in the semester schedule and advertised. New student mandatory orientation is required to assist first-time students with the registration process and academic advising. Consult the semester schedule on the ACC website or contact the Registrar's Office (VLH 108) in Alpena or the Oscoda Campus office.

## LATE REGISTRATION

Any student may register for classes the first week of the semester with the authorized signature of approval of the course instructor. Department chairs may authorize and sign first week semester course enrollments on behalf of their adjunct instructors. During the second week of the semester, no registrations for in-session courses will be allowed, with the exception of course level changes (ex. MTH 113 to MTH 102) and lateral course changes (ex. ENG 111 to another section of ENG 111) with approval of the course instructor(s).

## DROP/ADD PROCEDURE

There are times during a student's enrollment when it may be appropriate to add or drop a course during a given semester. A student adding or dropping a course must pick up a Drop/Add Form (Authorization for Schedule Change) from the Registrar's Office. The procedure outlined on the Drop/Add form must be followed explicitly to insure the student that the proper credit and grade for all courses added or dropped is received.

A course may be added during the first 5 days of the semester (for a 16 week course) with an authorized signature. A course may be dropped any time through the 10th week of the semester (2/3 of the semester for accelerated courses); courses dropped after the 10th week require the Vice President of Instruction's approval. During weeks 2-10, students are strongly encouraged to talk to their instructor(s) prior to dropping a course. After the first 10 days of the semester (or 1/10 of the semester for accelerated courses) a grade of W (Withdrew) is assigned for courses dropped during the withdrawal period, or if a student completely withdraws from college prior to the end of the semester no later than the last instructional day prior to final exams (See "Withdrawal" for details). Prior to the 10th day of the semester (or 1/10 of the semester for accelerated courses), a dropped course is not reflected on the student record.

## ACADEMIC RENEWAL

Alpena Community College is committed to academic excellence and to the ideal of the dignity and worth of the individual. Recognizing that education is a comprehensive, life-long activity, the College will provide a measure of forgiveness for past academic deficiencies. An opportunity will be provided for students requesting and qualifying for academic renewal.

This policy is not intended for students seeking to attain academic honors. This policy is intended to provide an opportunity to fulfill the minimum graduation grade point average requirement of 2.00.

**Guidelines:**

1. To be eligible for Academic Renewal, students must:
    a. Be currently enrolled at Alpena Community College.
    b. Allow two years or more to elapse since the poor academic performance period.
    c. Complete at least six credit hours with a 2.00 GPA or higher since the poor academic performance period.

d. Submit an Academic Renewal Request to the Registrar with semesters indicated as involved in the request.

**Conditions:**

1. A student may declare and receive Academic Renewal only once.
2. Academic Renewal is selected by semester.
3. Grades and course history will remain on the transcript; but credits, grade points, and grade point averages will be deleted from semesters involved and the cumulative GPA calculation.
4. All ACC coursework included in the selected semester(s) will be subject to academic renewal.
5. An Academic Renewal notation will be placed on the student transcript where applicable.
6. The granted renewal cannot be reversed.
7. Academic honors will not be awarded unless the required grade point average was attained prior to Academic Renewal.

**Additional:**

1. The student must meet with the Registrar to determine eligibility.
2. Academic Renewal does not clear financial aid academic ineligibility.

## ADVANCED CREDIT

In addition to credit earned at another accredited institution of higher education, a maximum of 30 semester hours may be applied toward the Associate Degree from sources other than credit earned in college courses; for example, military school, work experience, correspondence schools, and/or credit by examination.

CLEP is the College-Level Examination Program. It enables those who have reached the college level of education in non-traditional ways to assess the level of their academic achievement and to use the test results in seeking college credit or placement. The test can be taken at Alpena Community College or at other test centers. Persons interested in CLEP should call 989.358.7209 for information about CLEP, the fee structure, and to make an appointment to take the CLEP exam.

## ADVANCED PLACEMENT

Alpena Community College accepts credit from the Advanced Placement (AP) program. ACC will evaluate AP grade reports received from the College Board and will award appropriate course credit for selected AP examinations. Minimum score requirements vary from course to course.

## AUDITING OF COURSES

Students desiring to audit courses should declare their intent at the time of registration. Students auditing courses pay the same tuition and fees as those taking courses for college credit. With instructor approval, students may declare audit status for courses during the first week of the semester.

Students must meet appropriate course prerequisites to audit a course. Audit students may take quizzes and examinations with the approval of the instructor. The audit status is noted on the student's transcript.

A student may not change either from an audit to a credit status or from a credit to an audit status after the first week of the semester. Audited courses will not be used to determine student enrollment status for financial aid or Veterans Benefits purposes.

Audited courses do not satisfy course prerequisite requirements or graduation requirements.

## CLASSIFICATION OF STUDENTS

A full-time student carries 12 or more credit hours per semester; a half-time student carries at least six, but less than 12 credit hours. Students admitted on a regular basis may carry up to 19 credit hours per semester; to carry over 18 credit hours requires permission of the Vice President of Instruction. Under no circumstances may a

student carry over 21 credit hours. A freshman is a student who has earned one to 23 semester credits; a sophomore has earned 24 or more.

## CONTINUOUS ENROLLMENT

The following guidelines govern those situations in which graduation requirements are changed for students who are pursuing a specific program:

Students continuously enrolled in a degree or certificate program at Alpena Community College have two options for earning their degree or certificate on record:

1. Complete the requirements in place at the time of the student's initial enrollment in the program, OR
2. Complete the requirements in place at the time of graduation.

Continuous enrollment is defined as enrollment in at least one semester during each academic year since the program of study was declared. Students who do not satisfy this definition of continuous enrollment must meet the program requirements in effect in the year they intend to graduate.

## CORE COMPETENCIES

Alpena Community College believes that students obtaining an associate's degree should be exposed to a common core of educational experiences. The Core Competencies are integrated, reinforced, and assessed throughout the curriculum.

## CORE COMPETENCIES AND OUTCOMES MISSION AREAS IN DETAIL

A. Core Competencies

The Alpena Community College has identified a general core curriculum. Within the core curriculum is a set of five core competencies, which involves the cumulative effect of the college curriculum. The curriculum is the vehicle used to achieve mastery of the core competencies. Thus, achievement of the core competencies is a shared responsibility of all faculty. Not every core competency is expected to be incorporated into each course. Within the associate degree program of study in its entirety, all core competencies will ultimately be addressed. Each course, therefore, contributes to a larger learning outcome.

Students who receive an associate degree from Alpena Community College are expected to have mastered the following:

1. Effective Learning (How to learn effectively):
    a. They will possess effective learning skills.
    b. They will know how to access learning resources and information sources.
    c. They will understand learning as a life-long process.

        Standard:

        i. recognize and accommodate his/her learning style preference,
        ii. utilize the services provided by a library,
        iii. utilize learning support when needed, including: tutoring, supplemental instruction, videos, etc., and
        iv. identify outdated information and acquire the most recent data.
2. Problem Solving Skills (How to solve problems):
    a. They will be able to identify a problem, collect and analyze information, develop and apply strategies, and evaluate outcomes.

Standard:

i. identify and define problems,

ii. select approaches to solve problems,

iii. generate possible solutions, hypotheses, or propositions,

iv. collect information regarding proposed solutions,

v. propose procedures to evaluate the appropriateness of the solution, and

vi. recognize steps or factors overlooked, faults in logic, and information not used in the problem-solving process.

3. Mathematical Concepts (How to use mathematical concepts):

   a. They will be able to understand and use concepts of mathematics appropriate to their chosen program of study.

   b. They will be able to use mathematical knowledge as a component of problem-solving in everyday life.

   Standard:

   i. accurately perform arithmetic operations,

   ii. utilize fractions, decimals and percentages,

   iii. convert basic units of measurements,

   iv. interpret bar, line and circle graph data, and

   v. perform basic algebraic operations.

4. Effective Communication Skills (How to communicate effectively):

   a. They will be able to read and write with sufficient skill to achieve their educational and personal goals.

   b. They can speak and listen with sufficient skill to achieve their educational and personal goals.

   Standard:

   i. obtain information from oral and written presentations and from non-verbal cues,

   ii. send information through oral and written materials and through non-verbal presentations, and

   iii. send and interpret information from numeric and graphic presentations.

5. Effective World Interaction Knowledge (How to interact with the world):

   a. They will have an understanding of the rights and responsibilities of the individual in society.

   Standard:

   i. identify the reciprocal relationships between society, social institutions, and individuals, and

   ii. identify restraints and freedoms within social institutions.

   b. They will have an understanding of historical, social, and geographical forces which shape the world.

   Standard:

   i. identify social institutions and describe their structure and function, and

ii. identify the principles of development and change of social institutions, nations, and society.

c. They will have an understanding of aesthetic principles.

Standard:

i. identify activities and products, which constitute the artistic/humanistic aspects of a culture,

ii. identify the impact of artistic/humanistic expressions, and

iii. judge which artistic/humanistic expressions would be most congruent with the characteristics of a given culture.

d. They will have an understanding of the nature of scientific inquiry and its technological application.

Standard:

i. identify activities and products, which constitute the scientific/technological aspects of the world, and

ii. describe and utilize scientific concepts, laws or principles that underlie scientific/technological activities and products.

e. They will have an understanding of the effect of technology on their lives.

Standard:

i. explain the impact of technology on the natural environment, the individual, and society.

f. They will be able to function effectively as an individual and as a member of a group.

Standard:

i. explain the importance and impact of integrity and respect for others in the workplace and society,

ii. distinguish between opportunities to lead and time to follow the help of others,

iii. understand how the skills of others contribute to the success of team projects,

iv. demonstrate acceptable work standards, and

v. complete tasks cooperatively and efficiently.

g. They will have an understanding of factors important to mental and physical health and well-being.

Standard:

i. identify the life-long practices related to good health and fitness, and

ii. understand the relationship between physical and mental health.

h. They will be able to clarify values and ethical issues.

Standard:

i. identify major values and ethical issues faced in adult life in one's own culture and other cultures,

ii. distinguish values in contrast to facts,

iii. understand biological, environmental, and economic influences on values,

iv. identify reasons and/or circumstances people use to justify value choices, and

v. recognize the complexity of situations that bring values into conflict.

## DEAN'S LIST

In recognition of academic achievement, a list of full-time students who have earned a semester grade point average of 3.50 or higher is published each semester. Students must be enrolled in at least 12 credit hours at the College, excluding credits taken on a satisfactory/unsatisfactory or audit option basis, to be eligible for the Dean's List.

## GRADING

### GRADES AND GRADE POINTS

The student receives one grade in each course taken. This grade combines the results of class work, tests, and final examinations. Grades are indicated by letters, each of which is assigned a certain numerical value in honor points per hours of credit as shown in the following table:

### GRADING SYSTEM

| | |
|---|---|
| A Excellent | 4.0 |
| A- | 3.7 |
| B+ | 3.3 |
| B Good | 3.0 |
| B- | 2.7 |
| C+ | 2.3 |
| C Fair | 2.0 |
| C- | 1.7 |
| D+ | 1.3 |
| D | 1.0 |
| D- | 0.7 |
| E Failure | 0.0 |

Final grades are available to students through WebAdvisor. Students may also request final grade reports in the Registrar's Office (VLH 108).

### GRADE POINT AVERAGE

The grade point average is used as a numerical summary of academic achievement. It is computed by multiplying the semester hours of credit for each course by the grade value to determine honor points, then dividing the sum of the honor points earned by the total number of credits. Example:

| | Hours of Credit | Grade | Honor Points |
|---|---|---|---|
| History 121 | 3 | C+ (2.3) | 6.9 |
| English 121 | 3 | B (3) | 9.0 |
| Psychology 226 | 3 | A- (3.7) | 11.1 |
| Speech 121 | 3 | E (0) | 0.0 |
| Biology 121 | 4 | C (2) | 8.0 |
| | 16 | | 35 |

Grade Point Average (GPA): 35/16 = 2.18

### OTHER MARKS

Other marks used on student records include I (Incomplete), W (Withdrew), and S/U (Satisfactory/ Unsatisfactory).

### I — INCOMPLETE

The grade of I (Incomplete), initiated by the student, is given only upon instructor's approval when a student is unable to complete a limited amount of the course work because of circumstances beyond his/her control. The I grade must be removed by completing the required work before the deadline set by the instructor (but in no case later than the end of the next regular semester) or a grade of E (Failure) will be recorded.

To qualify, the student:

- must have competed at least 75% of the course work (excluding the final exam),
- must have been in good attendance, and
- can be reasonably believed to compete the course work independently with a passing grade (student does not register in the course in a future semester.

If agreed to by both faculty member and student, an Incomplete Grade Assignment Form must be signed by both parties and placed on file in the Registrar's Office. This form delineates exactly what is required, how it is graded, and when it is to be complete. Upon completion of the course work, the instructor must submit a grade change to the Registrar's Office.

### W — WITHDREW

The grade of W (Withdrew) is given in a course if a student processes a drop form for the course during the withdrawal period, or if a student completely withdraws from college prior to the end of the semester no later than the last instructional day prior to final exams. See "Drop-Add Procedure" (page 28) and "Withdrawal" (page 43).

### S/U — SATISFACTORY/UNSATISFACTORY

The satisfactory/unsatisfactory option gives students an opportunity to enroll in enrichment courses without the grade being used in the computation of the grade point average. The student either receives an S (satisfactory work) or a U (unsatisfactory work). This option may not be elected for courses required for graduation.

### GRADING CRITERIA

It is the academic policy of Alpena Community College that each section of every ACC course must have a grading system that:

A. Is understandable by students — All components of the grading system must be explained in detail in each course syllabus. The instructor must orally explain the grading system to each class section as part of the course introduction. The components and procedures used to determine a grade must be described clearly enough that students can understand the system.

B. Is relevant to the course — All components of the grading system must relate to the course objectives as stated in the department's course outline and the instructor's syllabus.

C. Uses a variety of evaluation methods — The grading system must employ more than one method of evaluating student performance.

D. Provides feedback to students — The grading system must provide opportunities throughout the course for students to monitor their progress. The instructor must return to students at least one graded assignment by mid-semester.

E. Treats students consistently and fairly — Students with identical results on each component of the grading system must receive the same course grade.

### GRADUATION REQUIREMENTS

A notice of intent to graduate must be filed by each student who wishes to receive an Associate Degree or Certificate. The notice must be filed in the Registrar's Office at the beginning of the semester in which the student will complete the requirements for graduation. Students may apply for graduation through WebAdvisor, available on the ACC website at www.alpenacc.edu. The requirements may be completed during any semester, but the graduation ceremony is held only at the close of the spring semester.

## GRADUATION WITH A DEGREE

The requirements for the Associate in Arts, Associate in Science, Associate in General Studies, and Associate in Applied Science degrees consist of general education courses and electives. Each student must satisfactorily complete:

1. Six semester credits in English Composition (ENG 111 or 121, and 112 or 122 or 123).
2. The American Government requirement, which can be satisfied by either:
   a. Three semester credits of Political Science (PLS 221 or 222), OR
   b. Six semester credits of U.S. History (HST 221 and 222).
3. The appropriate number of general education credits from the sciences and mathematics, social science, and humanities groups required for each associate degree.
4. The appropriate number of semester credits required for each associate degree with a cumulative grade point average of 2.0 or higher. Courses numbered under 100 apply only toward the Associate in General Studies degree.
5. At least 15 semester credits for graduation at Alpena Community College.
6. All Alpena Community College course work with a cumulative grade point average of 2.0 or higher.
7. The "Intent to Graduate" form.
8. A waiver of specific requirements does not reduce the total hours required for graduation.

See the "Programs of Study" section of this catalog for specific curricular outlines and distribution requirements.

## GRADUATION WITH A CERTIFICATE

All candidates for graduation from Certificate of Achievement Programs must satisfactorily:

1. Complete all courses listed in the curriculum for the specific occupational certificate program.
2. Maintain a cumulative grade point average of 2.0 or higher.
3. Complete at least 8 credits for graduation at Alpena Community College.
4. Complete the "Intent to Graduate" form.
5. A waiver of specific requirements does not reduce the total hours required for graduation from the student's program.

See the "Programs of Study" section of this catalog for the various certificate programs and their required courses.

## HONORS

Alpena Community College recognizes high scholastic achievement at graduation. To be eligible for honors, a student must earn 30 hours of academic work (no S/U coursework) at ACC. Honors are determined for academic work completed at ACC only. Designations are as follows:

| | |
|---|---|
| 3.9 or greater grade point average | *summa cum laude* |
| 3.7-3.89 grade point average | *magna cum laude* |
| 3.5-3.69 grade point average | *cum laude* |

## ADDITIONAL ASSOCIATE DEGREES

Students may earn only one Associate in Arts or Associate in Science degree. However, additional degrees can be earned in other combinations (i.e. A.A. original degree, A.S. second degree) by completing a minimum of 15 additional credits at Alpena Community College for each degree. The 15 additional credits, which may not have been applied to another degree, must apply to the distribution requirements (see pages 44-46) for an Associate in Arts or Associate in Science degree or be in the area of occupational specialty for an Associate in Applied

Science degree. Additional degrees may be completed and earned concurrently with the exception of the Associate in General Studies which may not be earned as an additional or concurrent degree. Work with your academic advisor if considering additional degrees.

## ACADEMIC TRANSCRIPT REQUESTS

Alpena Community College transcripts are issued by the Registrar's Office upon the written and signed request of the student. An unofficial transcript may be obtained through WebAdvisor which is available on ACC's website at www.alpenacc.edu . Instructions for WebAdvisor access are included at this site.

Transcript requests must include the student's name, student ID number or social security number, home address, semester last attended, and the complete address of the recipient. Transcripts are provided at no cost. Rush transcript requests are subject to a $10 fee plus any shipping charges, if applicable. Grades for the current semester are available on transcripts approximately one week after the end of the semester.

Ordinarily, transcripts are processed in one to three days upon receipt of the request. Rush service is available by request and payment of the $10 rush charge. Rush service requests are prepared in time for the next outgoing mail delivery. Rush transcripts requested in person are prepared immediately. If express mailing is requested, this fee is added to the charge. Rush service requests made by FAX need to be charged to a credit card.

Transcript request forms are available on the main campus in the Registrar's Office (VLH 108). Request forms are also available at the Oscoda Campus office and can be printed from the ACC website at www.alpenacc.edu. Transcript requests can also be made through WebAdvisor. Forms and request letters, should be sent to:

Alpena Community College Registrar's Office
665 Johnson St.
Alpena, MI 49707

Transcript requests will not be processed for students with financial obligations to the College.

## PRIVACY ACT STATEMENT (FERPA)

The Family Educational Rights and Privacy Act (FERPA) helps protect the privacy of student records. The Act provides for the right to inspect and review educational records, the right to seek to amend those records, and to limit disclosure of information from the records. The College has designated certain student information to be public or directory information, and at its discretion, may release this information without prior written consent of the student. Directory information is defined as name, home address, telephone number, place of birth, curriculum, dates of attendance, degrees, certificates and awards received, last educational institution attended, and participation in recognized activities and sports.

Students may request that all items identified as directory information be withheld and considered restricted information. To withhold public or directory information, written notification must be received by the Registrar prior to the end of the second week of classes during the semester the withholding is to begin. Forms are available from the Registrar (VLH 108).

## SOCIAL SECURITY NUMBER PRIVACY POLICY

Alpena Community College protects the student's right of privacy of information and recognizes the importance of maintaining the confidentiality of student records while performing effective functions of the College.

Social security numbers are requested from all students. The social security number is required for financial aid and specific reporting functions as required by the state and federal government. ACC Student ID numbers or social security numbers are required for the mailing of transcripts and reporting to the National Student Clearinghouse, which is used for enrollment verifications, degree reporting, and loan tracking.

Procedures

Except as permitted by law, the College will not:

1. Publicly display all or more than 4 sequential digits of a person's social security number.

2. Visibly print all or more than 4 sequential digits of a social security number on any identification badge or card, membership card, permit, or license.

The College expects each student, employee, and any other person who may use the facilities or resources of the College to protect the privacy of its students and employees, and to bring to the attention of an appropriate responsible person any privacy violation they may observe. In addition:

1. Each person who uses or has access to any ACC record which contains any person's social security number, or who has access to the social security number of any student or employee, will keep this information confidential.
2. Disclosure of such information will be only to those with a specific need to know for a legitimate College purpose, or in response to a legitimate and lawful request.
3. The College will permit access to such information only to those with a need to know. Access and permission for access will be reviewed not less than once a year.
4. All documents or other records which contain such information shall be kept in a secure environment accessible only to those who have been specifically authorized to have access, and will be disposed of only by shredding or other appropriate means which renders a social security number illegible and as difficult as possible to reconstruct.
5. Violations of this policy and procedure will be cause for discipline up to and including dismissal or termination, and may give rise to further legal proceedings.

Faculty and staff will be notified annually of privacy procedures and FERPA requirements for any form of communications, printed or verbally.

## QUALITY ASSURANCE GUARANTEE

Alpena Community College assures that its graduates who complete course work with a "C" (2.0) or better in that course and earn an Associate Degree or Certificate of Achievement are competent in the subject of those courses and capable of performing the skills specified in their particular program of study.

Because unused skills deteriorate rapidly, the assurances offered herein are in effect for a period of one year following graduation from Alpena Community College.

Graduates who transfer are assured that any course on the appropriate transfer equivalency list identified as transferable and completed with a grade of "C" (2.0) or better will transfer to the baccalaureate degree institution listed.

Transferring institutions are assured that Alpena Community College graduates are competent in courses completed with a grade of "C" (2.0) or better. A student will be permitted to retake, at no tuition charge, any course or courses in areas deemed deficient by the institution to which the student transferred.

Employers are assured that an Alpena Community College graduate has the skills to perform competently in the areas covered in course work completed with a grade of "C" (2.0) or better. Remediation may be requested by an employer who believes a graduate does not possess appropriate skills and can specify deficiencies in the course content area. Alpena Community College will permit the student to retake a specified course or courses with no tuition charge.

## REPETITIVE COURSE ENROLLMENT

Alpena Community College credit courses may be repeated only once where any grade (i.e., A-W) has been earned. Specifically, if a course has been taken twice and any grade was earned, written permission from the Registrar is required prior to a third enrollment. The highest grade in the course will be used in calculating the student's grade point average.

Please note: Courses taken for audit and courses repeated more than once after previously passing the course do not count as part of a student's financial aid enrollment status, and can affect a student's financial aid award.

## SATISFACTORY COMPLETION OF PREREQUISITE COURSES

A course prerequisite is considered to be successfully completed if the grade level performance achieved is a minimum of 2.0 in the prerequisite course or by permission of the instructor.

## TRANSFER INFORMATION

The student must assume responsibility for planning courses to transfer to another institution. Alpena Community College advisors can assist. Representatives from senior institutions make campus visits throughout the year in order to meet with individual students.

## MICHIGAN TRANSFER AGREEMENT (MTA)

Alpena Community College participates in the Michigan Transfer Agreement between public and private community colleges and universities in Michigan. This agreement provides ACC students more assurance of having completed their general education requirements when they transfer to a participating four-year college or university. Working closely with your academic advisor is recommended to assure meeting MTA requirements.

To fulfill the Michigan Transfer Agreement, students must successfully complete at least 30 credits, with at least a 2.0 in each course. These credits, which will be certified by a Michigan Community College, should be met according to the following distribution:

- One course in English Composition
  - ENG111 or ENG121
- A second course in English Composition or one course in Communications
  - ENG112 or ENG122 or SPE121 or SPE123
- One course in Mathematics
  - MTH – MTH 121 and higher
- Two courses in Social Sciences (from two disciplines)
  - ANP – All Anthropology courses
  - ECN – All Economics courses
  - EDU – All Education courses
  - GEO – All Geography courses (except GEO127, lab science; GEO 151 & GEO 152, general elective)
  - HST – All History courses
  - PLS – All Political Science courses
  - PSY – All Psychology courses
  - SOC – All Sociology courses
- Two courses in Humanities and Fine Arts (from two disciplines and excluding studio and performance classes)
  - ART – ART 246
  - ASL – All American Sign Language courses
  - ENG – All 200 level courses
  - HST – HST 121 or 122 (may be used as Humanities or Social Science)
  - HUM – All Humanities courses
  - MUS – MUS110, 120, 125, 126, 228 and 229
  - PHL – All Philosophy courses
  - SPE – All Speech courses (if not used to complete communications requirement)
  - All Foreign Language courses (FRN, GER, SPN)
- Two courses in Natural Sciences including one with laboratory experience (from two disciplines)
  - BIO – All Biology courses
  - CEM – All Chemistry courses
  - ENV – All Environmental Science courses
  - GEO – GEO127
  - PHS – All Physical Science courses
  - PHY – PHY111, 112, 121, 122, 123, 124, 221, 222

Note: If courses selected do not total 30 hours, the student must take an additional course from one of the above groups.

To be eligible for the Michigan Transfer Agreement at Alpena Community College, a minimum of 1 college level course must be taken at Alpena Community College. Transcripts of ACC graduates who meet the MTA requirements will automatically be certified for MTA when degrees are posted to academic records. Students who transfer prior to the completion of a degree program but have completed the MTA requirements may also be certified upon request. Requests should be made to the Registrar (VLH 108).

### Unit of Credit

The unit of credit is the semester hour. The number of semester hours credit is given with the course description and is based on duration for a specified number of lecture and lab hours.

### Withdrawal

A student completely withdrawing from the College must begin the process in the Registrar's Office. The withdrawal must be presented to the Registrar's Office for recording and authorization of any possible refund.

Students must account for all school property charged to them and must pay all obligations to the College in order that an honorable dismissal be given. A student who is separated from the College is no longer officially enrolled and does not have the privileges of a registered student. A student who has been separated from the College may apply for readmission through the Registrar's Office.

## Degrees

Alpena Community College offers courses which are equivalent in content and quality to freshman and sophomore courses at four-year colleges and universities. Students can complete programs of study preparing them to transfer to a four-year institution or to seek immediate employment. Those seeking personal enrichment or new or updated job skills, as well as visiting students from other colleges are welcome at ACC.

ACC grants the following degrees: Associate in Arts (AA), Associate in Science (AS), Associate in Applied Science (AAS), and Associate in General Studies (AGS). Non-degree programs lead to a Certificate of Achievement (C).

### Associate in Arts (AA)

The AA degree is designed for transfer to a four-year institution and forms the basis for many career options and majors. The student must select courses which provide the best preparation for transfer in a particular major field at a specific senior institution.

The AA curriculums found in this section include electives generally recommended for the specified areas of study at most senior institutions. Since it is not possible to list all recommendations and requirements for all majors at all senior colleges, it is imperative that the student who expects to transfer works closely with an academic advisor to plan a successful program for the chosen senior institution. See the curriculum outlines which follow in this section. This degree can only be earned once.

### Associate in Arts Distribution Requirements

All candidates for an Associate in Arts degree must successfully complete a total of 60 semester credits, including the following general education requirements:

**Group I General Education Courses — English Composition (see page 37).**

Six semester credits required, including ENG 111 or 121 and 112, 122 or 123.

**Group II General Education Courses — Sciences and Mathematics (see page 37).**

Eight semester credits required, including at least one laboratory science course selected from Group II.A. or II.B. Courses will be taken in more than one academic discipline (course abbreviation/prefix).

**Group III General Education Courses — Social Science (see page 38).**

Eight semester credits required, which can include the Political Science or U.S. History courses used to satisfy the American Government requirement. Courses will be taken in more than one academic discipline (course abbreviation/prefix).

**Group IV General Education Courses — Humanities/Fine Arts (see page 38).**

Eight semester credits required which must include either:

a. A combination of courses taken in more than one academic discipline (course abbreviation/prefix) or

b. HUM 241 and 242 — Humanities

The remaining 30 semester credits should be selected from courses that are programmed to meet the student's educational objective.

### Associate In Science (AS)

The AS degree is designed for transfer to a four-year institution and forms the basis for many career options and majors. The student must select courses which provide the best preparation for transfer in a particular major field at a specific senior institution.

The AS curriculums found in this section include electives generally recommended for the specified areas of study at most senior institutions. Since it is not possible to list all recommendations and requirements for all majors at all senior colleges, it is imperative that the student who expects to transfer works closely with an academic advisor to plan a successful program for the chosen senior institution. See the curriculum outlines which follow in this section. This degree can only be earned once.

### Associate in Science Distribution Requirements

All candidates for an Associate in Science degree must successfully complete a total of 60 semester credits, including the following general education requirements:

**Group I General Education Courses — English Composition (see page 37).**

Six semester credits required, including ENG 111 or 121 and 112, 122, or 123.

**Group II General Education Courses — Sciences and Mathematics (see page 37).**

Twenty semester credits required, including at least one laboratory science course selected from Groups II.A. or II.B. Courses will be taken in more than one academic discipline (course abbreviation/prefix).

**Groups III and IV General Education Courses — Social Sciences/Humanities/Fine Arts (see page 38).**

Ten semester credits required in combination from both of these groups with a minimum of three credits from each group. Political Science or U.S. History courses used to satisfy the American Government requirement can be included.

The remaining 24 semester credits should be selected from courses that are programmed to meet the student's educational objective.

### Associate in Applied Science (AAS)

Curriculums leading to AAS degrees are intense programs of study designed to prepare students for employment after graduation. Some may transfer to four-year institutions, but students planning to pursue a bachelor's degree should work closely with an academic advisor to plan for successful transfer of course work. Degree requirements for the AAS include general education courses, specified courses in the chosen area of study, and both specified and suggested electives. Students should consult an academic advisor for clarification. See the curriculum outlines which follow in this section.

### Associate in Applied Science Distribution Requirements

All candidates for an Associate in Applied Science degree must satisfactorily complete all courses listed in the curriculum developed for a specific occupational program. Variations from the courses listed must be

recommended in writing to the appropriate department chair via the student's academic advisor. The variations will be effective when authorized by the Vice President of Instruction.

Course work more than seven years old will not apply toward the occupational specialty. This includes course work completed at Alpena Community College or transferred. Exceptions will be by departmental recommendation and based on departmental proficiency standards. A grade point average of 2.0 or higher must be maintained in the area of occupational specialty.

### Associate in General Studies (AGS)

The AGS degree is awarded to students primarily interested in general education. Courses may be selected to suit individual goals, however students should consult an academic advisor for guidance in the selection process.

### Associate in General Studies Distribution Requirements

All candidates for an Associate in General Studies degree must successfully complete a total of 60 semester credits, including the following general education requirements:

**Group I General Education Courses — English Composition (see below).**

Six semester credits required, including ENG 111 or 121 and ENG 112, 122, or 123.

**Group II General Education Courses — Sciences and Mathematics (see below).**

Four semester credits required.

**Group III General Education Courses — Social Science (see page 38).**

Three semester credits required, which can include the Political Science or U.S. History courses used to satisfy the American Government requirement.

**Group IV General Education Courses — Humanities (see page 38).**

Three semester credits required.

The remaining 44 semester credits should be selected from courses that are programmed to meet the student's educational objective. Courses numbered under 100 may count toward this degree, but not toward any other degree.

### Certificate (Occupational Programs)

Certificate of Achievement programs are one- or two-year courses of study that provide specialized occupational training. Successful students develop essential skills and gain technical background that prepares them to enter the workforce. See the curriculum outlines that follow in this section for programs of study leading to Certificates of Achievement, including specialized apprentice — electrical and apprentice — millwright certificates. College credits earned in an approved apprenticeship program may be applied toward an associate degree at ACC.

Course work more than seven years old will not apply to the certificate program.

### General Education Courses

Graduation requirements for an associate degree include a minimum number of general education credits from the following groups. The requirements vary by degree and are listed under the distribution requirements.

**Group I. English Composition**

A. ENG 111, 121

B. ENG 112, 122, 123

**Group II. Sciences and Mathematics**

A. Biological Sciences
BIO — All Biology courses

B. Chemistry
CEM — All Chemistry courses

C. Environmental Sciences
ENV – ENV 101

D. Geography
GEO – GEO 127 only

E. Physical Sciences
PHS — All Physical Science courses

F. Physics
PHY — Physics courses 111, 121, 122, 123, 124, 221, 222

G. Mathematics/Computer Science

MTH — Mathematics courses 102, 111, 113, 115, 116, 117, 121, 122, 123, 131, 132, 223, 231, 232

MTH — Computer Science courses 119, 221

**Group III. Social Sciences**

ANP — All Anthropology courses
ECN — All Economics courses
EDU — All Education courses
GEO — All Geography courses except GEO 127
HST — All History courses
PLS — All Political Science courses
PSY — All Psychology courses
SOC — All Sociology courses

**Group IV. Humanities/Fine Arts**

ART — All Art courses
ASL – All American Sign Language courses
ENG — All 200 level courses
HST — History of Western Civilization 121 or 122 (May be used as Humanities or Social Science)
HUM — All Humanities courses
MUS — All Music courses
PFA — All Performing Arts courses
PHL — All Philosophy courses
SOC — SOC 252 Great Books on Leadership (satisfies Group III Social Science or Group IV Humanities requirements but may not be used for both)

SPE —All Speech courses; all Foreign Language courses

## SUBSTITUTION/WAIVER

Substitutions or waivers for degree or certificate specific course requirements must be approved by the appropriate department and the Vice President of Instruction. A waiver of specific requirements does not reduce the total hours required for graduation from the student's program.

## PROGRAMS OF STUDY

# ACCOUNTING

ASSOCIATE IN APPLIED SCIENCE (AAS) DEGREE

DESCRIPTION: This program prepares students for employment as accountants and other related positions for sole proprietorships, partnerships, and corporations. Successful completion of this program will equip graduates with the knowledge and skills to perform general accounting and financial reporting responsibilities, to perform financial and managerial accounting analysis, and to provide users of accounting information with relevant and timely accounting information necessary to make informed business decisions.

**GENERAL EDUCATION REQUIREMENTS** **CREDITS: 19**

| | |
|---|---|
| ENG 111 *or* | ENGLISH COMPOSITION I (3/3) *or* |
| ENG 121 | ADVANCED ENGLISH COMPOSITION I (3/3) |
| ENG 112 *or* | ENGLISH COMPOSITION II (3/3) *or* |
| ENG 122 | ADVANCED ENGLISH COMPOSITION II (3/3) |
| MTH 121 *or* | COLLEGE ALGEBRA (4/4) *or* |
| MTH 123 | COLLEGE ALGEBRA & ANALYTICAL TRIGONOMETRY (4/4) |
| ECN 231 | ECONOMICS (MICRO) (3/3) |
| PLS 221 *or* | AMERICAN GOVERNMENT REQUIREMENT (3/3) |
| PLS 222 *or* | |
| HST 221 & HST 222 | |
| SPE 121 *or* | SPEECH COMMUNICATION (3/3) *or* |
| SPE 123 | PUBLIC COMMUNICATION (3/3) |

**CORE PROGRAM REQUIREMENTS** **CREDITS: 44.5**

| | |
|---|---|
| BUS 121 | INTRODUCTION TO BUSINESS (3/3) [A] |
| BUS 123 | PRINCIPLES OF ACCOUNTING I (4/4) [A] |
| BUS 124 | PRINCIPLES OF ACCOUNTING II (4/4) [A] |
| BUS 221 | BUSINESS LAW (3/3) [A] |
| BUS 222 | BUSINESS LAW (3/3) [A] |
| BUS 223 | INTERMEDIATE ACCOUNTING I (4/4) [A] |
| BUS 224 | INTERMEDIATE ACCOUNTING II (4/4) [A] |
| BUS 225 | TAXATION OF INDIVIDUALS (3/3) [A] |
| BUS 226 | TAXATION OF BUSINESS ENTITIES (3/3) [A] |
| BUS 228 | COST ACCOUNTING (3/3) (1.5/2) [A] |
| BUS 257 | COMPUTERIZED ACCOUNTING SYSTEMS (3/4) [A] |
| CIS 120 | INTRODUCTION TO MICROCOMPUTERS [A] |
| CIS 171, 172, 173 | SPREADSHEETS I, II, III (3/3.75) |
| ECN 232 | ECONOMICS (MACRO) (3/3) |

**MINIMUM 63.5 CREDIT HOURS/65.75 CONTACT HOURS**

NOTES:
[A] Included in occupational specialty.
*GPA of 2.0 or higher must be maintained in occupational specialty courses*

ACC students can earn a Bachelor of Business Administration – Accounting degree through Northwood University and the Madeline Briggs University Center. This is a degree completion program, meaning that all the courses required are offered in Alpena. Course work consists of a combination of courses from ACC and Northwood. It is extremely important that you consult your ACC and Northwood academic advisors for help planning your bachelor's program.

# ACCOUNTING

ASSOCIATE IN APPLIED SCIENCE (AAS) DEGREE
SUGGESTED SEQUENCE OF COURSES

**YEAR 1 (FALL SEMESTER)** **CREDITS: 17**

| | |
|---|---|
| ENG 111 *or* | ENGLISH COMPOSITION I (3/3) *or* |
| ENG 121 | ADVANCED ENGLISH COMPOSITION I (3/3) |
| BUS 123 | PRINCIPLES OF ACCOUNTING I (4/4) |
| ECN 231 | ECONOMICS (MICRO) (3/3) |
| MTH 121 *or* | COLLEGE ALGEBRA (4/4) *or* |
| MTH 123 | COLLEGE ALGEBRA & ANALYTICAL TRIGONOMETRY (4/4) |
| CIS 120 | INTRODUCTION TO MICROCOMPUTERS (3/4) |

**YEAR 1 (SPRING SEMESTER)** **CREDITS: 16-19**

| | |
|---|---|
| ENG 112 *or* | ENGLISH COMPOSITION II (3/3) *or* |
| ENG 122 | ADVANCED ENGLISH COMPOSITION II (3/3) |
| BUS 124 | PRINCIPLES OF ACCOUNTING II (4/4) |
| ECN 232 | ECONOMICS (MACRO) (3/3) |
| PLS 221 *or* | AMERICAN GOVERNMENT REQUIREMENT (3/3) |
| PLS 222 *or* | |
| HST 221 & HST 222 | |
| CIS 171, 172, 173 | SPREADSHEETS I, II, III (3/3.75) |

**YEAR 2 (FALL SEMESTER)** **CREDITS: 16**

| | |
|---|---|
| BUS 221 | BUSINESS LAW (3/3) |
| BUS 223 | INTERMEDIATE ACCOUNTING II (4/4) |
| BUS 225 | TAXATION OF INDIVIDUALS (3/3) |
| BUS 121 | INTRODUCTION TO BUSINESS (3/3) |
| BUS 228 | COST ACCOUNTING (3/3) |

**YEAR 2 (SPRING SEMESTER)** **CREDITS: 14.5**

| | |
|---|---|
| BUS 222 | BUSINESS LAW (3/3) |
| BUS 224 | INTERMEDIATE ACCOUNTING II (4/4) |
| BUS 226 | TAXATION OF BUSINESS ENTITIES (3/3) |
| SPE 121 *or* | SPEECH COMMUNICATION (3/3) *or* |
| SPE 123 | PUBLIC COMMUNICATION (3/3) |
| BUS 257 | COMPUTERIZED ACCOUNTING SYSTEMS (1.5/2) |

# ANTHROPOLOGY

ASSOCIATE IN ARTS (AA) DEGREE

DESCRIPTION: This is a suggested program of study for specialized interest in the subject of anthropology that may be altered to meet individual goals and transfer plans. Students should refer to the Alpena Community College graduation requirements and degree distribution requirements and consult with an academic advisor concerning specific course selection. A minimum of 60 credit hours is required for an Associate of Arts degree.

**GENERAL EDUCATION REQUIREMENTS** **CREDITS: 26**

| | |
|---|---|
| ENG 111 *or* | ENGLISH COMPOSITION I (3/3) *or* |
| ENG 121 | ADVANCED ENGLISH COMPOSITION I (3/3) |
| ENG 112 *or* | ENGLISH COMPOSITION II (3/3) *or* |
| ENG 122 | ADVANCED ENGLISH COMPOSITION II (3/3) |
| PSY 101 | GENERAL PSYCHOLOGY (3/3) |
| SOC 123 | INTRODUCTION TO SOCIOLOGY (3/3) |
| HST 221 | HISTORY OF WESTERN CIVILIZATION (3/3) |
| | LANGUAGE/FINE ARTS/HUMANITIES ELECTIVE (3/3) |
| GEO 127 | PHYSICAL GEOGRAPHY (4/5) |
| BIO *or* | LABORATORY SCIENCE (4/5) |
| CEM *or* | |
| PHS *or* | |
| PHY | |

**CORE PROGRAM REQUIREMENTS** **CREDITS: 22**

| | |
|---|---|
| ECN 232 | ECONOMICS (MACRO) (3/3) |
| GEO 126 | CULTURAL GEOGRAPHY (3/3) |
| GEO 151 | INTRODUCTION TO GIS (1.5/2) |
| GEO 152 | ADVANCED GIS (1.5/2) |
| HST 122 | HISTORY OF WESTERN CIVILIZATION (3/3) |
| HST 221 | U.S. HISTORY (3/3) |
| HST 222 | U.S. HISTORY (3/3) |
| MTH 113 | INTERMEDIATE ALGEBRA (4/4) |

**SUGGESTED ELECTIVES** **CREDITS: 12**

Electives should be selected to fulfill transfer institution requirements, area concentrations (major or minor), or student interest. It is strongly recommended that foreign language preparation begin as soon as possible.

**MINIMUM 60 CREDIT HOURS/63 CONTACT HOURS**

# ANTHROPOLOGY

ASSOCIATE IN ARTS (AA) DEGREE
SUGGESTED SEQUENCE OF COURSES

**YEAR 1 (FALL SEMESTER)** **CREDITS: 16**

| | |
|---|---|
| ENG 111 *or* | ENGLISH COMPOSITION I (3/3) *or* |
| ENG 121 | ADVANCED ENGLISH COMPOSITION I (3/3) |
| HST 121 | HISTORY OF WESTERN CIVILIZATION (3/3) |
| HST 221 | U.S. HISTORY (3/3) |
| MTH 113 | INTERMEDIATE ALGEBRA (4/4) |

**YEAR 1 (SPRING SEMESTER)** **CREDITS: 16**

| | |
|---|---|
| ENG 112 *or* | ENGLISH COMPOSITION II (3/3) *or* |
| ENG 122 | ADVANCED ENGLISH COMPOSITION II (3/3) |
| HST 122 | HISTORY OF WESTERN CIVILIZATION (3/3) |
| HST 222 | U.S. HISTORY (3/3) |
| | LABORATORY SCIENCE (4/5) |
| SOC 123 | INTRODUCTION TO SOCIOLOGY (3/3) |

**YEAR 2 (FALL SEMESTER)** **CREDITS: 16**

| | |
|---|---|
| ANP 121 | CULTURAL ANTHROPOLOGY (3/3) |
| ECN 231 *or* | ECONOMICS (MICRO) (3/3) *or* |
| ECN 232 | ECONOMICS (MACRO) (3/3) |
| | LANGUAGE/FINE ARTS/HUMANITIES ELECTIVE (3/3) |
| PSY 101 | GENERAL PSYCHOLOGY (3/3) |
| GEO 127 | PHYSICAL GEOGRAPHY (4/5) |

**YEAR 2 (SPRING SEMESTER)** **CREDITS: 12**

| | |
|---|---|
| GEO 126 | CULTURAL GEOGRAPHY (3/3) |
| GEO 151 | INTRODUCTION TO GIS (1.5/2) |
| GEO 152 | ADVANCED GIS (1.5/2) |
| | RECOMMENDED ELECTIVES (6/6) |

# APPRENTICE – ELECTRICAL

CERTIFICATE (C)

DESCRIPTION: Alpena Community College offers Certificates of Completion for basic and advanced millwright apprenticeship training. The curriculum meets current industry standards for this skilled trade, and core, basic, and advanced courses allow previously trained workers to take only the courses needed to upgrade their skills without being committed to an entire program. College credits earned may be applied toward requirements for an associate degree at ACC.

**CORE REQUIREMENTS** **CREDITS: 7-9**

| | |
|---|---|
| APP 106M | INDUSTRIAL SAFETY (1/1) |
| APP 100E | ELECTRICAL STUDIES FOR TRADES (3/4) |
| MTH 110 *or* | TECHNICAL MATH I (3/4) *or* |
| MTH 115 | APPLIED ALGEBRA & TRIGONOMETRY (5/6) |

**BASIC REQUIREMENTS** **CREDITS: 22**

| | |
|---|---|
| APP 102E | RESIDENTIAL WIRING & BLUEPRINT RDG (3/4) |
| APP 103E | COMMERCIAL & INDUSTRIAL WIRING (3/4) |
| APP 104E | AC/DC FUNDAMENTALS (3/4) |
| APP 107E | SPECIALTY WIRING (3/4) |
| APP 111E | ELECTRIC MOTOR CONTROL (3/4) |
| APP 114E | PROGRAMMABLE CONTROLLERS (3/4) |
| APP 115E | NATIONAL ELECTRIC CODE APPLICATION (4/4) |

**ADVANCED REQUIREMENTS** **CREDITS: 6**

| | |
|---|---|
| APP 122E | DIGITAL ELECTRONICS FOR ELECTRICIANS (3/4) |
| APP 123E | LINEAR ELECTRONICS FOR ELECTRICIANS (3/4) |

**MINIMUM 29 CREDIT HOURS/37 CONTACT HOURS (BASIC)**
**MINIMUM 35 CREDIT HOURS/45 CONTACT HOURS (ADVANCED)**

NOTE:
Must complete Core and Basic courses prior to Advanced courses.

Gainful Employment information for Apprentice - Electrical

Gainful Employment information for Apprentice Electrical Advanced

# APPRENTICE – MILLWRIGHT

CERTIFICATE (C)

DESCRIPTION: Alpena Community College offers Certificates of Completion for basic and advanced millwright apprenticeship training. The curriculum meets current industry standards for this skilled trade. College credits earned in this program may be applied toward the requirements for an associate degree at ACC. This program prepares students to work in an industrial setting with installation and maintenance of hydraulic, pneumatic equipment, power trains, belts, gears, and chains. Students who have completed the basic program may obtain an advanced certificate by completing the specified courses. The Apprentice (APP) course for this program of study are offered primarily at night on a four-year rotating basis.

**BASIC REQUIREMENTS** **CREDITS: 29-30**

| | |
|---|---|
| APP 100E | ELECTRICAL STUDIES FOR TRADES (3/4) |
| APP 106M | INDUSTRIAL SAFETY (1/1) |
| APP 121M *or* | APPRENTICE BLUEPRINT RDG (3/4) [A] *or* |
| MFG 120 | PRINT INTERPRETATION & PROCESSES (3/4) [A] |
| APP 122M | MACHINE REPAIR (3/4) [A] |
| APP 124M | APPRENTICE HYDRAULICS (3/4) [A] |
| APP 125M *or* | APPRENTICE MACHINE SHOP (3/4) [A] *or* |
| MFG 101 | MACHINING PROCESSES I (4/6) |
| APP 128M | RIGGING & WEIGHT ESTIMATING (1.5/2) [A] |
| APP 129M | APPRENTICE PNEUMATICS (1.5/2) [A] |
| APP 223M | PREDICTIVE & PREVENTATIVE MAINTENANCE (3/4) [A] |
| WLD 123 *or* | SMAW WELDING PROCESSES (4/6) *or* |
| WLD 124 | GMAW & FCAW WELDING PROCESSES (4/6) |
| MTH 110 | TECHNICAL MATH I (3/4) |

**ADVANCED REQUIREMENTS** **CREDITS: 15-17**

| | |
|---|---|
| APP 102E | RESIDENTIAL WIRING & BLUEPRINT RDG (3/4) |
| APP 103E | COMMERCIAL & INDUSTRIAL WIRING (3/4) |

CHOSE THREE COURSES FROM THE FOLLOWING:

| | |
|---|---|
| APP 111E | ELECTRIC MOTOR CONTROL (3/4) |
| APP 114E | PROGRAMMABLE CONTROLLERS (3/4) |
| APP 290M | MILLWRIGHT INTERNSHIP (3/4) |
| MFG 102 | MACHINING PROCESSES II (4/6) |
| MFG 201 | CNC I (4/6) |
| | AN ADDITIONAL WLD OR MET COURSE (4/6) |

**MINIMUM 29 CREDIT HOURS/39 CONTACT HOURS (BASIC)**
**MINIMUM 44 CREDIT HOURS/58 CONTACT HOURS (ADVANCED)**

NOTES:
[A] Courses offered on a four-year rotating basis

Must compete Basic courses prior to Advanced courses

# APPRENTICE – MILLWRIGHT

CERTIFICATE (C)
SUGGESTED SEQUENCE OF COURSES

**YEAR 1 (FALL SEMESTER)** **CREDITS: 15**

| | |
|---|---|
| APP 100E | ELECTRICAL STUDIES FOR TRADES (3/4) |
| APP 122M | MACHINE REPAIR (3/4) |
| APP 124M | APPRENTICE HYDRAULICS (3/4) |
| APP 128M | RIGGING & WEIGHT ESTIMATING (1.5/2) |
| APP 129M | APPRENTICE PNEUMATICS (1.5/2) |
| MTH 110 | TECHNICAL MATH I (3/4) |

**YEAR 1 (SPRING SEMESTER)** **CREDITS: 13.5**

| | |
|---|---|
| APP 106M | INDUSTRIAL SAFETY (1/1) |
| APP 121M *or* | APPRENTICE BLUEPRINT RDG (3/4) *or* |
| MFG 120 | PRINT INTERPRETATION & PROCESSES (3/4) |
| APP 125M *or* | APPRENTICE MACHINE SHOP (3/4) *or* |
| MFG 101 | MACHINING PROCESSES I (4/6) |
| APP 223M | PREDICTIVE & PREVENTATIVE MAINTENANCE (3/4) |
| WLD 123 *or* | SMAW WELDING PROCESSES (4/6) *or* |
| WLD 124 | GMAW & FCAW WELDING PROCESSES (4/6) |

**YEAR 2 (FALL SEMESTER)** **CREDITS: 15-17**

| | |
|---|---|
| APP 102E | RESIDENTIAL WIRING & BLUEPRINT RDG (3/4) |
| APP 103E | COMMERCIAL & INDUSTRIAL WIRING (3/4) |

CHOSE THREE COURSES FROM THE FOLLOWING:

| | |
|---|---|
| APP 111E | ELECTRIC MOTOR CONTROL (3/4) |
| APP 114E | PROGRAMMABLE CONTROLLERS (3/4) |
| APP 290M | MILLWRIGHT INTERNSHIP (3/4) |
| MFG 102 | MACHINING PROCESSES II (4/6) |
| MFG 201 | CNC I (4/6) |
| | AN ADDITIONAL WLD OR MET COURSE (4/6) |

Gainful Employment information for Apprentice - Millwright

Gainful Employment information for Apprentice - Millwright Advanced

# Auto Body Collision Technology

Certificate (C)

Description: One of the sub-specialties of the automobile repair and maintenance industry is auto body collision repair. This specialty has been changing rapidly in recent years because of new materials, assembly processes, and tools. This one-year Alpena Community College curriculum provides the modern training required to be up-to-date in this field of work. Skills will be developed in areas of removing, replacing, and straightening of body panels, welding and bonding, refinishing processes using solvent and waterborne systems, mechanical and electrical repairs, and final detailing.

**Core Program Requirements** **Credits: 31**

| | |
|---|---|
| AUB 100 | Auto Collision Fundamentals (2/3) |
| AUB 105 | Collision Welding (2/3) |
| AUB 110 | Paint Preparation (2/3) |
| AUB 115 | Painting (4/6) |
| AUB 120 | Introduction to Non-Structural Repair (2/3) |
| AUB 125 | Non-Structural Repair (3/5) |
| AUB 130 | Mechanical & Electrical Repair (4/6) |
| AUB 135 | Damage Analysis & Estimating (3/5) |
| AUB 140 | Advanced Collision (4/6) |
| AUB 150 | Advanced Painting (5/8) |

**Minimum 31 Credit Hours/48 Contact Hours**

# Auto Body Collision Repair

Certificate (C)
Suggested Sequence of Courses

**Year 1 (Fall Semester)** **Credits: 15**

| | |
|---|---|
| AUB 100 | Auto Collision Fundamentals (2/3) |
| AUB 105 | Collision Welding (2/3) |
| AUB 110 | Paint Preparation (2/3) |
| AUB 115 | Painting (4/6) |
| AUB 120 | Introduction to Non-Structural Repair (2/3) |
| AUB 125 | Non-Structural Repair (3/5) |

**Year 1 (Spring Semester)** **Credits: 16**

| | |
|---|---|
| AUB 130 | Mechanical & Electrical Repair (4/6) |
| AUB 135 | Damage Analysis & Estimating (3/5) |
| AUB 140 | Advanced Collision (4/6) |
| AUB 150 | Advanced Painting (5/8) |

Gainful Employment information for Auto Body Collision Repair

# Auto Service & Repair

Certificate/Associate in Applied Science (AAS) Degree

Description: This one-year certificate program prepares the successful graduate for a number of entry-level employment positions in the automotive service field. By working with his/her academic advisor, successful certificate graduates can study additional time to become master certified and/or earn an associate degree.

| **Course Requirements** | | **Credits: 36** |
|---|---|---|
| AUT 119 | Automotive Break Systems (5/8) | |
| AUT 122 | Automotive Air, Fuel & Emissions Systems (4/6) | |
| AUT 123 | Auto Suspension, Steering & Alignment (5/8) | |
| AUT 124 | Auto Electrical & Electronics Systems I (5/8) | |
| AUT 125 | Auto Electrical & Electronics Systems II (5/8) | |
| AUT 201 | Computerized Engine controls (4/6) | |
| AUT 202 | Engine Performance Diagnosis & Tune-Up (5/8) | |
| AUT 205 | Auto Climate Control (3/4) | |

| **Master Certificate Requirements** | | **Credits: 10** |
|---|---|---|
| AUT 209 | Automotive Transmissions & Drive Trains (5/8) | |
| AUT 221 | Engine Repair & Overhaul (5/8) | |

| **AAS Program Courses** | | **Credits: 14-17** |
|---|---|---|
| ENG 120 *or* | Applied Communication (3/3) *or* | |
| ENG 111 | English Composition I (3/3) | |
| ENG 123 *or* | Technical Communication (3/3) *or* | |
| ENG 112 | English Composition II (3/3) | |
| MTH 110 *or* | Technical Math (3/4) *or* | |
| MTH 113 *or* | Intermediate Algebra (4/4) *or* | |
| MTH 115 | Applied Algebra & Trigonometry (5/6) | |
| PLS 221 | American Government & Politics (3/3) | |
| | General Elective (2-3/2-4) | |

**Minimum 36 Credit Hours/56 Contact Hours (Certificate)**
**Minimum 60 Credit Hours/87 Contact Hours (AAS)**

Notes:
An Associate in Applied Science (AAS) degree can be earned by completing the Master Certificate and adding the AAS Program Courses.

Tool Requirements: Students are required to provide their own safety equipment, work clothes, and basic hand tool set. A list is provided. Estimated cost is $1,000 to $2,500. Special student discounts and deferred payment programs are available. A quality set of hand tools is required for future employability.

# Auto Service & Repair

Certificate/Associate in Applied Science (AAS) Degree
Suggested Sequence of Courses

| **Year 1 (Fall Semester)** | | **Credits: 15** |
|---|---|---|
| AUT 119 | Automotive Brake Systems (5/8) | |
| AUT 123 | Auto Suspension, Steering & Alignment (5/8) | |
| AUT 124 | Auto Electrical & Electronics Systems I (5/8) | |

| **Year 1 (Spring Semester)** | | **Credits: 14** |
|---|---|---|
| AUT 125 | Auto Electrical & Electronics Systems II (5/8) | |
| AUT 201 | Computerized Engine Controls (4/6) | |
| AUT 202 | Engine Performance Diagnosis & Tune-Up (5/8) | |

| **Year 1 (Summer Semester)** | | **Credits: 7** |
|---|---|---|
| AUT 205 | Automotive Climate Control (3/4) | |
| AUT 122 | Automotive, Fuel & Emissions Systems (4/6) | |

| **Year 2 (Fall Semester)** | | **Credits: 11-13** |
|---|---|---|
| AUT 221 | Engine Repair & Overhaul (5/8) | |
| ENG 120 *or* | Technical Communication (3/3) or | |
| ENG 111 | English Composition I (3/3) | |
| MTH 110 *or* | Technical Math (3/4) or | |
| MTH 113 *or* | Intermediate Algebra (4/4) or | |
| MTH 115 | Applied Algebra & Trigonometry (5/6) | |

| **Year 2 (Spring Semester)** | | **Credits: 13-14** |
|---|---|---|
| AUT 209 | Auto Transmissions & Drive Trains (5/8) | |
| ENG 123 *or* | Technical Communication (3/3) *or* | |
| ENG 112 | English Composition II (3/3) | |
| PLS 221 | American Government & Politics (3/3) | |
| | General Elective (2-3/2-3) | |

Gainful Employment information for Auto Service & Repair Basic

Gainful Employment information for Auto Service & Repair Master

# BIOLOGY

ASSOCIATE IN SCIENCE (AS) DEGREE

DESCRIPTION: This is a suggested program of study which may be altered to meet individual goals and transfer plans. Students should refer to the descriptions of Alpena Community College graduation requirements and degree distribution requirements and consult with an academic advisor concerning specific course selection. A minimum total of 60 credits is required for the Associate in Science degree.

**GENERAL EDUCATION COURSES** **CREDITS: 26-31**

| | |
|---|---|
| ENG 111 *or* | ENGLISH COMPOSITION I (3/3) *or* |
| ENG 121 | ADVANCED ENGLISH COMPOSITION I (3/3) |
| ENG 112 *or* | ENGLISH COMPOSITION II (3/3) *or* |
| ENG 122 | ADVANCED ENGLISH COMPOSITION II (3/3) |
| MTH 122 | PLANE TRIGONOMETRY (3/3) |
| PLS 221 *or* | AMERICAN GOVERNMENT REQUIREMENT (3-6/3-6) |
| PLS 222 *or* | |
| HST 221 & HST 222 | |
| | HUMANITIES/FINE ARTS/SOCIAL SCIENCE REQUIREMENT (3-4/3-5) |
| | HUMANITIES/FINE ARTS REQUIREMENT (3-4/3-5) |
| CEM 121 | GENERAL & INORGANIC CHEMISTRY (4/7) |
| BIO 210 | INTRODUCTION TO BOTANY (4/5) |

**CORE PROGRAM REQUIREMENTS** **CREDITS: 33**

| | |
|---|---|
| BIO 211 | GENERAL ZOOLOGY (4/5) |
| BIO 227 | MICROBIOLOGY (4/6) |
| CEM 122 | INORGANIC CHEMISTRY & QUALITATIVE ANALYSIS (4/7) |
| CEM 221 | ORGANIC CHEMISTRY (5/7) |
| CEM 222 | ORGANIC CHEMISTRY (5/7) |
| MTH 119 | INTRODUCTION TO COMPUTERS & PROGRAMMING (3/3) |
| MTH 123 | COLLEGE ALGEBRA & ANALYTIC GEOMETRY (4/4) |
| | MATH/SCIENCE ELECTIVE (4/4-7) |

**MINIMUM 60 CREDIT HOURS/74 CONTACT HOURS**

NOTES:
Electives will change depending on are of concentration and the specific 4-year transfer institution's requirements. Consult your ACC academic advisor.

# BIOLOGY

ASSOCIATE IN SCIENCE (AS) DEGREE
SUGGESTED SEQUENCE OF COURSES

**YEAR 1 (FALL SEMESTER)** **CREDITS: 14**

| | |
|---|---|
| ENG 111 *or* | ENGLISH COMPOSITION I (3/3) *or* |
| ENG 121 | ADVANCED ENGLISH COMPOSITION I (3/3) |
| CEM 121 | GENERAL & INORGANIC CHEMISTRY (4/7) |
| BIO 210 | INTRODUCTION TO BOTANY (4/5) |
| MTH 122 | PLANE TRIGONOMETRY (3/3) |

**YEAR 1 (SPRING SEMESTER)** **CREDITS: 15**

| | |
|---|---|
| ENG 112 *or* | ENGLISH COMPOSITION II (3/3) *or* |
| ENG 122 | ADVANCED ENGLISH COMPOSITION II (3/3) |
| CEM 122 | INORGANIC CHEMISTRY & QUALITATIVE ANALYSIS (4/7) |
| BIO 211 | GENERAL ZOOLOGY (4/5) |
| MTH 123 | COLLEGE ALGEBRA & ANALYTIC GEOMETRY (4/4) |

**YEAR 2 (FALL SEMESTER)** **CREDITS: 14-15**

| | |
|---|---|
| CEM 221 | ORGANIC CHEMISTRY (5/7) |
| | MATH/SCIENCE ELECTIVE (4/4-7) |
| MTH 119 | INTRO TO COMPUTERS & PROGRAMMING (3/3) |
| | HUMANITIES/FINE ARTS REQUIREMENT (3-4/3-5) |

**YEAR 2 (SPRING SEMESTER)** **CREDITS: 14-18**

| | |
|---|---|
| CEM 222 | ORGANIC CHEMISTRY (5/7) |
| PLS 221 *or* | AMERICAN GOVERNMENT REQUIREMENT (3-6/3-6) |
| PLS 222 *or* | |
| HST 221 & HST 222 | |
| BIO 227 | MICROBIOLOGY (4/6) |
| | HUMANITIES/FINE ARTS/SOCIAL SCIENCE REQUIREMENT (3-4/3-5) |

# Business Administration

Associate in Arts (AA) Degree

Description: This is a suggested program of study which may be altered to meet individual goals and transfer plans while preparing students for employment in the business industry or for transfer to a four-year university. Students will build a broad knowledge base from a blend of business related topics and general education courses that meet MTA requirements.

**General Education Courses** **Credits: 37**

ENG 111 *or* English Composition I (3/3) *or*
ENG 121 Advanced English Composition I (3/3)

ENG 112 *or* English Composition II (3/3) *or*
ENG 122 Advanced English Composition II (3/3)

MTH 121 *or* College Algebra (4/4) *or*
MTH 123 *or* College Algebra & Analytic Trig (4/4) *or*
MTH 131 *or higher* Analytic Geometry & Calculus I (5/5) *or higher*

ECN 231 Economics (Micro) (3/3)
ECN 232 Economics (Macro) (3/3)

PLS 221 *or* American Government Requirement (3/3)
PLS 222 *or*
HST 221 & HST 222

PSY 101 General Psychology (3/3)

SPE 121 *or* Speech Communication (3/3) *or*
SPE 123 Public Communication (3/3)

Humanities/Fine Arts Requirement (6/6)
Lab Science/Natural Science Req (6/7)

**Core Program Requirements** **Credits: 13**

BUS 121 Introduction to Business (3/3)
BUS 123 Principles of Accounting I (4/4)
BUS 127 Principles of Management (3/3)
BUS 221 Business Law I (3/3)

**Suggested Electives** **Credits: 10**

BUS 115/116/117 Foundations in Personal Finances (3/3)
BUS 122 Personal Selling (3/3)
BUS 124 Principles of Accounting II (4/4)
BUS 222 Business Law II (3/3)
BUS 229 Advertising (3/3)
BUS 235 Human Resources Management (3/3)
BUS 241 Principles of Marketing (3/3)
BUS 248 Business Communications (3/3)
BUS 255 Business Application Software (3/3)
BUS 262 Project Management (3/3)
CIS 120 Introduction to Microcomputers (3/4)

**Minimum 60 Credit Hours/61 Contact Hours**

Electives will change depending on area of concentration and the specific four-year transfer institution's requirements. Consult your ACC academic advisor.

# Business Administration

Associate in Arts (AA) Degree
Suggested Sequence of Courses

**Year 1 (Fall Semester)** **Credits: 17**

ENG 111 *or* English Composition I (3/3) *or*
ENG 121 Advanced English Composition I (3/3)

MTH 121 *or* College Algebra (4/4) *or*
MTH 123 *or* College Algebra & Analytic Trig (4/4) *or*
MTH 131 *or higher* Analytic Geometry & Calculus I (5/5) *or higher*

BUS 121 Introduction to Business (3/3)
BUS 123 Principles of Accounting I (4/4)
CIS 120 Introduction to Microcomputers (3/4)

**Year 1 (Spring Semester)** **Credits: 13**

ENG 112 *or* English Composition II (3/3) *or*
ENG 122 Advanced English Composition II (3/3)

BUS 124 Principles of Accounting II (4/4)

BUS 127 *or* Principles of Management (3/3) *or*
BUS 235 Human Resources Management (3/3)

ECN 232 Economics (Macro) (3/3)

**Year 2 (Fall Semester)** **Credits: 15**

BUS 221 Business Law (3/3)
ECN 231 Economics (Micro) (3/3)
Humanities/Fine Arts Requirement (3/3)
Lab Science/Natural Science Req (3/4)

PLS 221 *or* American Government Requirement (3/3)
PLS 222 *or*
HST 221 & HST 222

**Year 2 (Spring Semester)** **Credits: 15**

PSY 101 General Psychology (3/3)
BUS 241 Principles of Marketing (3/3)
Humanities/Fine Arts Requirement (3/3)
Lab Science/Natural Science Req (3/3)

SPE 121 *or* Speech Communication (3/3) *or*
SPE 123 Public Communication (3/3)

# Business Information Systems – Administrative Professional

Associate in Applied Science (AAS) Degree

Description: This program is designed for the student who plans to begin work as an administrative professional in a traditional setting. Using the latest developments in information technology as they relate to the management of the modern office, the program provides an extensive background in computer applications and an exposure to the total are of electronic communications technology.

**General Education Requirements** **Credits: 9**

| | |
|---|---|
| ENG 111 *or* | English Composition I (3/3) *or* |
| ENG 121 | Advanced English Composition I (3/3) |
| ENG 112 *or* | English Composition II (3/3) *or* |
| ENG 122 | Advanced English Composition II (3/3) |
| PLS 221 *or* | American Government Requirement (3/3) |
| PLS 222 *or* | |
| HST 221 & HST 222 | |

**Core Program Requirements** **Credits: 45**

| | |
|---|---|
| BIS 101 | Keyboard Skillbuilding (1/2) [AC] |
| BIS 140 | Proofreading & Editing for Business Professionals (3/4) [A] |
| BUS 121 | Introduction to Business (3/3) [A] |
| BUS 123 | Principles of Accounting I (4/4) [AD] |
| BUS 124 | Principles of Accounting II (4/4) [A] |
| BUS 125 | Business Math (3/3) [A] |
| BUS 235 | Human Resources Management (3/3) [A] |
| BUS 248 | Business Communications (3/3) [A] |
| CIS 151,152,153 | Word Processing I, II, III (3/3.75) [AB] |
| CIS 171,172, 173 | Spreadsheets I, II, III (3/3.75) [AB] |
| CIS 240 | Multimedia Presentations (3/4) [A] |
| CIS 241 | Introduction to Web Design & Mgt (3/4) [A] |
| CIS 250 | Desktop Publishing (3/4) [A] |
| CIS 258 | Intro to Enterprise Database (3/4) [A] |
| CIS 281, 282, 283 | Adv Word Processing I, II, III (3/3.75) [AB] |

**Suggested Electives** **Credits: 6**

Any BUS, CIS, or CNS Elective (3/3)
Any BUS, CIS, or CNS Elective (3/3)

**Minimum 60 Credit Hours/68.25 Contact Hours**

Notes:
[A] Included in occupational specialty.
*GPA of 2.0 or higher must be maintained in occupational specialty courses*
[B] These courses are normally taken during a semester in sequence within the course group.
[C] Students who have not successfully completed a keyboarding class or who cannot demonstrate proficiency in touch keyboarding should be aware that BIS 100 is required before taking BIS 101.
[D] For the student taking BUS 123, BUS 125 must be taken as a co-requisite.

# Business Information Systems – Administrative Professional

Associate in Applied Science (AAS) Degree
Suggested Sequence of Courses

**Year 1 (Fall Semester)** **Credits: 16**

| | |
|---|---|
| BIS 101 | Keyboard Skillbuilding (1/2) |
| | BUS, CIS, *or* CNS Elective (3/3) |
| BUS 121 | Introduction to Business (3/3) |
| BUS 125 | Business Math (3/3) |
| CIS 151,152,153 | Word Processing I, II, III (3/3.75) |
| ENG 111 *or* | English Composition I (3/3) *or* |
| ENG 121 | Advanced English Composition I (3/3) |

**Year 1 (Spring Semester)** **Credits: 15**

| | |
|---|---|
| BIS 140 | Proofreading & Editing for Business Professional (3/4) |
| CIS 171, 172, 173 | Spreadsheets I, II, III (3/3.75) |
| CIS 240 | Multimedia Presentations (3/4) |
| CIS 241 | Introduction to Web Design & Mgt (3/4) |
| CIS 281, 282, 283 | Adv Word Processing I, II, III (3/3.75) |

**Year 2 (Fall Semester)** **Credits: 16**

| | |
|---|---|
| | BUS, CIS, *or* CNS Elective (3/3-4) |
| BUS 123 | Principles of Accounting I (4/4) |
| CIS 250 | Desktop Publishing (3/4) |
| ENG 112 *or* | English Composition II (3/3) *or* |
| ENG 122 | Advanced English Composition II (3/3) |
| PLS 221 *or* | American Government Requirement (3-6/3-6) |
| PLS 222 *or* | |
| HST 221 & HST 222 | |

**Year 2 (Spring Semester)** **Credits: 13**

| | |
|---|---|
| BUS 124 | Principles of Accounting II (4/4) |
| BUS 235 | Human Resources Management (3/3) |
| BUS 248 | Business Communications (3/3) |
| CIS 258 | Intro to Enterprise Database (3/4) |

# Business Information Systems – Business Services

Certificate (C)

Description: This one-year program is designed to provide entry level job skills needed for the modern office environment. The student is introduced to a variety of computer applications and office skills. All Classes are transferrable to the two-year Business Information Systems degree options.

**General Education Requirements** **Credits: 3**

| | |
|---|---|
| ENG 111 *or* | English Composition I (3/3) *or* |
| ENG 121 | Advanced English Composition I (3/3) |

**Core Program Requirements** **Credits: 27.5**

| | |
|---|---|
| BIS 101 | Keyboard skillbuilding (1/2) [AC] |
| BIS 140 | Proofreading & Editing for Business Professionals (3/4) [A] |
| BUS 123 | Principles of Accounting I (4/4) [AD] |
| BUS 125 | Business Math (3/3) [A] |
| BUS 248 | Business Communications (3/3) [A] |
| BUS 257 | Computerized Accounting Systems (1.5/2) [A] |
| CIS 151, 152, 153 | Word Processing I, II, III (3/3.75) [AB] |
| CIS 171, 172, 173 | Spreadsheets I, II, III (3/3.75) [AB] |
| CIS 250 | Desktop Publishing (3/4) [A] |
| CIS 281, 282, 283 | Adv Word Processing I, II, III (3/3.75) [AB] |

**Minimum 30.5 Credit Hours/36.25 Contact Hours**

Notes:

[A] Included in occupational specialty.
*GPA of 2.0 or higher must be maintained in occupational specialty courses*

[B] These courses are normally taken during a semester in sequence within the course group.

[C] Students who have not successfully completed a keyboarding class or who cannot demonstrate proficiency in touch keyboarding should be aware that BIS 100 is required before taking BIS 101.

[D] For the student taking BUS 123, BUS 125 must be taken as a co-requisite.

# Business Information Systems – Business Services

Certificate (C)
Suggested Sequence of Courses

**Year 1 (Fall Semester)** **Credits: 17**

| | |
|---|---|
| BIS 101 | Keyboard skillbuilding (1/2) |
| BUS 125 | Business Math (3/3) |
| BUS 123 | Principles of Accounting I (4/4) |
| CIS 151, 152, 153 | Word Processing I, II, III (3/3.75) |
| CIS 250 | Desktop Publishing (3/4) |
| ENG 111 *or* | English Composition I (3/3) *or* |
| ENG 121 | Advanced English Composition I (3/3) |

**Year 1 (Spring Semester** **Credits: 13.5**

| | |
|---|---|
| BIS 140 | Proofreading & Editing for Business Professionals (3/4) |
| BUS 248 | Business Communications (3/3) |
| BUS 257 | Computerized Accounting Systems (1.5/2) |
| CIS 171, 172, 173 | Spreadsheets I, II, III (3/3.75) |
| CIS 281, 282, 283 | Adv Word Processing I, II, III (3/3.75) |

Gainful Employment information for BIS - Business Services

# Business Information Systems – Executive Assistant

Associate in Arts (AA) Degree

Description: This is a suggested program of study for students who wish to study business information systems and go on to obtain a bachelor's degree. It may be altered to meet individual goals and transfer plans. Students should refer to the Alpena Community College Associate in Arts Degree Distribution Requirements and consult with an academic advisor concerning specific course selection, particularly as it relates to the Michigan Transfer Agreement.

**General Education Requirements** **Credits: 34-39**

| | |
|---|---|
| ENG 111 *or* | English Composition I (3/3) *or* |
| ENG 121 | Advanced English Composition I (3/3) |
| ENG 112 *or* | English Composition II (3/3) *or* |
| ENG 122 | Advanced English Composition II (3/3) |
| PLS 221 *or* | American Government Requirement (3-6/3-6) |
| PLS 222 *or* | |
| HST 221 & HST 222 | |
| | Math Requirement (4-5/4-5) |
| | Social Science Requirements (6/6) |
| | Humanities/Fine Arts Requirements (8/8) |
| | Laboratory Science Requirement (4/4-5) |
| | Natural Science Requirement (3-4/3-4) |

**Core Program Requirements** **Credits: 26**

| | |
|---|---|
| BIS 101 | Keyboard skillbuilding (1/2) [AC] |
| BUS 140 | Proofreading & Editing for Business Professionals (3/4) [A] |
| BUS 123 | Principles of Accounting I (4/4) [AD] |
| BUS 248 | Business Communication (3/3) [A] |
| CIS 151, 152, 153 | Word Processing I, II, III (3/3.75) [AB] |
| CIS 171, 172, 173 | Spreadsheets I, II, III (3/3.75) [AB] |
| CIS 240 | Multimedia Presentations (3/4) [A] |
| CIS 250 | Desktop Publishing (3/4) [A] |
| CIS 281, 282, 283 | Adv Word Processing I, II, III (3/3.75) [AB] |

**Minimum 60 Credit Hours/66.25 Contact Hours**

Notes:

[A] Included in occupational specialty.

*GPA of 2.0 or higher must be maintained in occupational specialty courses*

[B] These courses are normally taken during a semester in sequence within the course group.

[C] Students who have not successfully completed a keyboarding class or who cannot demonstrate proficiency in touch keyboarding should be aware that BIS 100 is required before taking BIS 101.

[D] For the student taking BUS 123, BUS 125 must be taken as a co-requisite.

# Business Information Systems – Executive Assistant

Associate in Arts (AA) Degree
Suggested Sequence of Courses

**Year 1 (Fall Semester)** **Credits: 15-16**

| | |
|---|---|
| BIS 101 | Keyboard skillbuilding (1/2) |
| BUS 123 | Principles of Accounting I (4/4) |
| | Math Requirement (4-5/4-5) |
| CIS 151, 152, 153 | Word Processing I, II, III (3/3.75) |
| CIS 250 | Desktop Publishing (3/4) |

**Year 1 (Spring Semester)** **Credits: 15**

| | |
|---|---|
| BUS 140 | Proofreading & Editing for Business Professionals (3/4) |
| CIS 171, 172, 173 | Spreadsheets I, II, III (3/3.75) |
| CIS 240 | Multimedia Presentations (3/4) |
| CIS 281, 282, 283 | Adv Word Processing I, II, III (3/3.75) |
| | Social Science Requirement (3/3) |

**Year 2 (Fall Semester)** **Credits: 16-20**

| | |
|---|---|
| ENG 111 *or* | English Composition I (3/3) *or* |
| ENG 121 | Advanced English Composition I (3/3) |
| | Natural Science Requirement (3-4/3-4) |
| | Humanities/Fine Arts Requirement (4/4) |
| PLS 221 *or* | American Government Requirement (3-6/3-6) |
| PLS 222 *or* | |
| HST 221 & HST 222 | |
| | Social Science Requirement (3/3) |

**Year 2 (Spring Semester)** **Credits: 14**

| | |
|---|---|
| ENG 112 *or* | English Composition II (3/3) *or* |
| ENG 122 | Advanced English Composition II (3/3) |
| BUS 248 | Business Communication (3/3) |
| | Humanities/Fine Arts Requirement (4/4) |
| | Laboratory Science Requirement (4/4-5) |

# Business Information Systems – Medical Information Specialist

Associate in Applied Science (AAS) Degree

Description: This program uses the latest developments in information technology as they relate to the modern medical office in small medical and medical-related practices, hospitals, and other medical facilities. Successful graduates are trained in medical terminology, records management, billing, computer software, and office management procedures.

| **General Education Requirements** | | **Credits: 12** |
|---|---|---|
| ENG 111 *or* | English Composition I (3/3) *or* | |
| ENG 121 | Advanced English Composition I (3/3) | |
| ENG 112 *or* | English Composition II (3/3) *or* | |
| ENG 122 | Advanced English Composition II (3/3) | |
| PLS 221 *or* | American Government Requirement (3/3) | |
| PLS 222 | | |
| PSY 101 | General Psychology (3/3) | |

| **Core Program Requirements** | | **Credits: 50** |
|---|---|---|
| BIO 110 | Essentials of Anatomy & Physiology (4/5) [A] | |
| BIS 101 | Keyboard skillbuilding (1/2) | |
| BIS 140 | Proofreading & Editing for Bus Prof (3/4) | |
| BIS 159 | Medical Office Admin Seminar (3/3) [A] | |
| BIS 160 | Medical Terminology (4/4) [A] | |
| BIS 167 | Medical Ethics & Law (3/3) [A] | |
| BIS 169 | Practice Management Software (3/4) [A] | |
| BIS 220 | Medical Office Admin Practicum (3/3) [A] | |
| BUS 125 | Business Math (3/3) [A] | |
| BUS 127 | Principles of Management (3/3) | |
| BUS 248 | Business Communication (3/3) | |
| CIS 120 | Introduction to Microcomputers (3/4) [A] | |
| CIS 151, 152, 153 | Word Processing I, II, III (3/3/75) | |
| CIS 241 | Intro to Web Design & Mgt (3/4) | |
| CIS 281, 282, 283 | Adv Word Processing I, II, III (3/3.75) | |
| MED 225 | Medical Conditions & Procedures (4/4) | |
| PEH 264 | Community First Aid/CPR/AED (BLS) [B] | |

**Minimum 62 Credit Hours/69.5 Contact Hours**

Notes:
[A] Included in occupational specialty.
*GPA of 2.0 or higher must be maintained in occupational specialty courses*
[B] CPR certification is a requirement to participate in BIS 220

# Business Information Systems – Medical Information Specialist

Associate in Applied Science (AAS) Degree
Suggested Sequence of Courses

| **Year 1 (Fall Semester)** | | **Credits: 16** |
|---|---|---|
| BIS 159 | Medical Office Admin Seminar (3/3) | |
| BIS 160 | Medical Terminology (4/4) | |
| CIS 120 | Introduction to Microcomputers (3/4) | |
| ENG 111 *or* | English Composition I (3/3) *or* | |
| ENG 121 | Advanced English Composition I (3/3) | |
| PSY 101 | General Psychology (3/3) | |

| **Year 1 (Spring Semester)** | | **Credits: 15** |
|---|---|---|
| BIO 110 | Essentials of Anatomy & Physiology (4/5) | |
| BIS 101 | Keyboard skillbuilding (1/2) | |
| BIS 167 | Medical Ethics & Law (3/3) | |
| BIS 169 | Practice Management Software (3/4) | |
| ENG 112 *or* | English Composition II (3/3) *or* | |
| ENG 122 | Advanced English Composition II (3/3) | |
| PEH 264 | Community First Aid/CPR/AED (BLS) | |

| **Year 1 (Summer Semester)** | | **Credits: 3** |
|---|---|---|
| BIS 220 | Medical Office Admin Practicum (3/3) | |

| **Year 2 (Fall Semester)** | | **Credits: 12** |
|---|---|---|
| BUS 125 | Business Math (3/3) | |
| BUS 127 | Principles of Management (3/3) | |
| CIS 151, 152, 153 | Word Processing I, II, III (3/3/75) | |
| PLS 221 *or* | American Government Requirement (3/3) | |
| PLS 222 | | |

| **Year 2 (Spring Semester)** | | **Credits: 16** |
|---|---|---|
| BIS 140 | Proofreading & Editing for Bus Prof (3/4) | |
| BUS 248 | Business Communication (3/3) | |
| CIS 241 | Intro to Web Design & Mgt (3/4) | |
| CIS 281, 282, 283 | Adv Word Processing I, II, III (3/3/75) | |
| MED 225 | Medical Conditions & Procedures (4/4) | |

# Business Information Systems – Office Information Technology Specialist

Associate in Applied Science (AAS) Degree

Description: This program prepares students to work in Management Information System departments as office support service providers to hardware and software end-users. It covers information technology as it relates to the management of the modern office, including equipment and procedures. The program provides extensive background in computer applications, with additional exposure to operating systems, hardware, and office management.

**General Education Requirements** **Credits: 9-12**

| | |
|---|---|
| ENG 111 *or* | English Composition I (3/3) *or* |
| ENG 121 | Advanced English Composition I (3/3) |
| ENG 112 *or* | English Composition II (3/3) *or* |
| ENG 122 | Advanced English Composition II (3/3) |
| PLS 221 *or* | American Government Requirement (3-6/3-6) |
| PLS 222 *or* | |
| HST 221 & HST 222 | |

**Core Program Requirements** **Credits: 49**

| | |
|---|---|
| BIS 101 | Keyboard skillbuilding (1/2) [AC] |
| BIS 140 | Proofreading & Editing for Business Professionals (3/4) [A] |
| BUS 123 | Principles of Accounting I (4/4) [AD] |
| BUS 124 | Principles of Accounting II (4/4) [A] |
| BUS 125 | Business Math (3/3) [A] |
| BUS 248 | Business Communications (3/3) [A] |
| CIS 140 | Introduction to Microsoft Client OS (3/4) [A] |
| CIS 151, 152, 153 | Word Processing I, II, III (3/3.75) [AB] |
| CIS 171, 172, 173 | Spreadsheets I, II, III (3/3.75) [AB] |
| CIS 240 | Multimedia Presentations (3/4) [A] |
| CIS 241 | Web Design & Management (3/4) [A] |
| CIS 250 | Desktop Publishing (3/4) [A] |
| CIS 258 | Introduction to Enterprise Database (3/4) [A] |
| CIS 281. 282, 283 | Adv Word Processing I, II, III (3/3.75) [AB] |
| CIS 295 | IT Professional Practice Mgt (3/4) [A] |
| CNS 170 | PC repair & Maintenance (4/5) [A] |

**Suggested Electives** **Credits: 3**

Any BUS Course (3/3-4) [A]
Any CIS Course (3/3-4) [A]
Any CNS Course (3/3-5) [A]

**Minimum 61 Credit Hours/72.25 Contact Hours**

Notes:
[A] Included in occupational specialty.
*GPA of 2.0 or higher must be maintained in occupational specialty courses*
[B] These courses are normally taken during a semester in sequence within the course group.
[C] Students who have not successfully completed a keyboarding class or who cannot demonstrate proficiency in touch keyboarding should be aware that BIS 100 is required before taking BIS 101.
[D] For the student taking BUS 123, BUS 125 must be taken as a co-requisite.

# Business Information Systems – Office Information Technology Specialist

Associate in Applied Science (AAS) Degree
Suggested Sequence of Courses

**Year 1 (Fall Semester)** **Credits: 14**

| | |
|---|---|
| BIS 101 | Keyboard skillbuilding (1/2) |
| BUS 125 | Business Math (3/3) |
| CIS 151, 152, 153 | Word Processing I, II, III (3/3.75) |
| ENG 111 *or* | English Composition I (3/3) *or* |
| ENG 121 | Advanced English Composition I (3/3) |
| BUS 123 | Principles of Accounting I (4/4) |

**Year 1 (Spring Semester)** **Credits: 16**

| | |
|---|---|
| CIS 171, 172, 173 | Spreadsheets I, II, III (3/3.75) |
| CIS 240 | Multimedia Presentations (3/4) |
| CIS 281, 282, 283 | Adv Word Processing I, II, III (3/3.75) |
| ENG 112 *or* | English Composition II (3/3) *or* |
| ENG 122 | Advanced English Composition II (3/3) |
| BUS 124 | Principles of Accounting II (4/4) |

**Year 2 (Fall Semester)** **Credits: 16-20**

| | |
|---|---|
| CIS 140 | Introduction to Microsoft Client OS (3/4) |
| CIS 250 | Desktop Publishing (3/4) |
| CNS 170 | PC repair & Maintenance (4/5) |
| PLS 221 *or* | American Government Requirement (3-6/3-6) |
| PLS 222 *or* | |
| HST 221 & HST 222 | |
| | BIS, CIS, or CNS Elective (3-4/3-5) |

**Year 2 (Spring Semester)** **Credits: 15**

| | |
|---|---|
| BIS 140 | Proofreading & Editing for Business Professionals (3/4) |
| BUS 248 | Business Communications (3/3) |
| CIS 241 | Web Design & Management (3/4) |
| CIS 258 | Introduction to Enterprise Database (3/4) |
| CIS 295 | IT Professional Practice Mgt (3/4) |

# Business Management

Associate in Applied Science (AAS) Degree

Description: This program of study balances business and management courses with core educational courses to prepare students for employment in the business industry or to manage their own businesses. Students will build a broad knowledge base across business related functions of sales, personnel management, and general business operations.

**General Education Requirements** **Credits: 21**

| | |
|---|---|
| ENG 111 *or* | English Composition I (3/3) *or* |
| ENG 121 | Advanced English Composition I (3/3) |
| ENG 112 *or* | English Composition II (3/3) *or* |
| ENG 122 | Advanced English Composition II (3/3) |
| ECN 231 | Economics (Micro) (3/3) |
| ECN 232 | Economics (Macro) (3/3) |
| PLS 221 *or* | American Government Requirement (3-6/3-6) |
| PLS 222 *or* | |
| HST 221 & HST 222 | |
| PSY 101 | General Psychology (3/3) |
| SPE 121 | Speech Communication (3/3) |

**Core Program Requirements** **Credits: 35**

| | |
|---|---|
| BUS 121 | Introduction to Business (3/3) [A] |
| BUS 123 | Principles of Accounting I (4/4) [A] |
| BUS 124 | Principles of Accounting II (4/4) [A] |
| BUS 125 *or higher* | Business Math (3/3) or higher math |
| BUS 127 | Principles of Management (3/3) [A] |
| BUS 221 | Business Law I (3/3) [A] |
| BUS 222 | Business Law II (3/3) [A] |
| BUS 235 | Human Resources Management (3/3) [A] |
| BUS 241 | Principles of Marketing (3/3) [A] |
| BUS 255 | Business Application Software (3/4) [A] |
| CIS 120 | Introduction to Microcomputers (3/4) [A] |

**Suggested Electives** **Credits: 6**

| | |
|---|---|
| BUS 115, 116, 117 | Foundations in Personal Finance (3/3) [A] |
| BUS 122 | Personal Selling (3/3) [A] |
| BUS 128 | Small Business Management (3/3) |
| BUS 229 | Advertising (3/3) [A] |
| BUS 233 | Management & Supervisory Leadership (3/3) [A] |
| BUS 248 | Business Communication (3/3) [A] |
| BUS 262 | Project Management (3/3) [A] |

**Minimum 62 Credit Hours/64 Contact Hours**

Notes:
[A] Included in occupational specialty.
*GPA of 2.0 or higher must be maintained in occupational specialty courses*

# Business Management

Associate in Applied Science (AAS) Degree
Suggested Sequence of Courses

**Year 1 (Fall Semester)** **Credits: 16**

| | |
|---|---|
| ENG 111 *or* | English Composition I (3/3) *or* |
| ENG 121 | Advanced English Composition I (3/3) |
| BUS 121 | Introduction to Business (3/3) |
| BUS 123 | Principles of Accounting I (4/4) |
| BUS 125 *or higher* | Business Math (3/3) or higher math |
| CIS 120 | Introduction to Microcomputers (3/4) |

**Year 1 (Spring Semester)** **Credits: 16**

| | |
|---|---|
| ENG 112 *or* | English Composition II (3/3) *or* |
| ENG 122 | Advanced English Composition II (3/3) |
| BUS 124 | Principles of Accounting II (4/4) |
| BUS 127 | Principles of Management (3/3) |
| BUS 235 | Human Resources Management (3/3) |
| BUS 255 | Business Application Software (3/4) |

**Year 2 (Fall Semester)** **Credits: 15**

| | |
|---|---|
| BUS 221 | Business Law I (3/3) |
| ECN 231 | Economics (Micro) (3/3) |
| SPE 121 | Speech Communication (3/3) |
| Elective | Business Elective (3/3) |
| PLS 221 *or* | American Government Requirement (3-6/3-6) |
| PLS 222 *or* | |
| HST 221 & HST 222 | |

**Year 2 (Spring Semester)** **Credits: 15**

| | |
|---|---|
| BUS 222 | Business Law II (3/3) |
| PSY 101 | General Psychology (3/3) |
| ECN 232 | Economics (Macro) (3/3) |
| BUS 241 | Principles of Marketing (3/3) |
| | Business Elective (3/3) |

# CHEMISTRY

ASSOCIATE IN SCIENCE (AS) DEGREE

DESCRIPTION: This is a suggested program of study which may be altered to meet individual goals and transfer plans. Students should refer to the descriptions of Alpena Community College graduation requirements and degree distribution requirements and consult with an academic advisor concerning specific course selection. A minimum total of 60 credits is required for the Associate in Science degree.

**GENERAL EDUCATION REQUIREMENTS** **CREDITS: 29-33**

| | |
|---|---|
| ENG 111 *or* | ENGLISH COMPOSITION I (3/3) *or* |
| ENG 121 | ADVANCED ENGLISH COMPOSITION I (3/3) |
| ENG 112 *or* | ENGLISH COMPOSITION II (3/3) *or* |
| ENG 122 | ADVANCED ENGLISH COMPOSITION II (3/3) |
| MTH 131 | ANALYTIC GEOMETRY & CALCULUS I (5/5) |
| PLS 221 *or* | AMERICAN GOVERNMENT REQUIREMENT (3-6/3-6) |
| PLS 222 *or* | |
| HST 221 & HST 222 | |
| SPE 121 | SPEECH COMMUNICATION (3/3) |
| | HUMANITIES/FINE ARTS REQUIREMENT (3-4/4-5) |
| CEM 121 | GENERAL & INORGANIC CHEMISTRY (4/7) |
| PHY 221 | PHYSICS (5/7) |

**CORE PROGRAM REQUIREMENTS** **CREDITS: 32**

| | |
|---|---|
| CEM 122 | INORGANIC CHEMISTRY & QUALITATIVE ANALYSIS (4/7) |
| CEM 221 | ORGANIC CHEMISTRY (5/7) |
| CEM 222 | ORGANIC CHEMISTRY (5/7) |
| MTH 132 | ANALYTICAL GEOMETRY & CALCULUS II (5/5) |
| MTH 231 | ANALYTICAL GEOMETRY & CALCULUS III (5/5) |
| MTH 232 | DIFFERENTIAL EQUATIONS (4/4) |
| PHY 222 | PHYSICS (5/7) |

**MINIMUM 61 CREDIT HOURS/76 CONTACT HOURS**

NOTE: A total of 10 semester credits are required in combination with Group III/Social Sciences and Group IV/Humanities/Fine Arts with a minimum of three credits from each group. Political Science or U.S. History courses used to satisfy the American Government Requirement can be included.

# CHEMISTRY

ASSOCIATE IN SCIENCE (AS) DEGREE
SUGGESTED SEQUENCE OF COURSES

**YEAR 1 (FALL SEMESTER)** **CREDITS: 15-16**

| | |
|---|---|
| ENG 111 *or* | ENGLISH COMPOSITION I (3/3) *or* |
| ENG 121 | ADVANCED ENGLISH COMPOSITION I (3/3) |
| CEM 121 | GENERAL & INORGANIC CHEMISTRY (4/7) |
| MTH 131 | ANALYTIC GEOMETRY & CALCULUS I (5/5) |
| | HUMANITIES/FINE ARTS REQUIREMENT (3-4/4-5) |

**YEAR 1 (SPRING SEMESTER)** **CREDITS: 12**

| | |
|---|---|
| ENG 112 *or* | ENGLISH COMPOSITION II (3/3) *or* |
| ENG 122 | ADVANCED ENGLISH COMPOSITION II (3/3) |
| CEM 122 | INORGANIC CHEMISTRY & QUALITATIVE ANALYSIS (4/7) |
| MTH 132 | ANALYTICAL GEOMETRY & CALCULUS II (5/5) |

**YEAR 2 (FALL SEMESTER)** **CREDITS: 17**

| | |
|---|---|
| CEM 221 | ORGANIC CHEMISTRY (5/7) |
| MTH 231 | ANALYTICAL GEOMETRY & CALCULUS III (5/5) |
| PHY 221 | PHYSICS (5/7) |
| PLS 221 *or* | AMERICAN GOVERNMENT REQUIREMENT (3-6/3-6) |
| PLS 222 *or* | |
| HST 221 & HST 222 | |

**YEAR 2 (SPRING SEMESTER)** **CREDITS: 17**

| | |
|---|---|
| CEM 222 | ORGANIC CHEMISTRY (5/7) |
| MTH 232 | DIFFERENTIAL EQUATIONS (4/4) |
| PHY 222 | PHYSICS (5/7) |
| SPE 121 | SPEECH COMMUNICATION (3/3) |

# Computer Aided Design (CAD) Technology

Associate in Applied Science (AAS) Degree

Description: This associate degree program is designed for students who what to work in the field of engineering and design at the applied level in positions such as engineering technician, designer, and/or CAD operator. The program emphasizes a hands-on approach to design from the use of hand tools to the utilization of the latest software and computers recommended by industry. Theoretical, scientific, and mathematical topics are utilized and serve as a basis for the research and development of new designs. Two technical electives allow for the customization of the program with courses ranging from manufacturing to electronics. Graduates can move on to complete a four-year degree in the field of Engineering Technology and should consult with an academic advisor.

**General Education Requirements** **Credits: 12-13**

| | |
|---|---|
| ENG 111 *or* | English Composition I (3/3) *or* |
| ENG 120 | Applied Communication (3/3) |
| ENG 112 *or* | English Composition II (3/3) *or* |
| ENG 123 | Technical Communication (3/3) |
| PLS 221 | American Government & Politics (3/3) |
| PHY 111 *or* | Applied Physics (3/4) *or* |
| PHY 121 | General College Physics (4/6) |

**Core Program Requirements** **Credits: 42-43**

| | |
|---|---|
| APP 100E | Electrical Studies for Trades (3/4) [A] |
| CAD 150 | 3D Modeling (3/4) [A] |
| CAD 220 | Machine Design (3.5/5) [A] |
| CAD 250 | Advanced 3D Modeling (3.5/5) [A] |
| CIS 171,172,173 | Spreadsheets I, II, III (3/3.75) |
| EGR 122 | Introduction to Engineering (1/1) [A] |
| EGR 130 | Team Design Project (2/3) [A] |
| IND 225 | Strength of Materials (4/5) [A] |
| IND 229 | Hydraulic & Pneumatic Power (3/4) [A] |
| MET 200 | Material Science (3/4) [A] |
| MFG 101 | Machining Processes I (4/6) [A] |
| MFG122 | Manufacturing Processes (3/4) [A] |
| MTH 110 *or* | Technical Math I (3/4) *or* |
| MTH 113 | Intermediate Algebra (4/4) |
| MTH 112 *or* | Technical Math II (3/4) *or* |
| MTH 122 | Plane Trigonometry (3/3) |

**Suggested Electives** **Credits: 6**

| | |
|---|---|
| APP 104E, APP 111E, APP 114E or APP 123E | Apprentice – Electrical Course (3/3) [A] |
| APP 106M | Industrial Safety (.5/.5) [A] |
| CEM 100 | Introduction to Chemistry (5/7) |
| ELE 220 | PC Base Data Acquisition & Control (3/4) [A] |
| MFG 102, MFG 120, MFG 201, MFG 204 or MFG 220 | Manufacturing Technology Course (3-6/3-7) [A] |
| SPE 123 | Public Communication (3/3) |
| WLD 123 | SMAW Welding Processes (4/6) [A] |

**Minimum 60 Credit Hours/74.75 Contact Hours**

Notes: [A] Included in occupational specialty.
*GPA of 2.0 or higher must be maintained in occupational specialty courses*

# Computer Aided Design (CAD) Technology

Associate in Applied Science (AAS) Degree
Suggested Sequence of Courses

**Year 1 (Fall Semester)** **Credits: 14-15**

| | |
|---|---|
| MTH 110 *or* | Technical Math I (3/4) *or* |
| MTH 113 | Intermediate Algebra (4/4) |
| MFG 101 | Machining Processes I (4/6) |
| MFG122 | Manufacturing Processes (3/4) |
| APP 100E | Electrical Studies for Trades (3/4) |
| EGR 122 | Introduction to Engineering (1/1) |

**Year 1 (Spring Semester)** **Credits: 15-18**

| | |
|---|---|
| MTH 112 *or* | Technical Math II (3/4) *or* |
| MTH 122 | Plane Trigonometry (3/3) |
| PHY 111 *or* | Applied Physics (3/4) *or* |
| PHY 121 | General College Physics (4/6) |
| CAD 150 | 3D Modeling (3/4) |
| CIS 171,172,173 | Spreadsheets I, II, III (3/3.75) |
| PLS 221 | American Government & Politics (3/3) |

**Year 2 (Fall Semester)** **Credits: 15.5**

| | |
|---|---|
| ENG 111 *or* | English Composition I (3/3) *or* |
| ENG 120 | Applied Communication (3/3) |
| MET 200 | Material Science (3/4) |
| CAD 220 | Machine Design (3.5/5) |
| IND 229 | Hydraulic & Pneumatic Power (3/4) |
| | Technical Elective (3/4) |

**Year 2 (Spring Semester)** **Credits: 15.5**

| | |
|---|---|
| ENG 112 *or* | English Composition II (3/3) *or* |
| ENG 123 | Technical Communication (3/3) |
| IND 225 | Strength of Materials (4/5) |
| CAD 250 | Advanced 3D Modeling (3.5/5) |
| EGR 130 | Team Design Project (2/3) |
| | Technical Elective (3/4) |

# COMPUTER INFORMATION SYSTEMS

ASSOCIATE IN ARTS (AA) DEGREE

DESCRIPTION: This program is designed for students who plan to continue their education in pursuit of a four-year degree in Computer Science. The program includes all of the necessary courses to qualify for the MTA Articulation Agreement. All facets of business find computers and information systems to be essential. Qualified individuals are needed to relate the problem-solving abilities of a computer system to a company's operations. In this curriculum, students are preparing to work as computer programmers, programmer-analysts, network administrators, software application developers, database administrators, business intelligence analyst, web developers, software systems developers, or computer systems engineers in business and industry. The program helps prepare students for industry certifications.

| **GENERAL EDUCATION REQUIREMENTS** | | **CREDITS: 35-36** |
|---|---|---|
| ENG 111 *or* | ENGLISH COMPOSITION I (3/3) *or* | |
| ENG 121 | ADVANCED ENGLISH COMPOSITION I (3/3) | |
| ENG 112 *or* | ENGLISH COMPOSITION II (3/3) *or* | |
| ENG 122 | ADVANCED ENGLISH COMPOSITION II (3/3) | |
| PLS 221 | AMERICAN GOVERNMENT & POLITICS (3/3) | |
| MTH 113 | INTERMEDIATE ALGEBRA (4/4) | |
| PHL 228 | INTRODUCTION TO ETHICS (3/3) | |
| ECN 231 | ECONOMICS (MICRO) (3/3) | |
| ECN 232 | ECONOMICS (MACRO) (3/3) | |
| | HUMANITIES/FINE ARTS REQUIREMENT (6/6) | |
| | NATURAL SCIENCE REQUIREMENT (3-4/4-5) | |
| | LABORATORY SCIENCE REQUIREMENT (4/4-5) | |

| **CORE PROGRAM REQUIREMENTS** | | **CREDITS: 25** |
|---|---|---|
| BUS 262 | PROJECT MANAGEMENT (3/4) | |
| CIS 140 | INTRODUCTION TO MICROSOFT CLIENT OS (3/4) [A] | |
| CNS 150 | NETWORKING FUNDAMENTALS (3/4) [A] | |
| CNS 170 | PC REPAIR & MAINTENANCE (4/5) [A] | |
| CNS 180 | INTRODUCTION TO MICROSOFT SERVER (3/4) [A] | |
| CNS 210 | MICROSOFT NETWORK MANAGEMENT (3/4) [A] | |
| CNS 230 | INFORMATION SECURITY (3/4) [A] | |
| CNS 240 | OPEN SOURCE NETWORKING (3/4) [A] | |

**MINIMUM 60 CREDIT HOURS/68 CONTACT HOURS**

NOTES:
[A] Included in occupational specialty.
*GPA of 2.0 or higher must be maintained in occupational specialty courses*

Electives will change depending on area of concentration and the specific four-year transfer institution's requirements. Consult your ACC academic advisor.

# COMPUTER INFORMATION SYSTEMS

ASSOCIATE IN ARTS (AA) DEGREE
SUGGESTED SEQUENCE OF COURSES

| **YEAR 1 (FALL SEMESTER)** | | **CREDITS: 17** |
|---|---|---|
| CIS 140 | INTRODUCTION TO MICROSOFT CLIENT OS (3/4) | |
| CNS 170 | PC REPAIR & MAINTENANCE (4/5) | |
| CNS 150 | NETWORKING FUNDAMENTALS (3/4) | |
| ENG 111 *or* | ENGLISH COMPOSITION I (3/3) *or* | |
| ENG 121 | ADVANCED ENGLISH COMPOSITION I (3/3) | |
| MTH 113 | INTERMEDIATE ALGEBRA (4/4) | |

| **YEAR 1 (SPRING SEMESTER)** | | **CREDITS: 15** |
|---|---|---|
| CNS 180 | INTRODUCTION TO MICROSOFT SERVER (3/4) | |
| ENG 112 *or* | ENGLISH COMPOSITION II (3/3) *or* | |
| ENG 122 | ADVANCED ENGLISH COMPOSITION II (3/3) | |
| | NATURAL SCIENCE REQUIREMENT (3-4/4-5) | |
| | HUMANITIES/FINE ARTS REQUIREMENT (3/3) | |
| PHL 228 | INTRODUCTION TO ETHICS (3/3) | |

| **YEAR 2 (FALL SEMESTER)** | | **CREDITS: 15** |
|---|---|---|
| ECN 231 | ECONOMICS (MICRO) (3/3) | |
| BUS 262 | PROJECT MANAGEMENT (3/4) | |
| CNS 210 | MICROSOFT NETWORK MANAGEMENT (3/4) | |
| CNS 230 | INFORMATION SECURITY (3/4) | |
| CNS 240 | OPEN SOURCE NETWORKING (3/4) | |

| **YEAR 2 (SPRING SEMESTER)** | | **CREDITS: 13** |
|---|---|---|
| ECN 232 | ECONOMICS (MACRO) (3/3) | |
| | HUMANITIES/FINE ARTS REQUIREMENT (3/3) | |
| | LABORATORY SCIENCE REQUIREMENT (4/4-5) | |
| PLS 221 | AMERICAN GOVERNMENT & POLITICS (3/3) | |

# COMPUTER SCIENCE – GENERAL

ASSOCIATE IN SCIENCE (AS) DEGREE

DESCRIPTION: This program is designed for students who plan to continue their education in pursuit of a four-year degree in Computer Science. The program includes all of the necessary courses to qualify for the MTA Articulation Agreement. All facets of business find computers and information systems to be essential. Qualified individuals are needed to relate the problem-solving abilities of a computer system to a company's operations. In this curriculum, students are preparing to work as computer programmers, programmer-analysts, systems analysts, network administrators, software application developers, database administrators, business intelligence analyst, web developers, software systems developers, or computer systems engineers in business and industry.

**GENERAL EDUCATION REQUIREMENTS** **CREDITS: 29-30**

| | |
|---|---|
| ENG 111 *or* | ENGLISH COMPOSITION I (3/3) *or* |
| ENG 121 | ADVANCED ENGLISH COMPOSITION I (3/3) |
| ENG 112 *or* | ENGLISH COMPOSITION II (3/3) *or* |
| ENG 122 | ADVANCED ENGLISH COMPOSITION II (3/3) |
| PLS 221 | AMERICAN GOVERNMENT & POLITICS (3/3) |
| MTH 123 | COLLEGE ALGEBRA & ANALYTIC TRIG (4/5) [AB] |
| | SOCIAL SCIENCE REQUIREMENT (3/3) |
| | HUMANITIES/FINE ARTS REQUIREMENT (6/6) |
| | NATURAL SCIENCE REQUIREMENT (3-4/3-4) |
| | LABORATORY SCIENCE REQUIREMENT (4/4-5) |

**CORE PROGRAM REQUIREMENTS** **CREDITS: 16**

| | |
|---|---|
| MTH 131 | ANALYTIC GEOMETRY & CALCULUS I (5/5) [A] |
| MTH 132 | ANALYTIC GEOMETRY & CALCULUS II (5/5) [A] |
| MTH 221 | C++ PROGRAMMING (3/4) [A] |
| CIS 206 | OBJECT ORIENTED PROGRAMMING (3/4) [A] |

**SUGGESTED ELECTIVES** **CREDITS: 15**

Electives will change depending on area of concentration and the specific four-year transfer institution's requirements. Consult your ACC academic advisor.

| | |
|---|---|
| CNS 170 | PC REPAIR & MAINTENANCE (4/5) [A] |
| CNS 150 | NETWORK FUNDAMENTALS (3/4) [A] |
| MTH 231 | ANALYTIC GEOMETRY & CALCULUS III (5/5) [A] |
| | GENERAL ELECTIVE (3/3-4) |

**MINIMUM 60 CREDIT HOURS/65 CONTACT HOURS**

NOTES:
[A] Included in occupational specialty.
*GPA of 2.0 or higher must be maintained in occupational specialty courses*
[B] Students must meet placement requirements, prerequisite requirements, or have instructor permission.

# COMPUTER SCIENCE – GENERAL

ASSOCIATE IN SCIENCE (AS) DEGREE
SUGGESTED SEQUENCE OF COURSES

**YEAR 1 (FALL SEMESTER)** **CREDITS: 14**

| | |
|---|---|
| MTH 123 | COLLEGE ALGEBRA & ANALYTIC TRIG (4/5) |
| CNS 170 | PC REPAIR & MAINTENANCE (4/5) |
| CNS 150 | NETWORK FUNDAMENTALS (3/4) |
| ENG 111 *or* | ENGLISH COMPOSITION I (3/3) *or* |
| ENG 121 | ADVANCED ENGLISH COMPOSITION I (3/3) |

**YEAR 1 (SPRING SEMESTER)** **CREDITS: 17**

| | |
|---|---|
| MTH 131 | ANALYTIC GEOMETRY & CALCULUS I (5/5) |
| ENG 112 *or* | ENGLISH COMPOSITION II (3/3) *or* |
| ENG 122 | ADVANCED ENGLISH COMPOSITION II (3/3) |
| | NATURAL SCIENCE REQUIREMENT (3-4/3-4) |
| | HUMANITIES/FINE ARTS REQUIREMENT (6/6) |
| | GENERAL ELECTIVE (3/3-4) |

**YEAR 2 (FALL SEMESTER)** **CREDITS: 15**

| | |
|---|---|
| MTH 132 | ANALYTIC GEOMETRY & CALCULUS II (5/5) |
| | SOCIAL SCIENCE REQUIREMENT (3/3) |
| | LABORATORY SCIENCE REQUIREMENT (4/4-5) |
| CIS 206 | OBJECT ORIENTED PROGRAMMING (3/4) |

**YEAR 2 (SPRING SEMESTER)** **CREDITS: 14**

| | |
|---|---|
| MTH 221 | C++ PROGRAMMING (3/4) |
| MTH 231 | ANALYTIC GEOMETRY & CALCULUS III (5/5) |
| PLS 221 | AMERICAN GOVERNMENT & POLITICS (3/3) |
| | HUMANITIES/FINE ARTS REQUIREMENT (6/6) |

# Concrete Technology

Associate in Applied Science (AAS) Degree

Description: Alpena Community College's Concrete Technology Associate in Applied Science (AAS) program is the only one of its kind in the nation. Students in this two-year program learn about all aspects of the concrete industry through a specialized curriculum featuring hands-on experience in material sciences, communication, computation, computer use, and a summer construction internship. Students use state-of-the-art equipment housed in the World Center for Concrete Technology, one of the premier facilities in the world. The successful Concrete Tech student is prepared for a variety of career opportunities throughout the concrete industry and receives a number of job offers upon graduation. The Concrete Technology program was developed in the late 1960s as one of the original associate degree curriculums offered by the Portland Cement Association. Since then hundreds of men and women have gone through the program and currently fill many diverse positions throughout the global industry. This program allows students to continue their higher education endeavors at various universities.

**General Education Requirements** **Credits: 12**

| | |
|---|---|
| ENG 111 *or* | English Composition I (3/3) *or* |
| ENG 120 | Applied Communication (3/3) |
| ENG 112 *or* | English Composition II (3/3) *or* |
| ENG 123 | Technical Communication (3/3) |
| PLS 221 | American Government & Politics (3/3) |
| PHY 111 | Applied Physics (3/4) |

**Core Program Requirements** **Credits: 51-54**

| | |
|---|---|
| CON 110 | Intro to Concrete Technology (1/1) [A] |
| CON 121 | Aggregates (3.5/4.9) [A] |
| CON 122 | Concrete Admixtures (1/1) [A] |
| CON 123 | Cementitious Materials (1.5/2.1) [A] |
| CON 124 | Concrete Mix Proportioning (4/6) [A] |
| CON 221 | Placed Concrete I (4/6/) [A] |
| CON 222 | Placed Concrete II (4/6) [A] |
| CON 223 | Concrete Masonry Production (4/6) [A] |
| CON 224 | Prestress/Precast Concrete 3/5) [A] |
| CON 226 | Concrete Troubleshooting & Repair (2/2) [A] |
| CON 227 | Construction Inspection (2/2) [A] |
| CON 231 | Concrete Project Lab (1/1) [A] |
| CON 232 | Project Lab (2/2) [A] |
| CST 112 | Building Construction (3/3) [A] |
| CST 115 | Construction Summer Co-Op (6/6) [A] |
| MTH 115 *or* | Applied Algebra & Trigonometry (5/6) *or* |
| MTH 113 | Intermediate Algebra (4/4) |
| MTH 116 *or* | Applied Algebra & Trigonometry II (5/6) *or* |
| MTH 122 | Plane Trigonometry (3/3) |
| SDE 201 | Job Search Strategies (1/1) |

**Suggested Electives** **Credits: 6**

| | |
|---|---|
| | Computer Elective (3/3) |
| | Program Elective (3/3) [B] |

**Minimum 62 Credit Hours/75 Contact Hours**

Notes:
[A] Included in occupational specialty.
*GPA of 2.0 or higher must be maintained in occupational specialty courses*
[B] Must be approved by Concrete Tech advisor

# Concrete Technology

Associate in Applied Science (AAS) Degree
Suggested Sequence of Courses

**Year 1 (Fall Semester)** **Credits: 16-17**

| | |
|---|---|
| CON 110 | Intro to Concrete Technology (1/1) |
| CON 121 | Aggregates (3.5/4.9) |
| CON 123 | Cementitious Materials (1.5/2.1) |
| ENG 111 *or* | English Composition I (3/3) *or* |
| ENG 120 | Applied Communication (3/3) |
| MTH 115 *or* | Applied Algebra & Trigonometry (5/6) *or* |
| MTH 113 | Intermediate Algebra (4/4) |
| Computer Elective (3/3) | |

**Year 1 (Spring Semester)** **Credits: 15-17**

| | |
|---|---|
| CON 122 | Concrete Admixtures (1/1) |
| CON 124 | Concrete Mix Proportioning (4/6) |
| CST 112 | Building Construction (3/3) |
| ENG 112 *or* | English Composition II (3/3) *or* |
| ENG 123 | Technical Communication (3/3) |
| MTH 116 *or* | Applied Algebra & Trigonometry II (5/6) *or* |
| MTH 122 | Plane Trigonometry (3/3) |
| SDE 201 | Job Search Strategies (1/1) |

**Year 1 (Summer Semester)** **Credits: 6**

| | |
|---|---|
| CST 151 | Construction Summer Co-Op (6/6) |

**Year 2 (Fall Semester)** **Credits: 17**

| | |
|---|---|
| CON 221 | Placed Concrete I (4/6/) |
| CON 223 | Concrete Masonry Production (4/6) |
| CON 227 | Construction Inspection (2/2) |
| CON 231 | Concrete Project Lab (1/1) |
| PLS 221 | American Government & Politics (3/3) |
| PHY 111 | Applied Physics (3/4) |

**Year 2 (Spring Semester)** **Credits: 14**

| | |
|---|---|
| CON 222 | Placed Concrete II (4/6) |
| CON 224 | Prestress/Precast Concrete 3/5) |
| CON 226 | Concrete Troubleshooting & Repair (2/2) |
| CON 232 | Project Lab (2/2) |
| | Program Elective (3/3) |

# Construction Technology – Green Building

Certificate (C)

Description: This certificate program familiarizes students with construction industry tools and processes, focusing on green building techniques. Graduates meet the industry's need for advanced efficiency training, and will have received specific training in green systems, practices, and methods, as well as the ability to communicate and grade the benefits of such. It is the only on-line program offered in Michigan, designed to assist remotely located students in obtaining or advancing their residential and/or commercial green building career.

**General Education Requirements** **Credits: 10**

| | |
|---|---|
| BUS 248 | Business Communication (3/3) |
| ENG 120 | Applied Communication (3/3) |
| MTH 113 | Intermediate Algebra (4/4) |

**Core Program Requirements** **Credits: 22**

| | |
|---|---|
| CST 101 | Construction Technology I (3/3) |
| CST 102 | Construction Technology II (3/3) |
| CST 201 | Green Building & Sustainability (3/3) |
| CST 214 | Blueprint Reading & Estimating (3/3) |
| CST 222 | Advanced Green Energy (3/3) |
| CST 240 | Sustainability (3/3) |
| MFG 210 | Green Manufacturing (3/3) |
| PEH 263 | Workplace First Aid (1/1) [A] |

**Minimum 32 Credit Hours/32 Contact Hours**

Notes:
[A] May be replaced with current verified American Red Cross First Aid & CPR Certification.

# Construction Technology – Green Building

Certificate (C)
Suggested Sequence of Courses

**Year 1 (Fall Semester)** **Credits: 17**

| | |
|---|---|
| CST 101 | Construction Technology I (3/3) |
| CST 201 | Green Building & Sustainability (3/3) |
| MTH 113 | Intermediate Algebra (4/4) |
| ENG 120 | Applied Communication (3/3) |
| MFG 210 | Green Manufacturing (3/3) |
| PEH 263 | Workplace First Aid (1/1) |

**Year 1 (Spring Semester)** **Credits: 15**

| | |
|---|---|
| CST 102 | Construction Technology II (3/3) |
| CST 222 | Advanced Green Energy (3/3) |
| CST 214 | Blueprint Reading & Estimating (3/3) |
| BUS 248 | Business Communication (3/3) |
| CST 240 | Sustainability (3/3) |

Gainful Employment information for Construction Technology - Green Building

# Criminal Justice – Corrections

Associate in Applied Science (AAS) Degree

Description: This program prepares successful graduates for careers in Corrections in local (Michigan), State (Michigan Department of Corrections), and federal correctional facilities. It includes the 10 credit hour academy for Corrections Officer employment in Michigan jails, and the 15 credit hours needed for employment in Michigan prisons, plus degree requirements and other career-related courses. Students planning to transfer to a four-year institution to pursue a bachelor's degree in Corrections or Criminal Justice should work closely with advisors at Alpena Community College and the transfer school. (See also Criminal Justice – Transfer Option).

| **General Education Requirements** | | **Credits: 18** |
|---|---|---|
| ENG 111 *or* | English Composition I (3/3) *or* | |
| ENG 121 | Advanced English Composition I (3/3) | |
| ENG 112 *or* | English Composition II (3/3) *or* | |
| ENG 122 | Advanced English Composition II (3/3) | |
| PLS 221 *or* | American Government & Politics (3/3) *or* | |
| PLS 222 | State & Local Government (3/3) | |
| PSY 101 | General Psychology (3/3) | |
| SOC 123 | Introduction to Sociology (3/3) | |
| SPE 121 | Speech Communication (3/3) | |

| **Core Program Requirements** | | **Credits 43** |
|---|---|---|
| CIS 120 | Intro to Microcomputers (3/4) | |
| CRJ 110 | Criminal Justice Physical Education (2/3) [A] | |
| CRJ 121 | Introduction to Criminal Justice (3/3) [A] | |
| CRJ 131 | Introduction to Corrections (3/3) [A] | |
| CRJ 211 | Ethics in Criminal Justice (3/3) [A] | |
| CRJ 229 | Criminal Investigation (4/4) [A] | |
| CRJ 234 | Multicultural Law Enforcement (3/3) [A] | |
| CRJ 235 | Client Relations in Corrections (3/3) [A] | |
| CRJ 236 | Corr. Client Growth & Development (3/3) [A] | |
| CRJ 237 | Corr. Institutions & Facilities (3/3) [A] | |
| CRJ 238 | Legal Issues in Corrections (3/3) [A] | |
| CRJ 248 | Local Corr. Officer Academy (10/11.5) [B] | |

**Minimum 61 Credit Hours/64.5 Contact Hours**

Notes:
[A] Included in occupational specialty.
*GPA of 2.0 or higher must be maintained in occupational specialty courses*
[B] A score of 70% or higher must be earned to meet Michigan Sheriffs' Coordinating & Training Council requirements.

# Criminal Justice – Corrections

Associate in Applied Science (AAS) Degree
Suggested Sequence of Courses

| **Year 1 (Fall Semester)** | | **Credits: 14** |
|---|---|---|
| ENG 111 *or* | English Composition I (3/3) *or* | |
| ENG 121 | Advanced English Composition I (3/3) | |
| CRJ 110 | Criminal Justice Physical Education (2/3) | |
| CRJ 121 | Introduction to Criminal Justice (3/3) | |
| CRJ 131 | Introduction to Corrections (3/3) | |
| CIS 120 | Intro to Microcomputers (3/4) | |

| **Year 1 (Spring Semester)** | | **Credits: 13** |
|---|---|---|
| ENG 112 *or* | English Composition II (3/3) *or* | |
| ENG 122 | Advanced English Composition II (3/3) | |
| CRJ 229 | Criminal Investigation (4/4) | |
| CRJ 234 | Multicultural Law Enforcement (3/3) | |
| CRJ 235 | Client Relations in Corrections (3/3) | |

| **Year 1 (Summer Semester)** | | **Credits: 10** |
|---|---|---|
| CRJ 248 | Local Corr. Officer Academy (10/11.5) | |

| **Year 2 (Fall Semester)** | | **Credits: 12** |
|---|---|---|
| CRJ 211 | Ethics in Criminal Justice (3/3) | |
| CRJ 236 | Corr. Client Growth & Development (3/3) | |
| CRJ 238 | Legal Issues in Corrections (3/3) | |
| PSY 101 | General Psychology (3/3) | |

| **Year 2 (Spring Semester)** | | **Credits: 12** |
|---|---|---|
| CRJ 237 | Corr. Institutions & Facilities (3/3) | |
| SOC 123 | Introduction to Sociology (3/3) | |
| SPE 121 | Speech Communication (3/3) | |
| PLS 221 *or* | American Government & Politics (3/3) *or* | |
| PLS 222 | State & Local Government (3/3) | |

# CRIMINAL JUSTICE – CORRECTIONS OFFICER ACADEMIC PROGRAM

CERTIFICATE (C)

DESCRIPTION: This academic certificate program is certified by the Michigan Correctional Officers Training Council. This academic certificate program provides students with the required 15 credit hours of coursework necessary for consideration for employment by the Michigan Department of Corrections in the Michigan Prison System.

| **CORE PROGRAM REQUIREMENTS** | | **CREDITS: 17** |
|---|---|---|
| CRJ 110 | CRIMINAL JUSTICE PHYSICAL EDUCATION (2/3) [A] | |
| CRJ 131 | INTRODUCTION TO CORRECTIONS (3/3) [B] | |
| CRJ 235 | CLIENT RELATIONS IN CORRECTIONS (3/3) [B] | |
| CRJ 236 | CORR. CLIENT GROWTH & DEVELOPMENT (3/3) [B] | |
| CRJ 237 | CORR. INSTITUTIONS & FACILITIES (3/3) [B] | |
| CRJ 238 | LEGAL ISSUES IN CORRECTIONS (3/3) [B] | |

**MINIMUM 17 CREDIT HOURS/18 CONTACT HOURS**

NOTES:

[A] Successful completion of CRJ 110 (Criminal Justice Physical Education) is required to earn this certification from Alpena Community College; however, it is not required to meet the minimum 15 credit hour requirement for employment by the Michigan Department of Corrections

[B] A minimum grade of C (2.0) must be earned in each course.

Gainful Employment information for Criminal Justice - Corrections Officer Academic Program

# Criminal Justice – Pre-Service

Associate in Applied Science (AAS) Degree

Description: This program is designed for the career-focused student whose intent is to pursue employment as a police officer (local, county, or state, including DNR or motor carrier). This program will prepare the student academically for the police academy experience. Successful completion of a police academy (local, state, or privately-run) is required by MCOLES (Michigan Commission on Law Enforcement Standards) for employment in these career fields in Michigan. Other states have similar certification requirements.

**General Education Requirements** **Credits: 15-18**

| | |
|---|---|
| ENG 111 *or* | English Composition I (3/3) *or* |
| ENG 121 | Advanced English Composition I (3/3) |
| ENG 112 *or* | English Composition II (3/3) *or* |
| ENG 122 | Advanced English Composition II (3/3) |
| PLS 221 *or* | American Government Requirement (3-6/3-6) |
| PLS 222 *or* | |
| HST 221 & HST 222 | |
| PSY 101 | General Psychology (3/3) |
| SPE 121 | Speech Communication (3/3) |

**Core Program Requirements** **Credits: 48**

| | |
|---|---|
| BUS 115, 116, 117 | Foundations in Personal Finance (3/3) |
| CIS 120 | Introduction to Microcomputers (3/4) |
| CRJ 110 | Criminal Justice Physical Education (2/3) [A] |
| CRJ 119 | Introduction to Homeland Security (3/3) [A] |
| CRJ 121 | Introduction to Criminal Justice (3/3) |
| CRJ 131 | Introduction to Corrections (3/3) [A] |
| CRJ 132 | Introduction to Computer Forensics & Cybercrime (3/4) [A] |
| CRJ 211 | Ethics in Criminal Justice (3/3) [A] |
| CRJ 220 | Juvenile Delinquency (3/3) |
| CRJ 221 | Criminal Law (3/3) [A] |
| CRJ 222 | Criminal Procedure (3/3) [A] |
| CRJ 223 | Police Administration (3/3) [A] |
| CRJ 224 | Police Operations (3/3) [A] |
| CRJ 229 | Criminal Investigation (4/4) [A] |
| CRJ 233 | Community Policing (3/3) [A] |
| CRJ 234 | Multicultural Law Enforcement (3/3) [A] |

**Minimum 63 Credit Hours/66 Contact Hours**

Notes:
[A] Included in occupational specialty.
*GPA of 2.0 or higher must be maintained in occupational specialty courses*

After successful completion of the first three semesters of this program, students can opt to substitute the fourth semester's classes by completing the Kirtland Regional Police Academy at Kirtland Community College. Credits earned through successful completion of the police academy can be transferred back to fulfill the requirements of the Associate in Applied Science degree from Alpena Community College without taking the fourth semester classes listed above.

# Criminal Justice – Pre-Service

Associate in Applied Science (AAS) Degree
Suggested Sequence of Courses

**Year 1 (Fall Semester)** **Credits: 15**

| | |
|---|---|
| ENG 111 *or* | English Composition I (3/3) *or* |
| ENG 121 | Advanced English Composition I (3/3) |
| CRJ 121 | Introduction to Criminal Justice (3/3) |
| CRJ 131 | Introduction to Corrections (3/3) |
| CRJ 233 | Community Policing (3/3) |
| CIS 120 | Introduction to Microcomputers (3/4) |

**Year 1 (Spring Semester)** **Credits: 18**

| | |
|---|---|
| ENG 112 *or* | English Composition II (3/3) *or* |
| ENG 122 | Advanced English Composition II (3/3) |
| CRJ 132 | Introduction to Computer Forensics & Cybercrime (3/4) |
| CRJ 223 | Police Administration (3/3) |
| CRJ 234 | Multicultural Law Enforcement (3/3) |
| PSY 101 | General Psychology (3/3) |
| BUS 115, 116, 117 | Foundations in Personal Finance (3/3) |

**Year 2 (Fall Semester)** **Credits: 17-20**

| | |
|---|---|
| CRJ 110 | Criminal Justice Physical Education (2/3) |
| CRJ 211 | Ethics in Criminal Justice (3/3) |
| CRJ 220 | Juvenile Delinquency (3/3) |
| CRJ 221 | Criminal Law (3/3) |
| SPE 121 | Speech Communication (3/3) |
| PLS 221 *or* | American Government Requirement (3-6/3-6) |
| PLS 222 *or* | |
| HST 221 & HST 222 | |

**Year 2 (Spring Semester)** **Credits: 13**

| | |
|---|---|
| CRJ 119 | Introduction to Homeland Security (3/3) |
| CRJ 222 | Criminal Procedure (3/3) |
| CRJ 224 | Police Operations (3/3) |
| CRJ 229 | Criminal Investigation (4/4) |

# CRIMINAL JUSTICE – TRANSFER

ASSOCIATE IN ARTS (AA) DEGREE

DESCRIPTION: This is a suggested program of study for transfer students interested in majoring in Criminal Justice at a four-year college or university. This is a program choice for the student whose career goal is to become a police officer or federal agent and who also wishes to enter supervision or criminal justice personnel. Students who want to work in Forensics, Probation, Customs, Private Security, Criminal Justice Education, or in Federal Departments of Justice, Attorney General, Defense, Drug Enforcement, or Homeland Security can follow this program of study. Consultation with advisors at Alpena Community College and the transfer school is recommended for appropriate course selection.

**GENERAL EDUCATION REQUIREMENTS** **CREDITS: 34-38**

| | |
|---|---|
| ENG 111 *or* | ENGLISH COMPOSITION I (3/3) *or* |
| ENG 121 | ADVANCED ENGLISH COMPOSITION I (3/3) |
| ENG 112 *or* | ENGLISH COMPOSITION II (3/3) *or* |
| ENG 122 | ADVANCED ENGLISH COMPOSITION II (3/3) |
| | MATH REQUIREMENT (4/4) [B] |
| PLS 221 *or* | AMERICAN GOVERNMENT REQUIREMENT (3-6/3-6) |
| PLS 222 *or* | |
| HST 221 & HST 222 | |
| SOC 123 | INTRODUCTION TO SOCIOLOGY (3/3) |
| PSY 101 | GENERAL PSYCHOLOGY (3/3) |
| | HUMANITIES/FINE ARTS REQUIREMENT (8/8) [B] |
| | LABORATORY SCIENCE REQUIREMENT (4/4-5) [B] |
| | NATURAL SCIENCE ELECTIVE (3-4/3-4) [B] |

**CORE PROGRAM REQUIREMENTS** **CREDITS: 24**

| | |
|---|---|
| BUS 115, 116, 117 | FOUNDATIONS IN PERSONAL FINANCE (3/3) |
| CRJ 121 | INTRODUCTION TO CRIMINAL JUSTICE (3/3) [A] |
| CRJ 131 | INTRODUCTION TO CORRECTIONS (3/3) |
| CRJ 132 | INTRODUCTION TO COMPUTER FORENSICS & CYBERCRIME (3/4) [A] |
| CRJ 211 | ETHICS IN CRIMINAL JUSTICE (3/3) [A] |
| CRJ 220 | JUVENILE DELINQUENCY (3/3) [A] |
| CRJ 223 | POLICE ADMINISTRATION (3/3) [A] |
| CRJ 233 | COMMUNITY POLICING (3/3) [A] |

**SUGGESTED ELECTIVES** **CREDITS: 3**

GENERAL ELECTIVE (3/3)

**MINIMUM 61 CREDIT HOURS/62 CONTACT HOURS**

NOTES:
[A] Included in occupational specialty.
*GPA of 2.0 or higher must be maintained in occupational specialty courses*
[B] Review MTA requirements in catalog

# CRIMINAL JUSTICE – TRANSFER

ASSOCIATE IN ARTS (AA) DEGREE
SUGGESTED SEQUENCE OF COURSES

**YEAR 1 (FALL SEMESTER)** **CREDITS: 16**

| | |
|---|---|
| ENG 111 *or* | ENGLISH COMPOSITION I (3/3) *or* |
| ENG 121 | ADVANCED ENGLISH COMPOSITION I (3/3) |
| CRJ 121 | INTRODUCTION TO CRIMINAL JUSTICE (3/3) |
| CRJ 131 | INTRODUCTION TO CORRECTIONS (3/3) |
| | LABORATORY SCIENCE REQUIREMENT (4/4-5) |
| | GENERAL ELECTIVE (3/3) |

**YEAR 1 (SPRING SEMESTER)** **CREDITS: 16**

| | |
|---|---|
| ENG 112 *or* | ENGLISH COMPOSITION II (3/3) *or* |
| ENG 122 | ADVANCED ENGLISH COMPOSITION II (3/3) |
| CRJ 223 | POLICE ADMINISTRATION (3/3) |
| CRJ 132 | INTRODUCTION TO COMPUTER FORENSICS & CYBERCRIME (3/4) |
| PSY 101 | GENERAL PSYCHOLOGY (3/3) |
| | MATH REQUIREMENT (4/4) |

**YEAR 2 (FALL SEMESTER)** **CREDITS: 16**

| | |
|---|---|
| CRJ 211 | ETHICS IN CRIMINAL JUSTICE (3/3) |
| CRJ 220 | JUVENILE DELINQUENCY (3/3) |
| CRJ 233 | COMMUNITY POLICING (3/3) |
| | HUMANITIES/FINE ARTS REQUIREMENT (4/4) |
| BUS 115, 116, 117 | FOUNDATIONS IN PERSONAL FINANCE (3/3) |

**YEAR 2 (SPRING SEMESTER)** **CREDITS: 13-17**

| | |
|---|---|
| PLS 221 *or* | AMERICAN GOVERNMENT REQUIREMENT (3-6/3-6) |
| PLS 222 *or* | |
| HST 221 & HST 222 | |
| | HUMANITIES/FINE ARTS REQUIREMENT (4/4) |
| | NATURAL SCIENCE ELECTIVE (3-4/3-4) |
| SOC 123 | INTRODUCTION TO SOCIOLOGY (3/3) |

# Customer Energy Service

Certificate (C) or Associate in Applied Science (AAS) Degree

Description: This three-semester certificate program prepares students for work in the utility industry as a single point of contact for the customer from the first phone call requesting service to the completion of the job. The program stresses public relations/communication skills, business skills, and computer-aided drafting skills, as well as an understanding of electricity necessary to design electric services. In addition, students who desire a broader educational experience can complete a fourth semester of study to meet requirements for an Associate in Applied Science degree.

**General Education Requirements** **Credits: 17**

| | |
|---|---|
| ENG 120 | Applied Communication (3/3) |
| ENG 123 | Technical Communication (3/3) |
| MTH 115 | Applied Algebra & Trigonometry I (5/6) |
| SPE 121 | Speech Communication (3/3) |
| PHY 111 | Applied Physics (3/4) |

**Core Program Requirements** **Credits: 34-35**

| | |
|---|---|
| APP 100E | Electrical Studies for the Trades (3/4) [A] |
| APP 104E | AC & DC Fundamentals (3/4) [A] |
| BUS 121 | Introduction to Business (3/3) [A] |
| BUS 131 | Applied Accounting (3/4) [A] |
| BUS 221 | Business Law (3/3) [A] |
| BUS 241 | Principles of Marketing (3/3) [A] |
| CAD 132 | AutoCAD Fundamentals (1.5/2) [A] |
| CAD 135 | Intermediate AutoCAD (1.5/2) [A] |
| CAD 150 | 3D Modeling (3/4) [A] |
| CIS 120 | Introduction to Microcomputers (3/4) [A] |
| UTT 204 | System Design & Operation (4/4) |
| | Electrical Elective (3-4/4) [B] |

**Minimum 51 Credit Hours/60 Contact Hours (Certificate)**
**Minimum 60 Credit Hours/69 Contact Hours (AAS)**

Notes:
[A] Included in occupational specialty.
*GPA of 2.0 or higher must be maintained in occupational specialty courses*
[B] Select from: APP 102E, App 103E, APP 107E, APP 111E, APP 115E, APP 122E, or APP 123E

An Associate in Applied Science (AAS) degree can be earned by completing the above Certificate program, the American Government Requirement (PLS 221 or PLS 222 or HST 221 & HST 222), and six credits of general electives. Sixty total credit hours are needed for and AAS degree.

# Customer Energy Service

Certificate (C) or Associate in Applied Science (AAS) Degree
Suggested Sequence of Courses

**Year 1 (Fall Semester)** **Credits: 17**

| | |
|---|---|
| ENG 120 | Applied Communication (3/3) |
| CIS 120 | Introduction to Microcomputers (3/4) |
| CAD 132 | AutoCAD Fundamentals (1.5/2) |
| CAD 135 | Intermediate AutoCAD (1.5/2) |
| APP 100E | Electrical Studies for the Trades (3/4) |
| MTH 115 | Applied Algebra & Trigonometry I (5/6) |

**Year 1 (Spring Semester)** **Credits: 16**

| | |
|---|---|
| ENG 123 | Technical Communication (3/3) |
| APP 104E | AC & DC Fundamentals (3/4) |
| CAD 150 | 3D Modeling (3/4) |
| UTT 204 | System Design & Operation (4/4) |
| PHY 111 | Applied Physics (3/4) |

**Year 2 (Fall Semester)** **Credits: 18**

| | |
|---|---|
| BUS 121 | Introduction to Business (3/3) |
| BUS 131 | Applied Accounting (3/4) |
| BUS 221 | Business Law (3/3) |
| BUS 241 | Principles of Marketing (3/3) |
| SPE 121 | Speech Communication (3/3) |
| | Electrical Elective (3/4) |

**Year 2 (Spring Semester)** **Credits: 18**

| | |
|---|---|
| PLS 221 *or* | American Government Requirement (3-6/3-6) |
| PLS 222 *or* | |
| HST 221 & HST 222 | |
| | General Electives (6/6) |

Gainful Employment information for Customer Energy Service

# ECONOMICS

ASSOCIATE IN ARTS (AA) DEGREE

DESCRIPTION: This is a suggested program of study for specialized interest in the subject of economics that may be altered to meet individual goals and transfer plans. Students should refer to the Alpena Community College graduation requirements degree distribution requirements and consult with an academic advisor concerning specific course selection. A minimum of 60 credit hours is required for an Associate in Arts degree.

| **GENERAL EDUCATION REQUIREMENTS** | | **CREDITS: 30** |
|---|---|---|
| ENG 111 *or* | ENGLISH COMPOSITION I (3/3) *or* | |
| ENG 121 | ADVANCED ENGLISH COMPOSITION I (3/3) | |
| ENG 112 *or* | ENGLISH COMPOSITION II (3/3) *or* | |
| ENG 122 | ADVANCED ENGLISH COMPOSITION II (3/3) | |
| MTH 123 | COLLEGE ALGEBRA & ANALYTICAL TRIG (4/4) | |
| ECN 231 | ECONOMICS (MICRO) (3/3) | |
| PLS 221 | AMERICAN GOVERNMENT & POLITICS (3/3) | |
| HST 121 | HISTORY OF WESTERN CIVILIZATION (3/3) | |
| GEO 127 | PHYSICAL GEOGRAPHY (4/5) | |
| BIO *or* CEM *or* PHS *or* PHY | NATURAL SCIENCE REQUIREMENT (4/5) | |
| | LANGUAGE/FINE ARTS/HUMANITIES (3/3) | |

| **CORE PROGRAM REQUIREMENTS** | **CREDITS: 23** |
|---|---|
| BUS 123 | ACCOUNTING I (4/4) |
| BUS 124 | ACCOUNTING II (4/4) |
| ECN 232 | ECONOMICS (MACRO) (3/3) |
| ANP 121 | CULTURAL ANTHROPOLOGY (3/3) |
| HST 122 | HISTORY OF WESTERN CIVILIZATION (3/3) |
| PSY 101 | GENERAL PSYCHOLOGY (3/3) |
| SOC 123 | INTRODUCTION TO SOCIOLOGY (3/3) |

**SUGGESTED ELECTIVES** **CREDITS: 9**

Electives should be selected to fulfill transfer institution requirements, area concentrations (major or minor), or student interest. It is strongly recommended that foreign language preparation begin as soon as possible.

**MINIMUM 62 CREDIT HOURS/64 CONTACT HOURS**

# ECONOMICS

ASSOCIATE IN ARTS (AA) DEGREE
SUGGESTED SEQUENCE OF COURSES

| **YEAR 1 (FALL SEMESTER)** | | **CREDITS: 17** |
|---|---|---|
| ENG 111 *or* | ENGLISH COMPOSITION I (3/3) *or* | |
| ENG 121 | ADVANCED ENGLISH COMPOSITION I (3/3) | |
| HST 121 | HISTORY OF WESTERN CIVILIZATION (3/3) | |
| MTH 123 | COLLEGE ALGEBRA & ANALYTICAL TRIG (4/4) | |
| ECN 231 | ECONOMICS (MICRO) (3/3) | |
| BUS 123 | ACCOUNTING I (4/4) | |

| **YEAR 1 (SPRING SEMESTER)** | | **CREDITS: 17** |
|---|---|---|
| ENG 112 *or* | ENGLISH COMPOSITION II (3/3) *or* | |
| ENG 122 | ADVANCED ENGLISH COMPOSITION II (3/3) | |
| HST 122 | HISTORY OF WESTERN CIVILIZATION (3/3) | |
| BIO *or* CEM *or* PHS *or* PHY | NATURAL SCIENCE REQUIREMENT (4/5) | |
| ECN 232 | ECONOMICS (MACRO) (3/3) | |
| BUS 124 | ACCOUNTING II (4/4) | |

| **YEAR 2 (FALL SEMESTER)** | | **CREDITS: 13** |
|---|---|---|
| PSY 101 | GENERAL PSYCHOLOGY (3/3) | |
| PLS 221 | AMERICAN GOVERNMENT & POLITICS (3/3) | |
| | LANGUAGE/FINE ARTS/HUMANITIES (3/3) | |
| GEO 127 | PHYSICAL GEOGRAPHY (4/5) | |

| **YEAR 2 (SPRING SEMESTER)** | | **CREDITS: 15** |
|---|---|---|
| ANP 121 | CULTURAL ANTHROPOLOGY (3/3) | |
| SOC 123 | INTRODUCTION TO SOCIOLOGY (3/3) | |
| | RECOMMENDED ELECTIVES (9/9) | |

# EDUCATION – ELEMENTARY

ASSOCIATE IN ARTS (AA) DEGREE

DESCRIPTION: This is a suggested program of study that may be altered to meet individual goals and transfer plans. It is intended for students who want to work in the educational field, are considering an Associate in Arts (AA) degree, or intending to transfer to obtain a bachelor's degree or advanced degree in education. Students should refer to the descriptions of Alpena Community College graduation requirements and degree distribution requirements and consult with an academic advisor concerning specific course selection. A minimum total of 60 credits are required for the Associate in Arts degree.

**GENERAL EDUCATION REQUIREMENTS** **CREDITS: 20-32**

ENG 111 *or* ENGLISH COMPOSITION I (3/3) *or*
ENG 121 ADVANCED ENGLISH COMPOSITION I (3/3)

ENG 112 *or* ENGLISH COMPOSITION II (3/3) *or*
ENG 122 ADVANCED ENGLISH COMPOSITION II (3/3)

BIO 114 INTRODUCTION TO BIOLOGY (4/5)
GEO 127 PHYSICAL GEOGRAPHY (4/5)
PSY 101 GENERAL PSYCHOLOGY (3/3)

PLS 221 *or* AMERICAN GOVERNMENT REQUIREMENT (3-6/3-6)
PLS 222 *or*
HST 221 & HST 222

HST 121 HISTORY OF WESTERN CIVILIZATION (3/3)
HST 122 HISTORY OF WESTERN CIVILIZATION (3/3)
SPE 121 SPEECH COMMUNICATION (3/3)

**CORE PROGRAM REQUIREMENTS** **CREDITS: 10**

MTH 113 *or higher* INTERMEDIATE ALGEBRA OR HIGHER (4/4)
PSY 226 DEVELOPMENTAL PSYCHOLOGY (3/3)
SOC 123 INTRODUCTION TO SOCIOLOGY (3/3)

**SUGGESTED ELECTIVES** **CREDITS: 21**

Electives should be selected to fulfill transfer institution requirements, area of concentration (major or minor), or student interest.

**MINIMUM 60 CREDIT HOURS/62 CONTACT HOURS**

NOTES:

[A] Students may choose either 6 credits in U.S. History (HST 221 & HST 222) or 3 credits in Political Science (PLS 221 or PLS 222) to fulfill the American Government requirement. However, the history sequence is strongly suggested for students interested in applying to Elementary Education program.

# EDUCATION – ELEMENTARY

ASSOCIATE IN ARTS (AA) DEGREE
SUGGESTED SEQUENCE OF COURSES

**YEAR 1 (FALL SEMESTER)** **CREDITS: 13**

ENG 111 *or* ENGLISH COMPOSITION I (3/3) *or*
ENG 121 ADVANCED ENGLISH COMPOSITION I (3/3)

HST 121 HISTORY OF WESTERN CIVILIZATION (3/3)
MTH 113 *or higher* INTERMEDIATE ALGEBRA OR HIGHER (4/4)
ELECTIVE (3/3)

**YEAR 1 (SPRING SEMESTER)** **CREDITS: 16**

ENG 112 *or* ENGLISH COMPOSITION II (3/3) *or*
ENG 122 ADVANCED ENGLISH COMPOSITION II (3/3)

HST 122 HISTORY OF WESTERN CIVILIZATION (3/3)
PSY 101 GENERAL PSYCHOLOGY (3/3)
BIO 114 INTRODUCTION TO BIOLOGY (4/5)
ELECTIVE (3/3)

**YEAR 2 (FALL SEMESTER)** **CREDITS: 16**

PSY 226 DEVELOPMENTAL PSYCHOLOGY (3/3)
GEO 127 PHYSICAL GEOGRAPHY (4/5)

PLS 221 *or* AMERICAN GOVERNMENT REQUIREMENT (3-6/3-6)
PLS 222 *or*
HST 221 & HST 222

ELECTIVES (6/6)

**YEAR 2 (SPRING SEMESTER)** **CREDITS: 15**

SOC 123 INTRODUCTION TO SOCIOLOGY (3/3)
SPE 121 SPEECH COMMUNICATION (3/3)
ELECTIVES (9/9)

# EDUCATION – SECONDARY

ASSOCIATE IN ARTS (AA) DEGREE

DESCRIPTION: This is a suggested program of study that may be altered to meet individual goals and transfer plans. It is intended for students who want to work in the educational field, are considering an Associate in Arts (AA) degree, or intending to transfer to obtain a bachelor's degree or advanced degree in secondary education. Students should refer to the descriptions of Alpena Community College graduation requirements and degree distribution requirements and consult with an academic advisor concerning specific course selection. A minimum total of 60 credits are required for the Associate in Arts degree.

**GENERAL EDUCATION REQUIREMENTS** **CREDITS: 20-32**

ENG 111 *or* ENGLISH COMPOSITION I (3/3) *or*
ENG 121 ADVANCED ENGLISH COMPOSITION I (3/3)

ENG 112 *or* ENGLISH COMPOSITION II (3/3) *or*
ENG 122 ADVANCED ENGLISH COMPOSITION II (3/3)

BIO 114 INTRODUCTION TO BIOLOGY (4/5)
GEO 127 PHYSICAL GEOGRAPHY (4/5)
PSY 101 GENERAL PSYCHOLOGY (3/3)

PLS 221 *or* AMERICAN GOVERNMENT REQUIREMENT (3-6/3-6)
PLS 222 *or*
HST 221 & HST 222

HST 121 HISTORY OF WESTERN CIVILIZATION (3/3)
HST 122 HISTORY OF WESTERN CIVILIZATION (3/3)
SPE 121 SPEECH COMMUNICATION (3/3)

**CORE PROGRAM REQUIREMENTS** **CREDITS: 10**

MTH 113 *or higher* INTERMEDIATE ALGEBRA OR HIGHER (4/4)
PSY 226 DEVELOPMENTAL PSYCHOLOGY (3/3)
SOC 123 INTRODUCTION TO SOCIOLOGY (3/3)

**SUGGESTED ELECTIVES** **CREDITS: 21**

Electives should be selected to fulfill transfer institution requirements, area of concentration (major or minor), or student interest.

**MINIMUM 60 CREDIT HOURS/62 CONTACT HOURS**

# EDUCATION – SECONDARY

ASSOCIATE IN ARTS (AA) DEGREE
SUGGESTED SEQUENCE OF COURSES

**YEAR 1 (FALL SEMESTER)** **CREDITS: 13**

ENG 111 *or* ENGLISH COMPOSITION I (3/3) *or*
ENG 121 ADVANCED ENGLISH COMPOSITION I (3/3)

HST 121 HISTORY OF WESTERN CIVILIZATION (3/3)
MTH 113 *or higher* INTERMEDIATE ALGEBRA OR HIGHER (4/4)
ELECTIVE (3/3)

**YEAR 1 (SPRING SEMESTER)** **CREDITS: 16**

ENG 112 *or* ENGLISH COMPOSITION II (3/3) *or*
ENG 122 ADVANCED ENGLISH COMPOSITION II (3/3)

HST 122 HISTORY OF WESTERN CIVILIZATION (3/3)
PSY 101 GENERAL PSYCHOLOGY (3/3)
BIO 114 INTRODUCTION TO BIOLOGY (4/5)
ELECTIVE (3/3)

**YEAR 2 (FALL SEMESTER)** **CREDITS: 16**

PSY 226 DEVELOPMENTAL PSYCHOLOGY (3/3)
GEO 127 PHYSICAL GEOGRAPHY (4/5)

PLS 221 *or* AMERICAN GOVERNMENT REQUIREMENT (3-6/3-6)
PLS 222 *or*
HST 221 & HST 222

ELECTIVES (6/6)

**YEAR 2 (SPRING SEMESTER)** **CREDITS: 15**

SOC 123 INTRODUCTION TO SOCIOLOGY (3/3)
SPE 121 SPEECH COMMUNICATION (3/3)
ELECTIVES (9/9)

# EDUCATION – VOCATIONAL

ASSOCIATE IN ARTS (AA) DEGREE

DESCRIPTION: This program prepares students to transfer to a vocational teacher education program using technical electives as a teaching minor. This is a suggested program of study which may be altered to meet individual goals and transfer plans. Students should refer to the description of the Alpena Community College graduation requirements and degree distribution requirements and consult with an academic advisor concerning specific course selection. A minimum total of 60 credits is required for the Associate in Arts degree.

**GENERAL EDUCATION REQUIREMENTS** **CREDITS: 27**

| | |
|---|---|
| ENG 111 *or* | ENGLISH COMPOSITION I (3/3) *or* |
| ENG 121 | ADVANCED ENGLISH COMPOSITION I (3/3) |
| ENG 112 *or* | ENGLISH COMPOSITION II (3/3) *or* |
| ENG 122 | ADVANCED ENGLISH COMPOSITION II (3/3) |
| PLS 221 | AMERICAN GOVERNMENT & POLITICS (3/3) |
| MTH 121 *or higher* | COLLEGE ALGEBRA OR HIGHER (4/4) |
| PSY 101 | GENERAL PSYCHOLOGY (3/3) |
| | HUMANITIES REQUIREMENTS (8/8-10) |
| | NATURAL SCIENCE REQUIREMENT (3/3-4) [A] |

**CORE PROGRAM REQUIREMENTS** **CREDITS: 3**

| | |
|---|---|
| EDU 121 | INTRODUCTION TO EDUCATION (3/3) |

**SUGGESTED ELECTIVES** **CREDITS: 31**

Technical electives will change depending on area of concentration and the specific four-year transfer institution's requirements. Normally 30 credits of technical electives are required. Consult your ACC academic advisor. It is strongly advised that you work with your advisor to help determine the transfer institution's program requirements.

**MINIMUM 61 CREDIT HOURS/63 CONTACT HOURS**

NOTES:

[A] Take two course in Natural Sciences including one with laboratory experience (from two disciplines)

Vocational Certification: In addition to the necessary academic preparation, a minimum of 4,000 hours of recent and relevant work experience is necessary to receive a vocational teaching certificate in the State of Michigan.

# EDUCATION – VOCATIONAL

ASSOCIATE IN ARTS (AA) DEGREE

SUGGESTED SEQUENCE OF COURSES

**YEAR 1 (FALL SEMESTER)** **CREDITS: 18**

| | |
|---|---|
| ENG 111 *or* | ENGLISH COMPOSITION I (3/3) *or* |
| ENG 121 | ADVANCED ENGLISH COMPOSITION I (3/3) |
| EDU 121 | INTRODUCTION TO EDUCATION (3/3) |
| MTH 121 *or higher* | COLLEGE ALGEBRA OR HIGHER (4/4) |
| | TECHNICAL ELECTIVES (8/8) |

**YEAR 1 (SPRING SEMESTER)** **CREDITS: 12**

| | |
|---|---|
| ENG 112 *or* | ENGLISH COMPOSITION II (3/3) *or* |
| ENG 122 | ADVANCED ENGLISH COMPOSITION II (3/3) |
| PSY 101 | GENERAL PSYCHOLOGY (3/3) |
| | NATURAL SCIENCE REQUIREMENT (3/3-4) |
| | TECHNICAL ELECTIVES (3/3) |

**YEAR 2 (FALL SEMESTER)** **CREDITS: 18**

| | |
|---|---|
| PLS 221 | AMERICAN GOVERNMENT & POLITICS (3/3) |
| | NATURAL SCIENCE REQUIREMENT (3/3-4) |
| | HUMANITIES REQUIREMENT (4/4) |
| | TECHNICAL ELECTIVES (8/8) |

**YEAR 2 (SPRING SEMESTER)** **CREDITS: 13**

| | |
|---|---|
| | SOCIAL SCIENCE ELECTIVE (3/3) |
| | HUMANITIES REQUIREMENT (4/4) |
| | TECHNICAL ELECTIVES (6/6) |

# ELECTRICAL MAINTENANCE TECHNICIAN

ASSOCIATE IN APPLIED SCIENCE (AAS) DEGREE

DESCRIPTION: This program meets industry standards for this skilled trade. The occupational specialty courses meet requirements for local electrical apprenticeship programs. Students are prepared to work in residential, commercial, and industrial environments. The program includes training in the fundamentals of electricity, electric motor controls, and programmable controllers, as well as digital electronics.

| **GENERAL EDUCATION REQUIREMENTS** | | **CREDITS: 20-23** |
|---|---|---|
| ENG 111 *or* | ENGLISH COMPOSITION I (3/3) *or* | |
| ENG 120 | APPLIED COMMUNICATION (3/3) | |
| ENG 112 *or* | ENGLISH COMPOSITION II (3/3) *or* | |
| ENG 123 | TECHNICAL COMMUNICATION (3/3) | |
| PLS 221 *or* | AMERICAN GOVERNMENT REQUIREMENT (3-6/3-6) | |
| PLS 222 *or* | | |
| HST 221 & HST 222 | | |
| SPE 123 *or* | PUBLIC COMMUNICATION (3/3) *or* | |
| SPE 121 | SPEECH COMMUNICATION (3/3) | |

| **CORE PROGRAM REQUIREMENTS** | | **CREDITS: 7-9** |
|---|---|---|
| APP 100E | ELECTRICAL STUDIES FOR TRADES (3/4) [A] | |
| APP 106M | INDUSTRIAL SAFETY (1/1) [A] | |
| MTH 110 *or* | TECHNICAL MATH I (3/4) *or* | |
| MTH 115 | APPLIED ALGEBRA & TRIGONOMETRY I (5/6) | |

| **TECHNICAL PROGRAM REQUIREMENTS** | | **CREDITS: 34** |
|---|---|---|
| APP 102E | RESIDENTIAL WIRING & BLUEPRINT RDG (3/4) [A] | |
| APP 103E | COMMERCIAL & INDUSTRIAL WIRING (3/4) [A] | |
| APP 104E | AC & DC FUNDAMENTALS (3/4) [A] | |
| APP 107E | SPECIALTY WIRING (3/4) [A] | |
| APP 111E | ELECTRIC MOTOR CONTROL (3/4) [A] | |
| APP 114E | PROGRAMMABLE CONTROLLERS (3/4) [A] | |
| APP 115E | NATIONAL ELECTRIC CODE APPLICATION (4/4) [A] | |
| APP 122E | DIGITAL ELECTRONICS FOR ELECTRICIANS (3/4) [A] | |
| APP 123 E | LINEAR ELECTRONICS FOR ELECTRICIANS (3/4) [A] | |
| IND 120 *or* | INDUSTRIAL COMPUTERS & NETWORKING (3/4) *or* | |
| CIS 120 | INTRODUCTION TO MICROCOMPUTERS (3/4) | |
| | TECHNICAL OR BUSINESS ELECTIVE (3/3) | |

**MINIMUM 61 CREDIT HOURS/72 CONTACT HOURS**

NOTES:
[A] Included in occupational specialty.
*GPA of 2.0 or higher must be maintained in occupational specialty courses*

# ELECTRICAL SYSTEMS TECHNOLOGY

BACHELOR IN SCIENCE (BS) DEGREE

DESCRIPTION: This bachelor's degree program is designed to train individuals to install, modify, maintain, troubleshoot, and perform functional tests on electrical grid systems equipment for employment in the fields of electric distribution, transmission, and generation. This includes grounding grids, power transformers, circuit breakers, lightning arresters, switches, and various protective relay equipment including electromechanical and microprocessor based hardware.

**GENERAL EDUCATION COURSES** **CREDITS: 28**

| | |
|---|---|
| ENG 111 *or* | ENGLISH COMPOSITION I (3/3) *or* |
| ENG 120 | APPLIED COMMUNICATION (3/3) |
| ENG 112 *or* | ENGLISH COMPOSITION II (3/3) *or* |
| ENG 123 | TECHNICAL COMMUNICATION (3/3) |
| MTH 123 | ALGEBRA & ANALYTIC TRIGONOMETRY (4/4) |
| ECN 231 | ECONOMICS (MICRO) (3/3) |
| PSY 101 | GENERAL PSYCHOLOGY (3/3) |
| SPE 123 | PUBLIC COMMUNICATION (3/3) |
| CEM 111 *or* | GENERAL CHEMISTRY (4/7) *or* |
| CEM 121 | GENERAL & INORGANIC CHEMISTRY (4/7) |
| PHY 221 | PHYSICS (5/7) |

**CORE PROGRAM REQUIREMENTS** **CREDITS: 69**

| | |
|---|---|
| APP 100E | ELECTRICAL STUDIES FOR TRADES (3/4) [A] |
| APP 104E | AC & DC FUNDAMENTALS (3/4) [A] |
| APP 111E | ELECTRIC MOTOR CONTROL (3/4) [A] |
| APP 114E | PROGRAMMABLE CONTROLLERS (3/4) [A] |
| APP 122E | DIGITAL ELECTRONICS FOR ELECTRICIANS (3/4) [A] |
| BUS 390 | UTILITY FINANCING & ACCOUNTING (2/2) [A] |
| BUS 391 | UTILITY REGULATIONS (3/3) [A] |
| EPT 230 | POLY-PHASE METERING (2/3) [A] |
| EST 301 | POWER SYSTEMS (3/3) [A] |
| EST 302 | CIRCUITS (4/4) [A] |
| EST 304 | THREE PHASE POWER/PHASOR ANALYSIS (3/3) [A] |
| EST 306 | ELECTRIC POWER GENERATION (3/3) [A] |
| EST 307 | INTRO TO COMPUTER MODELING POWER SYSTEMS (3/4) [A] |
| EST 308 | DISTRIBUTION/TRANSMISSION POWER (3/3) [A] |
| EST 401 | RENEWABLES (3/3) [A] |
| EST 402 | SCADA (SUPERVISORY CONTROL & DATA ACQUISITION) (3/4) [A] |
| EST 403 | PROTECTION (3/3) [A] |
| EST 404 | POWER LINE PARAMETERS (3/3) [A] |
| EST 405 | RELAYING (3/4) [A] |
| EST 406 | THE GRID (3/3) [A] |
| EST 408 | ELECTRICAL SYSTEMS CAPSTONE PROJECT (3/4) [A] |
| UTT 300 | UTILITY SYSTEMS & EQUIPMENT (6/7) [A] |

**ADDITIONAL PROGRAM REQUIREMENTS** **CREDITS: 32**

| | |
|---|---|
| BUS 121 | INTRODUCTION TO BUSINESS (3/3) |
| CNS 151 | NETWORK CABLING (3/4) |
| GEO 151 | INTRODUCTION TO GIS (1.5/2) |
| GEO 152 | ADVANCED GIS (1.5/2) |
| IND 120 | INTRO TO COMPUTERS & NETWORKING (3/4) |
| MTH 131 | CALCULUS I (5/5) |
| MTH 221 | C++ PROGRAMMING (4/5) |
| PHY 222 | PHYSICS (5/7) |
| PLS 221 | AMERICAN GOVERNMENT & POLITICS (3/3) |
| PSY 241 | SOCIAL PSYCHOLOGY (3/3) |

**MINIMUM 129 CREDIT HOURS/151 CONTACT HOURS**

NOTES:
[A] Included in occupational specialty.

*GPA of 2.0 or higher must be maintained in occupational specialty courses*

It is recommended that students intending to transfer work closely with their academic advisor and transfer destination.

# ELECTRICAL SYSTEMS TECHNOLOGY

BACHELOR IN SCIENCE (BS) DEGREE

SUGGESTED SEQUENCE OF COURSES

**YEAR 1 (FALL SEMESTER)** **CREDITS: 16**

| | |
|---|---|
| APP 100E | ELECTRICAL STUDIES FOR TRADES (3/4) |
| BUS 121 | INTRODUCTION TO BUSINESS (3/3) |
| ENG 111 *or* | ENGLISH COMPOSITION I (3/3) *or* |
| ENG 120 | APPLIED COMMUNICATION (3/3) |
| MTH 123 | ALGEBRA & ANALYTIC TRIGONOMETRY (4/4) |
| PSY 101 | GENERAL PSYCHOLOGY (3/3) |

**YEAR 1 (SPRING SEMESTER)** **CREDITS: 17**

| | |
|---|---|
| APP 104E | AC & DC FUNDAMENTALS (3/4) |
| ECN 231 | ECONOMICS (MICRO) (3/3) |
| ENG 112 *or* | ENGLISH COMPOSITION II (3/3) *or* |
| ENG 123 | TECHNICAL COMMUNICATION (3/3) |
| MTH 131 | CALCULUS I (5/5) |
| SPE 123 | PUBLIC COMMUNICATION (3/3) |

**YEAR 2 (FALL SEMESTER)** **CREDITS: 15**

| | |
|---|---|
| APP 111E | ELECTRIC MOTOR CONTROL (3/4) |
| APP 122E | DIGITAL ELECTRONICS FOR ELECTRICIANS (3/4) |
| CEM 111 *or* | GENERAL CHEMISTRY (4/7) *or* |
| CEM 121 | GENERAL & INORGANIC CHEMISTRY (4/7) |
| PHY 221 | PHYSICS (5/7) |

**YEAR 2 (SPRING SEMESTER)** **CREDITS: 18**

| | |
|---|---|
| APP 114E | PROGRAMMABLE CONTROLLERS (3/4) |
| MTH 221 | C++ PROGRAMMING (4/5) |
| PHY 222 | PHYSICS (5/7) |
| PLS 221 | AMERICAN GOVERNMENT & POLITICS (3/3) |
| PSY 241 | SOCIAL PSYCHOLOGY (3/3) |

**YEAR 3 (FALL SEMESTER)** **CREDITS: 16**

| | |
|---|---|
| CNS 151 | NETWORK CABLING (3/4) |
| IND 120 | INTRO TO COMPUTERS & NETWORKING (3/4) |
| EST 302 | CIRCUITS (4/4) |
| EST 304 | THREE PHASE POWER/PHASOR ANALYSIS (3/3) |
| EST 306 | ELECTRIC POWER GENERATION (3/3) |

**YEAR 3 (SPRING SEMESTER)** **CREDITS: 17**

| | |
|---|---|
| EPT 230 | POLY-PHASE METERING (2/3) |
| EST 301 | POWER SYSTEMS (3/3) |
| EST 308 | DISTRIBUTION/TRANSMISSION POWER (3/3) |
| GEO 151 | INTRODUCTION TO GIS (1.5/2) |
| GEO 152 | ADVANCED GIS (1.5/2) |
| UTT 300 | UTILITY SYSTEMS & EQUIPMENT (6/7) |

**YEAR 4 (FALL SEMESTER)** **CREDITS: 15**

| | |
|---|---|
| BUS 390 | UTILITY FINANCING & ACCOUNTING (3/3) |
| EST 401 | RENEWABLES (3/3) |
| EST 402 | SCADA (SUPERVISORY CONTROL & DATA ACQUISITION) (3/4) |
| EST 404 | POWER LINE PARAMETERS (3/3) |
| EST 406 | THE GRID (3/3) |

**YEAR 4 (SPRING SEMESTER)** **CREDITS: 15**

| | |
|---|---|
| BUS 391 | UTILITY REGULATIONS (3/3) |
| EST 307 | INTRO TO COMPUTER MODELING POWER SYSTEMS (3/4) |
| EST 403 | PROTECTION (3/3) |
| EST 405 | RELAYING (3/4) |
| EST 408 | ELECTRICAL SYSTEMS CAPSTONE PROJECT (3/4) |

# Environmental Science

Associate in Science (AS) Degree

Description: This is a suggested program of study which may be altered to meet individual goals and transfer plans while preparing students for employment or for transfer to a four-year university to pursue a degree in Environmental Science.

**General Education Requirements Credits: 30**

| | |
|---|---|
| ENG 111 *or* | English Composition I (3/3) *or* |
| ENG 121 | Advanced English Composition I (3/3) |
| ENG 112 *or* | English Composition II (3/3) *or* |
| ENG 122 | Advanced English Composition II (3/3) |
| BIO 227 *or* | Microbiology (4/6) *or* |
| BIO 211 | General Zoology (4/5) |
| ECN 231 | Economics (Micro) (3/3) |
| GEO 127 *or* | Physical Geography (4/5) *or* |
| PHY 124 | Introduction to Physical Geology (4/5) |
| MTH 123 | Coll Algebra & Analytic Trigonometry (4/4) |
| PHL 228 | Introduction to Ethics [1] (3/3) |
| PLS 221 | American Government & Politics (3/3) |
| SPE 121 | Speech Communication (3/3) |

**Core Program Requirements Credits: 26**

| | |
|---|---|
| BIO 161 | General College Biology I (4/5) |
| BIO162 | General College Biology II (4/5) |
| BIO 207 | Wildlife & Fisheries Ecology & Mgt (3/3) |
| CEM 121 | General & Inorganic Chemistry (4/7) |
| CEM 122 | Inorganic Chem & Qualitative Analysis (4/7) |
| ENV 101 | Environmental Science (4/5) |
| GEO 151 | Introduction to GIS (1.5/2) |
| GEO 152 | Advanced GIS (1.5/2) |

**Suggested Electives Credits: 4**

| | |
|---|---|
| MTH 223 | Statistical Methods (4/4) |

**Minimum 60 Credit Hours/73 Contact Hours**

Notes:
[1] or Humanities Credit

# Environmental Science

Associate in Science (AS) Degree
Suggested Sequence of Courses

**Year 1 (Fall Semester) Credits: 15**

| | |
|---|---|
| ENG 111 *or* | English Composition I (3/3) *or* |
| ENG 121 | Advanced English Composition I (3/3) |
| BIO 161 | General College Biology I (4/5) |
| ENV 101 | Environmental Science (4/5) |
| MTH 123 | Coll Algebra & Analytic Trigonometry (4/4) |

**Year 1 (Spring Semester) Credits: 17**

| | |
|---|---|
| ENG 112 *or* | English Composition II (3/3) *or* |
| ENG 122 | Advanced English Composition II (3/3) |
| BIO 162 | General College Biology II (4/5) |
| BIO 207 | Wildlife & Fisheries Ecology & Mgt (3/3) |
| GEO 151 | Introduction to GIS (1.5/2) |
| GEO 152 | Advanced GIS (1.5/2) |
| MTH 223 | Statistical Methods (4/4) |

**Year 2 (Fall Semester) Credits: 13**

| | |
|---|---|
| CEM 121 | General & Inorganic Chemistry (4/7) |
| ECN 231 | Economics (Micro) (3/3) |
| PHL 228 | Introduction to Ethics [3] (3/3) |
| PLS 221 | American Government & Politics (3/3) |

**Year 2 (Spring Semester) Credits: 15**

| | |
|---|---|
| BIO 227 *or* | Microbiology (4/6) *or* |
| BIO 211 | General Zoology (4/5) |
| CEM 122 | Inorganic Chem & Qualitative Analysis (4/7) |
| GEO 127 *or* | Physical Geography (4/5) *or* |
| PHY 124 | Introduction to Physical Geology (4/5) |
| SPE 121 | Speech Communication (3/3) |

# FINE ARTS

ASSOCIATE IN ARTS (AA) DEGREE

DESCRIPTION: This is a suggested program of study which may be altered to meet individual goals and transfer plans. Successful completion of this program will prepare a student to pursue a bachelor's degree in fine arts, design, and related areas. Students should refer to the descriptions of Alpena Community College graduation requirements and degree distribution requirements and consult with an academic advisor concerning specific course selections.

**General Education Requirements** **Credits: 26**

| | |
|---|---|
| ENG 111 *or* | ENGLISH COMPOSITION I (3/3) *or* |
| ENG 121 | ADVANCED ENGLISH COMPOSITION I (3/3) |
| ENG 112 *or* | ENGLISH COMPOSITION II (3/3) *or* |
| ENG 122 | ADVANCED ENGLISH COMPOSITION II (3/3) |
| | SCIENCE/MATH REQUIREMENT (4-5/4-5) |
| PLS 221 *or* | AMERICAN GOVERNMENT & POLITICS (3/3) *or* |
| PLS 222 | State & Local Government (3/3) |
| | SOCIAL SCIENCE REQUIREMENT (3/3) |
| HST 121 *or* | HISTORY OF WESTERN CIVILIZATION (3/3) *or* |
| HUM 241 | HUMANITIES I (4/4) |
| HST 222 *or* | HISTORY OF WESTERN CIVILIZATION (3/3) *or* |
| HUM 242 | HUMANITIES II (4/4) |
| | LABORATORY SCIENCE (4/4) |

**CORE PROGRAM REQUIREMENTS** **CREDITS: 27**

| | |
|---|---|
| ART 100 | PHOTOGRAPHY I (3/4) |
| ART 123 | DESIGN I (3/4) |
| ART 124 | DESIGN II (3/4) |
| ART 127 | BASIC DRAWING (3/4) |
| ART 221 | COMPUTER GENERATED IMAGING I (3/4) |
| ART 222 *or* | COMPUTER GENERATED IMAGING II (3/4) *or* |
| ART 200 | PHOTOGRAPHY II (3/4) |
| ART 223 | PAINTING I (3/4) |
| ART 225 *or* | CERAMICS I (3/4) *or* |
| ART 229 | SCULPTURE (3/4) |
| ART 230 *or* | SCULPTURE II (3/4) *or* |
| ART 226 *or* | CERAMICS II (3/4) *or* |
| ART 246 | ART FOR THE CLASSROOM TEACHER (4/4) |

**SUGGESTED ELECTIVES** **CREDITS: 9**

Electives should be selected to fulfill transfer institution requirements, area of concentration (major or minor), or student interest.

**MINIMUM 62 CREDIT HOURS/72 CONTACT HOURS**

NOTES:

It is strongly recommended that transfer students determine mathematics requirement at the university or art institute to which they will transfer. Students are encouraged to compete Math 121/College Algebra before transferring.

# FINE ARTS

ASSOCIATE IN ARTS (AA) DEGREE

SUGGESTED SEQUENCE OF COURSES

**YEAR 1 (FALL SEMESTER)** **CREDITS: 16**

| | |
|---|---|
| ENG 111 *or* | ENGLISH COMPOSITION I (3/3) *or* |
| ENG 121 | ADVANCED ENGLISH COMPOSITION I (3/3) |
| | SCIENCE/MATH REQUIREMENT (4-5/4-5) |
| HST 121 *or* | HISTORY OF WESTERN CIVILIZATION (3/3) *or* |
| HUM 241 | HUMANITIES I (4/4) |
| ART 127 | BASIC DRAWING (3/4) |
| ART 221 | COMPUTER GENERATED IMAGING I (3/4) |

**YEAR 1 (SPRING SEMESTER)** **CREDITS: 16**

| | |
|---|---|
| ENG 112 *or* | ENGLISH COMPOSITION II (3/3) *or* |
| ENG 122 | ADVANCED ENGLISH COMPOSITION II (3/3) |
| | LABORATORY SCIENCE (4/4) |
| HST 222 *or* | HISTORY OF WESTERN CIVILIZATION (3/3) *or* |
| HUM 242 | HUMANITIES II (4/4) |
| ART 100 | PHOTOGRAPHY I (3/4) |
| ART 123 | DESIGN I (3/4) |

**YEAR 2 (FALL SEMESTER)** **CREDITS: 15**

| | |
|---|---|
| PLS 221 *or* | AMERICAN GOVERNMENT & POLITICS (3/3) *or* |
| PLS 222 | State & Local Government (3/3) |
| | SOCIAL SCIENCE REQUIREMENT (3/3) |
| ART 222 *or* | COMPUTER GENERATED IMAGING II (3/4) *or* |
| ART 200 | PHOTOGRAPHY II (3/4) |
| ART 225 *or* | CERAMICS I (3/4) *or* |
| ART 229 | SCULPTURE (3/4) |
| ART 223 | PAINTING I (3/4) |

**YEAR 2 (SPRING SEMESTER)** **CREDITS: 15**

| | |
|---|---|
| | SOCIAL SCIENCE REQUIREMENT (3/3) |
| ART 124 | DESIGN II (3/4) |
| ART 230 *or* | SCULPTURE II (3/4) *or* |
| ART 226 *or* | CERAMICS II (3/4) *or* |
| ART 246 | ART FOR THE CLASSROOM TEACHER (4/4) |
| | ART ELECTIVE (3/4) |
| | ELECTIVE (3/3) |

# General Sciences

Associate in Science (AS) Degree

Description: This is a degree that can be individually planned to meet transfer requirements for the specific program of study you intend to pursue at a particular four-year institution after attending Alpena Community College. Course work selected must also meet degree requirements, as well as the Associate in Science degree distribution requirements in this catalog. By working closely with your ACC academic advisor before registering for classes, you can get full benefit from transfer of general education credits. A minimum total of 60 credits is required for the Associate in Science degree.

Many areas of interest in the sciences and in the health care field can be served by working with your advisor and carefully selecting your courses at Alpena Community College. If you are undecided, an appointment with one of our advisors can provide information and guidance regarding the Associate in Science degree.

Listed elsewhere in this Programs of Study section of the catalog are AS transfer degrees in the following areas of concentration: Biology, Chemistry, Computer Science – General, Mathematics, Natural Sciences, Physics, Pre-Dental & Pre-Medicine, Pre-Engineering, Pre-Medical Technology, Pre-Pharmacy, and Pre-Veterinary. With the addition of general study classes, students may earn an Associate in Science degree in Pre-Nursing.

In addition, by working with your academic advisor at ACC, the appropriate choice of required and elective courses for this degree can be made for transfer to the following programs:

**Pre-Occupational Therapy**
**Pre-Physical Therapy**
**Pre-Radiology Technology**
(See information regarding cooperate program in Radiograph.)

# General Studies

Associate in General Studies (AGS) Degree

Description: The Associate in General Studies degree is awarded to students primarily interested in general education. The suggested outline of courses, which may be altered to suit individual goals, is listed on page 37 of this catalog. Students should consult an academic advisor concerning fine course selection.

# GEOGRAPHY

ASSOCIATE IN ARTS (AA) DEGREE

DESCRIPTION: This is a suggested program of study for specialized interest in the subject of geography that may be altered to meet individual goals and transfer plans. Students should refer to the Alpena Community College graduation requirements and degree distribution requirements and consult with an academic advisor concerning specific course selection. A minimum of 60 credit hours is required for an Associate in Arts degree.

**GENERAL EDUCATION REQUIREMENTS** **CREDITS: 26**

| | |
|---|---|
| ENG 111 *or* | ENGLISH COMPOSITION I (3/3) *or* |
| ENG 121 | ADVANCED ENGLISH COMPOSITION I (3/3) |
| ENG 112 *or* | ENGLISH COMPOSITION II (3/3) *or* |
| ENG 122 | ADVANCED ENGLISH COMPOSITION II (3/3) |
| ANP 121 | CULTURAL ANTHROPOLOGY (3/3) |
| GEO 126 | CULTURAL GEOGRAPHY (3/3) |
| HST 121 | HISTORY OF WESTERN CIVILIZATION (3/3) |
| | LANGUAGE/FINE ARTS/HUMANITIES REQ (3/3) |
| GEO 127 | PHYSICAL GEOGRAPHY (4/5) |
| PHS 113 | INTRODUCTION TO PHYSICAL SCIENCE (4/5) |

**CORE PROGRAM REQUIREMENTS** **CREDITS: 22**

| | |
|---|---|
| ECN 232 *or* | ECONOMICS (MACRO) (3/3) *or* |
| ECN 231 | ECONOMICS (MICRO) (3/3) |
| GEO 151 | INTRODUCTION TO GIS (1.5/2) |
| GEO 152 | ADVANCED GIS (1.5/2) |
| HST 122 | HISTORY OF WESTERN CIVILIZATION (3/3) |
| MTH 113 | INTERMEDIATE ALGEBRA (4/4) |
| PLS 221 | AMERICAN GOVERNMENT & POLITICS (3/3) |
| PSY 101 | GENERAL PSYCHOLOGY (3/3) |
| SOC 123 | INTRODUCTION OF SOCIOLOGY (3/3) |

**SUGGESTED ELECTIVES** **CREDITS: 12**

Electives should be selected to fulfill transfer institution requirements, area of concentration (major or minor), or student interest. It is strongly recommended that foreign language preparation begin as soon as possible.

**MINIMUM 60 CREDIT HOURS/63 CONTACT HOURS**

# GEOGRAPHY

ASSOCIATE IN ARTS (AA) DEGREE
SUGGESTED SEQUENCE OF COURSES

**YEAR 1 (FALL SEMESTER)** **CREDITS: 14**

| | |
|---|---|
| ENG 111 *or* | ENGLISH COMPOSITION I (3/3) *or* |
| ENG 121 | ADVANCED ENGLISH COMPOSITION I (3/3) |
| HST 121 | HISTORY OF WESTERN CIVILIZATION (3/3) |
| MTH 113 | INTERMEDIATE ALGEBRA (4/4) |
| PHS 113 | INTRODUCTION TO PHYSICAL SCIENCE (4/5) |

**YEAR 1 (SPRING SEMESTER)** **CREDITS: 15**

| | |
|---|---|
| ENG 112 *or* | ENGLISH COMPOSITION II (3/3) *or* |
| ENG 122 | ADVANCED ENGLISH COMPOSITION II (3/3) |
| HST 122 | HISTORY OF WESTERN CIVILIZATION (3/3) |
| GEO 126 | CULTURAL GEOGRAPHY (3/3) |
| PLS 221 | AMERICAN GOVERNMENT & POLITICS (3/3) |
| | RECOMMENDED ELECTIVE (3/3) |

**YEAR 2 (FALL SEMESTER)** **CREDITS: 16**

| | |
|---|---|
| PSY 101 | GENERAL PSYCHOLOGY (3/3) |
| ECN 232 *or* | ECONOMICS (MACRO) (3/3) *or* |
| ECN 231 | ECONOMICS (MICRO) (3/3) |
| | LANGUAGE/FINE ARTS/HUMANITIES REQ (3/3) |
| GEO 127 | PHYSICAL GEOGRAPHY (4/5) |
| | RECOMMENDED ELECTIVE (3/3) |

**YEAR 2 (SPRING SEMESTER)** **CREDITS: 15**

| | |
|---|---|
| ANP 121 | CULTURAL ANTHROPOLOGY (3/3) |
| SOC 123 | INTRODUCTION OF SOCIOLOGY (3/3) |
| GEO 151 | INTRODUCTION TO GIS (1.5/2) |
| GEO 152 | ADVANCED GIS (1.5/2) |
| | RECOMMENDED ELECTIVES (6/6) |

# History

Associate in Arts (AA) Degree

Description: This is a suggested program of study for specialized interest in the subject of history that may be altered to meet individual goals and transfer plans. Students should refer to the Alpena Community College graduation requirements and degree distribution requirements and consult with an academic advisor concerning specific course selection. A minimum of 60 credit hours is required for an Associate in Arts degree.

**General Education Requirements** **Credits: 26**

| | |
|---|---|
| ENG 111 *or* | English Composition I (3/3) *or* |
| ENG 121 | Advanced English Composition I (3/3) |
| ENG 112 *or* | English Composition II (3/3) *or* |
| ENG 122 | Advanced English Composition II (3/3) |
| PSY 101 | General Psychology (3/3) |
| SOC 123 | Introduction of Sociology (3/3) |
| HST 121 | History of Western Civilization (3/3) |
| | Language/Fine Arts/Humanities Req (3/3) |
| GEO 127 | Physical Geography (4/5) |
| | Laboratory Science (4/5) |

**Core Program Requirements** **Credits: 19**

| | |
|---|---|
| ECN 232 *or* | Economics (Macro) (3/3) *or* |
| ECN 231 | Economics (Micro) (3/3) |
| GEO 126 | Cultural Geography (3/3) |
| HST 122 | History of Western Civilization (3/3) |
| HST 221 | U. S. History (3/3) |
| HST 222 | U. S. History (3/3) |
| MTH 113 | Intermediate Algebra (4/4) |

**Suggested Electives** **Credits: 15**

Electives should be selected to fulfill transfer institution requirements, area of concentration (major or minor), or student interest. It is strongly recommended that foreign language preparation begin as soon as possible.

**Minimum 60 Credit Hours/62 Contact Hours**

# History

Associate in Arts (AA) Degree
Suggested Sequence of Courses

**Year 1 (Fall Semester)** **Credits: 13**

| | |
|---|---|
| ENG 111 *or* | English Composition I (3/3) *or* |
| ENG 121 | Advanced English Composition I (3/3) |
| HST 121 | History of Western Civilization (3/3) |
| MTH 113 | Intermediate Algebra (4/4) |
| HST 221 | U. S. History (3/3) |

**Year 1 (Spring Semester0** **Credits: 16**

| | |
|---|---|
| ENG 112 *or* | English Composition II (3/3) *or* |
| ENG 122 | Advanced English Composition II (3/3) |
| HST 122 | History of Western Civilization (3/3) |
| | Laboratory Science (4/5) |
| SOC 123 | Introduction of Sociology (3/3) |
| HST 222 | U. S. History (3/3) |

**Year 2 (Fall Semester)** **Credits: 16**

| | |
|---|---|
| PSY 101 | General Psychology (3/3) |
| ECN 232 *or* | Economics (Macro) (3/3) *or* |
| ECN 231 | Economics (Micro) (3/3) |
| | Language/Fine Arts/Humanities Req (3/3) |
| GEO 127 | Physical Geography (4/5) |
| | Recommended Elective (3/3) |

**Year 2 (Spring Semester)** **Credits: 15**

| | |
|---|---|
| GEO 126 | Cultural Geography (3/3) |
| | Recommended Electives 12/12 |

# Industrial Sales

Associate in Applied Science (AAS) Degree

Description: This program equips successful students with the foundational skills to pursue a career in industrial sales, which differs significantly from retail sales. The successful industrial salesperson must identify and understand the needs of potential industrial customers, determine if their product will add value by improving effectiveness, efficiency, and quality, then appropriately communicate with the customer to develop long term partnerships.

**General Education Requirements** **Credits: 12**

| | |
|---|---|
| ENG 120 *or* | Applied Communication (3/3) *or* |
| ENG 111 *or* | English Composition I (3/3) *or* |
| ENG 121 | Advanced English Composition I (3/3) |
| ECN 231 | Economics (Micro) (3/3) |
| PLS 221 *or* | American Government & Politics (3/3) *or* |
| PLS 222 | State & Local Government (3/3) |
| SPE 121 | Speech Communication (3/3) |

**Core Program Requirements** **Credits: 50**

| | |
|---|---|
| APP 100E | Electrical Studies for Trades (3/4) |
| APP 122M | Machine Repair (2.5/4) |
| APP 124M | Apprentice Hydraulics (2.5/4) |
| BUS 122 | Personal Selling (3/3) |
| BUS 123 | Principles of Accounting I (4/4) |
| BUS 221 | Business Law (3/3) |
| BUS 222 | Business Law (3/3) |
| BUS 241 | Principles of Marketing (3/3) |
| BUS 249 | Principles of Negotiation (3/3) |
| BUS 255 | Business Application Software (3/4) |
| CIS 120 | Introduction to Microcomputers (3/4) |
| ENG 123 | Technical Communication (3/3) |
| IND 110 | Industrial Organizations (3/3) |
| MFG 100 | Machinery's Handbook (3/4) |
| MFG 120 | Print Interpretation & Processes (3/4) |
| MTH 115 | Applied Algebra & Trigonometry I (5/6) |

**Minimum 60 Credit Hours/71 Contact Hours**

# Industrial Sales

Associate in Applied Science (AAS) Degree
Suggested Sequence of Courses

**Year 1 (Fall Semester)** **Credits: 16**

| | |
|---|---|
| ENG 120 *or* | Applied Communication (3/3) *or* |
| ENG 111 *or* | English Composition I (3/3) *or* |
| ENG 121 | Advanced English Composition I (3/3) |
| IND 110 | Industrial Organizations (3/3) |
| MFG 120 | Print Interpretation & Processes (3/4) |
| SPE 121 | Speech Communication (3/3) |
| BUS 123 | Principles of Accounting I (4/4) |

**Year 1 (Spring Semester)** **Credits: 16.5**

| | |
|---|---|
| ECN 231 | Economics (Micro) (3/3) |
| APP 122M | Machine Repair (2.5/4) |
| MFG 100 | Machinery's Handbook (3/4) |
| BUS 122 | Personal Selling (3/3) |
| MTH 115 | Applied Algebra & Trigonometry I (5/6) |

**Year 2 (Fall Semester)** **Credits: 14.5**

| | |
|---|---|
| CIS 120 | Introduction to Microcomputers (3/4) |
| BUS 221 | Business Law (3/3) |
| BUS 241 | Principles of Marketing (3/3) |
| APP 100E | Electrical Studies for Trades (3/4) |

**Year 2 (Spring Semester)** **Credits: 15**

| | |
|---|---|
| BUS 249 | Principles of Negotiation (3/3) |
| BUS 222 | Business Law (3/3) |
| PLS 221 *or* | American Government & Politics (3/3) *or* |
| PLS 222 | State & Local Government (3/3) |
| BUS 255 | Business Application Software (3/4) |
| ENG 123 | Technical Communication (3/3) |

# Industrial Technology

Certificate (C)

Description: This program is designed to give students the basis for overall knowledge for employment in entry level positions in industry and manufacturing. Courses will include basic knowledge of electricity, safety, blueprint reading, math, computer, and necessary skills to attain and maintain employment in today's industrial workforce.

| **General Education Requirements** | | **Credits: 6** |
|---|---|---|
| MTH 110 | Technical Math I (3/4) | |
| MTH 112 | Technical Math II (3/4) | |

| **Core Program Requirements** | | **Credits: 26** |
|---|---|---|
| APP 100E | Electrical Studies for Trades (3/4) [A] | |
| APP 104E | AC & DC Fundamentals (3/4) [A] | |
| APP 106M | Industrial Safety (.5/.5) [A] | |
| CAD 150 | 3D Modeling (3/4) [A] | |
| IND 229 | Hydraulic & Pneumatic Power (3/4) [A] | |
| MET 200 | Material Science (3/4) [A] | |
| MFG 120 | Print Interpretation & Processes (3/4) [A] | |
| MFG 122 | Manufacturing Processes (3/4) [A] | |
| SDE 201 | Job Search Strategies (1/1) [A] | |
| WLD 134 | Introduction to Welding Techniques (2/3) [A] | |
| WLD 135 | Intermediate Welding (1.5/2.25) [A] | |

**Minimum 32 Credit Hours/42.75 Contact Hours**

Notes:
[A] Included in occupational specialty.
*GPA of 2.0 or higher must be maintained in occupational specialty courses*

# Industrial Technology

Certificate (C)
Suggested Sequence of Courses

| **Year 1 (Fall Semester)** | | **Credits: 14.5** |
|---|---|---|
| APP 100E | Electrical Studies for Trades (3/4) | |
| MTH 110 | Technical Math I (3/4) | |
| APP 106M | Industrial Safety (.5/.5) | |
| MFG 120 | Print Interpretation & Processes (3/4) | |
| WLD 134 | Introduction to Welding Techniques (2/3) | |
| CAD 150 | 3D Modeling (3/4) | |

| **Year 1 (Spring Semester)** | | **Credits: 17.5** |
|---|---|---|
| APP 104E | AC & DC Fundamentals (3/4) | |
| MTH 112 | Technical Math II (3/4) | |
| MET 200 | Material Science (3/4) | |
| IND 229 | Hydraulic & Pneumatic Power (3/4) | |
| MFG 122 | Manufacturing Processes (3/4) | |
| SDE 201 | Job Search Strategies (1/1) | |
| WLD 135 | Intermediate Welding (1.5/2.25) | |

Gainful Employment information for Industrial Technology

# INDUSTRIAL TECHNOLOGY

ASSOCIATE IN APPLIED SCIENCE (AAS) DEGREE

DESCRIPTION: This Associate Degree program is designed to provide a multi-disciplined technical background. Students interested in pursuing careers in technology can tailor the program to emphasize their major area of interest. The program offers students a broad-based curriculum across all areas of technical education, preparing graduates for emerging job markets and technical fields. The program is designed to allow students to focus on areas of interest or specialize in one of several technical specializations: Design, Mechatronics, machining, and Unmanned Remote Robotics. Students, with assistance from an advisor, will select a major area of technical emphasis. These technical courses plus supporting courses from other disciplines comprise the Industrial Technology degree requirements.

Graduates can move on to complete a four-year degree in the field of Engineering Technology and should consult with an academic advisor for this option.

**GENERAL EDUCATION REQUIREMENTS** **CREDITS: 18-20**

| | |
|---|---|
| ENG 111 *or* ENG 120 | ENGLISH COMPOSITION I (3/3) *or* APPLIED COMMUNICATION (3/3) |
| ENG 112 *or* ENG 123 | ENGLISH COMPOSITION II (3/3) *or* TECHNICAL COMMUNICATION (3/3) |
| MTH 110 *or* MTH 113 | TECHNICAL MATH I (3/4) *or* INTERMEDIATE ALGEBRA (4/4) |
| MTH 112 *or* MTH 122 | TECHNICAL MAT II (3/4) *or* PLANE TRIGONOMETRY (3/3) |
| PLS 221 | AMERICAN GOVERNMENT & POLITICS (3/3) |
| PHY 111 *or* PHY 121 | APPLIED PHYSICS (3/4) *or* GENERAL COLLEGE PHYSICS (4/6) |

**CORE PROGRAM REQUIREMENTS** **CREDITS: 25-26**

| | |
|---|---|
| APP 100E | ELECTRICAL STUDIES FOR TRADES (3/4) [A] |
| CAD 150 | 3D MODELING (3/4) [A] |
| MFG 101 | MACHINING PROCESSES I (4/6) [A] |
| APP 106M | INDUSTRIAL SAFETY (1/1) [A] |
| IND 229 | HYDRAULIC & PNEUMATIC POWER (3/4) [A] |
| MET 200 | MATERIAL SCIENCE (3/4) [A] |
| EGR 130 | TEAM DESIGN PROJECT (2/3) [A] |
| MFG 122 *or* MFG 120 *or* APP 121M | MANUFACTURING PROCESSES (3/4) *or* PRINT INTERPRETATION & PROCESSES (3/4) *or* APPRENTICE BLUEPRINT READING (3/4) |
| APP 114E *or* IND 120 *or* MFG 201 *or* WLD 260 *or* MTH 119 *or* CIS 206 *or* MTH 221 | PROGRAMMABLE LOGIC CONTROLLERS (3/4) *or* INDUSTRIAL NETWORKING (3/4) OR CNC I (4/6) *or* WELDING AUTOMATION (3/4) *or* INTRO TO COMPUTERS & PROGRAMMING (3/3) *or* OBJECT ORIENTED PROGRAMMING (3/4) *or* C++ PROGRAMMING |

**SUGGESTED ELECTIVES** **CREDITS: 16**

FROM THE LIST BELOW, SELECT COURSES TO TOTAL 60 CREDITS:

| | |
|---|---|
| APP 104E *or* APP 111E *or* APP 114E *or* APP 123E | APPRENTICE – ELECTRICAL COURSE (3/4) [A] |
| APP 122M *or* APP 128M *or* APP 223M | APPRENTICE – MILLWRIGHT COURSES (1.5/2) |
| AVI 135 *or* AVI 136 *or* AVI 137 | AVIATION UNMANNED COURSE (1/1.25-1.5) [A] |
| CAD 220 *or* CAD 250 | COMPUTER-AIDED DESIGN COURSE (3/4) [A] |
| CNS 150 *or* CNS 151 *or* CNS 170 | COMPUTER NETWORKING SYSTEMS COURSE (3-4/4-5) [A] |
| EGR 122 | INTRODUCTION TO ENGINEERING (1/1) [A] |
| ELE 220 | PC BASE DATA ACQUISITION & CONTROL (3/4) [A] |
| IND 225 | STRENGTH OF MATERIALS (4/5) [A] |
| GEO 151 *or* GEO 152 | GLOBAL INFORMATION SYSTEMS (GIS) COURSE (1.5/2) [A] |
| MFG 102 *or* MFG 122 *or* MFG 201 *or* MFG 204 *or* MFG 220 | MANUFACTURING TECHNOLOGY COURSE (3-4/3-7) [A] |
| MRT 101 | INTRODUCTION TO UNDERWATER ROBOTICS (3/4) |
| WLD 123 *or* WLD 124 *or* WLD 134 *or* WLD 135 *or* WLD 240 *or* WLD 242 *or* WLD 250 *or* WLD 252 *or* WLD 260 | WELDING COURSE (1.5-5/2.25-8) [A] |

**MINIMUM 60 CREDIT HOURS/76.5 CONTACT HOURS**

NOTES:

[A] Included in occupational specialty.

*GPA of 2.0 or higher must be maintained in occupational specialty courses*

# INDUSTRIAL TECHNOLOGY

ASSOCIATE IN APPLIED SCIENCE (AAS) DEGREE

## CONCENTRATION – CNC MACHINING

| | |
|---|---|
| MFG 102 | MACHINING PROCESSES II (4/6) [A] |
| MFG 201 | CNC I (4/6) [A] (FROM PROGRAM REQ) |
| MFG 202 | CNC II (4/6) [A] |
| MFG 204 | COMPUTER AIDED MFG (3/4) [A] |
| MFG 205 | CNC III (4/6) [A] |
| | TECHNICAL ELECTIVE (3/4) [A] |

### SUGGESTED SEQUENCE OF COURSES

| **YEAR 1 (FALL SEMESTER)** | **CREDITS: 14-15** |
|---|---|
| ENG 111 *or* | ENGLISH COMPOSITION I (3/3) *or* |
| ENG 120 | APPLIED COMMUNICATION (3/3) |
| MTH 110 *or* | TECHNICAL MATH I (3/4) *or* |
| MTH 113 | INTERMEDIATE ALGEBRA (4/4) |
| MFG 101 | MACHINING PROCESSES I (4/6) |
| MFG 122 | MANUFACTURING PROCESSES (3/4) |
| APP 106M | INDUSTRIAL SAFETY (1/1) |

| **YEAR 1 (SPRING SEMESTER)** | **CREDITS: 17** |
|---|---|
| ENG 112 *or* | ENGLISH COMPOSITION II (3/3) *or* |
| ENG 123 | TECHNICAL COMMUNICATION (3/3) |
| MTH 112 *or* | TECHNICAL MAT II (3/4) *or* |
| MTH 122 | PLANE TRIGONOMETRY (3/3) |
| MFG 201 | CNC I (4/6) |
| CAD 150 | 3D MODELING (3/4) |
| MFG 102 | MACHINING PROCESSES II (4/6) |

| **YEAR 2 (FALL SEMESTER)** | **CREDITS: 16** |
|---|---|
| MFG 202 | CNC II (4/6) |
| APP 100E | ELECTRICAL STUDIES FOR TRADES (3/4) |
| MET 200 | MATERIAL SCIENCE (3/4) |
| IND 229 | HYDRAULIC & PNEUMATIC POWER (3/4) |
| PLS 221 | AMERICAN GOVERNMENT & POLITICS (3/3) |

| **YEAR 2 (SPRING SEMESTER)** | **CREDITS: 15** |
|---|---|
| MFG 204 | COMPUTER AIDED MFG (3/4) |
| MFG 205 | CNC III (4/6) |
| EGR 130 | TEAM DESIGN PROJECT (2/3) |
| PHY 111 | APPLIED PHYSICS (3/4) |
| | TECHNICAL ELECTIVE (3/4) |

# INDUSTRIAL TECHNOLOGY

ASSOCIATE IN APPLIED SCIENCE (AAS) DEGREE

## CONCENTRATION – DESIGN

| | |
|---|---|
| CAD 220 | MACHINE DESIGN (3/4) [A] |
| CAD 250 | ADVANCED 3D MODELING (3/4) [A] |
| MFG 204 | COMPUTER AIDED MFG (3/4) [A] |
| IND 225 | STRENGTH OF MATERIALS (4/5) [A] |
| CIS 171 | SPREADSHEETS I (1/1.25) [A] |
| CIS 172 | SPREADSHEETS II (1/1.25) [A] |
| | TECHNICAL ELECTIVE (3/4) [A] |

### SUGGESTED SEQUENCE OF COURSES

| **YEAR 1 (FALL SEMESTER)** | **CREDITS: 14-15** |
|---|---|
| MTH 110 | TECHNICAL MATH I (3/4) |
| MFG 101 | MACHINING PROCESSES I (4/6) |
| MFG 122 | MANUFACTURING PROCESSES (3/4) |
| APP 100E | ELECTRICAL STUDIES FOR TRADES (3/4) |
| APP 106M | INDUSTRIAL SAFETY (1/1) |

| **YEAR 1 (SPRING SEMESTER)** | **CREDITS: 15** |
|---|---|
| MTH 112 | TECHNICAL MAT II (3/4) |
| PHY 111 | APPLIED PHYSICS (3/4) |
| CAD 150 | 3D MODELING (3/4) |
| APP 114E | PROGRAMMABLE LOGIC CONTROLLERS (3/4) |
| MFG 204 | COMPUTER AIDED MANUFACTURING (3/4) |

| **YEAR 2 (FALL SEMESTER)** | **CREDITS: 15** |
|---|---|
| ENG 111 *or* | ENGLISH COMPOSITION I (3/3) *or* |
| ENG 120 | APPLIED COMMUNICATION (3/3) |
| CAD 220 | COMPUTER-AIDED DESIGN COURSE (3/4) |
| IND 229 | HYDRAULIC & PNEUMATIC POWER (3/4) |
| MET 200 | MATERIAL SCIENCE (3/4) |
| PLS 221 | AMERICAN GOVERNMENT & POLITICS (3/3) |

| **YEAR 2 (SPRING SEMESTER)** | **CREDITS: 17** |
|---|---|
| ENG 112 *or* | ENGLISH COMPOSITION II (3/3) *or* |
| ENG 123 | TECHNICAL COMMUNICATION (3/3) |
| IND 225 | STRENGTH OF MATERIALS (4/5) |
| CAD 250 | ADVANCED 3D MODELING (3/4) |
| EGR 130 | TEAM DESIGN PROJECT (2/3) |
| CIS 171 | SPREADSHEETS I (1/1.25) |
| CIS 172 | SPREADSHEETS II (1/1.25) |
| | TECHNICAL ELECTIVE (3/4) |

# Industrial Technology

Associate in Applied Science (AAS) Degree

## Concentration – Mechatronics

| | |
|---|---|
| APP 107E *or* | Specialty Wiring (3/4) [A] *or* |
| CNS 151 | Network Communication Cabling (3/4) [A] |
| APP 123E | Linear Electronics (3/4) [A] |
| CAD 220 | Machine Design (3/4) [A] |
| IND 120 | Industrial Computers & Networking (3/4) [A] (from Program Req) |
| APP 114E | Programmable Logic Controllers (3/4) [A] |
| MFG 201 | CNC I (4/6) [A] |

### Suggested Sequence of Courses

| **Year 1 (Fall Semester)** | **Credits: 17-18** |
|---|---|
| MTH 110 *or* | Technical Math I (3/4) *or* |
| MTH 113 | Intermediate Algebra (4/4) |
| MFG 101 | Machining Processes I (4/6) |
| MFG 122 | Manufacturing Processes (3/4) |
| APP 100E | Electrical Studies for Trades (3/4) |
| IND 120 | Industrial Networking (3/4) |
| APP 106M | Industrial Safety (1/1) |

| **Year 1 (Spring Semester)** | **Credits: 15** |
|---|---|
| MTH 112 *or* | Technical Math II (3/4) *or* |
| MTH 122 | Plane Trigonometry (3/3) |
| PHY 111 | Applied Physics (3/4) |
| CAD 150 | 3D Modeling (3/4) |
| APP 123E | Linear Electronics (3/4) |
| PLS 221 | American Government & Politics (3/3) |

| **Year 2 (Fall Semester)** | **Credits: 15** |
|---|---|
| ENG 111 *or* | English Composition I (3/3) *or* |
| ENG 120 | Applied Communication (3/3) |
| CAD 220 | Machine Design (3/4) |
| IND 229 | Hydraulic & Pneumatic Power (3/4) |
| MET 200 | Material Science (3/4) |
| APP 107E | Specialty Wiring (3/4) |

| **Year 2 (Spring Semester)** | **Credits: 15** |
|---|---|
| ENG 112 *or* | English Composition II (3/3) *or* |
| ENG 123 | Technical Communication (3/3) |
| APP 114E | Programmable Logic Controllers (3/4) |
| MFG 201 | CNC I (4/6) |
| EGR 130 | Team Design Project (2/3) |
| | Technical Elective (3/4) |

# Industrial Technology

Associate in Applied Science (AAS) Degree

## Concentration – Unmanned Remote Robotics

| | |
|---|---|
| MRT 101 | Introduction to Underwater Robotics (3/4) [A] |
| AVI 135 | UAS Pilot Exam Prep (1/1.25) [A] |
| AVI 136 | UAS Operations & Safety (1/1.5) [A] |
| AVI 137 | UAS Payloads & Processing (1/1.25) [A] |
| APP 107E *or* | Specialty Wiring (3/4) [A] *or* |
| CNS 151 | Network Communication Cabling (3/4) [A] |
| APP 123E | Linear Electronics (3/4) [A] |
| GEO 151 | Introduction to GIS (1.5/2) [A] |
| GEO 152 | Advanced GIS (1.5/2) [A] |

### Suggested Sequence of Courses

| **Year 1 (Fall Semester)** | **Credits: 17** |
|---|---|
| MTH 113 | Intermediate Algebra (4/4) |
| MRT 101 | Introduction to Underwater Robotics (3/4) |
| MFG 122 | Manufacturing Processes (3/4) |
| APP 100E | Electrical Studies for Trades (3/4) |
| IND 120 | Industrial Networking (3/4) |
| APP 106M | Industrial Safety (1/1) |

| **Year 1 (Spring Semester)** | **Credits: 15** |
|---|---|
| MTH 122 | Plane Trigonometry (3/3) |
| GEO 151 | Introduction to GIS (1.5/2) |
| GEO 152 | Advanced GIS (1.5/2) |
| CAD 150 | 3D Modeling (3/4) |
| APP 123E | Linear Electronics (3/4) |
| PLS 221 | American Government & Politics (3/3) |

| **Year 2 (Fall Semester)** | **Credits: 17** |
|---|---|
| ENG 111 *or* | English Composition I (3/3) *or* |
| ENG 120 | Applied Communication (3/3) |
| MFG 101 | Machining Processes I (4/6) |
| IND 229 | Hydraulic & Pneumatic Power (3/4) |
| PHY 121 | Applied Physics (4/6) |
| APP 107E | Specialty Wiring (3/4) |

| **Year 2 (Spring Semester)** | **Credits: 14** |
|---|---|
| ENG 112 *or* | English Composition II (3/3) *or* |
| ENG 123 | Technical Communication (3/3) |
| MET 200 | Material Science (3/4) |
| AVI 135 | UAS Pilot Exam Prep (1/1.25) |
| AVI 136 | UAS Operations & Safety (1/1.5) |
| AVI 137 | UAS Payloads & Processing (1/1.25) |
| EGR 130 | Team Design Project (2/3) |
| | Technical Elective (3/4) |

# Liberal Arts – General

Associate in Arts (AA) Degree

Description: This is a suggested program of study which may be altered to meet individual goals and transfer plans. Students should refer to the descriptions of Alpena Community College graduation requirements and degree distribution requirements and consult with an academic advisor concerning specific course selection and eventual declaration of major. A minimum total of 60 credits is required for the Associate in Arts degree.

**General Education Requirements** **Credits: 33-36**

| | |
|---|---|
| ENG 111 *or* | English Composition I (3/3) *or* |
| ENG 121 | Advanced English Composition I (3/3) |
| ENG 112 *or* | English Composition II (3/3) *or* |
| ENG 122 | Advanced English Composition II (3/3) |
| PLS 221 | American Government & Politics (3/3) |
| MTH 121 *or higher* | College Algebra or Higher (4/4) [A] |
| | Natural Science (6-8/6-10) [B] |
| | Humanities Elective (8-9/8-9) [C] |
| | Social Science Electives (6/6) [D] |

**Core Program Requirements** **Credits: 11-13**

| | |
|---|---|
| HST 121 | History of Western Civilization (3/3) |
| HST 122 | History of Western Civilization (3/3) |
| SPE 121 *or* | Speech Communication (3/3) *or* |
| SPE 123 | Public Communication (3/3) |
| ART | Fine Arts Course (2-4/2-4) |

**Suggested Electives** **Credits: 13-18**

Electives will change depending on area of concentration and the specific four-year transfer institution's requirements. Consult your ACC academic advisor.

**Minimum 60 Credit Hours/60 Contact Hours**

Notes:

[A] MTH 102 or higher will satisfy ACC graduation requirements. However, if the intention is to transfer, then students will need MTH 121 or higher to meet Michigan Transfer Agreement (MTA) qualifications.

[B] Choose two (BIO, CEM, GEO 127, PHS, PHY), but one must have a lab component.

[C] Choose HUM 241 & HUM 242 or three courses from two categories (ART, ASL, ENG 203 or higher, FRN, GER, HUM, MUS, PFA, PHL, SPE, SPN).

[D] Choose from ANP, ECN, EDU, GEO, HST, PLS, PSY, SOC.

# Liberal Arts – General

Associate in Arts (AA) Degree

Suggested Sequence of Courses

**Year 1 (Fall Semester)** **Credits: 16**

| | |
|---|---|
| ENG 111 *or* | English Composition I (3/3) *or* |
| ENG 121 | Advanced English Composition I (3/3) |
| MTH 121 *or higher* | College Algebra or Higher (4/4) |
| HST 121 | History of Western Civilization (3/3) |
| | Fine Arts Elective (3/4) |
| | Elective (3/3) |

**Year 1 (Spring Semester)** **Credits: 16**

| | |
|---|---|
| ENG 112 *or* | English Composition II (3/3) *or* |
| ENG 122 | Advanced English Composition II (3/3) |
| | Laboratory Natural Science (4/5) |
| HST 122 | History of Western Civilization (3/3) |
| | Social Science Elective (3/3) |
| | Elective (3/3) |

**Year 2 (Fall Semester)** **Credits: 16**

| | |
|---|---|
| PLS 221 | American Government & Politics (3/3) |
| SPE 121 *or* | Speech Communication (3/3) *or* |
| SPE 123 | Public Communication (3/3) |
| HUM 241 | Humanities I (4/4) |

**Year 2 (Spring Semester)** **Credits: 16-17**

| | |
|---|---|
| | Natural Science Requirement (3-4/3-4) |
| HUM 242 | Humanities II (4/4) |
| | Social Science Elective (3/3) |
| | Electives (6/6) |

# Machine Tool Technology, Basic

Certificate (C)

Description: This certificate program develops student skills in the operation of lathes, milling machines, and surface grinders. The student will also become proficient in applied mathematics and blueprint reading and will understand the theory of machine shop practices. There will also be an introduction to the operation of Computer Numerical Control (CNC) equipment. Completion of this certificate will qualify the student for entry-level employment in basic machining and manufacturing operations.

| **Program Requirements** | | **Credits: 25** |
|---|---|---|
| APP 106M | Industrial Safety (1/1) [A] | |
| MET 200 | Material Science (3/4) [A] | |
| MTH 110 | Technical Math I (3/4) [A] | |
| MFG 101 | Machining Processes I (4/6) [A] | |
| MFG 102 | Machining Processes II (4/6) [A] | |
| MFG 120 | Print Interpretation & Processes (3/4) [A] | |
| MFG 201 | CNC I (4/6) [A] | |
| MFG 204 | Computer-Aided Manufacturing (3/4) [A] | |

**Minimum 25 Credit Hours/35 Contact Hours**

Notes:
[A] Included in occupational specialty.
*GPA of 2.0 or higher must be maintained in occupational specialty courses*

# Machine Tool Technology, Basic

Certificate (C)
Suggested Sequence of Courses

| **Year 1 (Fall Semester)** | | **Credits: 13** |
|---|---|---|
| MET 200 | Material Science (3/4) | |
| MFG 101 | Machining Processes I (4/6) | |
| MFG 120 | Print Interpretation & Processes (3/4) | |
| MTH 110 | Technical Math I (3/4) | |

| **Year 1 (Spring Semester)** | | **Credits: 12** |
|---|---|---|
| APP 106M | Industrial Safety (1/1) | |
| MFG 102 | Machining Processes II (4/6) | |
| MFG 201 | CNC I (4/6) | |
| MFG 204 | Computer-Aided Manufacturing (3/4) | |

Gainful Employment information for Manufacturing Tech - Basic

# Machine Tool Technology, Advanced

Certificate (C)

Description: This certificate program develops student skills in the operation of Computer-Aided Drafting (CAD) software and extensive focus on set-up, programming, and operation of Computer Numerical Control (CNC), CNC lathes, milling machines, and wire EDM, plus advanced inspection equipment. Completion of this certificate will qualify the student for entry-level employment as CNC machine operators, set-up personnel, and programmers.

A prerequisite for this program is the completion of the Machine Tool Technology, Basic certificate program, Welding Fabrication certificate, or CAD Technology associate degree.

| **Program Requirements** | | **Credits: 21** |
|---|---|---|
| CAD 150 | 3D Modeling (3/4) | |
| CAD 250 | Advanced 3D Modeling (3/4) [A] | |
| MFG 122 | Manufacturing Processes (3/4) | |
| MFG 202 | CNC II (4/6) [A] | |
| MFG 205 | CNC III (4/6) [A] | |
| MFG 220 | Jigs & Fixtures Design Fundamentals (4/6) [A] | |

| **Suggested Electives** | | **Credits: 6** |
|---|---|---|
| | Any two APP Course (6/8) | |

**Minimum 27 Credit Hours/38 Contact Hours**

Notes:
[A] Included in occupational specialty.
*GPA of 2.0 or higher must be maintained in occupational specialty courses*

# Machine Tool Technology, Advanced

Certificate (C)
Suggested Sequence of Courses

| **Year 1 (Fall Semester)** | | **Credits: 14** |
|---|---|---|
| CAD 150 | 3D Modeling (3/4) | |
| MFG 122 | Manufacturing Processes (3/4) | |
| MFG 202 | CNC II (4/6) | |
| MFG 220 | Jigs & Fixture Design Fundamentals (4/6) | |

| **Year 1 (Spring Semester)** | | **Credits: 13** |
|---|---|---|
| | APP Electives (6/8) | |
| CAD 250 | Advanced 3D Modeling (3/4) | |
| MFG 205 | CNC III (4/6) | |

Gainful Employment information for Machine Tool Technology, Advanced

# MACHINE TOOL TECHNOLOGY

ASSOCIATE IN APPLIED SCIENCE (AAS) DEGREE

DESCRIPTION: This associate degree program familiarizes the students with machine tools and manufacturing processes, develops skills in the operation of computer-aided drafting software, and provides hands-on experience setting up, programming, and operating Computer Numerical Control (CNC) machines and advanced inspection equipment. Computer-Aided Manufacturing (CAM) and Statistical Process Control (SPC) are skills integrated within the curriculum to prepare the student for employment as CNC programmers, machinists, toolmakers, and quality assurance technicians, or move on to complete a four-year degree in Manufacturing Engineering. The Associate in Applied Science (AAS) degree in Machine Tool Technology requires completing the certificate programs and the following courses marked with an **.

**GENERAL EDUCATION REQUIREMENTS** **CREDITS: 12**

| | |
|---|---|
| ENG 120 *or* | APPLIED COMMUNICATION (3/3) *or* |
| ENG 111 | ENGLISH COMPOSITION I (3/3) |
| ENG 123 *or* | TECHNICAL COMMUNICATION (3/3) *or* |
| ENG 112 | ENGLISH COMPOSITION II (3/3) |
| PLS 221 *or* | AMERICAN GOVERNMENT & POLITICS (3/3) *or* |
| PLS 222 | STATE & LOCAL GOVERNMENT (3/3) |
| PHY 111 | APPLIED PHYSICS (3/4) |

**CORE PROGRAM REQUIREMENTS** **CREDITS: 48-49**

| | |
|---|---|
| CAD 150 | 3D MODELING (3/4) [A] |
| CAD 220 | MACHINE DESIGN (3/4) |
| CAD 250 | ADVANCED 3D MODELING (3/4) [A] |
| MET 200 | MATERIAL SCIENCE (3/4) [A] |
| MFG 101 | MACHINING PROCESSES I (4/6) [A] |
| MFG 102 | MACHINING PROCESSES II (4/6) [A] |
| MFG 122 | MANUFACTURING PROCESSES (3/4) [A] |
| MFG 201 | CNC I (4/6) [A] |
| MFG 202 | CNC II (4/6) [A] |
| MFG 204 | COMPUTER-AIDED MFG (CAM) (3/4) [A] |
| MFG 205 | CNC III (4/6) [A] |
| MFG 220 | JIGS & FIXTURE DESIGN (4/6) [A] |
| MTH 110 *or* | TECHNICAL MATH I (3/4) *or* |
| MTH 113 | INTERMEDIATE ALGEBRA (4/4) |
| MTH 112 *or* | TECHNICAL MATH II (3/4) *or* |
| MTH 122 | PLANE TRIGONOMETRY (3/3) |

**SUGGESTED ELECTIVES** **CREDITS: 3**

APP OR WLD COURSE (3/3)

**MINIMUM 63 CREDIT HOURS/82 CONTACT HOURS**

NOTES:

[A] Included in occupational specialty.

*GPA of 2.0 or higher must be maintained in occupational specialty courses*

Students transferring in Manufacturing or Industrial Engineering should take MTH 113 and MTH 122.

# MACHINE TOOL TECHNOLOGY

ASSOCIATE IN APPLIED SCIENCE (AAS) DEGREE

SUGGESTED SEQUENCE OF COURSES

**YEAR 1 (FALL SEMESTER)** **CREDITS: 16-17**

| | |
|---|---|
| MFG 101 | MACHINING PROCESSES I (4/6) |
| MFG 122 | MANUFACTURING PROCESSES (3/4) |
| CAD 150 | 3D MODELING (3/4) |
| ENG 120 *or* | APPLIED COMMUNICATION (3/3) *or* |
| ENG 111 | ENGLISH COMPOSITION I (3/3) |
| MTH 110 *or* | TECHNICAL MATH I (3/4) *or* |
| MTH 113 | INTERMEDIATE ALGEBRA (4/4) |

**YEAR 1 (SPRING SEMESTER)** **CREDITS: 17**

| | |
|---|---|
| MFG 102 | MACHINING PROCESSES II (4/6) |
| MFG 201 | CNC I (4/6) |
| MFG 204 | COMPUTER-AIDED MFG (CAM) (3/4) |
| ENG 123 *or* | TECHNICAL COMMUNICATION (3/3) *or* |
| ENG 112 | ENGLISH COMPOSITION II (3/3) |
| MTH 112 *or* | TECHNICAL MATH II (3/4) *or* |
| MTH 122 | PLANE TRIGONOMETRY (3/3) |

**YEAR 2 (FALL SEMESTER)** **CREDITS: 17**

| | |
|---|---|
| MFG 202 | CNC II (4/6) |
| MFG 220 | JIGS & FIXTURE DESIGN (4/6) |
| CAD 220 | MACHINE DESIGN (3/4) |
| MET 200 | MATERIAL SCIENCE (3/4) |
| PLS 221 *or* | AMERICAN GOVERNMENT & POLITICS (3/3) *or* |
| PLS 222 | STATE & LOCAL GOVERNMENT (3/3) |

**YEAR 2 (SPRING SEMESTER)** **CREDITS: 13**

| | |
|---|---|
| MFG 205 | CNC III (4/6) |
| CAD 250 | ADVANCED 3D MODELING (3/4) |
| PHY 111 | APPLIED PHYSICS (3/4) |
| | Elective (3/3) |

# MARINE TECHNOLOGY

ASSOCIATE IN APPLIED SCIENCE (AAS) DEGREE

DESCRIPTION: This program is designed for students interested in careers working on Great Lakes, ocean-based research vessels, or in industries related to the blue economy with particular emphasis on ROV (Remote Operated Vehicle) operations and applied robotics. This program features an on-water component, coursework related to ocean issues and underwater archeology, skilled trades required to design and build an ROV, and the opportunity for an internship between the first and second year of the program. Networking opportunities with public and private sector employers will be provided, along with a capstone project leading to competition in the national ROV competition. The program will emphasize project-based learning activities appealing to employers across a range of related industries.

**GENERAL EDUCATION REQUIREMENTS** **CREDITS: 12-16**

ENG 111 *or* ENGLISH COMPOSITION I (3/3) *or*
ENG 120 APPLIED COMMUNICATION (3/3)

ENG 112 *or* ENGLISH COMPOSITION II (3/3) *or*
ENG 123 TECHNICAL COMMUNICATION (3/3)

PLS 221 *or* AMERICAN GOVERNMENT REQUIREMENT (3-6/3-6)
PLS 222 *or*
HST 221 & HST 222

PHY 111 *or* APPLIED PHYSICS (3/4) *or*
PHY 121 GENERAL COLLEGE PHYSICS (4/6)

**CORE PROGRAM REQUIREMENTS** **CREDITS: 47-48**

APP 100E ELECTRICAL STUDIES FOR TRADES (3/4) [A]
APP 106M INDUSTRIAL SAFETY (1/1) [A]
APP 107E SPECIALTY WIRING (3/4) [A]
APP 114E PROGRAMMABLE CONTROLLERS (3/4) [A]
APP 123E LINEAR ELECTRONICS FOR ELECTRICIANS (3/4) [A]
CAD 220 MACHINE DESIGN (3.5/5) [A]
EGR 130 TEAM DESIGN PROJECT (2/3) [A]
ELE 220 PC BASE DATA ACQUISITION & CONTROL (3/4) [A]
GEO 151 INTRODUCTION TO GIS (1.5/2)
GEO 152 ADVANCED GIS (1.5/2)
IND 120 INDUSTRIAL NETWORKING (3/4) [A]
IND 229 HYDRAULIC & PNEUMATIC POWER (3/4) [A]
MFG 101 MACHINING PROCESSES I (4/6) [A]

MTH 110 *or* TECHNICAL MATH I (3/4) *or*
MTH 113 INTERMEDIATE ALGEBRA (4/4)

MTH 112 *or* TECHNICAL MATH II (3/4) *or*
MTH 122 PLANE TRIGONOMETRY (3/3)

MRT 101 INTRO TO SUBMERSIBLE ROBOTICS W/BUILD (3/4) [A]
MRT 110 INTRODUCTION TO CAREERS ON THE WATER (2/3) [A]
MRT 210 ROV PILOTING (2/3) [A]

**SUGGESTED ELECTIVES** **CREDITS:**

TECHNICAL ELECTIVE OPTIONS: APP 104E, APP 111E, APP 128M, CNS 170, HST 140, PEH 105.

**MINIMUM 60.5 CREDIT HOURS/78.5 CONTACT HOURS**

NOTES:
[A] Included in occupational specialty.
*GPA of 2.0 or higher must be maintained in occupational specialty courses*

# MARINE TECHNOLOGY

ASSOCIATE IN APPLIED SCIENCE (AAS) DEGREE
SUGGESTED SEQUENCE OF COURSES

**YEAR 1 (SUMMER SEMESTER)** **CREDITS: 2**

MRT 110 INTRO TO CAREERS ON THE WATER (2/3)

**YEAR 1 (FALL SEMESTER)** **CREDITS: 16-17**

MTH 110 *or* TECHNICAL MATH I (3/4) *or*
MTH 113 INTERMEDIATE ALGEBRA (4/4)

ENG 111 *or* ENGLISH COMPOSITION I (3/3) *or*
ENG 120 APPLIED COMMUNICATION (3/3)

APP 106M INDUSTRIAL SAFETY (1/1)
IND 120 INDUSTRIAL NETWORKING (3/4)
APP 100E ELECTRICAL STUDIES FOR TRADES (3/4)
MRT 101 INTRO TO SUBMERSIBLE ROBOTICS W/BUILD (3/4)

**YEAR 1 (SPRING SEMESTER)** **CREDITS: 15**

MTH 112 *or* TECHNICAL MATH II (3/4) *or*
MTH 122 PLANE TRIGONOMETRY (3/3)

ENG 112 *or* ENGLISH COMPOSITION II (3/3) *or*
ENG 123 TECHNICAL COMMUNICATION (3/3)

CAD 150 3D MODELING (3/4)
APP 114E PROGRAMMABLE CONTROLLERS (3/4)
APP 123E LINEAR ELECTRONICS FOR ELECTRICIANS (3/4)

**YEAR 2 (SUMMER SEMESTER)** **CREDITS: 2**

MRT 210 ROV PILOTING (2/3)

**YEAR 2 (FALL SEMESTER)** **CREDITS: 16.5-17.5**

PHY 111 *or* APPLIED PHYSICS (3/4) *or*
PHY 121 GENERAL COLLEGE PHYSICS (4/6)

MFG 101 MACHINING PROCESSES I (4/6)
IND 229 HYDRAULIC & PNEUMATIC POWER (3/4)
CAD 220 MACHINE DESIGN (3.5/5)
APP 107E SPECIALTY WIRING (3/4)

**YEAR 2 (SPRING SEMESTER)** **CREDITS: 14-17**

EGR 130 TEAM DESIGN PROJECT (2/3)
ELE 220 PC BASE DATA ACQUISITION & CONTROL (3/4) [A]
GEO 151 INTRODUCTION TO GIS (1.5/2)
GEO 152 ADVANCED GIS (1.5/2)

PLS 221 *or* AMERICAN GOVERNMENT REQUIREMENT (3-6/3-6)
PLS 222 *or*
HST 221 & HST 222

TECHNICAL ELECTIVE (3/4)

# MARKETING

ASSOCIATE IN APPLIED SCIENCE (AAS) DEGREE

DESCRIPTION: This program prepares students for positions in the marketing area of a business organization. Successful completion will equip the student with the necessary knowledge and skills to seek employment in sales and sales management, retailing, and other marketing-related positions.

**GENERAL EDUCATION REQUIREMENTS** **CREDITS: 21-24**

| | |
|---|---|
| ENG 111 *or* | ENGLISH COMPOSITION I (3/3) *or* |
| ENG 121 | ADVANCED ENGLISH COMPOSITION I (3/3) |
| ENG 112 *or* | ENGLISH COMPOSITION II (3/3) *or* |
| ENG 122 | ADVANCED ENGLISH COMPOSITION II (3/3) |
| ECN 231 | ECONOMICS (MICRO) (3/3) |
| ECN 232 | ECONOMICS (MACRO) (3/3) |
| PLS 221 *or* | AMERICAN GOVERNMENT REQUIREMENT (3-6/3-6) |
| PLS 222 *or* | |
| HST 221 & HST 222 | |
| PSY 101 | GENERAL PSYCHOLOGY (3/3) |
| SPE 121 | SPEECH COMMUNICATION (3/3) |

**CORE PROGRAM REQUIREMENTS** **CREDITS: 41-43**

| | |
|---|---|
| BUS 121 | INTRODUCTION TO BUSINESS (3/3) [A] |
| BUS 122 | PERSONAL SELLING (3/3) [A] |
| BUS 123 | PRINCIPLES OF ACCOUNTING I (4/4) [A] |
| BUS 124 | PRINCIPLES OF ACCOUNTING II (4/4) [A] |
| BUS 125 *or higher* | BUSINESS MATH OR HIGHER MATH (3-5/3-5) |
| BUS 221 | BUSINESS LAW (3/3) [A] |
| BUS 222 | BUSINESS LAW (3/3) [A] |
| BUS 229 | ADVERTISING (3/3) [A] |
| BUS 241 | PRINCIPLES OF MARKETING (3/3) [A] |
| BUS 255 | BUSINESS APPLICATION SOFTWARE (3/4) [A] |
| CIS 120 | INTRODUCTION TO MICROCOMPUTERS (3/4) [A] |
| CIS 240 | MULTIMEDIA PRESENTATIONS (3/4) [A] |
| CIS 241 | INTRO TO WEB DESIGN & MANAGEMENT (3/4) [A] |

**MINIMUM 62 CREDIT HOURS/66 CONTACT HOURS**

NOTES:
[A] Included in occupational specialty.
*GPA of 2.0 or higher must be maintained in occupational specialty courses*

# MARKETING

ASSOCIATE IN APPLIED SCIENCE (AAS) DEGREE
SUGGESTED SEQUENCE OF COURSES

**Year 1 (Fall Semester)** **Credits: 16-18**

| | |
|---|---|
| ENG 111 *or* | ENGLISH COMPOSITION I (3/3) *or* |
| ENG 121 | ADVANCED ENGLISH COMPOSITION I (3/3) |
| BUS 125 *or higher* | BUSINESS MATH OR HIGHER MATH (3-5/3-5) |
| BUS 121 | INTRODUCTION TO BUSINESS (3/3) |
| BUS 123 | PRINCIPLES OF ACCOUNTING I (4/4) |
| CIS 120 | INTRODUCTION TO MICROCOMPUTERS (3/4) |

**YEAR 1 (SPRING SEMESTER)** **CREDITS: 16**

| | |
|---|---|
| ENG 112 *or* | ENGLISH COMPOSITION II (3/3) *or* |
| ENG 122 | ADVANCED ENGLISH COMPOSITION II (3/3) |
| BUS 122 | PERSONAL SELLING (3/3) |
| BUS 124 | PRINCIPLES OF ACCOUNTING II (4/4) |
| BUS 241 | PRINCIPLES OF MARKETING (3/3) |
| BUS 255 | BUSINESS APPLICATION SOFTWARE (3/4) |

**YEAR 2 (FALL SEMESTER)** **CREDITS: 15-18**

| | |
|---|---|
| BUS 221 | BUSINESS LAW (3/3) |
| ECN 231 | ECONOMICS (MICRO) (3/3) |
| PLS 221 *or* | AMERICAN GOVERNMENT REQUIREMENT (3-6/3-6) |
| PLS 222 *or* | |
| HST 221 & HST 222 | |
| PSY 101 | GENERAL PSYCHOLOGY (3/3) |
| SPE 121 | SPEECH COMMUNICATION (3/3) |

**YEAR 2 (SPRING SEMESTER)** **CREDITS: 15**

| | |
|---|---|
| BUS 222 | BUSINESS LAW (3/3) |
| ECN 232 | ECONOMICS (MACRO) (3/3) |
| BUS 229 | ADVERTISING (3/3) |
| CIS 240 | MULTIMEDIA PRESENTATIONS (3/4) |
| CIS 241 | INTRO TO WEB DESIGN & MANAGEMENT (3/4) |

# MATHEMATICS

ASSOCIATE IN SCIENCE (AS) DEGREE

DESCRIPTION: This is a suggested program of study which may be altered to meet individual goals and transfer plans. Students should refer to the description of Alpena Community College graduation requirements and AS degree distribution requirements and consult with an academic advisor concerning specific course selection. A minimum total of 60 credits is required for the Associate in Science degree.

**GENERAL EDUCATION REQUIREMENTS** **CREDITS: 28-33**

| | |
|---|---|
| ENG 111 *or* | ENGLISH COMPOSITION I (3/3) *or* |
| ENG 121 | ADVANCED ENGLISH COMPOSITION I (3/3) |
| ENG 112 *or* | ENGLISH COMPOSITION II (3/3) *or* |
| ENG 122 | ADVANCED ENGLISH COMPOSITION II (3/3) |
| MTH 131 | ANALYTIC GEOMETRY & CALCULUS I (5/5) |
| PLS 221 *or* | AMERICAN GOVERNMENT REQUIREMENT (3-6/3-6) |
| PLS 222 *or* | |
| HST 221 & HST 222 | |
| | HUMANITIES/FINE ARTS/SOCIAL SCI REQ (3-4/3-4) |
| | HUMANITIES/FINE ARTS REQUIREMENT (3-4/4-5) |
| | SCIENCE REQUIREMENT (4/4) |
| | LABORATORY SCIENCE REQUIREMENT (4/4) |

**CORE PROGRAM REQUIREMENTS** **CREDITS: 14**

| | |
|---|---|
| MTH 132 | ANALYTIC GEOMETRY & CALCULUS II (5/5) |
| MTH 231 | ANALYTIC GEOMETRY & CALCULUS III (5/5) |
| MTH 232 | DIFFERENTIAL EQUATIONS (4/4) |

**SUGGESTED ELECTIVES** **13-18**

Electives will change depending on area of concentration and the specific four-year transfer institution's requirements. Consult your ACC academic advisory. Students are encouraged to select electives in science which will lead to a minor at a transfer school.

**MINIMUM 60 CREDIT HOURS/61 CONTACT HOURS**

# MATHEMATICS

ASSOCIATE IN SCIENCE (AS) DEGREE
SUGGESTED SEQUENCE OF COURSES

**YEAR 1 (FALL SEMESTER)** **CREDITS: 15-16**

| | |
|---|---|
| ENG 111 *or* | ENGLISH COMPOSITION I (3/3) *or* |
| ENG 121 | ADVANCED ENGLISH COMPOSITION I (3/3) |
| MTH 131 | ANALYTIC GEOMETRY & CALCULUS I (5/5) |
| | LABORATORY SCIENCE REQUIREMENT (4/4) |
| | NON-SCIENCE ELECTIVE (3-4/3-4) |

**YEAR 1 (SPRING SEMESTER)** **CREDITS: 15-16**

| | |
|---|---|
| ENG 112 *or* | ENGLISH COMPOSITION II (3/3) *or* |
| ENG 122 | ADVANCED ENGLISH COMPOSITION II (3/3) |
| MTH 132 | ANALYTIC GEOMETRY & CALCULUS II (5/5) |
| | SCIENCE REQUIREMENT (4/4) |
| | NON-SCIENCE ELECTIVE (3-4/3-4) |

**YEAR 2 (FALL SEMESTER)** **CREDITS: 15-19**

| | |
|---|---|
| MTH 231 | ANALYTIC GEOMETRY & CALCULUS III (5/5) |
| PLS 221 *or* | AMERICAN GOVERNMENT REQUIREMENT (3-6/3-6) |
| PLS 222 *or* | |
| HST 221 & HST 222 | |
| | SCIENCE ELECTIVE (4/4) |
| | HUMANITIES/FINE ARTS REQUIREMENT (3-4/4-5) |

**YEAR 2 (SPRING SEMESTER)** **CREDITS: 15-16**

| | |
|---|---|
| MTH 232 | DIFFERENTIAL EQUATIONS (4/4) |
| | SCIENCE ELECTIVE (4/4) |
| | NON-SCIENCE ELECTIVE (3-4/3-4) |
| | HUMANITIES/FINE ARTS/SOCIAL SCI REQ (3-4/3-4) |

# MEDICAL ASSISTANT

ASSOCIATE IN APPLIED SCIENCE (AAS) DEGREE

DESCRIPTION: This program provides a blend of administrative and clinical courses to prepare the student for entry level medical assisting. This allied health care profession offers work primarily in ambulatory settings such as medical offices and clinics. Supervised practicums at physicians' offices are required. Prior to placement, the student must submit evidence of good health which includes a physical exam, up-to-date immunizations, tuberculin screening results, and CPR certification. A background check may also be required. A medical assistant's responsibilities may include, but are not limited to, scheduling patients, maintaining medical records, obtaining medical codes, submitting insurance forms, taking vital signs, sterilizing instruments, performing office laboratory procedures and tests, obtaining EKG readouts, and assisting patients with understanding treatment instructions.

**GENERAL EDUCATION REQUIREMENTS** **CREDITS: 12**

| | |
|---|---|
| ENG 111 *or* | ENGLISH COMPOSITION I (3/3) *or* |
| ENG 121 | ADVANCED ENGLISH COMPOSITION I (3/3) |
| ENG 112 *or* | ENGLISH COMPOSITION II (3/3) *or* |
| ENG 122 | ADVANCED ENGLISH COMPOSITION II (3/3) |
| PLS 221 *or* | AMERICAN GOVERNMENT REQUIREMENT (3/3) |
| PLS 222 | |
| PSY 101 | GENERAL PSYCHOLOGY (3/3) |

**CORE PROGRAM REQUIREMENT** **CREDITS: 48**

| | |
|---|---|
| BIO 110 | ESSENTIALS OF ANATOMY & PHYSIOLOGY (4/5) [A] |
| BIS 159 | MEDICAL OFFICE ADMINISTRATIVE SEMINAR (3/3) [A] |
| BIS 160 | MEDICAL TERMINOLOGY (4/4) [A] |
| BIS 167 | MEDICAL ETHICS & LAW FOR HEALTH PROF (3/3) [A] |
| BIS 169 | PRACTICE MANAGEMENT SOFTWARE (3/4) [A] |
| BIS 220 | MEDICAL OFFICE ADMIN PRACTICUM (3/3) [A] |
| CIS 120 | INTRODUCTION TO MICROCOMPUTERS (3/4) [A] |
| MED 221 | MEDICAL ASSISTANT CLINICAL SEMINAR (3/3) [A] |
| MED 222 | MEDICATION ADMINISTRATION (5/6) [A] |
| MED 223 | MEDICAL ASSISTANT CLINICAL LAB (4/6) [A] |
| MED 224 | MEDICAL ASST CLINICAL PRACTICUM (4/4) [A] |
| MED 225 | MEDICAL CONDITIONS & PROCEDURES (4/4) [A] |
| MED 226 | MEDICAL ASST CERTIFICATION TEST PREP (4/4) [A] |
| PEH 264 | COMMUNITY FIRST AID CPR/AED (BLS) (1/1) [A] |

**MINIMUM 60 CREDIT HOURS/67 CONTACT HOURS**

NOTES:
[A] Included in occupational specialty.
*GPA of 2.0 or higher must be maintained in occupational specialty courses*

# MEDICAL ASSISTANT

ASSOCIATE IN APPLIED SCIENCE (AAS) DEGREE
SUGGESTED SEQUENCE OF COURSES

**YEAR 1 (FALL SEMESTER)** **CREDITS: 16**

| | |
|---|---|
| BIS 159 | MEDICAL OFFICE ADMINISTRATIVE SEMINAR (3/3) |
| BIS 160 | MEDICAL TERMINOLOGY (4/4) |
| CIS 120 | INTRODUCTION TO MICROCOMPUTERS (3/4) |
| ENG 111 *or* | ENGLISH COMPOSITION I (3/3) *or* |
| ENG 121 | ADVANCED ENGLISH COMPOSITION I (3/3) |
| PSY 101 | GENERAL PSYCHOLOGY (3/3) |

**YEAR 1 (SPRING SEMESTER)** **CREDITS: 14**

| | |
|---|---|
| BIO 110 | ESSENTIALS OF ANATOMY & PHYSIOLOGY (4/5) |
| BIS 167 | MEDICAL ETHICS & LAW FOR HEALTH PROF (3/3) |
| BIS 169 | PRACTICE MANAGEMENT SOFTWARE (3/4) |
| ENG 112 *or* | ENGLISH COMPOSITION II (3/3) *or* |
| ENG 122 | ADVANCED ENGLISH COMPOSITION II (3/3) |
| PEH 264 | COMMUNITY FIRST AID CPR/AED (BLS) (1/1) |

**YEAR 1 (SUMMER SEMESTER)** **CREDITS: 6**

| | |
|---|---|
| BIS 220 | MEDICAL ASST ADMIN PRACTICUM (3/3) |
| PLS 221 *or* | AMERICAN GOVERNMENT REQUIREMENT (3/3) |
| PLS 222 | |

**YEAR 2 (FALL SEMESTER)** **CREDITS: 12**

| | |
|---|---|
| MED 221 | MEDICAL ASSISTANT CLINICAL SEMINAR (3/3) |
| MED 222 | MEDICATION ADMINISTRATION (5/6) |
| MED 223 | MEDICAL ASSISTANT CLINICAL LAB (4/6) |

**YEAR 2 (SPRING SEMESTER)** **CREDITS: 12**

| | |
|---|---|
| MED 224 | MEDICAL ASST CLINICAL PRACTICUM (4/4) |
| MED 225 | MEDICAL CONDITIONS & PROCEDURES (4/4) |
| MED 226 | MEDICAL ASST CERTIFICATION TEST PREP (4/4) |

# MILLWRIGHT

ASSOCIATE IN APPLIED SCIENCE (AAS) DEGREE

DESCRIPTION: This program meets industry standards for this skilled trade, preparing students to work in an industrial setting with installation and maintenance of hydraulics, pneumatic equipment, power trains, belts, gears, and chains. The program also includes course work in industrial electrical maintenance to allow for cross-training as a millwright/electrical maintenance technician. Students will also earn basic and advanced millwright certification upon successful completion of the program. The Apprentice (APP) courses for this program of study are offered primarily at night on a two-year rotating basis.

| **GENERAL EDUCATION REQUIREMENTS** | | **CREDITS: 18** |
|---|---|---|
| ENG 111 *or* | ENGLISH COMPOSITION I (3/3) *or* | |
| ENG 120 | APPLIED COMMUNICATION (3/3) | |
| ENG 112 *or* | ENGLISH COMPOSITION II (3/3) *or* | |
| ENG 123 | TECHNICAL COMMUNICATION (3/3) | |
| PLS 221 *or* | AMERICAN GOVERNMENT & POLITICS (3/3) *or* | |
| PLS 222 | STATE & LOCAL GOVERNMENT (3/3) | |
| SPE 123 | PUBLIC COMMUNICATION (3/3) | |
| | COMPUTER ELECTIVE (3/4) | |
| | GENERAL ELECTIVE (3/3) | |

| **CORE PROGRAM REQUIREMENTS** | | **CREDITS: 34.5-35.5** |
|---|---|---|
| APP 100E | ELECTRICAL STUDIES FOR TRADES (3/4) | |
| APP 102E | RESIDENTIAL WIRING & BLUEPRINT RDG (3/4) | |
| APP 103E | COMMERCIAL & INDUSTRIAL WIRING (3/4) | |
| APP 106M | INDUSTRIAL SAFETY (1/1) | |
| APP 121M *or* | APPRENTICE BLUEPRINT READING (3/4) [A] *or* | |
| MFG 120 | PRINT INTERPRETATION & PROCESSES (3/4) | |
| APP 122 M | MACHINE REPAIR (3/4) [A] | |
| APP 124M | APPRENTICE HYDRAULICS (3/4) [A] | |
| APP 125M *or* | APPRENTICE MACHINE SHOP (3/4) [A] *or* | |
| MFG 101 | MACHINING PROCESSES I (4/6) [A] | |
| APP 128M | RIGGING & WEIGHT ESTIMATING (1.5/2) [A] | |
| APP 129M | APPRENTICE PNEUMATICS (1.5/2) [A] | |
| APP 223M | PREDICTIVE & PREVENTATIVE MAINT (3/4) [A] | |
| MTH 110 | TECHNICAL MATH I (3/4) | |
| WLD 123 *or* | SMAW WELDING PROCESSES (4/6) *or* | |
| WLD 124 | GMAW & FCAW WELDING (4/6) | |

| **SUGGESTED ELECTIVES** | | **CREDITS: 9-17** |
|---|---|---|
| APP 111E | ELECTRIC MOTOR CONTROL (3/4) | |
| APP 114E | PROGRAMMABLE CONTROLLERS (3/4) | |
| APP 290M | MILLWRIGHT INTERNSHIP (3/3) | |
| MFG 102 | MACHINING PROCESSES II (6/10) | |
| MFG 201 | INTRO TO COMPUTER NUMERICAL CONTROL (6/10) [B] | |
| | ADDITIONAL WLD OR MET COURSES (3-5/4-8) | |

**MINIMUM 61.5 CREDIT HOURS/75.5 CONTACT HOURS**

NOTES:
[A] Offered on a two-year rotating basis based upon demand, meet with your advisor
[B] Course can be used as Computer Elective

# NATURAL SCIENCES

ASSOCIATE IN SCIENCE (AS) DEGREE

DESCRIPTION: This is a suggested program of study which may be altered to meet individual goals and transfer plans. Students should refer to the descriptions of Alpena Community College graduation requirements and AS degree distribution requirements and consult with an academic advisor concerning specific course selection. A minimum total of 60 credits are required for the Associate in Science degree.

| **GENERAL EDUCATION REQUIREMENTS** | | **CREDITS: 26-33** |
|---|---|---|
| ENG 111 *or* | ENGLISH COMPOSITION I (3/3) *or* | |
| ENG 121 | ADVANCED ENGLISH COMPOSITION I (3/3) | |
| ENG 112 *or* | ENGLISH COMPOSITION II (3/3) *or* | |
| ENG 122 | ADVANCED ENGLISH COMPOSITION II (3/3) | |
| PLS 221 *or* | AMERICAN GOVERNMENT REQUIREMENT (3-6/3-6) | |
| PLS 222 *or* | | |
| HST 221 & HST 222 | | |
| | MATH ELECTIVE (3-5/4-5) | |
| | HUMANITIES/FINE ARTS/SOCIAL SCI REG (3-4/4-5) | |
| | HUMANITIES/FINE ARTS REQUIREMENT (3-4/4-5) | |
| CEM 121 | GENERAL & INORGANIC CHEMISTRY (4/7) | |
| BIO 210 | INTRODUCTION TO BOTANY (4/6) | |

| **CORE PROGRAM REQUIREMENTS** | | **CREDITS: 27** |
|---|---|---|
| BIO 203 | HUMAN PHYSIOLOGY (3/5) | |
| BIO 211 | GENERAL ZOOLOGY (4/5) | |
| CEM 122 | INORGANIC CHEM & QUALITATIVE ANALYSIS (4/7) | |
| CEM 221 | ORGANIC CHEMISTRY (4/6) | |
| CEM 222 | ORGANIC CHEMISTRY (5/7) | |
| PHY 121 | GENERAL COLLEGE PHYSICS (4/6) | |
| PHY 122 | GENERAL COLLEGE PHYSICS (4/6) | |

| **SUGGESTED ELECTIVES** | | **CREDITS:** |
|---|---|---|
| | MATH ELECTIVE (3-5/4-5) | |

# NATURAL SCIENCES

ASSOCIATE IN SCIENCE (AS) DEGREE
SUGGESTED SEQUENCE OF COURSES

| **YEAR 1 (FALL SEMESTER)** | | **CREDITS: 14-16** |
|---|---|---|
| ENG 111 *or* | ENGLISH COMPOSITION I (3/3) *or* | |
| ENG 121 | ADVANCED ENGLISH COMPOSITION I (3/3) | |
| CEM 121 | GENERAL & INORGANIC CHEMISTRY (4/7) | |
| BIO 210 | INTRODUCTION TO BOTANY (4/6) | |
| | MATH ELECTIVE (3-5/4-5) | |

| **YEAR 1 (SPRING SEMESTER)** | | **CREDITS: 14-16** |
|---|---|---|
| ENG 112 *or* | ENGLISH COMPOSITION II (3/3) *or* | |
| ENG 122 | ADVANCED ENGLISH COMPOSITION II (3/3) | |
| CEM 122 | INORGANIC CHEM & QUALITATIVE ANALYSIS (4/7) | |
| BIO 211 | GENERAL ZOOLOGY (4/5) | |
| | MATH ELECTIVE (3-5/4-5) | |

| **YEAR 2 (FALL SEMESTER)** | | **CREDITS: 14-18** |
|---|---|---|
| CEM 221 | ORGANIC CHEMISTRY (4/6) | |
| PHY 121 | GENERAL COLLEGE PHYSICS (4/6) | |
| PLS 221 *or* | AMERICAN GOVERNMENT REQUIREMENT (3-6/3-6) | |
| PLS 222 *or* | | |
| HST 221 & HST 222 | | |
| | HUMANITIES/FINE ARTS REQUIREMENT (3-4/4-5) | |

| **YEAR 2 (SPRING SEMESTER)** | | **CREDITS: 14-15)** |
|---|---|---|
| BIO 203 | HUMAN PHYSIOLOGY (3/5) | |
| CEM 222 | ORGANIC CHEMISTRY (5/7) | |
| PHY 122 | GENERAL COLLEGE PHYSICS (4/6) | |
| | HUMANITIES/FINE ARTS/SOCIAL SCI REG (3-4/4-5) | |

# Network Administration

Certificate (C)

Description: This two-semester program prepares students for entry level positions in Network Administration support positions. Successful completion will equip students with the skills and knowledge to support and maintain computer networks, as well as to perform maintenance and troubleshooting activities associated with Information Technology (IT) equipment and software. The program helps prepare students for industry certification.

**General Education Requirements** **Credits: 3**

| | |
|---|---|
| ENG 111 *or* | English Composition I (3/3) *or* |
| ENG 121 | Advanced English Composition I (3/3) |

**Core Program Requirements** **Credits: 25**

| | |
|---|---|
| BUS 248 | Business Communications (3/3) |
| CIS 140 | Introduction to Microsoft Client OS (3/4) |
| CIS 241 | Introduction to Web Design Mgt (3/4) |
| CNS 150 | Networking fundamentals (3/4) |
| CNS 151 | Network Communication Cabling (3/4) |
| CNS 155 | Introduction to routing & Switching (3/4) |
| CNS 170 | PC Repair & Maintenance (4/5) |
| CNS 180 | Introduction to Microsoft Server (3/4) |

**Minimum 28 Credit Hours/35 Contact Hours**

# Network Administration

Certificate (C)

Suggested Sequence of Courses

**Year 1 (Fall Semester)** **Credits: 16**

| | |
|---|---|
| CIS 140 | Introduction to Microsoft Client OS (3/4) |
| CNS 150 | Networking Fundamental (3/4) |
| CNS 151 | Network Communication Cabling (3/4) |
| CNS 170 | PC Repair & Maintenance (4/5) |
| ENG 111 *or* | English Composition I (3/3) *or* |
| ENG 121 | Advanced English Composition I (3/3) |

**Year 1 (Spring Semester)** **Credits: 12**

| | |
|---|---|
| BUS 248 | Business Communications (3/3) |
| CIS 241 | Introduction to Web Design Mgt (3/4) |
| CNS 155 | Introduction to Routing & Switching (3/4) |
| CNS 180 | Introduction to Microsoft Server (3/4) |

Gainful Employment information for Network Administration

# Network Administration

Associate in Applied Science (AAS) Degree

Description: This program prepares students for employment as network administrators, consultants, or support professionals in Local Area Network (LAN) environments. Successful completion will equip students with the skills and knowledge to plan, install, and maintain LANs, as well as to perform maintenance and troubleshooting activities associated with Information Technology (IT) equipment and software. The program helps prepare students for industry certification.

**General Education Courses** **Credits: 9-12**

| | |
|---|---|
| ENG 111 *or* | English Composition I (3/3) *or* |
| ENG 121 | Advanced English Composition I (3/3) |
| ENG 112 *or* | English Composition II (3/3) *or* |
| ENG 122 | Advanced English Composition II (3/3) |
| PLS 221 *or* | American Government Requirement (3-6/3-6) |
| PLS 222 *or* | |
| HST 221 & HST 222 | |

**Core Program Requirements** **Credits: 52**

| | |
|---|---|
| BUS 248 | Business Communications (3/3) |
| BUS 262 | Project Management (3/3) [A] |
| CIS 140 | Introduction to Microsoft Client OS (3/4) [A] |
| CIS 206 | Object Oriented Programming (3/4) |
| CIS 241 | Introduction to Web Design Mgt (3/4) |
| CIS 258 | Introduction to Enterprise Database (3/4) [A] |
| CIS 295 | IT Professional Practice Management (3/4) |
| CNS 150 | Networking Fundamentals (3/4) [A] |
| CNS 151 | Network Communication Cabling (3/4) [A] |
| CNS 155 | Introduction to Routing & Switching (3/3) |
| CNS 170 | PC Repair & Maintenance (4/5) [A] |
| CNS 180 | Introduction to Microsoft Server (3/4) [A] |
| CNS 210 | Microsoft Network Management (3/4) [A] |
| CNS 215 | Introduction to Virtualization (3/4) [A] |
| CNS 220 | Advanced Microsoft Server (3/4) [A] |
| CNS 230 | Information Security (3/4) [A] |
| CNS 240 | Open Source Networking (3/4) [A] |

**Minimum 61 Credit Hours/77 Contact Hours**

Notes:
[A] Included in occupational specialty.
*GPA of 2.0 or higher must be maintained in occupational specialty courses*

# Network Administration

Associate in Applied Science (AAS) Degree
Suggested Sequence of Courses

**Year 1 (Fall Semester)** **Credits: 16**

| | |
|---|---|
| CIS 140 | Introduction to Microsoft Client OS (3/4) |
| CNS 151 | Network Communication Cabling (3/4) |
| CNS 155 | Introduction to Routing & Switching (3/3) |
| CNS 170 | PC Repair & Maintenance (4/5) |
| ENG 111 *or* | English Composition I (3/3) *or* |
| ENG 121 | Advanced English Composition I (3/3) |

**Year 1 (Spring Semester)** **Credits: 15**

| | |
|---|---|
| BUS 248 | Business Communications (3/3) |
| CIS 241 | Introduction to Web Design Mgt (3/4) |
| CNS 155 | Introduction to Routing & Switching (3/3) |
| CNS 180 | Introduction to Microsoft Server (3/4) |
| ENG 112 *or* | English Composition II (3/3) *or* |
| ENG 122 | Advanced English Composition II (3/3) |

**Year 2 (Fall Semester)** **Credits: 15**

| | |
|---|---|
| BUS 262 | Project Management (3/3) |
| CIS 206 | Object Oriented Programming (3/4) |
| CNS 240 | Open Source Networking (3/4) |
| CNS 210 | Microsoft Network Management (3/4) |
| CNS 230 | Information Security (3/4) |

**Year 2 (Spring Semester)** **Credits: 15-18**

| | |
|---|---|
| CIS 295 | IT Professional Practice Management (3/4) |
| CIS 258 | Introduction to Enterprise Database (3/4) |
| CNS 220 | Advanced Microsoft Server (3/4) |
| CNS 215 | Introduction to Virtualization (3/4) |
| PLS 221 *or* | American Government Requirement (3-6/3-6) |
| PLS 222 *or* | |
| HST 221 & HST 222 | |

# NURSING PROGRAM INFORMATION

Alpena Community College (ACC) offers two program options in nursing; both programs are approved by the Michigan State Board of Nursing and accredited by the Accreditation Commission for Education in Nursing (ACEN). During the Pre-Nursing Curriculum the student will complete 19.5 credits of course work including: BIO 201, CEM 111, ENG 111, NUR 133, BIO 140, and BIO 203.

The Practical Nursing Certificate Program (Level I) includes two semesters with 20 students admitted each fall and spring semester. The Associate Degree Nursing Program (Registered Nursing) (Level II) includes all Level I course work, plus two additional semesters of study leading to an Associate in Applied Science degree with up to 20 students admitted to Level II each fall and spring semester.

The nursing curriculum at ACC is designed to promote career mobility and to offer qualified students alternative educational tracks according to their career goals. Two entry and two exit points are available to nursing students. Graduates are prepared to write the National Council Licensure Examination (NCLEX) and to assume entry-level staff positions in health care delivery systems. Graduates can also articulate into a Bachelor of Science in Nursing (BSN) completion program at four-year institutions in Michigan or other states. Students who meet criteria can concurrently enroll in UM-Flint as a guest student and take courses that prepare them for continuation in a BSN completion program after graduation from ACC.

## ADMISSION CRITERIA

1. Nursing Program applicants who will be new students at Alpena Community College must apply to ACC prior to applying to the Nursing Program.
2. Students entering at either level must have a high school diploma, General Education Degree (GED), or be enrolled in the Early College program.
3. If any courses were taken at another college or university, official transcripts must be sent to the ACC Registrar's office for determination of equivalent course and transfer credits. The deadline for submission of transcripts is March 13th for fall admission and October 15th for spring admission.
4. All prerequisite courses and general education co-requisites must have a minimum grade of 2.0, "C", or higher with a combined grade point average (GPA) of 3.0, "B", to be eligible for consideration for an opening in Level I or Level II of the Nursing Program.
5. Prerequisites may only be repeated once. Withdrawals will be counted as an attempt of taking the class. The highest grade in the course is used in calculating the student's GPA.
6. Science courses that are older than five years from the date the student formally begins the program will be evaluated on an individual basis.
7. Students are required to submit a criminal background check information from the Michigan State Police (ICHAT) and Central Registry Clearance from the State of Michigan Department of Human Services with their application to the program. This will be at the student's expense and must be completed prior to the deadline for application.
8. The Nursing Program must meet legal and contractual agency requirements and students will not be admitted to the Nursing Program or be allowed to continue in the Nursing Program if clinical requirements cannot be met.
9. Students should be aware that the Michigan Board of Nursing may deny a license to an applicant who has been convicted of a felony or certain misdemeanors or is addicted to drugs or alcohol. Alpena Community College is not responsible if an applicant is denied licensure after completion of the Nursing Program. If the felony is such that the student would not be able to attend clinical rotations at any of our sites, admission to the program will be denied.
10. Please be aware that meeting minimum requirements does not guarantee an opening in either Level I or Level II of the Nursing Program.
11. Students accepted for both Level I and Level II Nursing Programs are required to submit the following documentation to the Nursing Department secretary prior to a mandatory orientation scheduled before the start of classes. Failure to provide required documentation prior to orientation will result in the loss of your position in the program:
    - A physical exam form signed by a physician, physician assistant, or nurse practitioner;
    - Proof that the Hepatitis B immunization series has been initiated or a signed release form stating the reason for noncompliance of this requirement;
    - Proof of any other applicable vaccines which may be required by clinical sites;
    - Proof of a TB test obtained within the past year;
    - A current Health Care Provider Card (American Heart Association) or Professional Rescuer Card (American Red Cross); and
    - Results of a mandatory drug screen obtained from Rapid Results in Alpena within the last 30 days.

## NURSING PROGRAM SELECTION PROCESS, LEVEL I

1. Alpena Community College admits students to the Nursing Program under a Selective Admission Process. The criteria for admission will be based on:
    - GPA of prerequisite courses.
    - Composite score of a standardized admission exam: Assessment Technologies Institutes Test of Essential Academic Skills (TEAS™). This exam is administered at the student's expense and can be repeated only once to improve the score. Arrangements to take the exam should be made through the Testing Center at Alpena Community College prior to the admission application deadline.
    - Number of credits taken at Alpena Community College.
    - Previously earned degrees.
    - Previously documented healthcare work experience in the last five (5) years.

- Number of previous semesters a student has applied to the Nursing Program.

2. Students will be admitted twice per year.
3. Students may apply during their last semester of prerequisite coursework.
4. Applications will be available to pick up at the Alpena campus on the second floor of the Natural Resource Center (NRC) in the Nursing Program secretary's office (NRC 202) or on the Nursing bulletin board. Applications may also be picked up at the Oscoda Campus in the Student Lounge or in the secretary's office (room 221). Or you may print an application, which can be found on the ACC website.
5. Application deadlines will be posted on the bulletin board on the second floor of NRC near the nursing office and on the ACC website.
6. Students that are not admitted must reapply to be considered in successive semesters.
7. In the event that more than one student with the same score is eligible to be admitted to the nursing program competitively admission to the program will be based on:
   a. GPA,
   b. Work experience, and
   c. Application date at the point when all prerequisite courses were met.

Students may exit the program at the end of Level I and are eligible to sit for the NCLEX-PN exam.

Level I students must state their intent, in writing, to continue on to Level II by October 15th or March 15th of their second semester.

## NURSING PROGRAM SELECTION PROCESS, LEVEL II

1. ACC Nursing Program students, who complete the Level I program with a combined GPA (nursing and prerequisite courses) of 3.0, and declare their intent to continue to Level II prior to the deadline, will be granted admission to the Level II program in the first available semester after graduation after successful completion of the NCLEX-PN exam. Proof of licensure must be demonstrated within three months of beginning the RN program. If you are unable to provide licensure, you will be suspended from the program.

For students who exit after Level I of the program and do not return within two consecutive semesters, and students coming from other programs, selection preference for remaining seats will be based on the following criteria:

- Documentation of six (6) months of full time equivalent hours (1040 hours) as an LPN within the last two years.
- Proof of a current unencumbered license.
- Combined GPA of nursing and prerequisite courses of 3.0 or higher.
- Number of credits taken at Alpena Community College.
- Previously earned degrees.

2. Students will be admitted twice a year.
3. Students may apply during their last semester of prerequisite coursework.
4. Applications will be available to pick up on the Alpena campus, Natural Resources Center (NRC), second floor in the Nursing Department secretary's office (NRC 202) and also on the Nursing bulletin board. Applications may also be picked up at the Oscoda Campus in the Student Lounge or in the secretary's office (room 221). Or you may print an application, which can be found on the ACC website.
5. Application deadlines will be posted on the nursing bulletin board and on the ACC website.
6. Students that are not admitted must reapply to be considered in successive semesters.
7. GPA and the application date at the point when all prerequisite courses were met will be used to resolve any ties.
8. If a student's GPA is not 3.0 at the time of application to the program, they will be required to meet with a Nursing faculty member or the Director of Nursing for academic advising to evaluate their GPA before they reapply. If the GPA has not risen enough to meet the 3.0 requirement in two semesters, they will be considered a returning LPN. Applications will be reviewed competitively based upon these criteria.

# NURSING – LPN

CERTIFICATE (C)

DESCRIPTION: Alpena Community College offers two nursing program options: a one-year certificate program (Level I), and an Associate in Applied Science (AAS) Degree (Level II). Both programs have full approval by the State of Michigan Board of Nursing. Upon successful completion of Level I and with the approval of the Board of Nursing, graduates are eligible to take the NCLEX-PN for LPN licensure.

| **GENERAL EDUCATION REQUIREMENTS** | | **CREDITS: 18** |
|---|---|---|
| BIO 140 | MICROBIOLOGY FOR THE HEALTH SCIENCES (3/5) | |
| BIO 201 | ANATOMY (4/5) | |
| BIO 203 | HUMAN PHYSIOLOGY (4/5) | |
| CEM 111 | GENERAL CHEMISTRY (4/7) | |
| ENG 111 | ENGLISH COMPOSITION I (3/3) | |

| **CORE PROGRAM REQUIREMENTS** | | **CREDITS: 26.5** |
|---|---|---|
| NUR 128 | PHARMACOLOGY I (1.5/1.5) | |
| NUR 133 | DOSAGE CALCULATION (1.5/1.5) | |
| NUR 135 | PH TRANSITION TO PRACTICE (1/1) | |
| NUR 140 | FOUNDATIONS OF NURSING THEORY (3/3) | |
| NUR 140LC | FOUNDATIONS OF NURSING LAB (1.5/4.5) | |
| NUR 142 | MEDICAL SURGICAL NURSING I THEORY (2.5/2.5) | |
| NUR 143 | MEDICAL SURGICAL NURSING I CLINICAL (2/6) | |
| NUR 150 | MEDICAL SURGICAL NURSING II THEORY (2.5/2.5) | |
| NUR 151 | MEDICAL SURGICAL NURSING II CLINICAL (2/6) | |
| NUR 152 | OB/REPRODUCTIVE HEALTH/PEDS THEORY (2/2) | |
| NUR 153 | OB/REPRODUCTIVE HEALTH/PETS CLINICAL (1.5/4.5) | |
| NUR 155 | NUTRITION IN HEALTH & ILLNESS (2/2) | |
| NUR 156 | PHARMACOLOGY II (2/2) | |
| NUR 157 | MEDICAL SURGICAL NURSING CLINICAL III (1.5/4.5) | |

**MINIMUM 44.5 CREDIT HOURS/68.5 CONTACT HOURS**

NOTES:
All prerequisite courses must have a C or higher and a combined GPA of 3.0 to be eligible.

Students selected to the Nursing Program must attend a mandatory two-day orientation session prior to the start of the program.

Students should be aware that meeting minimum requirements does not guarantee an opening in either level.

The Nursing Program has its own application forms and processes. Forms are available in the Nursing Office.

Alpena Community College's Nursing Program is accredited by the Accreditation Commission for Education in Nursing [ACEN, 3343 Peachtree Road NE, Suite 850, Atlanta GA 30326 (www.acenursing.org)].

Students may exit the program at the end of Level I and are eligible to sit for the NCLEX-PN exam.

# NURSING – LPN

CERTIFICATE (C)

SUGGESTED SEQUENCE OF COURSES

| **YEAR 1 (FALL SEMESTER)** | | **CREDITS: 12.5** |
|---|---|---|
| CEM 111 | GENERAL CHEMISTRY (4/7) | |
| ENG 111 | ENGLISH COMPOSITION I (3/3) | |
| BIO 201 | ANATOMY (4/5) | |
| NUR 133 | DOSAGE CALCULATION (1.5/1.5) | |

| **YEAR 1 (SPRING SEMESTER)** | | **CREDITS: 7** |
|---|---|---|
| BIO 203 | HUMAN PHYSIOLOGY (4/5) | |
| BIO 140 | MICROBIOLOGY FOR THE HEALTH SCIENCES (3/5) | |

| **YEAR 2 (FALL SEMESTER)** | | **CREDITS: 12.5** |
|---|---|---|
| NUR 128 | PHARMACOLOGY I (1.5/1.5) | |
| NUR 140 | FOUNDATIONS OF NURSING THEORY (3/3) | |
| NUR 140LC | FOUNDATIONS OF NURSING LAB (1.5/4.5) | |
| NUR 152 | OB/REPRODUCTIVE HEALTH/PEDS THEORY (2/2) | |
| NUR 142 | MEDICAL SURGICAL NURSING I THEORY (2.5/2.5) | |
| NUR 143 | MEDICAL SURGICAL NURSING I CLINICAL (2/6) | |

| **YEAR 2 (SPRING SEMESTER)** | | **CREDITS: 12.5** |
|---|---|---|
| NUR 135 | PH TRANSITION TO PRACTICE (1/1) | |
| NUR 150 | MEDICAL SURGICAL NURSING II THEORY (2.5/2.5) | |
| NUR 151 | MEDICAL SURGICAL NURSING II CLINICAL (2/6) | |
| NUR 155 | NUTRITION IN HEALTH & ILLNESS (2/2) | |
| NUR 153 | OB/REPRODUCTIVE HEALTH/PETS CLINICAL (1.5/4.5) | |
| NUR 156 | PHARMACOLOGY II (2/2) | |
| NUR 157 | MEDICAL SURGICAL NURSING CLINICAL III (1.5/4.5) | |

Gainful Employment information for LPN

# NURSING – RN

ASSOCIATE IN APPLIED SCIENCE (AAS) DEGREE

DESCRIPTION: Alpena Community College offers two nursing program options: a one-year certificate program (Level I), and an Associate of Applied Science (AAS) Degree (Level II). Both programs have full approval by the State of Michigan Board of Nursing. Upon Successful completion of Level II and with the approval of the board of Nursing, graduates are eligible to take the NCLEX-RN for RN licensure.

**GENERAL EDUCATION REQUIREMENTS** **CREDITS: 6**

| | |
|---|---|
| ENG 112 | ENGLISH COMPOSITION II (3/3) |
| PLS 221 *or* | AMERICAN GOVERNMENT & POLITICS (3/3) *or* |
| PLS 222 | STATE & LOCAL GOVERNMENT (3/3) |

**CORE PROGRAM REQUIREMENTS** **CREDITS: 20.5**

| | |
|---|---|
| NUR 240 | ADVANCED MEDICAL SURGICAL I THEORY (2/2) |
| NUR 241 | ADVANCED MEDICAL SURGICAL I CLINICAL (2/6) |
| NUR 242 | ADVANCED PARENT/CHILD NURSING THEORY (2.5/2.5) |
| NUR 243 | ADVANCED PARENT/CHILD NURSING CLINICAL (1.5/4.5) |
| NUR 244 | PHYSICAL ASSESSMENT (1/1) |
| NUR 244LC | PHYSICAL ASSESSMENT LAB (1/3) |
| NUR 249 | ADV MEDICAL SURGICAL NURSING II THEORY (2/2) |
| NUR 249LC | ADV MEDICAL SURGICAL NURSING II LAB (0.5/1.5) |
| NUR 250 | ADV MEDICAL SURGICAL NURSING II CLINICAL (1.5/4.5) |
| NUR 252 | PSYCHIATRIC NURSING THEORY (2/2) |
| NUR 252LC | PSYCHIATRIC NURSING LAB (0.5/1.5) |
| NUR 253 | PSYCHIATRIC NURSING CLINICAL (1.5/4.5) |
| NUR 255 | NURSING LEADERSHIP (1/1) |
| NUR 257 | ADV MEDICAL SURGICAL NURSING III CLINICAL (1.5/4.5) |

**MINIMUM 26.5 CREDIT HOURS/46.5 CONTACT HOURS**

NOTES:

Prerequisites: All courses from Level I Nursing Program must be completed, including prerequisites. In addition, ENG 112 and PLS 221 or PLS 222 can be taken as prerequisites or co-requisite courses for the Associate Degree program. All prerequisite courses must have a C or higher and a combined GPA of 3.0 to be eligible.

Students selected to the Nursing Program must attend a mandatory two-day orientation session prior to the start of the program.

Students should be aware that meeting minimum requirements does not guarantee an opening in either level. In addition to meeting general education course requirements, LPN applicants for Level II openings are required to have a current, unrestricted Michigan license.

LPNs who obtained practical nurse education at ACC or another school or college may also apply.

The Nursing Program has its own application forms and processes. Forms are available in the Nursing Office.

Alpena Community College's Nursing program is accredited by the Accreditation Commission for Education in Nursing [ACEN, 3343 Peachtree Road NE, Suite 850, Atlanta GA 30326 (www.acenursing.org)].

# NURSING – RN

ASSOCIATE IN APPLIED SCIENCE (AAS) DEGREE
SUGGESTED SEQUENCE OF COURSES

**YEAR 1 (FALL SEMESTER)** **CREDITS: 13**

| | |
|---|---|
| ENG 112 | ENGLISH COMPOSITION II (3/3) |
| NUR 240 | ADVANCED MEDICAL SURGICAL I THEORY (2/2) |
| NUR 241 | ADVANCED MEDICAL SURGICAL I CLINICAL (2/6) |
| NUR 242 | ADVANCED PARENT/CHILD NURSING THEORY (2.5/2.5) |
| NUR 243 | ADVANCED PARENT/CHILD NURSING CLINICAL (1.5/4.5) |
| NUR 244 | PHYSICAL ASSESSMENT (1/1) |
| NUR 244LC | PHYSICAL ASSESSMENT LAB (1/3) |

**YEAR 1 (SPRING SEMESTER)** **CREDITS: 13.5**

| | |
|---|---|
| PLS 221 *or* | AMERICAN GOVERNMENT & POLITICS (3/3) *or* |
| PLS 222 | STATE & LOCAL GOVERNMENT (3/3) |
| NUR 249 | ADV MEDICAL SURGICAL NURSING II THEORY (2/2) |
| NUR 249LC | ADV MEDICAL SURGICAL NURSING II LAB (0.5/1.5) |
| NUR 250 | ADV MEDICAL SURGICAL NURSING II CLINICAL (1.5/4.5) |
| NUR 252 | PSYCHIATRIC NURSING THEORY (2/2) |
| NUR 252LC | PSYCHIATRIC NURSING LAB (0.5/1.5) |
| NUR 253 | PSYCHIATRIC NURSING CLINICAL (1.5/4.5) |
| NUR 255 | NURSING LEADERSHIP (1/1) |
| NUR 257 | ADV MEDICAL SURGICAL NURSING III CLINICAL (1.5/4.5) |

# PHYSICS

ASSOCIATE IN SCIENCE (AS) DEGREE

DESCRIPTION: This is a suggested program of study which may be altered to meet individual goals and transfer plans. Students should refer to the description of Alpena Community College graduation requirements and AS degree distribution requirements and consult with an academic advisor concerning specific course selection. A minimum total of 60 credits is required for the Associate in Science degree.

**GENERAL EDUCATION REQUIREMENTS** **CREDITS: 29**

| | |
|---|---|
| ENG 111 *or* | ENGLISH COMPOSITION I (3/3) *or* |
| ENG 121 | ADVANCED ENGLISH COMPOSITION I (3/3) |
| ENG 112 *or* | ENGLISH COMPOSITION II (3/3) *or* |
| ENG 122 | ADVANCED ENGLISH COMPOSITION II (3/3) |
| MTH 131 | ANALYTIC GEOMETRY & CALCULUS I (5/5) |
| PLS 221 *or* | AMERICAN GOVERNMENT REQUIREMENT (3/3) |
| PLS 222 *or* | |
| HST 221 & HST 222 | |
| | HUMANITIES/FINE ARTS/SOCIAL SCI REQ (3/4) |
| | HUMANITIES/FINE ARTS REQUIREMENT (3/3) |
| CEM 121 | GENERAL & INORGANIC CHEMISTRY (4/7) |
| PHY 221 | PHYSICS (5/7) |

**CORE PROGRAM REQUIREMENTS** **CREDITS: 27**

| | |
|---|---|
| CEM 122 | INORGANIC CHEMISTRY & QUALITATIVE ANALYSIS (4/7) |
| MTH 132 | ANALYTIC GEOMETRY & CALCULUS II (5/5) |
| MTH 221 | C++ PROGRAMMING (4/5) |
| MTH 231 | ANALYTIC GEOMETRY & CALCULUS III (5/5) |
| MTH 232 | DIFFERENTIAL EQUATIONS (4/4) |
| PHY 222 | PHYSICS (5/7) |

**SUGGESTED ELECTIVES** **CREDITS: 6**

Electives will change depending on area of concentration and the specific four-year transfer institution's requirements. Consult your ACC academic advisor.

**MINIMUM 62 CREDIT HOURS/75 CONTACT HOURS**

# PHYSICS

ASSOCIATE IN SCIENCE (AS) DEGREE
SUGGESTED SEQUENCE OF COURSES

**YEAR 1 (FALL SEMESTER)** **CREDITS: 15**

| | |
|---|---|
| ENG 111 *or* | ENGLISH COMPOSITION I (3/3) *or* |
| ENG 121 | ADVANCED ENGLISH COMPOSITION I (3/3) |
| CEM 121 | GENERAL & INORGANIC CHEMISTRY (4/7) |
| MTH 131 | ANALYTIC GEOMETRY & CALCULUS I (5/5) |
| | NON-SCIENCE ELECTIVE (3/3) |

**YEAR 1 (SPRING SEMESTER)** **CREDITS: 16**

| | |
|---|---|
| ENG 112 *or* | ENGLISH COMPOSITION II (3/3) *or* |
| ENG 122 | ADVANCED ENGLISH COMPOSITION II (3/3) |
| CEM 122 | INORGANIC CHEMISTRY & QUALITATIVE ANALYSIS (4/7) |
| MTH 132 | ANALYTIC GEOMETRY & CALCULUS II (5/5) |
| MTH 221 | C++ PROGRAMMING (4/5) |

**YEAR 2 (FALL SEMESTER)** **CREDITS: 16**

| | |
|---|---|
| PLS 221 *or* | AMERICAN GOVERNMENT REQUIREMENT (3/3) |
| PLS 222 *or* | |
| HST 221 & HST 222 | |
| MTH 231 | ANALYTIC GEOMETRY & CALCULUS III (5/5) |
| MTH 231 | ANALYTIC GEOMETRY & CALCULUS III (5/5) |
| | HUMANITIES/FINE ARTS REQUIREMENT (3/4) |

**YEAR 2 (SPRING SEMESTER)** **CREDITS: 15**

| | |
|---|---|
| MTH 232 | DIFFERENTIAL EQUATIONS (4/4) |
| PHY 222 | PHYSICS (5/7) |
| | NON-SCIENCE ELECTIVE (3/3) |
| | HUMANITIES/FINE ARTS/SOCIAL SCI REQ (3/4) |

# Political Science

Associate in Arts (AA) Degree

Description: This is a suggested program of study for specialized interest in the subject of political science that may be altered to meet individual goals and transfer plans. Students should refer to the Alpena Community College graduation requirements and degree distribution requirements and consult with an academic advisor concerning specific course selection. A minimum of 60 credit hours is required for an Associate in Arts degree.

**General Education Requirements** **Credits: 23**

| | |
|---|---|
| ENG 111 *or* | English Composition I (3/3) *or* |
| ENG 121 | Advanced English Composition I (3/3) |
| ENG 112 *or* | English Composition II (3/3) *or* |
| ENG 122 | Advanced English Composition II (3/3) |
| PLS 221 | American Government & Politics (3/3) |
| PSY 101 | General Psychology (3/3) |
| HST 121 | History of Western Civilization (3/3) |
| GEO 127 | Physical Geography (4/5) |
| | Laboratory Science (4/5) |

**Core Program Requirements** **Credits: 16**

| | |
|---|---|
| ECN 232 *or* | Economics (Macro) (3/3) *or* |
| ECN 231 | Economics (Micro) (3/3) |
| HST 122 | History of Western Civilization (3/3) |
| MTH 113 | Intermediate Algebra (4/4) |
| | Language/Fine Arts/Humanities Elective (3/3) |
| SOC 123 | Introduction to Sociology (3/3) |

**Suggested Electives** **Credits: 21**

Electives will change depending on area of concentration and the specific four-year transfer institution's requirements. Consult your ACC academic advisor.

**Minimum 60 Credit Hours/62 Contact Hours**

# Political Science

Associate in Arts (AA) Degree
Suggested Sequence of Courses

**Year 1 (Fall Semester)** **Credits: 16**

| | |
|---|---|
| ENG 111 *or* | English Composition I (3/3) *or* |
| ENG 121 | Advanced English Composition I (3/3) |
| HST 121 | History of Western Civilization (3/3) |
| MTH 113 | Intermediate Algebra (4/4) |
| PLS 221 | American Government & Politics (3/3) |
| PSY 101 | General Psychology (3/3) |

**Year 1 (Spring Semester)** **Credits: 16**

| | |
|---|---|
| ENG 112 *or* | English Composition II (3/3) *or* |
| ENG 122 | Advanced English Composition II (3/3) |
| HST 122 | History of Western Civilization (3/3) |
| | Laboratory Science (4/5) |
| ECN 232 *or* | Economics (Macro) (3/3) *or* |
| ECN 231 | Economics (Micro) (3/3) |
| | Recommended Elective (3/3) |

**Year 2 (Fall Semester)** **Credits: 13**

| | |
|---|---|
| GEO 127 | Physical Geography (4/5) |
| | Language/Fine Arts/Humanities Elective (3/3) |
| SOC 123 | Introduction to Sociology (3/3) |
| | Recommended Elective (3/3) |

**Year 2 (Spring Semester)** **Credits: 15**

| | |
|---|---|
| | Recommended Electives (15/15) |

# Pre-Construction Management

Associate in Science (AS) Degree

Description:

**General Education Requirements** **Credits: 29**

| | |
|---|---|
| ENG 111 *or* | English Composition I (3/3) *or* |
| ENG 120 | Applied Communication (3/3) |
| ENG 112 *or* | English Composition II (3/3) *or* |
| ENG 123 | Technical Communication (3/3) |
| MTH 122 | Plane Trigonometry (3/3) |
| ECN 232 | Economics (Macro) (3/3) |
| | Social Awareness (3/3) |
| SPE 123 | Public Communication (3/3) |
| | Cultural Enrichment (3/3) |
| CEM 111 | General Chemistry (4/7) |
| PHY 121 | General College Physics (4/6) |

**Core Program Requirements** **Credits: 51**

| | |
|---|---|
| BUS 127 | Principles of Management (3/3) |
| BUS 241 | Principles of Marketing (3/3) |
| CON 121 | Aggregates (3.5/5) |
| CON 123 | Cementitious Materials (1.5/2.1) |
| CON 124 | Concrete Mix Proportioning (4/6) |
| CON 221 | Placed Concrete I (4/6) |
| CON 222 | Placed Concrete II (4/6) |
| CON 223 *or* | Concrete Masonry Production (4/6) *or* |
| CON 231 & | Concrete Project Lab (1/1) & |
| CON 232 | Concrete Project Lab (2/2) |
| CON 226 | Concrete Troubleshooting & Repair (2/2) |
| CON 227 | Construction Inspection (2/2) |
| CST 112 | Building Construction Analysis (3/3) |
| MTH 113 | Intermediate Algebra (4/4) |
| MTH 130 | Calculus for Business/Social Sciences (4/4) |
| | Cultural Enrichment (6/6) |

**Minimum 80 Credit Hours/95.1 Contact Hours**

# Pre-Construction Management

Associate in Science (AS) Degree
Suggested Sequence of Courses

**Year 1 (Fall Semester)** **Credits: 15**

| | |
|---|---|
| ENG 111 *or* | English Composition I (3/3) *or* |
| ENG 120 | Applied Communication (3/3) |
| | Cultural Enrichment (3/3) |
| MTH 113 | Intermediate Algebra (4/4) |
| CON 121 | Aggregates (3.5/5) |
| CON 123 | Cementitious Materials (1.5/2.1) |

**Year 1 (Spring Semester)** **Credits: 17**

| | |
|---|---|
| ENG 112 *or* | English Composition II (3/3) *or* |
| ENG 123 | Technical Communication (3/3) |
| MTH 122 | Plane Trigonometry (3/3) |
| CEM 111 | General Chemistry (4/7) |
| CON 124 | Concrete Mix Proportioning (4/6) |
| CST 112 | Building Construction Analysis (3/3) |

**Year 1 (Summer Semester)** **Credits: 9**

| | |
|---|---|
| | Cultural Enrichment (3/3) |
| | Social Awareness (3/3) |
| SPE 123 | Public Communication (3/3) |

**Year 2 (Fall Semester)** **Credits: 18**

| | |
|---|---|
| MTH 130 | Calculus for Business/Social Sciences (4/4) |
| CON 221 | Placed Concrete I (4/6) |
| CON 223 | Concrete Masonry Production (4/6) |
| CON 227 | Construction Inspection (2/2) |
| PHY 121 | General College Physics (4/6) |

**Year 2 (Spring Semester)** **Credits: 15**

| | |
|---|---|
| BUS 127 | Principles of Management (3/3) |
| CON 222 | Placed Concrete II (4/6) |
| CON 226 | Concrete Troubleshooting & Repair (2/2) |
| ECN 232 | Economics (Macro) (3/3) |
| BUS 241 | Principles of Marketing (3/3) |

**Year 2 (Summer Semester)** **Credits: 6**

| | |
|---|---|
| | Social Awareness (3/3) |
| | Cultural Enrichment (3/3) |

# Pre-Dental or Pre-Medicine

Associate in Science (AS) Degree

Description: This is a suggested program of study which may be altered to meet individual goals and transfer plans. It is suitable for students interested in pre-dental or pre-medical studies. Students should refer to the description of Alpena Community College graduation requirements and AS degree distribution requirements and consult with an academic advisor concerning specific course selection. A minimum total of 60 credits is required for the Associate in Science degree.

| **General Education Requirements** | | **Credits: 28** |
|---|---|---|
| ENG 111 *or* | English Composition I (3/3) *or* | |
| ENG 121 | Advanced English Composition I (3/3) | |
| ENG 112 *or* | English Composition II (3/3) *or* | |
| ENG 122 | Advanced English Composition II (3/3) | |
| MTH 131 | Analytical Geometry & Calculus I (5/5) | |
| PLS 221 *or* | American Government Requirement (3/3) | |
| PLS 222 *or* | | |
| HST 221 & HST 222 | | |
| | Humanities/Fine Arts Requirement (3/4) | |
| | Humanities/Fine Arts/Social Sci Req (3/4) | |
| BIO 210 | Introduction to Botany (4/6) | |
| CEM 121 | General & Inorganic Chemistry (4/7) | |

| **Core Program Requirements** | | **Credits: 28** |
|---|---|---|
| BIO 211 | General Zoology (4/5) | |
| CEM 122 | Inorganic Chemistry & Qualitative Analysis (4/7) | |
| CEM 221 | Organic Chemistry (4/6) | |
| CEM 222 | Organic Chemistry (4/6) | |
| MTH 223 | Statistical Methods (4/4) | |
| PHY 121 | General College Physics (4/6) | |
| PHY 122 | General College Physics (4/6) | |

**Suggested Electives** **Credits: 4**

Electives will change depending on area of concentration and the specific four-year transfer institution's requirements. Consult your ACC academic advisor.

**Minimum 60 Credit Hours/79 Contact Hours**

# Pre-Dental or Pre-Medicine

Associate in Science (AS) Degree

Suggested Sequence of Courses

| **Year 1 (Fall Semester)** | | **Credits 11** |
|---|---|---|
| ENG 111 *or* | English Composition I (3/3) *or* | |
| ENG 121 | Advanced English Composition I (3/3) | |
| BIO 210 | Introduction to Botany (4/6) | |
| CEM 121 | General & Inorganic Chemistry (4/7) | |

| **Year 1 (Spring Semester)** | | **Credits: 16** |
|---|---|---|
| ENG 112 *or* | English Composition II (3/3) *or* | |
| ENG 122 | Advanced English Composition II (3/3) | |
| BIO 211 | General Zoology (4/5) | |
| CEM 122 | Inorganic Chem & Qualitative Analysis (4/7) | |
| MTH 131 | Analytical Geometry & Calculus I (5/5) | |

| **Year 2 (Fall Semester)** | | **Credits: 14** |
|---|---|---|
| CEM 221 | Organic Chemistry (4/6) | |
| PHY 121 | General College Physics (4/6) | |
| PLS 221 *or* | American Government Requirement (3/3) | |
| PLS 222 *or* | | |
| HST 221 & HST 222 | | |
| | Humanities/Fine Arts Requirement (3/4) | |

| **Year 2 (Spring Semester)** | | **Credits: 15** |
|---|---|---|
| CEM 122 | Inorganic Chemistry & Qualitative Analysis (4/7) | |
| MTH 223 | Statistical Methods (4/4) | |
| PHY 122 | General College Physics (4/6) | |
| | Humanities/Fine Arts/Social Sci Req (3/4) | |

# PRE-ENGINEERING

ASSOCIATE IN SCIENCE (AS) DEGREE

DESCRIPTION: This is a suggested program of study which may be altered to meet individual goals and specific transfer plans. Students should refer to the description of Alpena Community College graduation requirements and AS degree distribution requirements and consult with an academic advisor concerning specific course selection. A minimum total of 60 credits is required for the Associate in Science degree.

**GENERAL EDUCATION REQUIREMENTS** **CREDITS: 34**

| | |
|---|---|
| ENG 111 *or* | ENGLISH COMPOSITION I (3/3) *or* |
| ENG 121 | ADVANCED ENGLISH COMPOSITION I (3/3) |
| ENG 112 *or* | ENGLISH COMPOSITION II (3/3) *or* |
| ENG 122 | ADVANCED ENGLISH COMPOSITION II (3/3) |
| MTH 131 | ANALYTICAL GEOMETRY & CALCULUS I (5/5) |
| PLS 221 | AMERICAN GOVERNMENT & POLITICS (3/3) |
| ANP, ECN, EDU, GEO, HST, PSY, SOC | SOCIAL SCIENCE REQUIREMENT (3/4) |
| ART, ASL, ENG, HST, HUM, MUS, PHL, SPE | HUMANITIES/FINE ARTS REQUIREMENT (8/8) [A] |
| CEM 121 | GENERAL & INORGANIC CHEMISTRY (4/7) |
| PHY 221 | PHYSICS (5/7) |

**CORE PROGRAM REQUIREMENTS** **CREDITS: 29**

| | |
|---|---|
| EGR 122 | INTRODUCTION TO ENGINEERING (1/1) |
| EGR 130 | TEAM DESIGN PROJECT (2/3) |
| EGR 221 | STATICS (3/3) |
| MTH 132 | ANALYTIC GEOMETRY & CALCULUS II (5/5) |
| MTH 231 | ANALYTIC GEOMETRY & CALCULUS III (5/5) |
| MTH 232 | DIFFERENTIAL EQUATIONS (4/4) |
| MTH 221 | C++ PROGRAMMING (4/5) |
| PHY 222 | PHYSICS (5/7) |

**SUGGESTED ELECTIVES** **CREDITS:**

| | |
|---|---|
| CAD 150 | 3D MODELING (3/4) |
| CEM 122 | INORGANIC CHEM & QUALITATIVE ANALYSIS (4/7) (IF CHEMICAL ENGINEERING) |
| ECN 231 *or* | ECONOMICS (MICRO) (3/3) *or* |
| ECN 232 | ECONOMICS (MACRO) (3/3) |
| EGR 290 | ENGINEERING INTERNSHIP (1/1) |
| GEO 151 | INTRODUCTION TO GIS (1.5/2) |
| GEO 152 | ADVANCED GIS (1.5/2) |
| PHL 125 | LANGUAGE & REASON (3/3) |

**MINIMUM 63 CREDIT HOURS/76 CONTACT HOURS**

NOTES:
[A] Excluding studio & performance classes.

# PRE-ENGINEERING

ASSOCIATE IN SCIENCE (AS) DEGREE
SUGGESTED SEQUENCE OF COURSES

**YEAR 1 (FALL SEMESTER)** **CREDITS: 16**

| | |
|---|---|
| ENG 111 *or* | ENGLISH COMPOSITION I (3/3) *or* |
| ENG 121 | ADVANCED ENGLISH COMPOSITION I (3/3) |
| MTH 131 | ANALYTICAL GEOMETRY & CALCULUS I (5/5) |
| CEM 121 | GENERAL & INORGANIC CHEMISTRY (4/7) |
| EGR 122 | INTRODUCTION TO ENGINEERING (1/1) |
| | GENERAL EDUCATION REQUIREMENTS (3/3) |

**YEAR 1 (SPRING SEMESTER)** **CREDITS: 16**

| | |
|---|---|
| ENG 112 *or* | ENGLISH COMPOSITION II (3/3) *or* |
| ENG 122 | ADVANCED ENGLISH COMPOSITION II (3/3) |
| MTH 132 | ANALYTIC GEOMETRY & CALCULUS II (5/5) |
| MTH 221 | C++ PROGRAMMING (4/5) |
| PLS 221 | AMERICAN GOVERNMENT & POLITICS (3/3) |
| EGR 130 *or* | TEAM DESIGN PROJECT (2/3) *or* |
| CEM 122 *or* | INORGANIC CHEM & QUALITATIVE ANALYSIS (4/7) *or* |
| | GENERAL EDUCATION REQUIREMENT (3/3) |

**YEAR 2 (FALL SEMESTER)** **CREDITS: 16**

| | |
|---|---|
| MTH 231 | ANALYTIC GEOMETRY & CALCULUS III (5/5) |
| PHY 221 | PHYSICS (5/7) |
| | GENERAL EDUCATION REQUIREMENT (3/3) |
| | GENERAL EDUCATION REQ OR ELECTIVE (3/3) |

**YEAR 2 (SPRING SEMESTER)** **CREDITS: 14**

| | |
|---|---|
| MTH 232 | DIFFERENTIAL EQUATIONS (4/4) |
| PHY 222 | PHYSICS (5/7) |
| EGR 221 | STATICS (3/3) |
| | GENERAL EDUCATION REQ OR ELECTIVE (3/3) |

**YEAR 1 OR 2 (SUMMER SEMESTER)** **CREDITS: 1**

| | |
|---|---|
| EGR 290 | ENGINEERING INTERNSHIP (1/1) |

# Pre-Fisheries and Wildlife Management

Associate in Science (AS) Degree

Description: This is a suggested program of study which may be altered to meet individual goals and specific transfer plans. Students should refer to the description of Alpena Community College graduation requirements and AS degree distribution requirements and consult with an academic advisor concerning specific course selection. A minimum total of 60 credits is required for the Associate in Science degree.

**General Education Requirements** **Credits: 26**

| | |
|---|---|
| ENG 111 *or* | English Composition I (3/3) *or* |
| ENG 121 | Advanced English Composition I (3/3) |
| ENG 112 *or* | English Composition II (3/3) *or* |
| ENG 122 | Advanced English Composition II (3/3) |
| MTH 121 | college Algebra (4/4) |
| PLS 221 *or* | American Government Requirement (3/3) |
| PLS 222 *or* | |
| HST 221 & HST 222 | |
| | Humanities/Fine Arts/Social Sci Req (3/3) |
| | Humanities/Fine Arts Requirement (3/3) |
| CEM 111 | General Chemistry (4/7) |
| BIO 129 | Field Biology (3/4) |

**Core Program Requirements** **Credits: 40**

| | |
|---|---|
| BIO 161 | General College Biology I (4/5) |
| BIO 162 | General College Biology II (4/5) |
| BIO 207 | Wildlife & Fisheries Ecology & Mgt (3/3) |
| BIO 210 | Introduction to Botany (4/6) |
| BIO 211 | Zoology (4/6) |
| CEM 112 | Organic & Biochemistry (4/7) |
| GEO 125 | Geography (3/3) |
| GEO 151 | Introduction to GIS (1.5/2) |
| GEO 152 | Advanced GIS (1.5/2) |
| MTH 119 | Intro to Computers & Programming (3/3) |
| MTH 223 | Statistical Methods (4/4) |
| PHY 121 | General College Physics (4/6) |

**Suggested Electives** **Credits:**

Electives will change depending on area of concentration and the specific four-year transfer institution's requirements. Consult your ACC academic advisor.

**Minimum 66 Credit Hours/82 Contact Hours**

# Pre-Fisheries and Wildlife Management

Associate in Science (AS) Degree
Suggested Sequence of Courses

**Year 1 (Fall Semester)** **Credits: 18**

| | |
|---|---|
| ENG 111 *or* | English Composition I (3/3) *or* |
| ENG 121 | Advanced English Composition I (3/3) |
| CEM 111 | General Chemistry (4/7) |
| BIO 129 | Field Biology (3/4) |
| BIO 161 | General College Biology I (4/5) |
| MTH 121 | college Algebra (4/4) |

**Year 1 (Spring Semester)** **Credits: 18**

| | |
|---|---|
| ENG 112 *or* | English Composition II (3/3) *or* |
| ENG 122 | Advanced English Composition II (3/3) |
| CEM 112 | Organic & Biochemistry (4/7) |
| BIO 162 | General College Biology II (4/5) |
| BIO 207 | Wildlife & Fisheries Ecology & Mgt (3/3) |
| MTH 223 | Statistical Methods (4/4) |

**Year 2 (Fall Semester)** **Credits: 17**

| | |
|---|---|
| BIO 210 | Introduction to Botany (4/6) |
| PHY 121 | General College Physics (4/6) |
| MTH 119 | Intro to Computers & Programming (3/3) |
| | Humanities/Fine Arts Requirement (3/3) |
| GEO 125 | Geography (3/3) |

**Year 2 (Spring Semester)** **Credits: 13**

| | |
|---|---|
| BIO 211 | Zoology (4/6) |
| GEO 151 | Introduction to GIS (1.5/2) |
| GEO 152 | Advanced GIS (1.5/2) |
| PLS 221 *or* | American Government Requirement (3/3) |
| PLS 222 *or* | |
| HST 221 & HST 222 | |
| | Humanities/Fine Arts/Social Sci Req (3/3) |

# PRE-LAW

ASSOCIATE IN ARTS (AA) DEGREE

DESCRIPTION: This is a suggested program of study for specialized interest in the subject of Pre-Law that may be altered to meet individual goals and transfer plans. Students should refer to the Alpena Community College graduation requirements and degree distribution requirements and consult with an academic advisor concerning specific course selection. A minimum of 60 credit hours is required for an Associate in Arts degree.

**GENERAL EDUCATION REQUIREMENTS** **CREDITS: 16**

| | |
|---|---|
| ENG 111 *or* | ENGLISH COMPOSITION I (3/3) *or* |
| ENG 121 | ADVANCED ENGLISH COMPOSITION I (3/3) |
| ENG 112 *or* | ENGLISH COMPOSITION II (3/3) *or* |
| ENG 122 | ADVANCED ENGLISH COMPOSITION II (3/3) |
| PLS 221 | AMERICAN GOVERNMENT & POLITICS (3/3) |
| PSY 101 | GENERAL PSYCHOLOGY (3/3) |
| HST 121 | HISTORY OF WESTERN CIVILIZATION (3/3) |
| SPE 121 | SPEECH COMMUNICATION (3/3) |
| GEO 127 | PHYSICAL GEOGRAPHY (4/5) |
| | LABORATORY SCIENCE (4/5) |

**CORE PROGRAM REQUIREMENTS** **CREDITS: 23**

| | |
|---|---|
| BUS 123 | PRINCIPLES OF ACCOUNTING I (4/4) |
| ECN 232 *or* | ECONOMICS (MACRO) (3/3) *or* |
| ECN 231 | ECONOMICS (MICRO) (3/3) |
| HST 122 | HISTORY OF WESTERN CIVILIZATION (3/3) |
| HST 221 | U.S. HISTORY (3/3) |
| HST 222 | U.S. HISTORY (3/3) |
| MTH 113 | INTERMEDIATE ALGEBRA (4/4) |
| SOC 123 | INTRODUCTION TO SOCIOLOGY (3/3) |

**SUGGESTED ELECTIVES** **CREDITS: 11**

Electives should be selected to fulfill transfer institution requirements, area of concentrations (major or minor), or student interest. It is strongly recommended that foreign language preparation begin as soon as possible.

**MINIMUM 60 CREDIT HOURS/62 CONTACT HOURS**

# PRE-LAW

ASSOCIATE IN ARTS (AA) DEGREE

Suggested Sequence of Courses

**Year 1 (Fall Semester)** **Credits: 16**

| | |
|---|---|
| ENG 111 *or* | ENGLISH COMPOSITION I (3/3) *or* |
| ENG 121 | ADVANCED ENGLISH COMPOSITION I (3/3) |
| HST 121 | HISTORY OF WESTERN CIVILIZATION (3/3) |
| MTH 113 | INTERMEDIATE ALGEBRA (4/4) |
| PLS 221 | AMERICAN GOVERNMENT & POLITICS (3/3) |
| PSY 101 | GENERAL PSYCHOLOGY (3/3) |

**YEAR 1 (SPRING SEMESTER)** **CREDITS: 16**

| | |
|---|---|
| ENG 112 *or* | ENGLISH COMPOSITION II (3/3) *or* |
| ENG 122 | ADVANCED ENGLISH COMPOSITION II (3/3) |
| HST 122 | HISTORY OF WESTERN CIVILIZATION (3/3) |
| | LABORATORY SCIENCE (4/5) |
| ECN 232 *or* | ECONOMICS (MACRO) (3/3) *or* |
| ECN 231 | ECONOMICS (MICRO) (3/3) |
| | RECOMMENDED ELECTIVE (3/3) |

**YEAR 2 (FALL SEMESTER)** **CREDITS: 14**

| | |
|---|---|
| GEO 127 | PHYSICAL GEOGRAPHY (4/5) |
| HST 221 | U.S. HISTORY (3/3) |
| | LANGUAGE/FINE ARTS/HUMANITIES ELECTIVE (3/3) |
| BUS 123 | PRINCIPLES OF ACCOUNTING I (4/4) |

**YEAR 2 (SPRING SEMESTER)** **CREDITS: 14**

| | |
|---|---|
| HST 222 | U.S. HISTORY (3/3) |
| SOC 123 | INTRODUCTION TO SOCIOLOGY (3/3) |
| SPE 121 | SPEECH COMMUNICATION (3/3) |
| | RECOMMENDED ELECTIVE (5/5) |

# PRE-MEDICAL TECHNOLOGY

ASSOCIATE IN SCIENCE (AS) DEGREE

DESCRIPTION: This is a suggested program of study which may be altered to meet individual goals and transfer plans. Students should refer to the description of Alpena Community College graduation requirements and AS degree distribution requirements and consult with an academic advisor concerning specific course selection. A minimum total of 60 credits is required for the Associate in Science degree.

**GENERAL EDUCATION REQUIREMENTS** **CREDITS: 24**

| | |
|---|---|
| ENG 111 *or* | ENGLISH COMPOSITION I (3/3) *or* |
| ENG 121 | ADVANCED ENGLISH COMPOSITION I (3/3) |
| ENG 112 *or* | ENGLISH COMPOSITION II (3/3) *or* |
| ENG 122 | ADVANCED ENGLISH COMPOSITION II (3/3) |
| MTH 122 | PLANE TRIGONOMETRY (4/4) |
| PLS 221 *or* | AMERICAN GOVERNMENT REQUIREMENT (3/3) |
| PLS 222 *or* | |
| HST 221 & HST 222 | |
| | HUMANITIES/FINE ARTS/SOCIAL SCI REQ (3/4) |
| CEM 121 | GENERAL & INORGANIC CHEMISTRY (4/7) |
| BIO 210 | INTRODUCTION TO BOTANY (4/5) |

**CORE PROGRAM REQUIREMENTS** **CREDITS: 32**

| | |
|---|---|
| BIO 201 | HUMAN ANATOMY (4/5) |
| BIO 211 | GENERAL ZOOLOGY (4/5) |
| CEM 122 | GENERAL & INORGANIC CHEMISTRY (4/7) |
| CEM 221 | ORGANIC CHEMISTRY (4/6) |
| CEM 222 | ORGANIC CHEMISTRY (4/6) |
| MTH 123 | COLLEGE ALGEBRA (4/4) |
| PHY 121 | GENERAL COLLEGE PHYSICS (4/6) |
| PHY 122 | GENERAL COLLEGE PHYSICS (4/6) |

**SUGGESTED ELECTIVES** **CREDITS: 4**

Electives will change depending on area of concentration and the specific four-year transfer institution's requirements. Consult your ACC academic advisor.

**MINIMUM 60 CREDIT HOURS/79 CONTACT HOURS**

NOTES:

See information on cooperative 2+2 program in Medical Technology with Ferris State University.

# PRE-MEDICAL TECHNOLOGY

ASSOCIATE IN SCIENCE (AS) DEGREE

SUGGESTED SEQUENCE OF COURSES

**YEAR 1 (FALL SEMESTER)** **CREDITS: 15**

| | |
|---|---|
| ENG 111 *or* | ENGLISH COMPOSITION I (3/3) *or* |
| ENG 121 | ADVANCED ENGLISH COMPOSITION I (3/3) |
| CEM 121 | GENERAL & INORGANIC CHEMISTRY (4/7) |
| BIO 201 | HUMAN ANATOMY (4/5) |
| MTH 122 | PLANE TRIGONOMETRY (4/4) |

**YEAR 1 (SPRING SEMESTER)** **CREDITS: 15**

| | |
|---|---|
| ENG 112 *or* | ENGLISH COMPOSITION II (3/3) *or* |
| ENG 122 | ADVANCED ENGLISH COMPOSITION II (3/3) |
| MTH 123 | COLLEGE ALGEBRA (4/4) |
| BIO 211 | GENERAL ZOOLOGY (4/5) |
| CEM 122 | GENERAL & INORGANIC CHEMISTRY (4/7) |

**YEAR 2 (FALL SEMESTER)** **CREDITS: 15**

| | |
|---|---|
| PLS 221 *or* | AMERICAN GOVERNMENT REQUIREMENT (3/3) |
| PLS 222 *or* | |
| HST 221 & HST 222 | |
| BIO 201 | HUMAN ANATOMY (4/5) |
| CEM 221 | ORGANIC CHEMISTRY (4/6) |
| PHY 121 | GENERAL COLLEGE PHYSICS (4/6) |

**YEAR 2 (SPRING SEMESTER)** **CREDITS: 15**

| | |
|---|---|
| CEM 222 | ORGANIC CHEMISTRY (4/6) |
| PHY 122 | GENERAL COLLEGE PHYSICS (4/6) |
| | HUMANITIES/FINE ARTS/SOCIAL SCI REQ (3/4) |
| | ELECTIVE (4/4) |

# PRE-PHARMACY

ASSOCIATE IN SCIENCE (AS) DEGREE

DESCRIPTION: This is a suggested program of study which may be altered to meet individual goals and transfer plans. Students should refer to the description of Alpena Community College graduation requirements and AS degree distribution requirements and consult with an academic advisor concerning specific course selection. A minimum total of 60 credits is required for the Associate in Science degree.

| **GENERAL EDUCATION REQUIREMENTS** | | **CREDITS: 31** |
|---|---|---|
| ENG 111 *or* | ENGLISH COMPOSITION I (3/3) *or* | |
| ENG 121 | ADVANCED ENGLISH COMPOSITION I (3/3) | |
| ENG 112 *or* | ENGLISH COMPOSITION II (3/3) *or* | |
| ENG 122 | ADVANCED ENGLISH COMPOSITION II (3/3) | |
| MTH 131 | ANALYTIC GEOMETRY & CALCULUS (5/5) | |
| ECN 231 | ECONOMICS (MICRO) (3/3) | |
| PSY 101 *or* | GENERAL PSYCHOLOGY (3/3) *or* | |
| SOC 123 | INTRODUCTION TO SOCIOLOGY (3/3) | |
| SPE 121 *or* | SPEECH COMMUNICATION (3/3) *or* | |
| SPE 123 | PUBLIC COMMUNICATION (3/3) | |
| | HUMANITIES/FINE ARTS (200 LEVEL) ELECTIVE (3/4) | |
| BIO 114 *or* | INTRODUCTION TO BIOLOGICAL SCIENCE (4/5) *or* | |
| BIO 210 | INTRODUCTION TO BOTANY (4/5) | |
| CEM 121 | GENERAL & INORGANIC CHEMISTRY (4/7) | |

| **CORE PROGRAM REQUIREMENTS** | | **CREDITS: 26** |
|---|---|---|
| BIO 227 | MICROBIOLOGY (4/6) | |
| CEM 122 | INORGANIC CHEM & QUALITATIVE ANALYSIS (4/7) | |
| CEM 221 | ORGANIC CHEMISTRY (4/6) | |
| CEM 222 | ORGANIC CHEMISTRY (4/6) | |
| HST 221 | U.S. HISTORY (3/3) | |
| HST 222 | U.S. HISTORY (3/3) | |
| MTH 223 | STATISTICAL METHODS (4/4) | |

**SUGGESTED ELECTIVES** **CREDITS:**

Electives will change depending on area of concentration and the specific four-year transfer institution's requirements. Consult your ACC academic advisor.

**MINIMUM 61 CREDIT HOURS/75 CONTACT HOURS**

# PRE-PHARMACY

ASSOCIATE IN SCIENCE (AS) DEGREE

SUGGESTED SEQUENCE OF COURSES

| **YEAR 1 (FALL SEMESTER)** | | **CREDITS: 16** |
|---|---|---|
| ENG 111 *or* | ENGLISH COMPOSITION I (3/3) *or* | |
| ENG 121 | ADVANCED ENGLISH COMPOSITION I (3/3) | |
| CEM 121 | GENERAL & INORGANIC CHEMISTRY (4/7) | |
| MTH 131 | ANALYTIC GEOMETRY & CALCULUS (5/5) | |
| BIO 114 *or* | INTRODUCTION TO BIOLOGICAL SCIENCE (4/5) *or* | |
| BIO 210 | INTRODUCTION TO BOTANY (4/5) | |

| **YEAR 1 (SPRING SEMESTER)** | | **CREDITS: 14** |
|---|---|---|
| ENG 112 *or* | ENGLISH COMPOSITION II (3/3) *or* | |
| ENG 122 | ADVANCED ENGLISH COMPOSITION II (3/3) | |
| CEM 122 | INORGANIC CHEM & QUALITATIVE ANALYSIS (4/7) | |
| HST 221 | U.S. HISTORY (3/3) | |

| **YEAR 2 (FALL SEMESTER)** | | **CREDITS: 15** |
|---|---|---|
| CEM 221 | ORGANIC CHEMISTRY (4/6) | |
| ECN 231 | ECONOMICS (MICRO) (3/3) | |
| BIO 227 | MICROBIOLOGY (4/6) | |
| HST 222 | U.S. HISTORY (3/3) | |

| **YEAR 2 (SPRING SEMESTER)** | | **CREDITS: 16** |
|---|---|---|
| CEM 222 | ORGANIC CHEMISTRY (4/6) | |
| PSY 101 *or* | GENERAL PSYCHOLOGY (3/3) *or* | |
| SOC 123 | INTRODUCTION TO SOCIOLOGY (3/3) | |
| SPE 121 *or* | SPEECH COMMUNICATION (3/3) *or* | |
| SPE 123 | PUBLIC COMMUNICATION (3/3) | |
| | HUMANITIES/FINE ARTS (200 LEVEL) ELECTIVE (3/4) | |
| | ELECTIVE (3/3) | |

# PRE-VETERINARY

ASSOCIATE IN SCIENCE (AS) DEGREE

DESCRIPTION: This is a suggested program of study which may be altered to meet individual goals and transfer plans. Students should refer to the description of Alpena Community College graduation requirements and AS degree distribution requirements and consult with an academic advisor concerning specific course selection. A minimum total of 60 credits is required for the Associate in Science degree.

**GENERAL EDUCATION REQUIREMENTS** **CREDITS: 31**

| | |
|---|---|
| ENG 111 *or* | ENGLISH COMPOSITION I (3/3) *or* |
| ENG 121 | ADVANCED ENGLISH COMPOSITION I (3/3) |
| ENG 112 *or* | ENGLISH COMPOSITION II (3/3) *or* |
| ENG 122 | ADVANCED ENGLISH COMPOSITION II (3/3) |
| MTH 122 | PLANE TRIGONOMETRY (3/3) |
| PLS 221 *or* | AMERICAN GOVERNMENT REQUIREMENT (3/3) |
| PLS 222 *or* | |
| HST 221 & HST 222 | |
| | HUMANITIES/FINE ARTS/SOCIAL SCI ELECTIVE (3/4) |
| | HUMANITIES/FINE ARTS REQUIREMENT (3/4) |
| BIO 114 | INTRO TO BIOLOGICAL SCIENCE (4/5) |
| CEM 121 | GENERAL & INORGANIC CHEMISTRY (4/7) |

**CORE PROGRAM REQUIREMENTS** **CREDITS: 36**

| | |
|---|---|
| BIO 201 | HUMAN ANATOMY (4/5) |
| BIO 211 | GENERAL ZOOLOGY (4/5) |
| BIO 227 | MICROBIOLOGY (4/6) |
| CEM 122 | INORGANIC CHEM & QUALITATIVE ANALYSIS (4/7) |
| CEM 221 | ORGANIC CHEMISTRY (4/6) |
| CEM 222 | ORGANIC CHEMISTRY (4/6) |
| MTH 123 | COLLEGE ALGEBRA & ANALYTIC TRIGONOMETRY (4/4) |
| PHY 121 | GENERAL COLLEGE PHYSICS (4/6) |
| PHY 122 | GENERAL COLLEGE PHYSICS (4/6) |

**SUGGESTED ELECTIVES** **CREDITS:**

Electives will change depending on area of concentration and the specific four-year transfer institution's requirements. Consult your ACC academic advisor.

**MINIMUM 62 CREDIT HOURS/83 CONTACT HOURS**

# PRE-VETERINARY

ASSOCIATE IN SCIENCE (AS) DEGREE

SUGGESTED SEQUENCE OF COURSES

**YEAR 1 (FALL SEMESTER)** **CREDITS: 17**

| | |
|---|---|
| ENG 111 *or* | ENGLISH COMPOSITION I (3/3) *or* |
| ENG 121 | ADVANCED ENGLISH COMPOSITION I (3/3) |
| BIO 114 | INTRO TO BIOLOGICAL SCIENCE (4/5) |
| CEM 121 | GENERAL & INORGANIC CHEMISTRY (4/7) |
| MTH 122 | PLANE TRIGONOMETRY (3/3) |
| | HUMANITIES/FINE ARTS/SOCIAL SCI ELECTIVE (3/4) |

**YEAR 1 (SPRING SEMESTER)** **CREDITS: 15**

| | |
|---|---|
| ENG 112 *or* | ENGLISH COMPOSITION II (3/3) *or* |
| ENG 122 | ADVANCED ENGLISH COMPOSITION II (3/3) |
| BIO 211 | GENERAL ZOOLOGY (4/5) |
| CEM 122 | INORGANIC CHEM & QUALITATIVE ANALYSIS (4/7) |
| MTH 123 | COLLEGE ALGEBRA & ANALYTIC TRIGONOMETRY (4/4) |

**YEAR 2 (FALL SEMESTER)** **CREDITS: 15**

| | |
|---|---|
| CEM 221 | ORGANIC CHEMISTRY (4/6) |
| BIO 201 | HUMAN ANATOMY (4/5) |
| PHY 121 | GENERAL COLLEGE PHYSICS (4/6) |
| PLS 221 *or* | AMERICAN GOVERNMENT REQUIREMENT (3/3) |
| PLS 222 *or* | |
| HST 221 & HST 222 | |

**YEAR 2 (SPRING SEMESTER)** **CREDITS: 15**

| | |
|---|---|
| CEM 222 | ORGANIC CHEMISTRY (4/6) |
| BIO 227 | MICROBIOLOGY (4/6) |
| PHY 122 | GENERAL COLLEGE PHYSICS (4/6) |
| | HUMANITIES/FINE ARTS REQUIREMENT (3/4) |

# PSYCHOLOGY

ASSOCIATE IN ARTS (AA) DEGREE

DESCRIPTION: This is a suggested. It is intended for students who want to work in the field of psychology or counseling, are considering an Associate in Arts (AA) degree, or intending to transfer to obtain a bachelor's degree or advanced degree in psychology or counseling. Students should refer to the description of Alpena Community College graduation requirements and degree distribution requirements and consult with an academic advisor concerning specific course selection. A minimum total of 60 credits is required for the Associate in Arts degree.

**GENERAL EDUCATION REQUIREMENTS** **CREDITS: 26**

| | |
|---|---|
| ENG 111 *or* | ENGLISH COMPOSITION I (3/3) *or* |
| ENG 121 | ADVANCED ENGLISH COMPOSITION I (3/3) |
| ENG 112 *or* | ENGLISH COMPOSITION II (3/3) *or* |
| ENG 122 | ADVANCED ENGLISH COMPOSITION II (3/3) |
| MTH 223 | STATISTICAL METHODS (4/4) |
| PSY 101 | GENERAL PSYCHOLOGY (3/3) |
| PLS 221 | AMERICAN GOVERNMENT & POLITICS (3/3) |
| HST 121 | HISTORY OF WESTERN CIVILIZATION (3/3) |
| SPE 121 | SPEECH COMMUNICATION (3/3) |
| GEO 127 | PHYSICAL GEOGRAPHY (4/5) |

**CORE PROGRAM REQUIREMENTS** **CREDITS: 18**

| | |
|---|---|
| HST 122 | HISTORY OF WESTERN CIVILIZATION (3/3) |
| SOC 123 | INTRODUCTION TO SOCIOLOGY (3/3) |
| PSY 226 | DEVELOPMENTAL PSYCHOLOGY (3/3) |
| PSY 230 | HUMAN SEXUALITY (3/3) |
| PSY 241 | SOCIAL PSYCHOLOGY (3/3) |
| PSY 242 | ABNORMAL PSYCHOLOGY (3/3) |

**SUGGESTED ELECTIVES** **CREDITS: 16**

| | |
|---|---|
| ANP 121 | CULTURAL ANTHROPOLOGY (3/3) |
| BIO 114 | INTRODUCTION TO BIOLOGICAL SCIENCE (4/5) |
| ECN 232 | ECONOMICS (MACRO) (3/3) |
| HST 227 | CONTEMPORARY AMERICAN PROBLEMS (3/3) |
| SOC 210 | SOCIAL INEQUALITY: RACE, CLASS & GENDER (3/3) |
| SOC 227 | SOCIOLOGY OF MARRIAGE & FAMILY (3/3) |

**MINIMUM 60 CREDIT HOURS/62 CONTACT HOURS**

# PSYCHOLOGY

ASSOCIATE IN ARTS (AA) DEGREE
SUGGESTED SEQUENCE OF COURSES

**YEAR 1 (FALL SEMESTER)** **CREDITS: 16**

| | |
|---|---|
| ENG 111 *or* | ENGLISH COMPOSITION I (3/3) *or* |
| ENG 121 | ADVANCED ENGLISH COMPOSITION I (3/3) |
| HST 121 | HISTORY OF WESTERN CIVILIZATION (3/3) |
| MTH 223 | STATISTICAL METHODS (4/4) |
| PSY 101 | GENERAL PSYCHOLOGY (3/3) |
| | SUGGESTED ELECTIVE (3/3) |

**YEAR 1 (SPRING SEMESTER)** **CREDITS: 15**

| | |
|---|---|
| ENG 112 *or* | ENGLISH COMPOSITION II (3/3) *or* |
| ENG 122 | ADVANCED ENGLISH COMPOSITION II (3/3) |
| HST 122 | HISTORY OF WESTERN CIVILIZATION (3/3) |
| SOC 123 | INTRODUCTION TO SOCIOLOGY (3/3) |
| PSY 230 | HUMAN SEXUALITY (3/3) |
| | SUGGESTED ELECTIVE (3/3) |

**YEAR 2 (FALL SEMESTER)** **CREDITS: 16**

| | |
|---|---|
| GEO 127 | PHYSICAL GEOGRAPHY (4/5) |
| PLS 221 | AMERICAN GOVERNMENT & POLITICS (3/3) |
| PSY 226 | DEVELOPMENTAL PSYCHOLOGY (3/3) |
| PSY 242 | ABNORMAL PSYCHOLOGY (3/3) |
| | SUGGESTED ELECTIVE (3/3) |

**YEAR 2 (SPRING SEMESTER)** **CREDITS: 13**

| | |
|---|---|
| SPE 121 | SPEECH COMMUNICATION (3/3) |
| PSY 241 | SOCIAL PSYCHOLOGY (3/3) |
| | SUGGESTED ELECTIVES (7/7) |

# PSYCHOLOGY

ASSOCIATE IN SCIENCE (AS) DEGREE

DESCRIPTION: This is a suggested program of study that may be altered to meet individual goals and transfer plans. Students should refer to the description of Alpena Community College graduation requirements and degree distribution requirements and consult with an academic advisor concerning specific course selection. A minimum total to 60 credits is required for the Associate in Science degree. It is intended for students who want to work in the field of psychology, are considering an Associate in Science (AS) degree, or intending to transfer to obtain a bachelor's degree or advanced degree in psychology. The Associate in Science in Psychology places an increased emphasis on the role of mathematics and biological factors in psychological phenomena. It is intended to provide a foundation for a variety of psychological areas of study including but not limited to clinical psychology, cognitive psychology, experimental psychology, forensic psychology, health psychology, physiological psychology, and neuropsychology.

| **GENERAL EDUCATION REQUIREMENTS** | | **CREDITS: 30** |
|---|---|---|
| ENG 111 *or* | ENGLISH COMPOSITION I (3/3) *or* | |
| ENG 121 | ADVANCED ENGLISH COMPOSITION I (3/3) | |
| ENG 112 *or* | ENGLISH COMPOSITION II (3/3) *or* | |
| ENG 122 | ADVANCED ENGLISH COMPOSITION II (3/3) | |
| MTH 121 | COLLEGE ALGEBRA (4/4) | |
| PLS 221 | AMERICAN GOVERNMENT & POLITICS (3/3) | |
| PSY 101 | GENERAL PSYCHOLOGY (3/3) | |
| HST 121 | HISTORY OF WESTERN CIVILIZATION (3/3) | |
| BIO 161 | GENERAL COLLEGE BIOLOGY I (4/5) | |
| GEO 127 | PHYSICAL GEOGRAPHY (4/5) | |

| **CORE PROGRAM REQUIREMENTS** | | **CREDITS: 26** |
|---|---|---|
| BIO 162 | GENERAL COLLEGE BIOLOGY II (4/5) | |
| HST 122 | HISTORY OF WESTERN CIVILIZATION (3/3) | |
| MTH 223 | STATISTICAL METHODS (4/4) | |
| PSY 226 | DEVELOPMENTAL PSYCHOLOGY (3/3) | |
| PSY 230 | HUMAN SEXUALITY (3/3) | |
| PSY 241 | SOCIAL PSYCHOLOGY (3/3) | |
| PSY 242 | ABNORMAL PSYCHOLOGY (3/3) | |
| SOC 123 | INTRODUCTION TO SOCIOLOGY (3/3) | |

| **SUGGESTED ELECTIVES** | | **CREDITS:** |
|---|---|---|
| ANP 121 | CULTURAL ANTHROPOLOGY (3/3) | |
| CEM 111 *or* | GENERAL CHEMISTRY (4/7) *or* | |
| CEM 121 | GENERAL & INORGANIC CHEMISTRY (4/7) | |
| ENC 232 | ECONOMICS (MACRO) (3/3) | |
| HST 227 | CONTEMPORARY AMERICAN PROBLEMS (3/3) | |
| SOC 210 | SOCIAL INEQUALITY: RACE, CLASS & GENDER (3/3) | |
| SOC 227 | SOCIOLOGY OF MARRIAGE & FAMILY (3/3) | |

**MINIMUM 62 CREDIT HOURS/65 CONTACT HOURS**

# PSYCHOLOGY

ASSOCIATE IN SCIENCE (AS) DEGREE
SUGGESTED SEQUENCE OF COURSES

| **YEAR 1 (FALL SEMESTER)** | | **CREDITS 16** |
|---|---|---|
| ENG 111 *or* | ENGLISH COMPOSITION I (3/3) *or* | |
| ENG 121 | ADVANCED ENGLISH COMPOSITION I (3/3) | |
| HST 121 | HISTORY OF WESTERN CIVILIZATION (3/3) | |
| MTH 121 | COLLEGE ALGEBRA (4/4) | |
| PSY 101 | GENERAL PSYCHOLOGY (3/3) | |
| | SUGGESTED ELECTIVE (3/3) | |

| **YEAR 1 (SPRING SEMESTER)** | | **CREDITS: 16** |
|---|---|---|
| ENG 112 *or* | ENGLISH COMPOSITION II (3/3) *or* | |
| ENG 122 | ADVANCED ENGLISH COMPOSITION II (3/3) | |
| HST 122 | HISTORY OF WESTERN CIVILIZATION (3/3) | |
| MTH 223 | STATISTICAL METHODS (4/4) | |
| SOC 123 | INTRODUCTION TO SOCIOLOGY (3/3) | |
| PSY 226 | DEVELOPMENTAL PSYCHOLOGY (3/3) | |

| **YEAR 2 (FALL SEMESTER)** | | **CREDITS: 14** |
|---|---|---|
| GEO 127 | PHYSICAL GEOGRAPHY (4/5) | |
| BIO 161 | GENERAL COLLEGE BIOLOGY I (4/5) | |
| SPE 121 | SPEECH COMMUNICATION (3/3) | |
| PSY 242 | ABNORMAL PSYCHOLOGY (3/3) | |

| **YEAR 2 (SPRING SEMESTER)** | | **CREDITS: 16** |
|---|---|---|
| PLS 221 | AMERICAN GOVERNMENT & POLITICS (3/3) | |
| BIO 162 | GENERAL COLLEGE BIOLOGY II (4/5) | |
| PSY 230 | HUMAN SEXUALITY (3/3) | |
| PSY 241 | SOCIAL PSYCHOLOGY (3/3) | |
| | SUGGESTED ELECTIVE (3/3) | |

# Small Business Management

Certificate (C)

Description: Self-employment is the goal of many individuals and one method of achieving this goal is to own a business. Alpena Community College has designed the Small Business Management program specifically to help people to become prepared to manage a small firm. The curriculum includes courses to provide a general business background with specific emphasis on salesmanship, applied accounting, management, business law, marketing, and retailing. This two-semester program leads to a Certificate of Achievement.

**General Education Requirements** **Credits: 6**

| | |
|---|---|
| CIS 151,152,153 | Word Processing I, II, III (3/3.75) |
| ECN 231 | Economics (Micro) (3/3) |

**Core Program Courses** **Credits: 18**

| | |
|---|---|
| BUS 121 | Introduction to Business (3/3) |
| BUS 122 | Personal Selling (3/3) |
| BUS 125 | Business mathematics (3/3) |
| BUS 128 | Small Business Management (3/3) |
| BUS 131 | Applied Accounting (3/4) |
| BUS 221 | Business Law (3/3) |

**Suggested Electives** **Credits: 9**

Business Elective (6/6)
BUS 123
BUS 234
BUS 241
BUS 248
CIS 171, 172, 173

Computer Elective (3/3)
BUS 257
CIS 120
MTH 119

**Minimum 33 Credit Hours/34.75 Contact Hours**

# Small Business management

Certificate (C)
Suggested Sequence of Courses

**Year 1 (Fall Semester)** **Credits: 18**

| | |
|---|---|
| BUS 121 | Introduction to Business (3/3) |
| BUS 122 | Personal Selling (3/3) |
| BUS 128 | Small Business Management (3/3) |
| BUS 221 | Business Law (3/3) |
| CIS 151,152,153 | Word Processing I, II, III (3/3.75) |
| ECN 231 | Economics (Micro) (3/3) |

**Year 1 (Spring Semester)** **Credits: 15**

| | |
|---|---|
| BUS 131 | Applied Accounting (3/4) |
| BUS 125 | Business mathematics (3/3) |
| | Computer Elective (3/3) |
| | Business Elective (6/6) |

Gainful Employment information for Small Business Management

# Small Business Management

Associate in Applied Science (AAS) Degree

Description: Self-employment is the goal of many individuals and one method of achieving this goal is to own a business. This program is designed to specifically help students prepare to manage a small firm. Students will gain a general business background with an emphasis on salesmanship, applied accounting, management, business, law, marketing, and retailing.

**General Education Requirements** **Credits: 15**

| | |
|---|---|
| ENG 111 *or* | English Composition I (3/3) *or* |
| ENG 121 | Advanced English Composition I (3/3) |
| ENG 112 *or* | English Composition II (3/3) *or* |
| ENG 122 | Advanced English Composition II (3/3) |
| ECN 231 | Economics (Micro) (3/3) |
| PLS 221 *or* | American Government Requirement (3/3) |
| PLS 222 *or* | |
| HST 221 & HST 222 | |
| SPE 121 | Speech Communication (3/3) |

**Core Program Requirements** **Credits: 37**

| | |
|---|---|
| BUS 121 | Introduction to Business (3/3) [A] |
| BUS 122 | Personal Selling (3/3) [A] |
| BUS 123 | Principles of Accounting I (4/4) [A] |
| BUS 125 *or higher* | Business Math (3/3) *or higher math* |
| BUS 127 | Principles of Management (3/3) [A] |
| BUS 128 | Small Business management (3/3) [A] |
| BUS 221 | Business Law I (3/3) [A] |
| BUS 222 | Business Law II (3/3) [A] |
| BUS 235 | Human Resources Management (3/3) [A] |
| BUS 241 | Principles of Marketing (3/3) [A] |
| BUS 248 | Business Communications (3/3) [A] |
| CIS 120 | Introduction to Microcomputers (3/4) |

**Suggested Electives** **Credits: 12**

Business Elective: Choose 2 courses/6 credits from:

| | |
|---|---|
| BUS 115, 116, 117 | Foundations in Personal Finance (3/3) |
| BUS 229 | Advertising (3/3) |
| BUS 233 | Management & Supervisory Leadership (3/3) |
| BUS 262 | Project Management (3/4) |
| BIS 140 | Proofreading & Editing for Bus Prof (3/4) |

Computer Elective: Choose 3 credits from:

| | |
|---|---|
| BUS 255 | Business Application Software (3/4) |
| BUS 257 | Computerized Accounting Systems (1/5/2) |
| CIS 140 | Introduction to Microsoft Client OS (3/4) |
| CIS 151, 152, 153 | Word Processing (3/3.75) |

Elective: Choose 3 credits from:

| | |
|---|---|
| CIS 171, 172, 173 | Spreadsheets I, II, III (3/3.75) |
| CIS 240 | Multimedia Presentations (3/4) |
| CIS 241 | Introduction to Web Design & Mgt (3/4) |

**Minimum 64 Credit Hours/65.5 Contact Hours**

Notes:
[A] Included in occupational specialty.
*GPA of 2.0 or higher must be maintained in occupational specialty courses*

# Small Business Management

Associate in Applied Science (AAS) Degree
Suggested Sequence of Courses

**Year 1 (Fall Semester)** **Credits: 19**

| | |
|---|---|
| BUS 121 | Introduction to Business (3/3) |
| BUS 123 | Principles of Accounting (4/4) |
| BUS 125 *or higher* | Business Math (3/3) or higher math |
| CIS 120 | Introduction to Microcomputers (3/4) |
| ENG 111 *or* | English Composition I (3/3) *or* |
| ENG 121 | Advanced English Composition I (3/3) |
| | Elective (3/3) |

**Year 1 (Spring Semester)** **Credits: 15**

| | |
|---|---|
| ENG 112 *or* | English Composition II (3/3) *or* |
| ENG 122 | Advanced English Composition II (3/3) |
| BUS 122 | Personal Selling (3/3) |
| BUS 127 | Principles of Management (3/3) |
| | Computer Elective (3/3.75) |
| PLS 221 *or* | American Government Requirement (3/3) |
| PLS 222 *or* | |
| HST 221 & HST 222 | |

**Year 2 (Fall Semester)** **Credits: 15**

| | |
|---|---|
| BUS 221 | Business Law (3/3) |
| BUS 241 | Principles of Marketing (3/3/) |
| | Business Elective (3/3) |
| ECN 231 | Economics (Micro) (3/3) |
| SPE 121 | Speech Communication (3/3) |

**Year 2 (Spring Semester)** **Credits: 15**

| | |
|---|---|
| BUS 128 | Small Business management (3/3) |
| BUS 222 | Business Law (3/3) |
| BUS 248 | Business Communications (3/3) |
| BUS 235 | Human Resources Management (3/3) |
| | Business Elective (3/3) |

# Sociology

Associate in Arts (AA) Degree

Description: This is a suggested program of study that may be altered to meet individual goals and transfer plans. It is intended for students who are considering an Associate in Arts (AA) degree, or intending to transfer to obtain a bachelor's degree or advanced degree in Sociology or Social Work. Students should refer to the description of Alpena Community College graduation requirements and degree distribution requirements and consult with an academic advisor concerning specific course selection. A minimum total of 60 credits are required for the Associate in Arts degree.

| **General Education Requirements** | | **Credits: 26** |
|---|---|---|
| ENG 111 *or* | English Composition I (3/3) *or* | |
| ENG 121 | Advanced English Composition I (3/3) | |
| ENG 112 *or* | English Composition II (3/3) *or* | |
| ENG 122 | Advanced English Composition II (3/3) | |
| MTH 223 | Statistical Methods (4/4) | |
| SOC 123 | Introduction to Sociology (3/3) | |
| PLS 221 | American Government & Politics (3/3) | |
| HST 121 | History of Western Civilization (3/3) | |
| SPE 121 | Speech Communication (3/3) | |
| GEO 127 | Physical Geography (4/5) | |

| **Core Program Requirements** | | **Credits: 6** |
|---|---|---|
| HST 222 | History of Western Civilization (3/3) | |
| PSY 101 | General Psychology (3/3) | |

| **Suggested Electives** | | **Credits:** |
|---|---|---|
| ANP 121 | Cultural Anthropology (3/3) | |
| BIO 114 | Introduction to Biological Science (4/5) | |
| ECN 232 | Economics (Macro) (3/3) | |
| HST 227 | Contemporary American Problems (3/3) | |
| PSY 226 | Developmental Psychology (3/3) | |
| PSY 230 | Human Sexuality (3/3) | |
| PSY 241 | Social Psychology (3/3) | |
| PSY 242 | Abnormal Psychology (3/3) | |
| SOC 210 | Social Inequality: Race, Class & Gender (3/3) (Program Elective) | |
| SOC 227 | Sociology of Marriage & Family (3/3) Program Elective | |

**Minimum 60 Credit Hours/60 Contact Hours**

# Sociology

Associate in Arts (AA) Degree
Suggested Sequence of Courses

| **Year 1 (Fall Semester)** | | **Credits: 16** |
|---|---|---|
| ENG 111 *or* | English Composition I (3/3) *or* | |
| ENG 121 | Advanced English Composition I (3/3) | |
| MTH 223 | Statistical Methods (4/4) | |
| HST 121 | History of Western Civilization (3/3) | |
| SOC 123 | Introduction to Sociology (3/3) | |
| | Elective (3/3) | |

| **Year 1 (Spring Semester)** | | **Credits: 15** |
|---|---|---|
| ENG 112 *or* | English Composition II (3/3) *or* | |
| ENG 122 | Advanced English Composition II (3/3) | |
| HST 222 | History of Western Civilization (3/3) | |
| PSY 101 | General Psychology (3/3) | |
| | Program Elective (3/3) | |

| **Year 2 (Fall Semester)** | | **Credits: 16** |
|---|---|---|
| GEO 127 | Physical Geography (4/5) | |
| PLS 221 | American Government & Politics (3/3) | |
| | Program Elective (3/3) | |
| | Electives (6/6) | |

| **Year 2 (Spring Semester)** | | **Credits: 13** |
|---|---|---|
| SPE 121 | Speech Communication (3/3) | |
| | Electives (10/10) | |

# Utility Technician

Certificate (C)

Description: This two-semester program has been developed to meet the utility industry's need for trained, entry-level employees. Students complete practical theory and hands-on training using actual equipment and materials in classroom, laboratory, and field settings.

**Basic Certificate Requirements** **Credits: 38.5**

| | |
|---|---|
| APP 100E | Electrical Studies for Trades (3/4) [A] |
| APP 106M | Industrial Safety (1/1) [A] |
| MTH 110 *or* | Technical Math I (3/4) *or* |
| MTH 115 | Applied Algebra & Trigonometry I (5/6) |
| PEH 263 | Workplace First Aid/CPR/AED (1/1) |
| SDE 201 | Job Search Strategies (1/1) |
| UTT 101 | Introduction to the Utility Industry (.5/.5) [A] |
| UTT 102 | Climbing Elevated Work Sites (1/1) [A] |
| UTT 103 | Overhead Construction (1/1) [A] |
| UTT 110 | Line Mechanics Lab I (6/10.5) |
| UTT 111 | Line worker Physical Fitness I (2/3) |
| UTT 202 | Transformer Fundamentals (2/3) [A] |
| UTT 203 | Underground Construction (2/2) [A] |
| UTT 204 | System Design & Operations (4/4) [A] |
| UTT 206 | Equipment/Vehicle Operations (2/3) [A] |
| UTT 208 | Climbing & Working in Elevated Work Sites (2/2) [A] |
| UTT 210 | Utility/Line Mechanic Lab (5/9) [A] |
| UTT 211 | Line worker Physical Fitness II (2/3) |

**Advanced Certificate Requirements** **Credits: 15.5**

| | |
|---|---|
| UTT 221 | Line worker Orientation (1.5/2) [A] |
| UTT 222 | Electric Basic Line Climbing (4/6) [A] |
| UTT 223 | Ground/Utility Worker (5/8) [A] |
| UTT 224 | Energized Secondary Worker (5/8) [A] |

**Minimum 38.5 Credit Hours/53 Contact Hours (Basic)**
**Minimum 15.5 Credit Hours/24 Contact Hours (Advanced)**

Notes:
[A] Included in occupational specialty.
*GPA of 2.0 or higher must be maintained in occupational specialty courses*

Students must be able to climb 40 foot power poles to successfully complete the first semester. Each student is expected to have: hard hat, lineman belt, safety strap and climbers, rain wear, safety glasses, various hand tools required by the trade, and work shoes for an approximate cost of $1,800.

# Utility Technician

Certificate (C)
Suggested Sequence of Courses

**Year 1 (Fall Semester)** **Credits: 19**

| | |
|---|---|
| APP 106M | Industrial Safety (1/1) |
| APP 100E | Electrical Studies for Trades (3/4) |
| MTH 110 *or* | Technical Math I (3/4) *or* |
| MTH 115 | Applied Algebra & Trigonometry I (5/6) |
| UTT 101 | Introduction to the Utility Industry (.5/.5) |
| UTT 102 | Climbing Elevated Work Sites (1/1) |
| UTT 103 | Overhead Construction (1/1) |
| UTT 110 | Line Mechanics Lab I (6/10.5) |
| UTT 111 | Line worker Physical Fitness I (2/3) |
| UTT 203 | Underground Construction (2/2) |

**Year 1 (Spring Semester)** **Credits: 19**

| | |
|---|---|
| UTT 202 | Transformer Fundamentals (2/3) |
| UTT 204 | System Design & Operations (4/4) |
| UTT 206 | Equipment/Vehicle Operations (2/3) |
| UTT 208 | Climbing & Working in Elevated Work Sites (2/2) |
| UTT 210 | Utility/Line Mechanic Lab (5/9) |
| UTT 211 | Line worker Physical Fitness II (2/3) |
| PEH 263 | Workplace First Aid/CPR/AED (1/1) |
| SDE 201 | Job Search Strategies (1/1) |

Gainful Employment information for Utility Technology

Gainful Employment information for Utility Technology Advanced

# UTILITY TECHNOLOGY

ASSOCIATE IN APPLIED SCIENCE (AAS) DEGREE

DESCRIPTION: This Associate Degree program familiarizes students with utility industry tools, construction techniques, electrical theory, and equipment. Graduates meet the utility industry's need for trained, entry-level employees. It is the only Associate Degree program offered in Michigan designed specifically to prepare men and women to install and repair business and residential electrical, telephone, and CATV transmission systems.

**GENERAL EDUCATION REQUIREMENTS** **CREDITS: 15**

| | |
|---|---|
| ENG 111 *or* | ENGLISH COMPOSITION I (3/3) *or* |
| ENG 120 | APPLIED COMMUNICATION (3/3) |
| ENG 112 *or* | ENGLISH COMPOSITION II (3/3) *or* |
| ENG 123 | TECHNICAL COMMUNICATION (3/3) |
| MTH 110 *or* | TECHNICAL MATH I (3/4) *or* |
| MTH 115 | APPLIED ALGEBRA & TRIGONOMETRY I (5/6) |
| PLS 221 *or* | AMERICAN GOVERNMENT REQUIREMENT (3/3) |
| PLS 222 *or* | |
| HST 221 & HST 222 | |
| SPE 123 *or* | PUBLIC COMMUNICATION (3/3) *or* |
| SPE 121 | SPEECH COMMUNICATION (3/3) |

**CORE PROGRAM REQUIREMENTS** **CREDITS: 46.5**

| | |
|---|---|
| APP 100E | ELECTRICAL STUDIES FOR TRADES (3/4) [A] |
| APP 104E | AC/DC FUNDAMENTALS (3/4) [A] |
| APP 107E | SPECIALTY WIRING (3/4) [A] |
| APP 106M | INDUSTRIAL SAFETY (1/1) [A] |
| EPT 230 | POLY-PHASE METERING (2/3) [A] |
| PEH 263 | WORKPLACE FIRST AID/CPR/AED (1/1) |
| IND 120 *or* | INDUSTRIAL COMPUTERS & NETWORKING (3/4) *or* |
| CIS 120 | INTRODUCTION TO MICROCOMPUTERS (3/4) |
| SDE 201 | JOB SEARCH STRATEGIES (1/1) |
| UTT 101 | INTRODUCTION TO THE UTILITY INDUSTRY (.5/.5) [A] |
| UTT 102 | CLIMBING ELEVATED WORK SITES (1/1) [A] |
| UTT 103 | OVERHEAD CONSTRUCTION (1/1) [A] |
| UTT 110 | LINE MECHANICS LAB I (6/10.5) |
| UTT 111 | LINE WORKER PHYSICAL FITNESS I (2/3) |
| UTT 202 | TRANSFORMER FUNDAMENTALS (2/3) [A] |
| UTT 203 | UNDERGROUND CONSTRUCTION (2/2) [A] |
| UTT 204 | SYSTEM DESIGN & OPERATIONS (4/4) [A] |
| UTT 206 | EQUIPMENT/VEHICLE OPERATIONS (2/3) [A] |
| UTT 208 | CLIMBING & WORKING IN ELEVATED WORK SITES (2/2) [A] |
| UTT 210 | UTILITY/LINE MECHANIC LAB (5/9) [A] |
| UTT 211 | LINE WORKER PHYSICAL FITNESS II (2/3) |

**MINIMUM 61.5 CREDIT HOURS/80 CONTACT HOURS**

NOTES:
[A] Included in occupational specialty.
*GPA of 2.0 or higher must be maintained in occupational specialty courses*

Students must be able to climb 40 foot power poles to successfully complete the first semester. Each student is expected to have: hard hat, lineman belt, safety strap and climbers, rain wear, safety glasses, various hand tools required by the trade, and work shoes for an approximate cost of $1,800.

# UTILITY TECHNOLOGY

ASSOCIATE IN APPLIED SCIENCE (AAS) DEGREE
SUGGESTED SEQUENCE OF COURSES

**YEAR 1 (FALL SEMESTER)** **CREDITS: 15**

| | |
|---|---|
| APP 100E | ELECTRICAL STUDIES FOR TRADES (3/4) |
| IND 120 *or* | INDUSTRIAL COMPUTERS & NETWORKING (3/4) *or* |
| CIS 120 | INTRODUCTION TO MICROCOMPUTERS (3/4) |
| ENG 111 *or* | ENGLISH COMPOSITION I (3/3) *or* |
| ENG 120 | APPLIED COMMUNICATION (3/3) |
| MTH 110 *or* | TECHNICAL MATH I (3/4) *or* |
| MTH 115 | APPLIED ALGEBRA & TRIGONOMETRY I (5/6) |
| SPE 123 *or* | PUBLIC COMMUNICATION (3/3) *or* |
| SPE 121 | SPEECH COMMUNICATION (3/3) |

**YEAR 1 (SPRING SEMESTER)** **CREDITS: 12**

| | |
|---|---|
| APP 104E | AC/DC FUNDAMENTALS (3/4) |
| ENG 112 *or* | ENGLISH COMPOSITION II (3/3) *or* |
| ENG 123 | TECHNICAL COMMUNICATION (3/3) |
| PLS 221 *or* | AMERICAN GOVERNMENT REQUIREMENT (3-6/3-6) |
| PLS 222 *or* | |
| HST 221 & HST 222 | |
| EPT 230 | POLY-PHASE METERING (2/3) |
| PEH 263 | WORKPLACE FIRST AID/CPR/AED (1/1) |

**YEAR 2 (FALL SEMESTER)** **CREDITS: 16.5**

| | |
|---|---|
| APP 106M | INDUSTRIAL SAFETY (1/1) |
| APP 107E | SPECIALTY WIRING (3/4) |
| UTT 101 | INTRODUCTION TO THE UTILITY INDUSTRY (.5/.5) |
| UTT 102 | CLIMBING ELEVATED WORK SITES (1/1) |
| UTT 103 | OVERHEAD CONSTRUCTION (1/1) |
| UTT 110 | LINE MECHANICS LAB I (6/10.5) |
| UTT 111 | LINE WORKER PHYSICAL FITNESS I (2/3) |
| UTT 203 | UNDERGROUND CONSTRUCTION (2/2) |

**YEAR 2 (SPRING SEMESTER)** **CREDITS: 18**

| | |
|---|---|
| UTT 202 | TRANSFORMER FUNDAMENTALS (2/3) |
| UTT 204 | SYSTEM DESIGN & OPERATIONS (4/4) |
| UTT 206 | EQUIPMENT/VEHICLE OPERATIONS (2/3) |
| UTT 208 | CLIMBING & WORKING IN ELEVATED WORK SITES (2/2) |
| UTT 210 | UTILITY/LINE MECHANIC LAB (5/9) |
| UTT 211 | LINE WORKER PHYSICAL FITNESS II (2/3) |
| SDE 201 | JOB SEARCH STRATEGIES (1/1) |

# WELDING FABRICATION

CERTIFICATE (C)

DESCRIPTION: This one-year certificate program prepares the successful graduate for entry level employment as a general purpose welder, structural steel welder, or welding fabricator. Skills taught in the program include cutting techniques, plate and structural steel fabrication, pipe welding, non-ferrous welding, aluminum and stainless steel, fixture design, CNC plasma cutting, and arc welding procedures. Students are required to complete a welding fabrication project job in which they design, estimate costs, fabricate, and weld project assembles. Students enrolled in this certificate program will be prepared to take the American Welding Society (AWS) Level I and Level II welding certification tests.

| **BASIC PROGRAM REQUIREMENTS** | | **CREDITS: 31** |
|---|---|---|
| CAD 150 | 3D MODELING (3/4) [A] | |
| MET 200 | MATERIAL SCIENCE (3/4) [A] | |
| MFG 101 | MACHINING PROCESSES I (4/6) [A] | |
| MFG 120 | PRINT INTERPRETATION & PROCESSES (3/4) [A] | |
| MTH 110 | TECHNICAL MATH I (3/4) | |
| WLD 123 | SMAW WELDING PROCESSES (4/6) [A] | |
| WLD 124 | GMAW & FCAW WELDING PROCESSES (4/6) [A] | |
| WLD 240 | GAS TUNGSTEN ARC & PIPE WELDING (4/6) [A] | |
| WLD 242 | WELDING FABRICATION (3/5) [A] | |

**MINIMUM 31 CREDIT HOURS/45 CONTACT HOURS**

NOTES:
[A] Included in occupational specialty.
*GPA of 2.0 or higher must be maintained in occupational specialty courses*

Students with current American Welding Society (AWS) Entry Level Welder (Level I) and/or AWS Advanced Welder (Level II) certification, or students with a current AWS D1.1/2015 Structural Welding certification will receive credit for the applicable welding course(s). See program advisor for details.

# WELDING FABRICATION

CERTIFICATE (C)
SUGGESTED SEQUENCE OF COURSES

| **Year 1 (Fall Semester)** | | **Credits: 17** |
|---|---|---|
| WLD 123 | SMAW WELDING PROCESSES (4/6) | |
| MET 200 | MATERIAL SCIENCE (3/4) | |
| MFG 101 | MACHINING PROCESSES I (4/6) | |
| MFG 120 | PRINT INTERPRETATION & PROCESSES (3/4) | |
| MTH 110 | TECHNICAL MATH I (3/4) | |

| **YEAR 1 (SPRING SEMESTER)** | | **CREDITS: 14** |
|---|---|---|
| CAD 150 | 3D MODELING (3/4) | |
| WLD 124 | GMAW & FCAW WELDING PROCESSES (4/6) | |
| WLD 240 | GAS TUNGSTEN ARC & PIPE WELDING (4/6) | |
| WLD 242 | WELDING FABRICATION (3/5) | |

Gainful Employment information for Welding Fabrication

# WELDING TECHNOLOGY

ASSOCIATE IN APPLIED SCIENCE (AAS) DEGREE

DESCRIPTION: This associate degree program is a continuation of the Welding Fabrication certificate program. The degree introduces the student to more specialized structural and pipe welding skill training with related technical and general education courses. Graduates in this program could work in the aerospace, boiler and petroleum piping, construction, mining, manufacturing and fabrication, and maintenance welding industries. This degree is also transferrable to Ferris State University's Welding Engineering Technology baccalaureate program. Students have the option of concurrently working toward completing their AWS Sense Level I and II welding certificates.

**GENERAL EDUCATION REQUIREMENTS** **CREDITS: 12**

| | |
|---|---|
| ENG 120 *or* | APPLIED COMMUNICATION (3/3) *or* |
| ENG 111 | ENGLISH COMPOSITION I (3/3) |
| ENG 123 *or* | TECHNICAL COMMUNICATION (3/3) *or* |
| ENG 112 | ENGLISH COMPOSITION II (3/3) |
| PLS 221 | AMERICAN GOVERNMENT & POLITICS (3/3) |
| PHY 111 | APPLIED PHYSICS (3/4) |

**CORE PROGRAM REQUIREMENTS** **CREDITS: 50**

| | |
|---|---|
| APP 100E | ELECTRICAL STUDIES FOR TRADES (3/4) |
| CAD 150 | 3D MODELING (3/4) [A] |
| MET 200 | MATERIAL SCIENCE (3/4) [A] |
| MFG 101 | MACHINING PROCESSES I (4/6) [A] |
| MFG 120 | PRINT INTERPRETATION & PROCESSES (3/4) [A] |
| MTH 110 *or* | TECHNICAL MATH I (3/4) *or* |
| MTH 113 | INTERMEDIATE ALGEBRA (4/4) |
| MTH 112 *or* | TECHNICAL MATH II (3/4) *or* |
| MTH 122 | PLANE TRIGONOMETRY (3/3) |
| WLD 123 | SMAW WELDING PROCESSES (4/6) [A] |
| WLD 124 | GMAW & FCAW WELDING PROCESSES (4/6) [A] |
| WLD 240 | GAS TUNGSTEN ARC & PIPE WELDING (4/6) [A] |
| WLD 242 | WELDING FABRICATION (3/5) [A] |
| WLD 250 | ADVANCED PIPE WELDING (5/8) [A] |
| WLD 252 | SPECIALTY WELDING & TESTING PROCEDURES (5/8) [A] |
| WLD 260 | WELDING AUTOMATION (3/4) [A] |

**MINIMUM 62 CREDIT HOURS/85 CONTACT HOURS**

NOTES:
[A] Included in occupational specialty.
*GPA of 2.0 or higher must be maintained in occupational specialty courses*

Students should meet with welding program advisor when registering for courses or planning to transfer for additional information and course recommendations.

# WELDING TECHNOLOGY

ASSOCIATE IN APPLIED SCIENCE (AAS) DEGREE
SUGGESTED SEQUENCE OF COURSES

**YEAR 1 (FALL SEMESTER)** **CREDITS: 17**

| | |
|---|---|
| MFG 101 | MACHINING PROCESSES I (4/6) [A] |
| MFG 120 | PRINT INTERPRETATION & PROCESSES (3/4) [A] |
| MTH 110 *or* | TECHNICAL MATH I (3/4) *or* |
| MTH 113 | INTERMEDIATE ALGEBRA (4/4) |
| WLD 123 | SMAW WELDING PROCESSES (4/6) |
| MET 200 | MATERIAL SCIENCE (3/4) |

**YEAR 1 (SPRING SEMESTER)** **CREDITS: 17**

| | |
|---|---|
| CAD 150 | 3D MODELING (3/4) |
| WLD 124 | GMAW & FCAW WELDING PROCESSES (4/6) |
| MTH 112 *or* | TECHNICAL MATH II (3/4) *or* |
| MTH 122 | PLANE TRIGONOMETRY (3/3) |
| WLD 240 | GAS TUNGSTEN ARC & PIPE WELDING (4/6) |
| WLD 242 | WELDING FABRICATION (3/5) |

**YEAR 2 (FALL SEMESTER)** **CREDITS: 14**

| | |
|---|---|
| ENG 120 *or* | APPLIED COMMUNICATION (3/3) *or* |
| ENG 111 | ENGLISH COMPOSITION I (3/3) |
| WLD 250 | ADVANCED PIPE WELDING (5/8) |
| PLS 221 | AMERICAN GOVERNMENT & POLITICS (3/3) |
| APP 100E | ELECTRICAL STUDIES FOR TRADES (3/4) |

**YEAR 2 (SPRING SEMESTER)** **CREDITS: 14**

| | |
|---|---|
| ENG 123 *or* | TECHNICAL COMMUNICATION (3/3) *or* |
| ENG 112 | ENGLISH COMPOSITION II (3/3) |
| WLD 252 | SPECIALTY WELDING & TESTING PROCEDURES (5/8) |
| WLD 260 | WELDING AUTOMATION (3/4) |
| PHY 111 | APPLIED PHYSICS (3/4) |

## COOPERATIVE PROGRAM WITH

# BAY DE NOC COMMUNITY COLLEGE

## WATER RESOURCE MANAGEMENT

ASSOCIATE IN APPLIED SCIENCE (AAS) DEGREE

DESCRIPTION: Alpena Community College and Bay de Noc Community College at Escanaba offer a 1+1 transfer program that allows students to complete the first year of the Associate in Applied Science degree in Water Resource Management at ACC before transferring to Bay de Noc for the second year of the program. During the second year, a four week co-op internship is required and students may be able to complete this work experience in the Alpena area.

Students interested in this program should contact the ACC Science Department at 989.358.7362 before registering for classes.

**GENERAL EDUCATION REQUIREMENTS** **CREDITS: 17**

| | |
|---|---|
| ENG 111 *or* | ENGLISH COMPOSITION I (3/3) *or* |
| ENG 121 | ADVANCED ENGLISH COMPOSITION I (3/3) |
| MTH 121 *or higher* | COLLEGE ALGEBRA (4/4) *or higher* |
| PLS 221 *or* | AMERICAN GOVERNMENT & POLITICS (3/3) *or* |
| PLS 222 | STATE & LOCAL GOVERNMENT (3/3) |
| SPE 121 *or* | SPEECH COMMUNICATION (3/3) *or* |
| SPE 123 | PUBLIC COMMUNICATION (3/3) |
| CEM 111 *or* | GENERAL CHEMISTRY (4/7) *or* |
| CEM 121 | INORGANIC CHEMISTRY (4/7) |

**CORE PROGRAM REQUIREMENTS** **CREDITS: 7**

| | |
|---|---|
| CEM 112 *or* | ORGANIC & BIOCHEMISTRY (4/7) *or* |
| CEM 122 | INORGANIC CHEM & QUALITATIVE ANALYSIS (4/7) |
| ENG 123 | TECHNICAL COMMUNICATION (3/3) |

**SUGGESTED ELECTIVES** **CREDITS: 2**

| | |
|---|---|
| ANY PEH | PHYSICAL EDUCATION ELECTIVE (2/3) |

**MINIMUM 26 CREDIT HOURS/33 CONTACT HOURS**

NOTES:

## COOPERATIVE PROGRAM WITH

# BAY DE NOC COMMUNITY COLLEGE

## WATER RESOURCE MANAGEMENT

ASSOCIATE IN APPLIED SCIENCE (AAS) DEGREE

SUGGESTED SEQUENCE OF COURSES

**YEAR 1 (FALL SEMESTER)** **CREDITS: 14**

| | |
|---|---|
| CEM 111 *or* | GENERAL CHEMISTRY (4/7) *or* |
| CEM 121 | INORGANIC CHEMISTRY (4/7) |
| ENG 111 *or* | ENGLISH COMPOSITION I (3/3) *or* |
| ENG 121 | ADVANCED ENGLISH COMPOSITION I (3/3) |
| MTH 121 *or higher* | COLLEGE ALGEBRA (4/4) *or higher* |
| PLS 221 *or* | AMERICAN GOVERNMENT & POLITICS (3/3) *or* |
| PLS 222 | STATE & LOCAL GOVERNMENT (3/3) |

**YEAR 1 (SPRING SEMESTER)** **CREDITS: 12**

| | |
|---|---|
| CEM 112 *or* | ORGANIC & BIOCHEMISTRY (4/7) *or* |
| CEM 122 | INORGANIC CHEM & QUALITATIVE ANALYSIS (4/7) |
| ENG 123 | TECHNICAL COMMUNICATION (3/3) |
| ANY PEH | PHYSICAL EDUCATION ELECTIVE (2/3) |
| SPE 121 *or* | SPEECH COMMUNICATION (3/3) *or* |
| SPE 123 | PUBLIC COMMUNICATION (3/3) |

## COOPERATIVE PROGRAM WITH

# DELTA COLLEGE

## DENTAL HYGIENE

ASSOCIATE IN APPLIED SCIENCE (AAS) DEGREE

DESCRIPTION: See Delta's website at www.delta.edu.

**GENERAL EDUCATION REQUIREMENTS**

| TO BE TAKEN AT ALPENA COMMUNITY COLLEGE | CREDITS: 30 |
|---|---|
| BIO 201 | HUMAN ANATOMY (4/5) |
| BIO 203 | HUMAN PHYSIOLOGY (4/5) |
| BIO 227 | MICROBIOLOGY (4/6) |
| ENG 111 | ENGLISH COMPOSITION I (3/3) |
| ENG 112 | ENGLISH COMPOSITION II (3/3) |
| PLS 221 | American Government & Politics (3/3) |
| PSY 101 | General Psychology (3/3) |
| SOC 123 | Introduction to Sociology (3/3) |
| SPE 121 | Speech Communication (3/3) |

| TO BE TAKEN AT DELTA COLLEGE | CREDITS: 3 |
|---|---|
| DH 100 | Dental Hygiene Professional (1) |
| DH 101 | Dental Anatomy (2) |

NOTES:
All Dental Hygiene classes must be taken in sequence. All courses require a minimum of a "C" (2.2) grade or better.

## COOPERATIVE PROGRAM WITH

# DELTA COLLEGE

## DENTAL HYGIENE

ASSOCIATE IN APPLIED SCIENCE (AAS) DEGREE
SUGGESTED SEQUENCE OF COURSES

**TO BE TAKEN AT DELTA COLLEGE**

| YEAR 1 (FALL SEMESTER) | CREDITS: 18 |
|---|---|
| DH 110 | DENTAL INFECTION CONTROL (2) |
| DH 111 | ORAL EXAMINATIONS (1) |
| DH 112 | MEDICAL ASSESSMENT/EMERGENCIES (2) |
| DH 114 | ORAL HEALTH (2) |
| DH 115 | CLINICAL TECHNIQUES (5) |
| DH 116 | PREVENTATIVE NUTRITION (3) |
| DH 118 | HEAD & NECK ANATOMY (3) |

| YEAR 1 (WINTER SEMESTER) | CREDITS: 16 |
|---|---|
| DG 120 | PERIODONTICS I (3) |
| DH 121 | DENTAL HYGIENE SEMINAR I (2) |
| DH 122 | ORAL HISTOLOGY & EMBRYOLOGY (3) |
| DH 123 | DENTAL RADIOGRAPHY (2) |
| DH 123 L | DENTAL RADIOGRAPHY LAB (1) |
| DH 124 | PHARMACOLOGY FOR DENTAL HYGIENE (2) |
| DH 125 | CLINICAL DENTAL HYGIENE I (4) |
| LW 206A | OCCUPATIONAL WELLNESS I (1) |

| YEAR 1 (SPRING SEMESTER) | CREDITS: 7.5 |
|---|---|
| DG 130 | MANAGEMENT OF DENTAL PAIN (3) |
| DH 131 | DENTAL HYGIENE SEMINAR II (1) |
| DH 135 | CLINICAL DENTAL HYGIENE II (3) |
| LW 206B | OCCUPATIONAL WELLNESS II (0.5) |

| YEAR 2 (FALL SEMESTER) | CREDITS: 17.5 |
|---|---|
| DH 210 | PERIODONTICS II (2) |
| DH 213 | ORAL PATHOLOGY (3) |
| DH 214 | DENTAL MATERIALS (4) |
| DH 215 | CLINICAL DENTAL HYGIENE |
| DH 216 | COMMUNITY DENTISTRY (2) |
| LW 206C | |

| YEAR 2 (WINTER SEMESTER) | CREDITS: 11 |
|---|---|
| DH 222 | CASE STUDY DOCUMENTS (1) |
| DH 225 | CLINICAL DENTAL HYGIENE IV (6) |
| DH 227 | COMMUNITY DENTISTRY II (1) |
| DH 228 | DENTAL HYGIENE SEMINAR III (1) |
| DH 229 | SEMINAR OF PRACTICAL EXAM II (2) |

## DELTA COLLEGE BASIC POLICE TRAINING ACADEMY

Alpena Community College students who are eligible may enroll in the Delta Basic Police Training Academy and transfer credits from Delta to ACC to be applied to ACC's Associate in Applied Science Law Enforcement degree program.

To enter the Police Academy, you must meet the Standards established by the Michigan Commission on Law Enforcement Standards (MCOLES). MCOLES is the state agency that sets employment standards for persons entering law enforcement in Michigan. Pursuant to its authority and responsibilities, the Commission has adopted a Pre-Enrollment Reading and Writing Test and Physical Fitness Test. All persons entering law enforcement in Michigan must demonstrate proficiency in reading, writing and physical fitness as tested through the MCOLES Pre-Enrollment Testing Program. Qualified police officers from other states desiring to enter law enforcement in Michigan should read the information regarding the Recognition of Prior Training and Experience Program.

Once enrolled in a basic training academy, all trainees must successfully complete the MCOLES Physical Fitness Program in order to graduate. Successfully completing this program is determined by a passing score on the MCOLES Exit Test.

The educational prerequisites are as follows:

- A minimum of an associate degree from an accredited college or university must have been completed; or
- Completing degree requisites through Delta College's Criminal Justice Law Enforcement Program with Basic Police Training Option; or
- Criminal justice students from Saginaw Valley State University, Mid-Michigan Community College, and Alpena Community College may also attend Delta College's police academy as part of their law enforcement degree; or
- MCOLES may issue an educational waiver upon completion of a military police academy and one year service as a military police officer.

All applicants must pass the MCOLES Pre-employment Test.

For more information on the Delta College Basic Police Training Academy, please contact the ACC Criminal Justice Program at 989.358.7208.

# FERRIS STATE UNIVERSITY

For more information on any of these cooperative programs, please contact your academic advisor.

### Associate Degrees

(Generally one year at ACC, one to two years at FSU depending on program.)

- Dental Hygiene (A.A.S.)
- Medical Lab Technology (A.A.S.)
- Nuclear Medicine Technology (A.A.S.)
- Nursing (A.S.)
- Radiography (A.A.S.)
- Respiratory Care (A.A.S.)

### 2+2 Bachelor Degree Programs

(Usually two years at ACC and two years at FSU, depending on program.)

- Environmental Health and Safety Management
- Health Care Systems Administration
- Medical Record Administration
- Medical Record Technology
- Medical Technology
- Manufacturing Engineering Technology
- Nursing
- Product Design Engineering Technology

# CONSTRUCTION MANAGEMENT CONCRETE TECHNOLOGY

BACHELOR OF SCIENCE DEGREE

To be admitted to this degree, students must enter with a minimum of 48 credits and complete the course prerequisites with a “C” or better (2.0 on 4.0 scale). It is required PHYS 211 (PHY 121) be completed with a “C” or better prior to entry into the program. A minimum 2.5 grade point average is required, and students will need to submit all official college transcripts with their application. Ferris only accepts transfer grades of “C” or above unless a MACRAO agreement exists.

This degree and the Ferris courses are offered at the following locations:

- Ferris State University, Big Rapids Campus, Big Rapids MI
- Select courses may be delivered online and/or in a mixed delivery format (i.e. a mix of online and face-to-face instruction at the Ferris Main Campus or at an off-campus location)

Orientation is required for students who register for an online course. They must first demonstrate competency in FerrisConnect skills. This may be done by taking a tutorial and quiz or by submitting a waiver request (for those who have already taken and passed online courses). First check with the department that offers the class to determine their particular needs regarding registration for online course work and/or your Ferris advisor.

It is recommended that potential applicants meet with an advisor to review the degree, course schedule, and have any questions answered prior to completing an application. Students who are completing the MACRAO Stamp may have different general education course requirements for the particular degree selected. Meeting with a Ferris advisor prior to the selection of any electives or general education classes shown above could reduce the chance of completing a course that will not apply toward the selected degree. Once admitted, students must continue to meet with an advisor as they work towards graduation.

# LAKE SUPERIOR STATE UNIVERSITY

Alpena Community College and Lake Superior State University have a longstanding partnership to meet degree completion needs of ACC students through transfer programs. These are programs specifically designed so that ACC credits are guaranteed to transfer to LSSU. Transfer programs require additional course work to be completed on the LSSU main campus in Sault Ste. Marie, Michigan (a three-hour drive from Alpena). Students interested in these programs should work closely with their ACC academic advisor.

### 2+2 Programs

(Usually two years at ACC, two years at LSSU main campus.)

- Biology
- Computer Engineering
- Computer/Math Science
- Criminal Justice — Generalist
- Criminal Justice — Law Enforcement Certification
- Electrical Engineering
- Environmental Chemistry
- Environmental Science
- Finance and Economics
- Fisheries and Wildlife
- Legal Assistant Studies
- Mechanical Engineering (Robotics, Mechanical Design and Chemistry options)

### 3+1 Programs

(Three years at ACC, one year at LSSU main campus)

- Accounting
- Business Administration/International Business
- Business Administration/Management
- Business Administration/Marketing

## COOPERATIVE PROGRAM WITH

# MID MICHIGAN COMMUNITY COLLEGE

## RADIOGRAPHY

ASSOCIATE IN APPLIED SCIENCE (AAS) DEGREE

**PREREQUISITE COURSES AT ACC** **CREDITS: 23**

| | |
|---|---|
| BIS 160 | MEDICAL TERMINOLOGY (4/4) |
| BIO 201 | HUMAN ANATOMY (4/5) |
| BIO 203 | HUMAN PHYSIOLOGY (4/5) |
| CIS 120 | INTRODUCTION TO MICROCOMPUTERS (3/4) |
| ENG 111 *or* | ENGLISH COMPOSITION I (3/3) *or* |
| ENG 121 | ADVANCED ENGLISH COMPOSITION I (3/3) |
| MTH 102 *or higher* | ELEMENTARY ALGEBRA (5/5) *or higher* |

**GENERAL EDUCATION REQUIREMENTS AT ACC** **CREDITS: 10**

| | |
|---|---|
| PSY 101 | GENERAL PSYCHOLOGY (3/3) |
| SPE 121 | SPEECH COMMUNICATION (3/3) |
| HUM 241 | HUMANITIES I (4/4) |

**MINIMUM 33 CREDIT HOURS/36 CONTACT HOURS AT ACC**

NOTES:

Prerequisite Courses offered at Alpena Community College (ACC) are to be completed prior to admission into the Radiography Program at Mid Michigan Community College (MMCC). For Anatomy and Physiology courses, a grade of "B-" or higher must be earned. Science courses must have been completed within five years of the date the student formally begins the program.

General Education Courses included in the shared Radiography curriculum are offered at ACC. It is recommended that they be completed prior to beginning the program. Additionally, SSC 200 (Social Sciences & Contemporary America) is to be taken at MMCC or equivalent credit earned.

Students who have earned an Associate's Degree from an accredited college have met the MMCC General Education Level I requirements for English Composition, Introduction to Computers, Fundamentals of Communication, and Algebra. Students who have earned a Bachelor's Degree from an accredited college also have met General Education Level requirements as well as the Level II Humanities & Social Science requirements.

## COOPERATIVE PROGRAM WITH

# MID MICHIGAN COMMUNITY COLLEGE

## PHYSICAL THERAPY ASSISTANT

ASSOCIATE IN APPLIED SCIENCE (AAS) DEGREE

**PREREQUISITE COURSES AT ACC** **CREDITS: 14-18**

| | |
|---|---|
| BIS 160 | MEDICAL TERMINOLOGY (4/4) |
| BIO 110 *or* | ESSENTIALS OF HUMAN ANATOMY & PHYS (4/5) *or* |
| BIO 201 & BIO 203 | HUMAN ANATOMY (4/5) & HUMAN PHYSIOLOGY (4/5) |
| ENG 111 *or* | ENGLISH COMPOSITION I (3/3) *or* |
| ENG 121 | ADVANCED ENGLISH COMPOSITION I (3/3) |
| SPE 121 *or* | SPEECH COMMUNICATION (3/3) *or* |
| SPE 123 | PUBLIC COMMUNICATION (3/3) |

**GENERAL EDUCATION REQUIREMENTS AT ACC** **CREDITS: 15**

| | |
|---|---|
| CIS 120 | INTRODUCTION TO MICROCOMPUTERS (3/4) |
| MTH 102 | ELEMENTARY ALGEBRA (5/5) |
| PSY 101 | GENERAL PSYCHOLOGY (3/3) |
| HUM 241 | HUMANITIES I (4/4) |

**MINIMUM 19 CREDIT HOURS/31 CONTACT HOURS AT ACC**

NOTES:

Prerequisite Courses offered at Alpena Community College (ACC) are to be completed prior to admission into the PTA Program. BIO 224 (Introduction to Biological Science) is also recommended. BIO 201 and BIO 203 taken at ACC transfer to Mid Michigan Community College (MMCC) as BIO 141 and BIO 142. Anatomy & Physiology courses must have been completed within five years of the date the student formally begins the program.

For all prerequisite courses, a grad of "B-" or higher must be earned. PTA 101 (Orientation to Physical Therapy), a 1 credit prerequisite, must be taken at MMCC or equivalent earned.

General Education Courses included in the shared PTA curriculum are offered at ACC. It is recommended that they be completed prior to beginning the program. Additionally, SSC 200 (Social Sciences & Contemporary America) is to be taken at MMCC or equivalent credit earned. This requirement may also be met by taking 9 hours in 2 Social Science disciplines, 3 out of 9 credits must be at a 200 level. PHY 101 (Introductory Physics), a 3 credit course, is to be taken at MMCC or equivalent earned.

Students who have earned a Bachelor's Degree will be exempt from other the 100 and 200 level general education requirements with the exception of math.

# NORTHWOOD UNIVERSITY

All Alpena Community College associate degrees are eligible to earn a Bachelor of Business Administration degree through Northwood University. For Management and Accounting majors, students may take third-year classes at ACC or Northwood. The student's fourth year is completed through Northwood, on ACC's campus or online. Other majors may be completed locally as well.

**Northwood University Bachelor Degrees**

- **Bachelor of Business Administration Degree — Management**

  Northwood University's Management curriculum is one of the most relevant of its kind. Created by our executive faculty, with advice from the professional business community, the program prepares students to thrive in a global economy by teaching 50 percent more of the business basics, as compared to other four-year colleges. Our unique approach to education teaches students about the free enterprise system and the importance of personal responsibility in a free market economy. Management is our largest curriculum and combines business courses with traditional academic courses.

  A BBA in Management is a perfect fit for any industry or department. This versatile degree is for all business careers: administrative role, office or personnel manager, product manager, shift supervisor, finance manager, store or business manager, owner of an enterprise, etc.

- **Bachelor of Business Administration Degree — Accounting**

  An understanding of accounting is central to managing any financial-related enterprise, and those who aspire to a successful business career must be well-grounded in accounting principles. Accounting is a worthwhile and challenging area of study for students who are concerned with managerial decision making. Accounting is so much more than the mechanical manipulation of financial data to produce balance sheets and profit and loss statements.

  This degree helps prepare a student to sit for the CPA examination and is a perfect fit for any industry or a career in: public accounting, corporate accounting, finance management, store management, business management, etc.

- **Bachelor of Business Administration Degree — Computer Information Management**

  Computer Information Management curriculum provides students with the required knowledge to understand and develop the interrelations of computers, networking, telecommunications, business, and technology management.

- **Bachelor of Business Administration Degree — Health Care Management**

  The HCM program combines the excellent business and management courses Northwood University is known for, with a solid core of courses providing knowledge and understanding of the health care industry. Graduates of the HCM program are prepared for challenging management positions in a variety of health care organizations.

- **Bachelor of Business Administration Degrees — Marketing**

  Marketing covers a range of job opportunities in a number of industries, including retail, manufacturing, financial and public services, leisure and tourism, and advertising.

- **Bachelor of Business Administration Degree — Automotive Marketing & Management**

  The Automotive Marketing & Management major prepares students to perform market research, analyze data, communicate with and manage inventory, customers, sales force, distributors, vendors and management, as well as create strategic plans to drive revenue. Understand the automotive marketing function, including finance and insurance, budgeting and forecasting, parts and service, dealership advertising and used car management.

- **Bachelor of Business Administration Degree — Aftermarket Management**

  The Aftermarket Management program enables students to understand all aspects of the automotive aftermarket industry, from supply chain to marketing and finance. Careers in the aftermarket industry usually fall into the manufacturing, wholesale, retail, distribution, and sale of parts, tools, equipment, accessories, services and supplies for the replacement repair, appearance and performance of vehicles.

- **Bachelor of Business Administration Degree — Entrepreneurship**

  Successful entrepreneurs realize that even the best ideas will go nowhere without research, financial analysis, and a business plan—and that the best plans will go nowhere without the will and skill to execute. Learn to integrate entrepreneurial thinking with cutting-edge leadership, creativity, innovation and strategic development to create successful business models.

- **Bachelor of Science in Applied Management**

  The Bachelor of Science in Applied Management degree is designed for students who have completed a minimum of 30 transferrable credits in a single specialized/technical area or an associate degree in an area of specialization other than business or management and who aspire to assume management-level positions in such fields. This degree allows students in a technical/professional area to obtain a baccalaureate degree with the remaining coursework having an emphasis in the development of business/management skills for their chosen field. This degree may be a good fit for students who have earned an AS, AAS, or certificate in a technical field such as Concrete Technology, Utility Technology, Nursing, Criminal Justice, Automotive Service and Repair, Welding Technology, etc.

For more information contact: Jason Barbeau**,** Alpena Program Manager
Madeline Briggs University Center, Room 143
989.358.7302; barbeauj@northwood.edu

or contact the Northwood University Main Campus Admissions Office Toll free: 800.622.9000

## COOPERATIVE PROGRAM WITH

# SPRING ARBOR UNIVERSITY

**Spring Arbor University School of Education:**

- **Bachelor of Arts with Elementary Certification**

  Majors in Social Studies and Language Arts; minors in Social Studies, Language Arts and Integrated Science. These minors can be met primarily through Alpena Community College courses. For major areas of study, a minimum of nine hours must be taken through Spring Arbor University.

- **Bachelor of Arts with Secondary Certification**

  Majors are offered in English, Social Studies and Biology; a minor is offered in English.

Spring Arbor offers the entire Education curriculum and core course requirements at ACC. Degree-seeking students are advised to complete MACRAO and have 58 credit hours for admission to the Teacher Education Program. Candidates for teacher certification need to be aware that changing requirements from the Michigan Department of Education or NCATE may dictate changes in the requirements for Teacher Certification at Spring Arbor University, which in turn may affect the individual student's program. It is required that the student who intends to enroll with SAU contact the SAU office in Gaylord and complete the Verification of Intent form so that program requirements at the time of signing may apply. Students not actively enrolled in courses at the partner institution or Spring Arbor University for a period of one year will be held to the course requirements in effect at the time of re-enrollment. If the student does not enroll with Spring Arbor University within three years of the date the intent form is signed, the student will be subject to any changes in requirements.

- **Post BA Elementary and Secondary Teacher Certification**
- **Master of Arts in Education, Curriculum and Instruction**

Due to the continuous changes in education, Spring Arbor University regularly assesses subject areas in order to offer up-to-date qualifications to its prospective and current students.

After August 16, 2008, SAU coursework will need to be completed at SAU sites in Gaylord, Petoskey, Lansing, the main campus or through SAU online.

Contact Deanna Couture at 800.522.6775 at Spring Arbor's Gaylord site office for complete information.

**Spring Arbor University School of Adult Studies:**

- Bachelor of Arts — Social Studies Major (non-teaching major)
- Bachelor of Arts — English Writing Major (non-teaching major)
- Bachelor of Arts in Family Life Education (68 weeks)
- Bachelor of Arts in Management and Organizational Development (61 weeks)
- Bachelor of Science in Nursing (73 weeks)

These programs in accelerated format provide options for the student who wants to complete a bachelor's degree but is unable to do it by traditional means. Classes are one night a week for four hours. The student completes an Independent Study Project during the second and third semesters to gain actual professional experience while earning a degree. Spring Arbor University will assess and award credit for experiential learning and military experience. Students should have 58 credit hours for admission into the bachelor's completion programs.

- **Endorsements/Minors**

  The enrolled student may choose to minor in criminal justice, family life education or management and organizational development. The enrolled student may also choose to work toward an endorsement in criminal justice or management of health care systems.

- **Masters of Arts in Organizational Management (22 months)**

Contact Deanna Couture at 800.522.6775 at the Spring Arbor University — Gaylord Site office for complete information on any of these accelerated completion programs.

## COOPERATIVE PROGRAM WITH

# UNIVERSITY OF DETROIT MERCY

### Bachelor of Science in Engineering

Alpena Community College and the University of Detroit Mercy Engineering Transfer Program is a jointly developed program operated by both institutions. The program enables students to begin their education at ACC and complete their studies in a designated Bachelor of Engineering degree at U. of D. Mercy in Detroit, Michigan.

- Civil and Environmental Engineering
- Electrical and Computer Engineering
- Mechanical Engineering

Unique concentrations are available in the following areas:

- Automotive
- Computers
- Environmental
- Manufacturing Processes and Systems
- Engineering Mechanics
- Geotechnical
- Structural
- Signals and Systems

For more information on this cooperative program please contact your academic advisor.

## COOPERATIVE PROGRAM WITH

# UNIVERSITY OF MICHIGAN – FLINT

**Bachelor of Science in Nursing**

UM-Flint and Alpena Community College have collaborated to offer select UM-Flint courses leading to a BSN degree in a distance learning format combining online and on-site classes in Alpena. The program can alternatively be completed entirely online with the clinical work completed in the area where the student lives and/or works.

Current ACC Students may enroll as a UM-Flint Guest Student while completing coursework at ACC. A Financial Aid Consortium Agreement is in place for students who wish to utilize financial aid between ACC and UM-Flint. Mid-Michigan Medical Center (Alpena) RNs may enroll as a UM-Flint Transfer Student.
New ACC Students can apply online or contact the ACC Admissions Office at 989.358.7339 for more information about becoming a student.

Apply for UM-Flint BSN Program at: https://www.umflint.edu/admissions/apply-now

For more information contact:

Jennifer Spenny
UM-Flint Recruitment Coordinator
866.762.2177
spennyje@umflint.edu

## COOPERATIVE PROGRAM WITH

# WESTERN MICHIGAN UNIVERSITY

For more information on any of these cooperative programs, please contact your academic advisor.

**Bachelor of Science in Occupational Education Studies**

(Generally two years at ACC and two years at WMU depending on program.)

- Automotive Service and Repair
- Computer-Aided Drafting
- Manufacturing Technology

## MADELINE BRIGGS UNIVERSITY CENTER

The Madeline Briggs University Center at Alpena Community College houses offices of accredited four-year institutions who are cooperating with ACC to make completion programs for selected bachelor's and master's degrees available in Northeast Michigan. It is a concept Alpena Community College is actively pursuing to bring staff, classes and services from partner colleges to existing facilities at the main campus in Alpena and at the Oscoda Campus for the purpose of offering a variety of advanced degree programs in their entirety.

The University Center houses offices of Northwood University. Other schools that can deliver programs to meet identified needs of undergraduate and graduate degree-seeking students in Northeast Michigan are being sought.

Questions or comments about the University Center concept can be directed to the Office of Academic Affairs at 989.358.7212 or 989.358.7219.

The Madeline Briggs University Center is located west of Van Lare Hall. It contains offices, a classroom and conference room.

Programs currently offered are briefly described on pages 139-140.

For more information contact: Jason Barbeau**,** Alpena Program Manager
Madeline Briggs University Center, Room 143
989.358.7302; barbeauj@northwood.edu

or contact the Northwood University Main Campus Admissions Office Toll free: 800.622.9000

# ACC University Center Degree Programs

## ACC Graduates and Northwood University

All Alpena Community College associate degrees are eligible to earn a Bachelor of Business Administration degree through Northwood University. Students can take third-year classes at ACC or Northwood. The student's fourth year is completed through Northwood, on ACC's campus.

## Northwood University Bachelor Degrees

- ### Bachelor of Business Administration Degree — Management

  Northwood University's Management curriculum is one of the most relevant of its kind. Created by our executive faculty, with advice from the professional business community, the program prepares students to thrive in a global economy by teaching 50 percent more of the business basics, as compared to other four-year colleges. Our unique approach to education teaches students about the free enterprise system and the importance of personal responsibility in a free market economy. Management is our largest curriculum and combines business courses with traditional academic courses.

  A BBA in Management is a perfect fit for any industry or department. This versatile degree is for all business careers: administrative role, office or personnel manager, product manager, shift supervisor, finance manager, store or business manager, owner of an enterprise, etc.

- ### Bachelor of Business Administration Degree — Accounting

  An understanding of accounting is central to managing any financial-related enterprise, and those who aspire to a successful business career must be well-grounded in accounting principles. Accounting is a worthwhile and challenging area of study for students who are concerned with managerial decision making. Accounting is so much more than the mechanical manipulation of financial data to produce balance sheets and profit and loss statements.

  This degree helps prepare a student to sit for the CPA examination and is a perfect fit for any industry or a career in: public accounting, corporate accounting, finance management, store management, business management, etc.

- ### Bachelor of Business Administration Degree — Computer Information Management

  Computer Information Management curriculum provides students with the required knowledge to understand and develop the interrelations of computers, networking, telecommunications, business, and technology management.

- ### Bachelor of Business Administration Degree — Health Care Management

  The HCM program combines the excellent business and management courses Northwood University is known for, with a solid core of courses providing knowledge and understanding of the health care industry. Graduates of the HCM program are prepared for challenging management positions in a variety of health care organizations.

- ### Bachelor of Business Administration Degrees — Marketing

  Marketing covers a range of job opportunities in a number of industries, including retail, manufacturing, financial and public services, leisure and tourism, and advertising.

- ### Bachelor of Business Administration Degree — Automotive Marketing & Management

  The Automotive Marketing & Management major prepares students to perform market research, analyze data, communicate with and manage inventory, customers, sales force, distributors, vendors and management, as well as create strategic plans to drive revenue. Understand the automotive marketing function, including finance and insurance, budgeting and forecasting, parts and service, dealership advertising and used car management.

- **BACHELOR OF BUSINESS ADMINISTRATION DEGREE — AFTERMARKET MANAGEMENT**

  The Aftermarket Management program enables students to understand all aspects of the automotive aftermarket industry, from supply chain to marketing and finance. Careers in the aftermarket industry usually fall into the manufacturing, wholesale, retail, distribution, and sale of parts, tools, equipment, accessories, services and supplies for the replacement repair, appearance and performance of vehicles.

- **BACHELOR OF BUSINESS ADMINISTRATION DEGREE — ENTREPRENEURSHIP**

  Successful entrepreneurs realize that even the best ideas will go nowhere without research, financial analysis, and a business plan—and that the best plans will go nowhere without the will and skill to execute. Learn to integrate entrepreneurial thinking with cutting-edge leadership, creativity, innovation and strategic development to create successful business models.

- **BACHELOR OF SCIENCE IN APPLIED MANAGEMENT DEGREE**

  The Bachelor of Science in Applied Management degree is designed for students who have completed a minimum of 30 transferrable credits in a single specialized/technical area or an associate degree in an area of specialization other than business or management and who aspire to assume management-level positions in such fields. This degree allows students in a technical/professional area to obtain a baccalaureate degree with the remaining coursework having an emphasis in the development of business/management skills for their chosen field. This degree may be a good fit for students who have earned an AS, AAS, or certificate in a technical field such as Concrete Technology, Utility Technology, Nursing, Criminal Justice, Automotive Service and Repair, Welding Technology, etc.

For more information contact: Jason Barbeau**,** Alpena Program Manager
Madeline Briggs University Center, Room 143
989.358.7302; barbeauj@northwood.edu

or contact the Northwood University Main Campus Admissions Office Toll free: 800.622.9000

## FERRIS STATE UNIVERSITY

- **Construction Management Concrete Technology Bachelor of Science Degree**

To be admitted to this degree, students must enter with a minimum of 48 credits and complete the course prerequisites with a "C" or better (2.0 on 4.0 scale). It is required PHYS 211 (PHY 121) be completed with a "C" or better prior to entry into the program. A minimum 2.5 grade point average is required, and students will need to submit all official college transcripts with their application. Ferris only accepts transfer grades of "C" or above unless a MACRAO agreement exists.

- **Computer Information Technology Systems Administration & Security Bachelor of Science Degree**

The Computer Information Technology – Systems Administration & Security program is designed for students who want to work in the business world and give technical assistance to computer systems and users. Individual business departments, corporations, or multinational enterprises need professionals who can relate their technical skills by problem-solving computer systems issues within the business environment. The CIT-SAS curriculum provides you with a broad understanding of core business functions, computer support specialists skills, certifications such as CompTIA's A+, Network+, Linux+, and Security+, as well as Microsoft's MCSA certification. Entry-level positions include such jobs as: Computer Support Specialist, Help-desk Technicians, Network Administrators, Computer System Administrators, and Computer Security Specialists. Students must pass the CompTIA A+ certification and two of the following industry certifications — MCSA, MCTS, Network+, Linus+, Security+, CNA or CCNA — to graduate from the CIT program. Additional certifications are encouraged.

## UNIVERSITY OF MICHIGAN-FLINT

### Bachelor's of Science in Nursing

UM-Flint and Alpena Community College have collaborated to offer select UM-Flint courses leading to a BSN degree, through a combination of classes on-site in Alpena, Flint, and online.

Current ACC Students may enroll as a UM-Flint Guest Student while completing coursework at ACC. A Financial Aid Consortium Agreement is in place for students who wish to utilize financial aid between ACC and UM-Flint. Alpena Regional Medical Center RNs may enroll as a UM-Flint Transfer Student.

New ACC Students can apply online or contact the ACC Admissions Office at 989.358.7339 for more information about becoming a student.
Apply for UM-Flint BSN Program at: https://www.umflint.edu/admissions/apply-now

For more information contact:

Jennifer Spenny
UM-Flint Recruitment Coordinator
866.762.2177
spennyje@umflint.edu

# COURSE DESCRIPTIONS

## Understanding Course Descriptions

The course descriptions on the following pages are in alphabetical order by subject and each course appears in numerical order. The following diagram will help you understand each part of a course description.

**1 BUS 123 2 PRINCIPLES OF ACCOUNTING I .....3 4(4-0)**
**4 Normally Offered: F**
**5** Stresses the basic concept of accounting and financial reporting. The accounting cycle is presented, followed by discussion of current assets and liabilities, fixed assets and related depreciation methods, and systems of internal control and electronic data processing. Practice in accounting skill is obtained through the recording of transactions and preparation of financial statements.
**6 Corequisite:** BUS 125 or MTH 102 or MTH 113 or MTH 121 or MTH 122 or MTH 123 or MTH 130 or MTH 131 or MTH 132 or MTH 223 or MTH 231 or MTH 232.

1. Subject abbreviation & course number — This is a Business Administration course, freshman level. Freshman courses are numbered 101-199; they may be elected by sophomores. Courses numbered 200-298 are sophomore courses; they may be elected by freshmen with the necessary prerequisites. Courses numbered under 100 may count toward the Associate in General Studies, but not toward any other degree.
2. Course Title
3. Credit & Contact Hours — Course credit hours are listed first, followed by the total contact hours in parentheses. These are the hours the class meets each week for lecture, laboratory work, and recitation. This example shows a four-credit course that meets four hours a week in lecture, with no lab hours or recitation, so it has 4 contact hours. A course showing 4(3-1-3) is a four-credit course that meets three hours a week in lecture, one hour a week in lab and three hours a week in recitation, for a total of 7 contact hours. Tuition is charged on contact hours.
4. Normally Offered — Tells when the course is scheduled. There are two semesters and a summer session: Fall Semester (F), Spring Semester (SP), or Summer Session (SUM).
5. Course Description — This describes the content of the course.
6. Prerequisite/Co-requisite — To enroll, you must have successfully completed any course(s) or meet other requirements listed as prerequisite(s). This assures your ability to work at the level required in the course. Co-requisites are courses you must take during the same semester.

Course numbers, titles, credit hours, contact hours, and descriptions are subject to change. Use this catalog along with the semester schedule.

# COURSE DESCRIPTIONS LISTINGS

## ANTHROPOLOGY

**ANP 121 CULTURAL ANTHROPOLOGY ..... .....3(3-0)**
**Normally Offered: F, SP**
Introduces the comparative study of human adaptations. Cultural patterns ranging from band to modern nations are considered. Emphasis is given to the dynamic nature of culture by using the record of prehistory, history and contemporary societies.

**ANP 229 ANTHROPOLOGY OF THE NORTH AMERICAN INDIAN ..... 3(3-0)**
**Normally Offered: SP (even years)**
This survey course covers culture areas and culture types, one representative Native American group from each culture area at the time of contact, the current status of each representative group, Pan-Indian Cultural Tracks, and current Native American issues.

**ANP 239 RELIGIONS OF THE WORLD ..... 3(3-0)**
**Normally Offered: F (odd years)**
Introduces the major religions of the world on a comparative basis. Original sacred documents will be read and underlying cultural assumptions studied. Objective is to develop an appreciation for the wide variety of religious experience and organization that exists in the world today. Student will come into contact with a wide variety of traditions ranging from the indigenous religious traditions of the United States to those of Buddhism, Hinduism and the world of Islam.

**ANP 240 ARCHAEOLOGY ..... 3(.5-3.5)**
**Normally Offered: SU**
Introduction to field and laboratory archaeology methods. Students will participate in field survey and site excavation in the Alpena area. Excavation control, photography, and recording is emphasized. Artifact analysis and cataloging done when weather limits field activity.

**ANP 257 UNDERWATER ARCHAEOLOGY ..... 3(3-0)**
**Normally Offered: On Demand**
This course will provide students with an introduction to theory, method, technologies, and practice in underwater archaeology, with a focus on prehistoric and historical sites, worldwide and in the Great Lakes, inland lakes, and streams of the State of Michigan. Course content will draw primarily from anthropology and the applied social or behavioral sciences.
**Prerequisite:** ANP 121 or permission of instructor.

## APPRENTICE -- ELECTRICAL

**APP 100E ELECTRICAL STUDIES FOR TRADES ..... 3(2-2)**
**Normally Offered: F, SP**
An introductory course covering the fundamentals of electricity. Lecture topics include magnetism, Ohm's Law, capacitance, inductance, three-phase power, transformers, and motors. Students work in a lab environment to measure voltage, current, resistance, and power using both DC and AC circuits.
**Prerequisite:** One year of high school algebra.

**APP 102E RESIDENTIAL WIRING & BLUEPRINT READING ..... 3(2-2)**
**Normally Offered: SP**
Course content includes residential wiring and blueprint reading in an organized manner.
**Prerequisite:** APP 100E, MTH 110.

**APP 103E COMMERCIAL & INDUSTRIAL WIRING ..... 3(2-2)**
**Normally Offered: F**
Course content includes commercial and industrial applications of alternating current with applicable blueprint reading.
**Prerequisite:** APP 100E.

## APPRENTICE – ELECTRICAL

**APP 104E AC & DC FUNDAMENTALS ..... 3(2-2)**
**Normally Offered: SP**
Course content includes commercial and industrial applications of alternating current, DC motors, generators and direct current as applied to resistive networks in series, parallel and combination circuits.
**Prerequisite:** APP 100E, MTH 110.

**APP 107E SPECIALTY WIRING ..... 3(2-2)**
**Normally Offered: F**
Course content includes low-voltage wiring methods, structured cabling for computer network and telephone systems, fiber optic wiring, CCTV security systems, fire alarm system operation and troubleshooting, medium-voltage and high-voltage wiring methods and terminations.
**Prerequisite:** APP 100E, MTH 110.

**APP 111E ELECTRIC MOTOR CONTROL ..... 3(2-2)**
**Normally Offered: F**
Course content includes motor control circuit layout theory and advanced motor control applications.
**Prerequisite:** APP 100E, MTH 110, or permission of instructor.

**APP 114E PROGRAMMABLE CONTROLLERS ..... 3(2-2)**
**Normally Offered: SP**
Course content includes programmable controller operations, programming, and their applications in industry.
**Prerequisite:** APP 100E, MTH 110, or permission of instructor.

**APP 115E NATIONAL ELECTRIC CODE APPLICATION ..... 4(4-0)**
**Normally Offered: SP**
A comprehensive study of the National Electric Code and its application to ensure a safe and adequate electrical installation. Specific Michigan code requirements and contractor requirements will be covered as well. Capstone course of apprentice electrical program and excellent preparation for State Journeyman or Master Electrician exam.
**Prerequisite:** APP 102E, APP 100E, APP 103E, or permission of instructor.

**APP 122E DIGITAL ELECTRONICS FOR ELECTRICIANS ..... 3(2-2)**
**Normally Offered: F**
Familiarizes the student with the basics of digital electronics. Topics covered will be numbering systems (binary, octal, hexadecimal), converting from and to base 10, binary arithmetic. Gate, AND, OR NOR, NAND, and XOR and the Boolean Algebra equivalent computer addressing. Adder and subtractor counter, registers and converters. The laboratory will use TTL devices and troubleshooting will be stressed in the laboratory.
**Prerequisite:** Linear Electronics for electro-mechanical technicians or satisfactory grade on placement test or instructor permission.

**APP 123E LINEAR ELECTRONICS FOR ELECTRICIANS ..... 3(2-2)**
**Normally Offered: SP**
Stresses, in the laboratory, trouble shooting techniques of electronic circuits. Topics covered will be diode theory and uses in rectification; zener diodes and voltage regulation; bipolar transistors in the three configurations; suspended power supplies; field-effect transistors; operational amplifiers; soldering techniques; and component identification.
**Co-requisite:** APP 100E.

## APPRENTICE -- MILLWRIGHT

**APP 106M INDUSTRIAL SAFETY ..... 1(1-0)**
**Normally Offered: F, SP**
Orients students to items related to safety in the work place. Topics will include accident statistics and costs, personal safety, proper and safe selection and use of tools and material handling, equipment, and fire safety.

## APPRENTICE -- MILLWRIGHT

**APP 121M APPRENTICE BLUEPRINT READING..... 3(2-2)**
**Normally Offered: F**
This course provides the student with a basic working knowledge of the alphabet of lines, three-view drawings, arrangement of views, and orthographic projection. Provides the student with a basic working knowledge of section views, dimensions, tolerances, and shop sketching.

**APP 122M MACHINE REPAIR..... 3(2-2)**
**Normally Offered: SP**
This course provides the student with a basic working knowledge of principles of mechanical power transmission, belt drives, bearings, couplings, packing and seals, mechanical fasteners, pipe fittings, and pipe valves.

**APP 124M APPRENTICE HYDRAULICS ..... 3(2-2)**
**Normally Offered: F**
This course introduces the student to the principles and maintenance practices of power hydraulics and provides the student with a basic working knowledge of hydraulic fluids, piping, seals, reservoirs, actuators, directional controls, volume controls, pumps circuits, and graphical schematics.

**APP 125M APPRENTICE MACHINE SHOP ..... 3(2-2)**
**Normally Offered: SP**
Students will receive instructions on shop safety, measuring instruments, layout tools, lathes, milling machines, grinders, saws, the physics of metal cutting (speeds and feeds), and cutting tool materials.

**APP 128M RIGGING & WEIGHT ESTIMATING ..... 1.5(1-1)**
**Normally Offered: F**
Provides the student with the basic working knowledge of rigging and weight estimating.

**APP 129M APPRENTICE PNEUMATICS..... 1.5(1-1)**
**Normally Offered: F**
This course provides the student with a basic working knowledge of pumps, air compressors, and pneumatics.

**APP 223M PREDICTIVE & PREVENTATIVE MAINTENANCE ..... 3(2-2)**
**Normally Offered: F**
A proactive approach to maintenance practice stressing the importance of Total Predictive Maintenance (TPM) Management, which increases productivity and quality, reducing failure and downtime.

## ART

**ART 100 PHOTOGRAPHY I..... 3(2-2)**
**Normally Offered: F, SP**
This course offers an introduction to the basic technical skills of photography as a creative medium for personal expression. Students must provide a 35mm and/or a digital camera.

**ART 123 DESIGN I ..... 3(0-4)**
**Normally Offered: F, SP**
Promotes concern for the structure of environment and for the structure of contemporary graphic communication. This foundation course develops the student's ability to perceive and to sense the potential of various materials with regard to two-dimensional translation.

**ART 124 DESIGN II ..... 3(0-4)**
**Normally Offered: F, SP**
Promotes concern for developing perception of environment, but the emphasis is on the three-dimensional aspects of design and structure.
**Prerequisite:** ART 123 or permission of instructor.

## ART

**ART 127 BASIC DRAWING I ..... 3(0-4)**
**Normally Offered: F, SP**
Approaches drawing through development of awareness and knowledge and experience of art elements (space, line, shape, texture, value, and color). It develops confidence and ability to draw through varied drawing activities (contour, gesture, upside-down, memory, life, and perspective). The use of varied media (ex. pencil, charcoal, India ink, markers, watercolor), knowledge of styles and techniques will intermix with artists of the past and artists of today, and the opportunity to express one's self.

**ART 128 BASIC DRAWING II ..... 3(0-4)**
**Normally Offered: SP**
Continues ART 127, Basic Drawing I and the drawing process with emphasis on creativity, originality and message within production; also, more emphasis on observing and drawing the human form, proportion and perspective.
**Prerequisite:** ART 127 or permission of instructor.

**ART 200 PHOTOGRAPHY II ..... 3(2-2)**
**Normally Offered: F, SP**
During this course students will draw on skills learned in Photography I. Student will explore various subjects and styles by variations of their own work and the study of works by other photographers. Emphasis will be put on developing a unique insight into the subject and processes of photography. Projects will consist of "shooting assignments" that have been developed to aid students in "polishing" their skills and sharpening their awareness of the visual world around them.
**Prerequisite:** ART 100.

**ART 221 COMPUTER GENERATED IMAGES I ..... 3(0-4)**
**Normally Offered: F, SP**
This course is intended to introduce the student to the image editing capabilities of a computer program called Adobe Photoshop. Using this program and either a Macintosh computer or Windows PC (in-class work will be done on Macintosh computers), student will be able to manipulate, repair and enlarge existing photographs or create images completely within the computer itself. Students will also create original images from "composite photos" and use the program's ability to generate images that may not necessarily "exist in reality."

**ART 222 COMPUTER GENERATED IMAGES II ..... 3(2-2)**
**Normally Offered: F, SP**
During this course students will continue to hone skills learned in CGI I as well as being introduced to more advanced techniques. Assignments will be developed with the input of the student and instructor to develop skills that will allow each individual student to achieve their desired goals.
**Prerequisite:** ART 221.

**ART 223 PAINTING I ..... 3(0-4)**
**Normally Offered: F, SP**
Considers basic problems and methods of dealing with painting. Emphasis is on various media, techniques, composition and expression. Students explore watercolor, acrylic and oil paint.

**ART 224 PAINTING II ..... 3(0-4)**
**Normally Offered: SP**
Continues and expands use of materials and techniques of Painting I and painting primarily in medium of choice or combination of media. Emphasis is on skill development in medium, knowledge of color, creativity and originality.
**Prerequisite:** ART 223 or permission of instructor.

**ART 225 CERAMICS I ..... 3(0-4)**
**Normally Offered: F, SP, SU**
Presents the aesthetic but focuses on technical know-how regarding the art of hand built ceramics. Students are provided with aesthetic challenges of material and form.

**ART 226 CERAMICS II ..... 3(0-4)**
**Normally Offered: F, SP (Individual Study)**
Continues Ceramics I, with more emphasis on throwing than hand-built forms. Students experiment with different clay bodies and glazes. Functional forms dominate the course, but improvised forms are encouraged.

**ART 229 SCULPTURE I ..... 3(2-2)**
**Normally Offered: F, SP**
Each student will be exposed to a number of traditional processes used to create three-dimensional art. Each process will introduce the student to a different aspect of sculpture, giving the student a well-rounded 3-D experience. Exploring 3-D form and space through individual creative experiences working with various sculpture media.

**ART 230 SCULPTURE II ..... 3(2-2)**
**Normally Offered: F (Individual Study), SP (Individual Study)**
Each student will be exposed to a number of traditional and nontraditional processes to create three-dimensional forms that build on techniques, skills, and methods learned in Sculpture I. Through visual exploration of other artists' work, students will gain insight into the ideas and concepts involved in creating sculpture.

**ART 233 PAINTING III..... 3(0-4)**
**Normally Offered: F (Individual Study), SP (Individual Study)**
Continues Painting II, with greater emphasis on the development of idea and the exploration of content and media. Students work with unconventional materials (colored ferro concrete, fiberglass, foam rubber, etc.) and traditional materials.
**Prerequisite:** ART 224 or instructor consent.

**ART 234 PAINTING IV ..... 3(0-4)**
**Normally Offered: F (Individual Study), SP (Individual Study)**
Continues Painting III, but students concentrate on selected media, personal direction and experimentation.

**ART 235 CERAMICS III ..... 3(0-4)**
**Normally Offered: F (Individual Study), SP (Individual Study)**
Continues Ceramics II, however, closer tolerances are required with regard to covered containers and uniformity of repeat forms. Combined (thrown and hand-built) sculptural designs are encouraged. Students develop new glazes using three basic oxides and compounds.

**ART 236 CERAMICS IV ..... 3(0-4)**
**Normally Offered: F (Individual Study), SP (Individual Study)**
Continues Ceramics III, with emphasis on developing self-direction. The students extend themselves aesthetically and technically without sacrificing the constants (definition of a craft). While meaningless experimentation and gimmicks are discouraged, students are rewarded for efforts in personal expression that are sound, with regard to aesthetics and craftsmanship.

**ART 246 ART FOR THE CLASSROOM TEACHER ..... 4(2-2)**
**Normally Offered: F**
This course is for future elementary teachers who will learn to create an artistic environment in the regular classroom. Visual arts will be associated or connected with various areas of the curriculum. Students will learn that every child learns by a variety of techniques and methods. Students will be expected to use and develop their creative abilities and continually adapt to various ages and skill levels. A variety of techniques and materials will challenge students as possible lessons are selected.

## ART

**ART 260 PORTFOLIO ..... 3(2-2)**
**Normally Offered: F, SP**
This course is intended to be a capstone for graduating students that wish to organize a body of their existing artwork into a presentable portfolio. Throughout the semester, the student and instructor will work closely in a one-on-one format. Additionally, the student will be required to research potential four-year institutions that they may want to attend. Several field trips or visits will be planned.
**Prerequisite:** Advisor's recommendation.

**ART 261 ADVANCED COMPUTER GENERATED IMAGES – GENERAL ..... 3(2-2)**
**Normally Offered: F, SP, SUM**
This course is intended to be an in-depth exploration of the computer program Adobe Photoshop as an expressive tool for the artist.
**Prerequisite:** ART 221, ART 222.

**ART 262 ADVANCED COMPUTER GENERATED IMAGES – DIGITIZING TABLET ..... 3(2-2)**
**Normally Offered: F, SP, SUM**
This course is intended to be an in-depth exploration of the techniques involved in the use of the digitizing tablet as an expressive tool for the artist.
**Prerequisite:** ART 221.

**ART 263 DESIGN III ..... 3(2-2)**
**Normally Offered: F, SP**
This course is intended to be an in-depth exploration of the techniques, materials, and concept development involved in the technical skill and creative productivity of Design I and Design II.
**Prerequisite:** ART 123, ART 124.

**ART 264 DESIGN IV ..... 3(2-2)**
**Normally Offered: F, SP**
This course is intended to be an in-depth exploration of the concept development and content development involved in the creation of 2D and 3D design. This is primarily a course for students enrolled in the Fine Arts program who are interested in adding and building portfolio content and refinement for transfer from an associate level to a baccalaureate.
**Prerequisite:** ART 263.

## AMERICAN SIGN LANGUAGE

**ASL 121 AMERICAN SIGN LANGUAGE ..... 4.0(4-0)**
**Normally Offered: F**
This course introduces the basics of American Sign Language (ASL) and is designed for students who have little or no previous knowledge of ASL. The focus of the class will be on vocabulary, fingerspelling, numbers and grammatical non-manual signals. Students will also be exposed to Deaf Culture, and hot topics within the Deaf Community.

**ASL 122 AMERICAN SIGN LANGUAGE II ..... 4.0(4-0)**
**Normally Offered: SP**
This course continues to introduce the basics of American Sign Language (ASL) and is designed for students who have completed ASL 121, or similar course work. The focus of the class will be on vocabulary, fingerspelling, sentence structure and grammatical non-manual signals. Students will also be exposed to Deaf Culture, and hot topics within the Deaf Community.
**Prerequisite:** ASL 121 or instructor approval

## AUTOMOTIVE

**AUB 100 AUTO COLLUSION FUNDAMENTALS ..... 2(1-2)**
**Normally Offered: F**
This course orients the student to the auto body collision repair trade. Both classroom and lab are used to present topics of certification and careers, personal safety and hazardous materials, terminology, shop operation, tools and equipment, service information, and refrigerant recovery.

**AUB 105 COLLISION WELDING ..... 2(1-2)**
**Normally Offered: F**
This course gives the student experience in welding processes that are currently being used in collision repair. These processes include, MIG Pulse Steel, Aluminum and Bronze, Resistance Spot Welding, Oxy-Acetylene uses, and Plasma Arc Cutting.

**AUB 110 PAINT PREPARATION ..... 2(1-2)**
**Normally Offered: F**
This course provides the student with the fundamental knowledge and manual skills that are the basis for all automotive refinishing. Topics include refinish safety and equipment, panel preparation, and masking and detailing. Mastery of these skills prepare students for entry level employment as a painter's helper.

**AUB 115 PAINTING ..... 4(2-4)**
**Normally Offered: F**
This course provides an introduction to refinish shop procedures. Students will learn to apply both solvent and water borne materials. An emphasis will be placed on spraying undercoats, top-coats, and clear coats. Students will practice color sanding and wheeling techniques used to remove paint defects and match OEM surface appearance.
**Prerequisite:** AUB 100.

**AUB 120 INTRODUCTION TO NON-STRUCTURAL REPAIR ..... 2(1-2)**
**Normally Offered: F**
This course will allow the student to begin developing the skills of a non-structural technician. In the lab students will practice safe removal and replacement of bolt-on parts, trim and hardware, and moveable glass. Emphasis will be placed on proper part alignment and operation
**Prerequisite:** AUB 100 or instructor permission.
**Co-requisite:** AUB 125.

**AUB 125 NON-STRUCTURAL REPAIR ..... 3(1-4)**
**Normally Offered: F**
This course provides the students with the fundamental knowledge and manual skills necessary to repair non-structural damage on late model automobiles. Topics covered include metal-finishing, body fillers, adhesives, and plastic and composite repair.
**Prerequisite:** AUB 100 or instructor permission.
**Co-requisite:** AUB 120.

**AUB 130 MECHANICAL AND ELECTRICAL REPAIR ..... 4(2-4)**
**Normally Offered: SP**
This course provides the student with the necessary knowledge and skills to safely perform common collision related repairs. Topics covered will include restraint systems, cooling systems, heating and air-conditioning systems, brakes, steering and suspension, basic electrical theory diagnosis and repair, and hybrid and electrical vehicle safety.
**Prerequisite:** AUB 100 or instructor permission.

## AUTOMOTIVE

**AUB 135 DAMAGE ANALYSIS AND ESTIMATING ..... 3(1-4)**
**Normally Offered: SP**
This course provides instruction in collision theory, damage analysis, and measurement of unibody and full-framed vehicles. Students will measure damage using computerized measuring equipment, develop a repair plan, and learn computerized estimating.
**Prerequisite:** AUB 100 or instructor permission.

**AUB 140 ADVANCED COLLISION ..... 4(2-4)**
**Normally Offered: SP**
This course will provide instruction and lab activities performing advanced repairs, including welded and bonded panel repair and replacement, automotive foams, and restoring corrosion protection.
**Prerequisite:** AUB 105.

**AUB 150 ADVANCED PAINTING ..... 5(2-6)**
**Normally Offered: SP**
This capstone course will build on skills learning in AUB 110 and AUB 115. Students will perform advanced paint repairs including, blending, spot repairs, tri-coat finishes and correcting paint problems.
**Prerequisite:** AUB 100 or instructor permission.

**AUT 119 AUTOMOTIVE BRAKE SYSTEMS ..... 5(2-6)**
**Normally Offered: F**
Provides the student with knowledge and skills to maintain, diagnose, and repair automobile and light truck braking systems. Brake operating principles, construction, maintenance, machining, and overhaul procedures will be covered. Antilock brakes and the related systems of traction control and stability control and the liability one undertakes in servicing these systems will be covered as well. Practical knowledge will be gained by working on live vehicles in the lab.
**Prerequisite:** Placement in ENG 111 and MTH 110 or instructor permission.

**AUT 122 AUTOMOTIVE AIR, FUEL & EMISSIONS SYSTEMS ..... 4(2-4)**
**Normally Offered: SU**
This course is designed to provide the student with an understanding of the theory, construction, operation, diagnosis, and repair of automotive fuel and emission systems. Environmental, safety, and legal concerns will be emphasized. Alternative fuel concepts will also be explored.
**Prerequisite:** AUT 124 with a grade of 2.0 or higher or instructor approval.

**AUT 123 AUTOMOTIVE SUSPENSION, STEERING & ALIGNMENT ..... 5(2-6)**
**Normally Offered: F**
Acquaints the student with operating principles and nomenclature of the various suspension and steering components. Both manual and power steering components will be studied. Alignment geometry and suspension dynamics and wheel/tire balance will be studied. Emphasis will be placed on the diagnosis and repair of suspension, steering, and alignment problems.
**Prerequisite:** Placement in ENG 111 and MTH 110 or instructor permission.

**AUT 124 AUTOMOTIVE ELECTRICAL & ELECTRONICS SYSTEMS I ..... 5(2-6)**
**Normally Offered: F**
Provides the student with the essential technical knowledge and manual skills to diagnose, repair, and maintain automotive electrical and electronic systems. Electrical theory, circuit types, wiring repair, reading electrical schematics and diagrams, electrical measurements, magnetism, electromagnetism, and use of diagnostic equipment will be covered.
**Prerequisite:** Placement in ENG 111 and MTH 110 or instructor permission.

## AUTOMOTIVE

**AUT 125 AUTOMOTIVE ELECTRICAL & ELECTRONICS SYSTEMS II ..... 5(2-6)**
**Normally Offered: SP**
Takes the student who has a basic automotive electrical background into a deeper understanding of automotive electrical systems. Lighting systems, horns, warning devices, instruments, accessories and body electrical, including air bags, anti-lock brakes, power windows, locks and keyless entries, are studied. Much time is spent on diagnosis, repair and installation of these systems.
**Prerequisite:** AUT 124 or instructor permission.

**AUT 201 COMPUTERIZED ENGINE CONTROLS ..... 4(2-4)**
**Normally Offered: SP**
Provides the student in lecture and lab with the theory and operating principles of computerized engines. Reviews electrical and electronic principles, computer operation, and common computer components, followed by more in-depth studies of GM, Ford and Chrysler systems. The course concludes with an update as to what has been done during the last two years, along with a look at what is coming in the future.
**Prerequisite:** AUT 124 or instructor permission.

**AUT 202 ENGINE PERFORMANCE DIAGNOSIS & TUNE-UP ..... 5(2-6)**
**Normally Offered: SP**
Provides the student with information that integrates the understanding of mechanical automotive systems with the myriad electrical systems that current automobiles employ. Study will also include gaining an understanding of operation, service, diagnosis, and repair of automobile ignition systems.
**Prerequisite:** AUT 124 with a grade of 2.0 or higher or instructor permission.

**AUT 205 AUTOMOTIVE CLIMATE CONTROL ..... 3(2-2)**
**Normally Offered: SU**
Provides the student with theory operating principles of various automotive climate control systems. Problem diagnosis and repair of compressors, refrigerant controls, and electric circuit controls will be covered. Safety will be stressed and charging and servicing units of live vehicles will be practiced.

**AUT 209 AUTOMOTIVE TRANSMISSIONS & DRIVE TRAINS ..... 5(2-6)**
**Normally Offered: SP**
Provides the student with instruction and practice in maintenance, diagnosis, and repair of automatic and manual transmission, clutch systems, transfer cases, and general drive trains. Operating principles and concepts of power flow will be emphasized.
**Prerequisite:** Successful completion of AUT 124 or instructor permission.

**AUT 221 ENGINE REPAIR & OVERHAUL ..... 5(2-6)**
**Normally Offered: F**
Introduces the design and construction of the various automotive power plants. Engine mechanical system diagnosis and service procedures, with emphasis on spark ignition engines, are studied. Disassembly, inspection, measurement, reconditioning, and reassembly of the various engine components are practiced. Use of proper service procedures are stressed both in the classroom and lab. Students are expected to complete at least one engine overhaul assignment.

## AVIATION

**AVI 135 UAS PILOT EXAM PREP ..... 1(.75-.5)**
**Normally Offered: SP**
FAA regulations require all commercial UAS operators to pass an aeronautical knowledge certification exam. Unmanned Aerial Systems (Drone) Pilot Exam Prep is open to anyone interested in becoming a commercial UAS Pilot, regardless of industry application, and will prepare students to sit for the FAA Exam (offered at testing sites throughout the state). This course will cover National Airspace, maps, weather, operations and inspections, and professional and ethical behavior in the aviation industry. This is not a hands-on operations course, but will provide minimal instruction on operating systems.

## AVIATION

**AVI 136 UAS OPERATIONS AND SAFETY..... 1(.5-1)**
**Normally Offered: SP**
Unmanned Aerial Systems (Drone) Operations and Safety is open to anyone interested in a hands-on experience with UASs. Students will learn using a hands-on approach to conduct preflight inspections, program the platforms, and complete successful missions.

**AVI 137 UAS PAYLOADS AND PROCESSING ..... 1(.5-.75)**
**Normally Offered: SP**
Unmanned Aerial Systems (Drone) Payloads and Processing introduces students to different types of payloads designed for drone platforms and how to process data collected during a mission. Students will examine FLIR data and process collected data using Datumate® software.

## BIOLOGY

Biology Placement Guidelines and Course Equivalences — One year of high school biology with a "C" or higher grade within the last five years is equal to BIO 114 Introduction to Biology. Advanced Placement (AP): test score of 3 = BIO 114 Introduction to Biology; test score of 4 or 5 (see biology faculty for placement).

**BIO 110 ESSENTIALS OF ANATOMY AND PHYSIOLOGY ..... 4(3-2)**
**Normally Offered: F, SP**
This course addresses the principles of human anatomy and physiology as related to medical assisting. It incorporates three unifying themes: the relationship between physiology and anatomy, the interrelations among the organ systems, and the relationship of each organ system to homeostasis.
**Prerequisite:** High school biology or equivalent.

**BIO 114 INTRODUCTION TO BIOLOGICAL SCIENCE ..... 4(3-2)**
**Normally Offered: F, SP, SU**
A basic course on the principles of biology, including a survey of life forms on planet Earth and coverage on classification, basic cytology, plant and animal forms, and physiology, classical and molecular genetics, paleontology, evolution, ecology, and life zones.
**Prerequisite:** Enrollment in ENG 102 or eligibility placement in ENG 111 or higher.

**BIO 129 INTRODUCTION TO FIELD BIOLOGY..... 3(2-2)**
**Normally Offered: F, SU**
Gives the beginning student an introduction to the disciplines of field study and natural history in biology. Course emphasis will be on learning to recognize common plants and animals of Eastern United States and knowledge of the habitats where one would expect to find these organisms. Numerous field trips will be taken and a portion of the instruction time will be spent outdoors.

**BIO 140 MICROBIOLOGY FOR THE HEALTH SCIENCES ..... 3(3-2)**
**Normally Offered: F, SP**
This course is targeted for students pursuing associate degree level programs in the allied health sciences. Emphasis will be placed on the microorganisms that cause disease. Content includes the diagnosis and pathogenesis of infectious diseases, host defense mechanisms, epidemiology, public health, healthcare-associated infections, and infection control. Students majoring/minoring in biology or other pre-professional programs are advised to take BIO 227.
**Prerequisite:** BIO 110 or BIO 114 or equivalent; CEM 100 or CEM 111 or equivalent recommended.

**BIO 161 GENERAL COLLEGE BIOLOGY I..... 4(3-2)**
**Normally Offered: F**
First installment of a year-long introductory course in biology for science majors. Topics include macromolecules, energy metabolism, cytology cellular reproduction, genetics, evolution, phylogeny, viruses, bacteria and protists.
**Prerequisite:** BIO 114 or equivalent; eligibility placement in ENG 111 and CEM 111 or CEM 100 (as a co-requisite).

## BIOLOGY

**BIO 162 GENERAL COLLEGE BIOLOGY II ..... 4(3-2)**
**Normally Offered: SP**
Second semester of a year-long introductory course in biology for science majors. Topics include biological diversity and evolution of plants, fungi, and animals; form and function of plants and animals; development; ecology and behavior.
**Prerequisite:** BIO 114, or BIO 161, or equivalent; eligibility for placement in ENG 111.

**BIO 200 ANATOMY & PHYSIOLOGY FOR ALLIED HEALTH ..... 6(4.5-3)**
**Normally Offered: SU (odd years)**
This course is designed for students in allied health programs. It is an intensive lecture/laboratory course emphasizing the basic concepts and principles of human anatomy and physiology.
**Prerequisite:** BIO 110 or BIO 114 and CEM 100 or equivalent or permission of instructor.

**BIO 201 HUMAN ANATOMY ..... 4(3-2)**
**Normally Offered: F, SP**
This course is a comprehensive study of the microscopic and macroscopic structure of all the human body systems. In lecture, gross anatomy is incorporated with functional anatomy and clinically-related topics. Laboratory work includes the study of slides, human skeletons, anatomical models, and a prosected cadaver. Some animal organs are dissected and compared with those of humans.
**Prerequisite:** BIO 110 or BIO 114 or BIO 161.

**BIO 203 HUMAN PHYSIOLOGY ..... 4(3-2)**
**Normally Offered: F, SP**
Covers for the most part the normal functions of the human body. Topics that are stressed include cell physiology, movement, circulation, respiration, regulation of water and electrolyte balance, digestion and absorption of food, endocrinology, reproduction, and sensory processing. The lab considers clinical applications of physiology.
**Prerequisite:** BIO 201 and CEM 111 or equivalent.

**BIO 207 WILDLIFE & FISHERIES ECOLOGY & MANAGEMENT ..... 3(3-0)**
**Normally Offered: SP**
This course will give an overview of the management and conservation of natural resources. The topics will include careers and professional development; ecology; population dynamics and genetics; management of natural resources; legislation of natural resources; and human interactions and attitudes.
**Prerequisite:** MTH 102; high school biology or equivalent.

**BIO 210 INTRODUCTION TO BOTANY ..... 4(3-3)**
**Normally Offered: F**
A basic survey course covering the major divisions of plants from algae through the flowering plants. Two weeks are spent on local flora, as well as traditional aspects of plant anatomy, physiology, paleontology, genetics, and ecology.
**Prerequisite:** BIO 114 or equivalent.

**BIO 211 GENERAL ZOOLOGY ..... 4(3-2)**
**Normally Offered: SP**
A survey course on the major phyla of animals. Includes evolutionary relationships, structure, function, behavior, adaptations, and economic importance of major groups of phyla of animals.
**Prerequisite:** BIO 114 with a 2.0 or better or equivalent.

**BIO 215 FIELD BOTANY ..... 3(2-2)**
**Normally Offered: SU**
This course will introduce students to the principles and rationale of classification, life histories, morphology and environmental relationships of plants. Emphasis will be placed on plant taxa of Michigan and the Great Lakes region. Students will be able to recognize common families, genera and species.
**Prerequisite:** BIO 114.

## BIOLOGY

**BIO 217 CELL BIOLOGY ..... 3(3-0)**
**Normally Offered: On Demand**
A basic course in cytology. Approximately one-half of the course deals with cells of higher organisms, their numerous included organelles, and how cells organize and function as tissues. One-half of the course will deal with cellular physiology, cellular genetics, the cytology of abnormal cells such as cancer, cytology and medical applications and pathology. Recommended for biology majors.
**Prerequisite:** BIO 161.

**BIO 227 MICROBIOLOGY ..... 4(3-3)**
**Normally Offered: F, SP**
Involves identification, anatomy, physiology and genetics of microorganisms. Special emphasis is given to infectious diseases and the organisms that cause these diseases.
**Prerequisite:** BIO 161 or the following combinations: BIO 110 or BIO 114 and CEM 111.

**BIO 228 PATHOPHYSIOLOGY..... 4(4-0)**
**Normally Offered: F**
Mechanisms of disease will be examined at the cellular, organ, and organ system levels as background for understanding clinical interventions. Alterations in structure and function will be correlated with adaptive responses. Capacity to cope with disease will be presented as a product of factors including heredity, age, and lifestyle.
**Prerequisite:** BIO 201 and BIO 203 with a 2.0 grade or higher.

## BUSINESS ADMINISTRATION

**BUS 115 FOUNDATIONS IN PERSONAL FINANCES (MASTERING THE BASICS)..... 1(1-0)**
**Normally Offered: F, SP**
The Foundations in Personal Finance (Mastering the Basics) course provides students with strategies for managing money. The financial strategies are divided into five areas of study including savings, budget, debt, college student essentials, and philanthropy. This course will challenge the way students view money and empower them to graduate on a solid financial foundation.

**BUS 116 FOUNDATIONS IN PERSONAL FINANCES (DEVELOPING YOUR SKILLS)..... 1(1-0)**
**Normally Offered: F, SP**
The Foundations in Personal Finance (Developing Your Skills) course will assist students in becoming educated consumers. It will show students how companies compete for their money, identify financing strategies that encourage college students to go into debt, teach five basic rules for making large purchases, summarize the three keys to getting bargains, and describe the seven basic rules of negotiating and summarizing laws that protect consumers from illegal collection practices. Students will learn actions to take when their identity has been compromised and how to communicate effectively with credit bureaus and other agencies about collections issues.

**BUS 117 FOUNDATIONS IN PERSONAL FINANCES (CONSIDERING THE FUTURE) ..... 1(1-0)**
**Normally Offered: F, SP**
The Foundations in Personal Finance (Considering the Future) explores the three basic principles of financial planning for the future, including investments, retirement and savings plans, and real estate. Students will examine the relationship between diversification and risk, and compare and contrast different types of investments. Various retirement account tax treatments will be classified and summarized. Students will learn why a home is a great investment, how to determine what to look for when purchasing a home, and how to maximize the sale of a home. Students will compare and contrast the various types of home mortgages and identify the pros and cons of renting versus owning a home.

## BUSINESS ADMINISTRATION

**BUS 121 INTRODUCTION TO BUSINESS ..... 3(3-0)**
**Normally Offered: F, SP, SU**
This course examines an overall view of today's business world. Topics discussed include the American economic system, the organization and management of businesses, financing, marketing, international trade, human resources management, and other business-related topics.

**BUS 122 PERSONAL SELLING ..... 3(3-0)**
**Normally Offered: F**
This course covers selling, covering the selling process, buy motivation, careers in selling, and ethical problems in selling. Both oral and written presentations are used. Use is made of video technology in oral presentations. Sales demonstrations in class are evaluated by both the students in the class and the instructor.

**BUS 123 PRINCIPLES OF ACCOUNTING I ..... 4(4-0)**
**Normally Offered: F**
Stresses the basic concept of accounting and financial reporting. The accounting cycle is presented, followed by discussion of current assets and liabilities, fixed assets and related depreciation methods, and systems of internal control and electronic data processing. Practice in accounting skill is obtained through the recording of transactions and preparation of financial statements.
**Co-requisite:** BUS 125 or MTH 102 or MTH 113 or MTH 121 or MTH 122 or MTH 123 or MTH 130 or MTH 131 or MTH 132 or MTH 223 or MTH 231 or MTH 232.

**BUS 124 PRINCIPLES OF ACCOUNTING II ..... 4(4-0)**
**Normally Offered: SP**
Continues the coverage of financial accounting from BUS 123, including corporations, stock issuance, long term assets and liabilities, investments, cash flows, and financial statement analysis. Provides the fundamentals of managerial accounting.
**Prerequisite:** BUS 123.

**BUS 125 BUSINESS MATHEMATICS ..... 3(3-0)**
**Normally Offered: F**
This course applies fundamental arithmetic processes to the solution of problems arising in a business office. It includes material covering fractions, decimals, percentages, trade and cash discounts, markup and markdown, payroll, simple and compound interest, annuities, present and future value, sinking funds, consumer and business credit, mortgage amortization, and depreciation.
**Prerequisite:** MTH 090 or satisfactory math placement score.

**BUS 127 PRINCIPLES OF MANAGEMENT ..... 3(3-0)**
**Normally Offered: F, SP**
This course studies the basic concepts and considerations affecting the scope of management. Emphasis is upon the planning, organizing, actuating, and controlling functions of management. Case studies are used to delineate the problems of all units of management.

**BUS 128 SMALL BUSINESS MANAGEMENT ..... 3(3-0)**
**Normally Offered: F**
Examines the significant problems encountered by those who wish to manage their own small business. Solutions are offered to general, financial and personnel management problems, capital needs and sources, advertising and markets, credit and inventory contracts, pricing and accounting problems.

**BUS 221 BUSINESS LAW I ..... 3(3-0)**
**Normally Offered: F**
Introduces the student to the basic principles of law that are applicable to business. The law is studied in the following areas: legal and constitutional foundations, court system, ethics, torts, contracts and UCC sales, personal property and bailments, and real property and landlord-tenant.

**BUS 222 BUSINESS LAW II ..... 3(3-0)**
**Normally Offered: SP**
Studies the law relating to intellectual property, business crimes, negotiable instruments, banking, creditor rights and bankruptcy, business organizations, employment, agency, and antitrust.

**BUS 223 INTERMEDIATE ACCOUNTING I ..... 4(4-0)**
**Normally Offered: F**
This course covers principles applicable to the corporate balance sheet and income statement following a review of accounting procedures developed in Accounting Principles. Accounting for assets, liabilities and stockholders' equity of corporations, as well as income statement reporting will be covered. Financial statement presentation and disclosures will be emphasized, taking into account international financial accounting standards.
**Prerequisite:** BUS 124 with 2.0 or higher

**BUS 224 INTERMEDIATE ACCOUNTING II ..... 4(4-0)**
**Normally Offered: SP**
This course continues the study of valuation principles applicable to the liability and equity sections of the balance sheet. Interpretation of financial statements is emphasized. A Statement of Cash Flows will be prepared. Procedures for correcting prior years' statements are evaluated and the problems of income tax allocation are studied. Students are encouraged to develop a philosophy of accounting which includes global accounting standards.
**Prerequisite:** BUS 223 with 2.0 or higher.

**BUS 225 TAX OF INDIVIDUALS ..... 3(3-0)**
**Normally Offered: F**
This course covers the principles of federal taxation relative to individuals and sole proprietorships. A focus on tax research is emphasized in response to ongoing revisions in federal tax laws. Concepts covered include the purpose of taxes and the impact of federal tax laws on society; reporting requirements, tax compliance, the IRS, and tax authorities; tax planning strategies and related limitations; gross income and exclusions; deductions for AGI and from AGI; tax computation and tax credits; the alternative minimum tax for individuals; investments, compensation, retirement savings and deferred compensation; and home ownership. Additionally, concepts are covered related to sole proprietorships, including business income, deductions, and accounting methods; and property acquisition, cost recovery, and property dispositions.
**Prerequisite:** BUS 123 or consent of instructor.

**BUS 226 TAXATION OF BUSINESS ENTITIES ..... 3(3-0)**
**Normally Offered: SP**
This course covers the principles of federal taxation relative to business entities, including corporations, S corporations, limited liability companies (LLC), limited partnerships, and general partnerships. Also addressed are business tax concepts related to the sole proprietorship business entity, although this entity type is covered extensively in BUS 225. A focus on tax research is emphasized in response to ongoing revisions in federal tax laws. Concepts covered include reporting requirements, tax compliance, tax planning strategies and related limitations; accounting methods, gross income and exclusions; business deductions; tax computation and tax credits, and the alternative minimum tax. Also covered are concepts related to property acquisition, cost recovery, and property dispositions. An overview of state and local taxes and multinational transactions related to business transactions is also included.
**Prerequisite:** BUS 123 and BUS 225 or consent of instructor.

**BUS 228 COST ACCOUNTING ..... 3(3-0)**
**Normally Offered: F**
Presents methods of determining materials, labor and manufacturing costs used to value inventory and to determine net income. Job order, process, and standard cost systems will be reviewed. Budgets and the relevance of costs to managers' decisions will be discussed.
**Prerequisite:** BUS 124 or consent of instructor.

## BUSINESS ADMINISTRATION

**BUS 229 ADVERTISING ..... 3(3-0)**
**Normally Offered: SP**
This course covers the basic principles and practices of advertising including media, advertisement creation, copy and layout design, advertising planning and management, and the integration of advertising and the marketing system.

**BUS 233 MANAGEMENT AND SUPERVISORY LEADERSHIP ..... 3(3-0)**
**Normally Offered: SU**
This course presents the modern supervisory job in its proper perspective. Topics covered include most effective supervisory approaches; the role of the supervisor in the organization; the basis for good motivation, group member and team development, and sound team effort. The supervisor is discussed in relation to the total managerial environment, to self-management, and to the individual employee in the work group.

**BUS 235 HUMAN RESOURCES MANAGEMENT ..... 3(3-0)**
**Normally Offered: SP**
This course provides the foundation for contemporary theory and practices relating to the management of human resources activities. Attention is devoted to the personnel processes that are involved in the procurement, development, and maintenance of human resources. Emphasis is placed on the role of the departmental supervisor, manager, and their superiors in the management of subordinate personnel.

**BUS 241 PRINCIPLES OF MARKETING ..... 3(3-0)**
**Normally Offered: SP**
This course covers the marketing aspects of the firm including classification of goods, retailing, wholesaling, physical distribution, personal selling, advertising, pricing, market forecasting and research, and the economic/legal environment in which the business enterprise functions.

**BUS 248 BUSINESS COMMUNICATIONS ..... 3(3-0)**
**Normally Offered: SP**
This course is designed to improve upon all forms of business communications. This course focuses on developing the ability to compose effective business letters, memoranda, reports, and resumes. The principles of written and oral communication and the underlying psychology are studied. Additional topics include intercultural communication, non-verbal communication, how technology in changing communication, job applications, integrity and ethics, and legal aspects of communication. Students are required to write many business letters. Research will be conducted for the business report and a summary of the report will be presented in class using presentation software.
**Prerequisite:** Ability to keyboard or permission of instructor plus successful completion of ENG 102 or placement in ENG 111 or 121.

**BUS 255 BUSINESS APPLICATION SOFTWARE ..... 3(2-2)**
**Normally Offered: SP**
A continuation of CIS 120, this second course teaches advanced skills using word processing, spreadsheet, database, and multimedia presentation software. Students will manage multiple worksheets and work with complex spreadsheet functions, as well as PivotTables and PivotCharts. Templates, styles, mail merge, advanced formatting of objects, and innovative presentation animations will be taught. Students will learn how to create advanced database queries and custom database reports. Solutions to business problems will be developed, integrating data between applications.
**Prerequisite:** CIS 120 or permission of instructor.

**BUS 257 COMPUTERIZED ACCOUNTING SYSTEMS ..... 1.5(2-0)**
**Normally Offered: SP**
Utilizes commercially available software for the small business accounting functions of accounts receivable, accounts payable, payroll, general ledger, inventory, accounting cycle completion, and financial statement reporting.
**Prerequisite:** BUS 123 and CIS 120, or instructor permission.

## BUSINESS ADMINISTRATION

**BUS 262 PROJECT MANAGEMENT ..... 3(2-2)**
**Normally Offered: F**
Students will be presented a number of techniques and tools used in guiding a project from concept through lifecycle completion. Topics include defining a project scope, the project charter, work breakdown structure, creating a budget, defining objectives, evaluation, risk management, understanding triple constraints, and the usage of project management software. Instruction will include standards from ANSI, ISO, and the Project Management Institute (PMI).
**Prerequisite or Co-requisite:** ENG 111 or ENG 121, and CIS 120, or instructor permission.

**BUS 390 UTILITY FINANCING & ACCOUNTING ..... 3(3-0)**
**Normally Offered: F**
This course introduces students to electric utility company financing and accounting. The unique characteristics of these regulated utilities, resulting from federal and state agency requirements, will be explored using the perspectives of the three types of utility company ownership, including investor-owned; cooperatives; and municipalities. Revenue rate-setting policies, operations and capital budgets, annual financial statements, and other financial and accounting aspects of electric utilities will be analyzed and evaluated. This course is designed to equip entry-level and middle managers in the electric utility profession with knowledge and skills to relate utility financing and accounting fundamentals to their job responsibilities.
**Prerequisite:** MTH 113 or higher.

**BUS 391 UTILITY REGULATIONS ..... 3(3-0)**
**Normally Offered: S**
This course focuses on public service commissions and the role of government in the modern utility, Federal Energy Regulatory Commission (FERC) and North American Electric Reliability Corporation (NERC) operations and how they affect the utilities and governing bodies for different types of utilities.
**Prerequisite:** ENG 111 or ENG 120.

## BUSINESS INFORMATION SYSTEMS

**BIS 100 COMPUTER KEYBOARDING ..... 1(0-2)**
**Normally Offered: F, SP**
This course teaches the student how to touch type (use the correct fingers on the correct keys without looking at the keyboard). Emphasis is on using proper techniques to touch type the alpha, numeric, and symbol keys. Students will also learn how to efficiently use the special keys found on a computer keyboard and how to touch type the numeric keypad.

**BIS 101 KEYBOARD SKILLBUILDING ..... 1(0-2)**
**Normally Offered: F, SP, SU**
Allows students to develop keyboarding skills to levels desired by the individual student. Emphasis is on learning correct techniques and improving accuracy by identifying error patterns, with a resulting improvement in speed.
**Prerequisite:** BIS 100 with a grade of 2.0 or higher, or correct operation of all keys by touch and the ability to type 30 words per minute on a three-minute timed typing with three errors or less, or permission of instructor.

**BIS 140 PROOFREADING & EDITING FOR BUSINESS PROFESSIONALS ..... 3(2-2)**
**Normally Offered: SP**
Teaches students to apply the principles of English grammar, style, and usage to business correspondence. Topics include capitalization, numbers, abbreviations, word division, forms of address, and proofreading, particularly as applied to electronic documents.
**Prerequisite:** ENG 111 or qualifying placement score.

## BUSINESS INFORMATION SYSTEMS

**BIS 159 MEDICAL OFFICE ADMINISTRATIVE SEMINAR ..... 3(3-0)**
**Normally Offered: F**
Covers the skills and knowledge necessary for entry-level medical office administrative work. Topics covered are time management, organization, team work, and problem solving as relates to clinic workflow and the revenue cycle. Patient advocacy, community resources, medical reports, HIPAA, billing, coding, telephone techniques, appointment scheduling, communication with patients, and other medical office topics are presented.

**BIS 160 MEDICAL TERMINOLOGY ..... 4(4-0)**
**Normally Offered: F, SP, SU**
Presents the fundamentals of medical language for all allied health professionals and interested lay people. Includes definitions, pronunciations, spellings, and abbreviations of anatomical, symptomatic, diagnostic and operative terms pertaining to each anatomical system of the body. Lecture, discussion and workbook exercises bring the language alive by making the study interesting and logical.

**BIS 161 MEDICAL TRANSCRIPTION ..... 4(2-4)**
**Normally Offered: SP**
Introduces the profession of medical transcription. In this course, the student develops transcription competencies for entry-level employment. The student transcribes histories and physicals, operative reports, consultations, discharge summaries, and pathology reports in the transcription lab. Students will practice transcription of medical dictation incorporating English usage and machine transcription skill, medical knowledge, and proofreading and editing skills to meet accuracy and productivity standards.
**Prerequisite:** BIS 160
**Co-requisite:** CIS 151, CIS 152, CIS 153, and BIS 101 or instructor permission

**BIS 167 MEDICAL ETHICS & LAW FOR HEALTH PROFESSIONALS..... 3(3-0)**
**Normally Offered: SP**
Introduces allied health professionals to common, everyday medical law and medical ethical issues in the health professions. The student will learn to distinguish between morality and ethical issues and the reasoning of their importance. Through discussion the student will employ background information and case-driven approaches to the prototypes of ethical theories and problems. Major attention is devoted to basic personnel processes that include the proclamation, development, and maintenance of working ethically within different departments and organizations of Health Care.

**BIS 169 PRACTICE MANAGEMENT SOFTWARE ..... 3(2-2)**
**Normally Offered: SP**
This course teaches students the basics of administrative and clinical functions in the physician's office and outpatient settings. Topics include appointment scheduling, patient registration, posting charges and payments, entering insurance information for claim forms, producing financial reports, patient problems and medication lists, e-prescriptions, creating exam notes, and cataloging lab and procedure results.
**Prerequisite:** BIS 100 or touch typing ability.

**BIS 220 MEDICAL OFFICE ADMINISTRATIVE PRACTICUM..... 3(1-2)**
**Normally Offered: SUM**
Provides an 80-hour practical education/work experience in a physician's office or health care facility. The student is supervised and evaluated by qualified and licensed medical personnel. The student will have experiences in applying knowledge in performing administrative procedures including reception responsibilities, coding, insurance billing, release of information, and other related administrative medical office tasks. Development of a professional attitude through interaction with other professionals and consumers in the health care field is expected.
**Prerequisite:** BIO 110, BIS 159, BIS 160, BIS 167, BIS 169, CIS 120, PEH 264 all with a grade of 2.0 or higher; English and Psychology requirements; CPR Certification, and complete physical examination.

## CADD TECHNOLOGY

**CAD 132 AUTOCAD FUNDAMENTALS ..... 1.5(1-1)**
**Normally Offered: SP**
Introduces principles of CAD in an AutoCAD software environment, providing the student with fundamental knowledge of CAD system components and how to utilize AutoCAD software in the creation of technical drawings.
**Prerequisite:** Basic computer proficiency recommended or permission of instructor.

**CAD 135 INTERMEDIATE AUTOCAD..... 1.5(1-1)**
**Normally Offered: SP**
Continues utilization of CAD technology in an AutoCAD software environment for both mechanical and architectural applications. Previously learned principles are reviewed and their use expanded. More advanced concepts and methods are introduced.
**Prerequisite:** CAD 132.

**CAD 150 3D MODELING..... 3(2-2)**
**Normally Offered: SP**
This course introduces 3D parametric modeling and design techniques. Students will learn skills needed to create parametric models and designs of basic to moderately complex parts and assemblies. Students will learn how to then generate technical drawings from these models.
**Prerequisite:** Basic computer proficiency recommended or permission of instructor.

**CAD 220 MACHINE DESIGN ..... 3(2-2)**
**Normally Offered: F**
This course acquaints the student with advanced mechanical drawings and machine design problems. Topics covered include assembly and detail drawings, revisions, fits, finishes, geometric dimensioning and tolerancing, fasteners, bearings, and manufacturability. Calculations made in sizing components with emphasis on commercially available elements.
**Prerequisite:** CAD 150, MTH 110, and MFG 101.

**CAD 250 ADVANCED 3D MODELING..... 3(2-2)**
**Normally Offered: SP**
This course enhances students' knowledge of parametric design with advanced 3D modeling techniques and design intent. Emphasis is placed on design intent while learning advanced skills such as: top down assembly modeling, configurations, design tables, weldments, advanced shapes, model analysis, advanced templates, and an overview of different 3D modeling software in the market place.
**Prerequisite:** CAD 150.

## CHEMISTRY

Chemistry Placement Guidelines and Course Equivalencies — One year of high school chemistry with a "C" or higher grade within the last five years is equal to CEM 100 Introductory Chemistry. Two years of high school chemistry with a "C" or higher grade within the last five years is equal to CEM 111 General Chemistry. Advanced Placement (AP): test score of 3 = CEM 121 General and Inorganic Chemistry; test score of 4 = CEM 121 General and Inorganic Chemistry and CEM 122 Inorganic Chemistry & Qualitative Analysis.

**CEM 100 INTRODUCTORY CHEMISTRY ..... 5(4-3)**
**Normally Offered: F, SP, SU**
Surveys inorganic chemistry, providing an introductory chemical background for students who do not have experience in chemistry. Course involves a parallel laboratory experience, as well as basic mathematical concepts necessary for Chemistry 111 or 121.
**Prerequisite:** MTH 102 with a grade of 2.0 or higher or consent of instructor

**CEM 111 GENERAL CHEMISTRY ..... 4(4-3)**
**Normally Offered: F, SP, SU**
Introduces the study of atomic structure, periodic systems, chemical bonds, stoichiometry, gas laws, liquids and solids, solutions, etc. Theory is illustrated and applied through selected laboratory experiences. Prepares chemistry majors having limited backgrounds in high school chemistry for CEM 121 and non-majors for CEM 112.
**Prerequisite:** One unit of high school algebra or consent of instructor.

**CEM 112 ORGANIC & BIOCHEMISTRY ..... 4(4-3)**
**Normally Offered: SP**
A continuation of CEM 111 with emphasis on organic and biochemistry. This is a survey course covering organic structure, synthesis, reactions, mechanism, and nomenclature. The biochemistry of proteins, carbohydrates, lipids, cells, genetics, etc. are covered. Laboratory experiments in biochemical and organic identification, synthesis, separation and purification with use of instrumentation are emphasized. Fulfills the basic science requirement for non-science majors and several health science categories.
**Prerequisite:** CEM 111 or 121 or its equivalent and one year of algebra or consent of instructor.

**CEM 121 GENERAL & INORGANIC CHEMISTRY ..... 4(4-3)**
**Normally Offered: F**
Includes atomic structure, periodic systems, bonding, descriptive chemistry, stoichiometry, gas laws, liquids and solids, solutions, etc. Theory is illustrated and applied through selected laboratory experiences. Designed as basic course for students on scientific programs dealing with fundamental chemical principles.
**Prerequisite:** One unit of high school algebra, geometry and chemistry.

**CEM 122 INORGANIC CHEMISTRY & QUALITATIVE ANALYSIS ..... 4(4-3)**
**Normally Offered: SP**
Continues CEM 121, with emphasis on the study of chemical kinetics, equilibrium, electrochemistry, chemical thermodynamics, and organic chemistry. The principles of ionic equilibria and reaction mechanisms are applied in laboratory study of chemical measurements and the separation and identification of common cations and anions.
**Prerequisite:** CEM 121 or consent of instructor.

**CEM 221 ORGANIC CHEMISTRY ..... 5(4-3)**
**Normally Offered: F**
Emphasizes fundamental principles of organic chemistry in the study of aliphatic and aromatic compounds. Laboratory work is selected to provide experience with common apparatus and techniques and illustrate preparations and reactions discussed in class.
**Prerequisite:** CEM 122 or equivalent.

**CEM 222 ORGANIC CHEMISTRY ..... 5(4-3)**
**Normally Offered: SP**
Continues CEM 221. The functional group compounds are studied in the areas of structure, organic synthesis and reaction mechanisms. Laboratory work includes organic qualitative analysis.
**Prerequisite:** CEM 221 or equivalent.

## COLLEGE SUCCESS SKILLS

**CSS 095 EFFECTIVE READING STRATEGIES & STUDY SKILLS ..... 3(2-2)**
**Normally Offered: F, SP**
This course focuses on group work in improving reading (comprehension and vocabulary), writing, and study skills (test-taking, time management, memory, concentration, etc.) with emphasis on finding the main idea, evaluating, and reading. The lab component focuses on the needs of each student based on an individual, test-indicated basis.

## COLLEGE SUCCESS SKILLS

**CSS 098 COLLEGE COMPREHENSION STRATEGIES & STUDY SKILLS..... 3(2-2)**
**Normally Offered: F, SP**
This course is designed to promote an understanding of how knowledge is acquired, how to strengthen those reading skills already possessed, develop new techniques for efficient study, and provide opportunities to practice those strategies in a variety of content areas. College Comprehension and Study Skills focuses on group-work and improving comprehension, vocabulary, rate, writing and study skills, lecture/reading note-taking, listening, memory, concentration, etc., with emphasis on applying learned strategies to the content areas. The lab component focuses on the needs and strengths of each individual student through test-indicated basis.

**CSS 100 BECOMING A MASTER STUDENT ..... 2(2-0)**
**Normally Offered: F, SP**
A student success course covering academic skills, life management skills, and an introduction to resources of the school and community.

**CSS 120 FIRST YEAR STUDENT SEMINAR..... 1(1-0)**
**Normally Offered: F, SP**
A gateway or foundational course that introduces new students to the meaning, purpose, and value of post-secondary education and the college curriculum. This course will also address non-cognitive issues and the challenges they present to successful completion of a college degree and focuses on the development of skills, strategies, habits, and attitudes to deal with life issues.

## COMPUTER INFORMATION SYSTEMS

**CIS 120 INTRODUCTION TO MICROCOMPUTERS..... 3(2-2)**
**Normally Offered: F, SP, SUM**
Introduces the student to operating system and software applications of word processing, spreadsheets, databases, and multimedia presentations. Covers file management; using Help and Support; creating and editing flyers, letters, research papers, and resumes; creating spreadsheets and charts; using formulas and functions; performing what-if analysis; creating, maintaining, and querying a database; and creating and editing a presentation using illustrations, shapes, and transitions.

**CIS 140 INTRODUCTION TO MICROSOFT CLIENT OS..... 3(2-2)**
**Normally Offered: F**
Using both a “hands-on” and theoretical approach, this course teaches students to manage system resources through the Microsoft client operating system (OS) environment. In addition to basic system commands, students will learn how to install and customize the operating system environment for deployment in an office or networked environment.

**CIS 151* WORD PROCESSING I: BEGINNING ..... 1(.75-.5)**
**Normally Offered: F**
This course presents fundamental word processing skill development in the areas of creating, editing, and formatting documents used personally and in business including memos, letters, reports, newsletters, and templates. Students who cannot touch type 30 words per minute are encouraged to take BIS 100 Computer Keyboarding before this course.

**CIS 152* WORD PROCESSING II: FORMATTING DOCUMENTS..... 1(.75-.5)**
**Normally Offered: F**
This course presents extensive formatting skill development in documents using tables, graphics, themes, and report features.
**Prerequisite:** CIS 151 or proficiency exam.

## COMPUTER INFORMATION SYSTEMS

**CIS 153* WORD PROCESSING III: SPECIAL FEATURES..... 1(.75-.5)**
**Normally Offered: F**
This course presents features of word processing skill development in the areas of using styles, footnotes, citations, sources, captions, bibliographies, equations, screenshots, graphic layering, watermarks, page borders, and numerous collaboration features for working with documents in digital form worldwide.
**Prerequisite:** CIS 152 or proficiency exam.
* Course sequence CIS 151, 152 & 153 prepares students for the Microsoft Office Specialist (MOS) Word Certification Exam.

**CIS 171* SPREADSHEETS I: BEGINNING WORKSHEETS & FORMULAS ..... 1(.75-.5)**
**Normally Offered: SP**
This course teaches the essential aspects of a spreadsheet software program. Students will learn extensive formatting skills, study formulas and functions, and use the spreadsheet for completing calculations, projecting results of business decisions, and producing charts.

**CIS 172* SPREADSHEETS II: GRAPHS & CHARTS..... 1(.75-.5)**
**Normally Offered: SP**
This course continues the teaching of the aspects of a spreadsheet software program. Students will learn how to develop advanced formulas, use conditional functions to summarize data, do advanced charting, manage multiple worksheets and workbooks, integrate spreadsheets with other programs, and develop spreadsheet applications with macros.
**Prerequisite:** CIS 171 or proficiency exam.

**CIS 173* SPREADSHEETS III: DATA BASE APPLICATIONS..... 1(.75-.5)**
**Normally Offered: SP**
This course continues the teaching of the aspects of a spreadsheet software program. Students will explore financial tools and functions, use data tables, and work with scenario manager and solver. Relational databases will be used to transform data with PowerPivot® and advanced queries and filters. Collaboration tools will be featured, including comparing, merging, and sharing workbooks, tracking changes and comments, object linking and embedding, and developing a workbook for international clients.
**Prerequisite:** CIS 172 or proficiency exam.
* Course sequence CIS 171, 172 & 173 prepares students for the Microsoft Office Specialist (MOS) Excel and Excel Expert Certification Exams.

**CIS 206 OBJECT ORIENTED PROGRAMMING..... 3(2-2)**
**Normally Offered: F**
Students will develop a basic understanding of arrays, pointers, structures, and object oriented programming. The goal of the course is to provide students with the knowledge and skills they need to develop object oriented applications (including mobile applications) using best programming practices. The course focuses on program structure, language syntax and implementation details.
**Prerequisite:** CIS 120 or instructor permission.

**CIS 240* MULTIMEDIA PRESENTATIONS..... 3(2-2)**
**Normally Offered: SP**
Covers the fundamentals of modern usage of multimedia in presentations. Design techniques will be taught, along with using clip art, graphics and audio-visual files to enhance presentations. Using computer software designed for this purpose, students produce overheads, interactive slide shows, handouts and speaker notes. Skills learned are demonstrated by doing a multimedia project.
* Course prepares students for the Microsoft Office Specialist (MOS) exam to become certified at the core level using PowerPoint.
Reading Level Recommendation: College Level

## COMPUTER INFORMATION SYSTEMS

**CIS 241* INTRODUCTION TO WEB DESIGN & MANAGEMENT ..... 3(2-2)**
**Normally Offered: SP**
This course teaches students how to design, create, implement, and maintain a web site. Web page design principles are covered along with using hypertext markup and web-authoring software to create and manage web pages/sites. Students learn integration techniques for web-based databases, how to use multimedia in a web site, how to create and enhance images for web sites, and how to ensure security for a private Intranet for a target audience.

**CIS 250 DESKTOP PUBLISHING ..... 3(2-2)**
**Normally Offered: F**
This course introduces the principles, equipment, and skills used in the publishing process using desktop publishing software. Students will create and modify a wide range of publications, using judgment related to fonts, spacing, text, layouts, colors, graphics, and media.

**CIS 258 INTRODUCTION TO ENTERPRISE DATABASE ..... 3(2-2)**
**Normally Offered: SP**
Students will learn about the history of SQL, database options deployed in the marketplace today, and will be introduced to the fundamentals of enterprise database technology. Topics covered include database concepts, database design theory, entity-relationship models, SQL language, security, and database security and maintenance.

**CIS 270 NETWORK ADMINISTRATION ..... 3(2-2)**
**Normally Offered: F**
This course covers Local Area Network (LAN) administration and uses after the network hardware and network operating systems have been installed. Students working in small teams will administer an operating LAN.
**Prerequisite:** CIS 160 or permission of instructor.

**CIS 280 NETWORK THEORY DESIGN & INSTALLATION ..... 4(2-4)**
**Normally Offered: SP**
This course covers Local Area Network (LAN) fundamentals and terminology. Students will install and configure a LAN. Topics covered include: selection of LAN interface cards, cable, wiring plans, server hardware and operating system software, LAN maintenance, integrating LANs into existing networks and isolating LAN software and hardware problems. Labs should cause all elements to come to life through the many real-world exercises provided during the course of instruction. Most important, though, is the emphasis on gaining skills to start anyone who desires a career in network administration on the road to success.
**Prerequisite:** CIS 270.

**CIS 281 ADVANCED WORD PROCESSING I: DESIGNING WITH GRAPHICS & LAYOUTS ..... 1(.75-.5)**
**Normally Offered: SP**
This course presents advanced information processing skill development in the areas of graphics, lines, charts and layouts, and document designs, especially when used in columns, tables, and reports.
**Prerequisite:** CIS 153 or proficiency exam.

**CIS 282 ADVANCED WORD PROCESSING II: PRODUCING LONG DOCUMENTS ..... 1(.75-.5)**
**Normally Offered: SP**
This course presents advanced information processing skill development in the area of long documents that include using outlines, master and subdocuments, title page, table of contents, table of illustrations, charts, indexes, footnotes/endnotes, and citations. Students also learn to create electronic forms.
**Prerequisite:** CIS 281 or proficiency exam.

**CIS 283 ADVANCED WORD PROCESSING III: MACROS & MERGES ..... 1(.75-.5)**
**Normally Offered: SP**
This course presents advanced information processing skill development in the areas of macros creation, editing and use, as well as merging documents, including letters, labels and templates.
**Prerequisite:** CIS 282 or proficiency exam.
*Course sequence CIS 281, CIS 282, CIS 283 prepares students for the Microsoft Office Specialist (MOS) Word Expert Certification Exam.

## COMPUTER INFORMATION SYSTEMS

**CIS 295 IT PROFESSIONAL PRACTICE MANAGEMENT ..... 3(2-2)**
**Normally Offered: SP**
Students will learn about the ever-changing industry of Information Technology and its impact on and alignment with business objectives. Using concepts from prior classes, students will explore the design and setup of IT departments and procedures in both small and large organizations. Through case studies, scenarios, and role playing, students will have the opportunity to manage a team of IT professionals.
**Prerequisite:** Minimum of 18 credits in CIS or CNS coursework or instructor permission.

## COMPUTER NETWORK SYSTEMS

**CNS 150 NETWORKING FUNDAMENTALS ..... 3(2-2)**
**Normally Offered: F**
This course will introduce hardware and software technologies utilized to build computer networks and communicate data among devices. Students will build a working Local Area Network (LAN) utilizing multiple protocols and operating systems.
**Co-requisite:** CIS 140 and CNS 151 or instructor permission.

**CNS 151 NETWORK COMMUNICATION CABLING ..... 3(2-2)**
**Normally Offered: F**
This course is designed to provide the learner with the knowledge to install and support the physical layer of computer and telecommunications networks. Students will learn proper installation and certification techniques based on TIA/EIA standards for copper and fiber optic cabling.

**CNS 155 INTRODUCTION TO ROUTING & SWITCHING ..... 3(2-2)**
**Normally Offered: SP**
Using a basic knowledge of computer networks, students will learn how to link multiple networks together using routing, switching, VPN or WAN technologies. Using CISCO standards, students will simulate a working Internet environment and explore a variety of techniques and routing protocols.
**Prerequisite:** CNS 150 or instructor permission.

**CNS 170 PC REPAIR & MAINTENANCE ..... 4(3-2)**
**Normally Offered: F**
Students will be introduced to techniques and tools utilized in repairing desktop and laptop computer systems and peripherals. In a lab environment students will practice the diagnosis, identification, and replacement of computer components using industry recognized processes and technical documentation.

**CNS 180 INTRODUCTION TO MICROSOFT SERVER ..... 3(2-2)**
**Normally Offered: SP**
This course will introduce students to the Microsoft Server solution. Students in a lab experience will practice the deployment and administration of a Microsoft Server utilizing Active Directory to audit and manage user and computer accounts.
**Prerequisite:** CIS 140 or instructor permission.

**CNS 210 MICROSOFT NETWORK MANAGEMENT ..... 3(2-2)**
**Normally Offered: F**
This course explores the networking features of a Microsoft Server solution. Students in a lab experience will practice connecting computer systems to the Internet and to other networks. Remote access technologies will also be reviewed in depth. Students will understand how to monitor network health and maintain a more secure network.
**Prerequisite:** CNS 180 and CNS 150 or instructor permission.

## COMPUTER NETWORK SYSTEMS

**CNS 215 INTRODUCTION TO VIRTUALIZATION ..... 3(2-2)**
**Normally Offered: SP**
Students will develop a working understanding of virtualization technologies and current virtualization software packages. The goal of the course is to provide students with the knowledge and skills necessary to develop and manage virtual operating systems and virtual networks in a business/cloud setting.
**Prerequisite:** CNS 150 and CNS 180.

**CNS 220 ADVANCED MICROSOFT SERVER ..... 3(2-2)**
**Normally Offered: SP**
This course focuses on the different application tools available in a Microsoft Server and how they are used to help manage, share, and secure network resources. Specifically, students will learn about virtualization technologies, software deployment tools, Terminal Services, and deploying web sites through IIS and SharePoint.
**Prerequisite:** CNS 180 or instructor permission.

**CNS 230 INFORMATION SECURITY ..... 3(2-2)**
**Normally Offered: F**
This course will introduce techniques to reduce or mitigate risks to information technology assets. Specifically, desktop, network, and server applications will be discussed. A variety of case studies, ethical considerations, and penetration tools will be explored.
**Co-requisite:** CNS 150 or instructor permission.

**CNS 235 ADVANCED INFORMATION SECURITY ..... 3(2-2)**
**Normally Offered: On Demand**
Students will continue exploring Information Security concepts introduced in CNS 230. This course will also review a number of new objects including physical security or equipment, secure software design, business continuity and business recovery. The materials for this course are based upon the Certified Information Systems Security Professional-Common Body of Knowledge (CISSP-CBK).
**Prerequisite:** CNS 230 or instructor permission.

**CNS 240 OPEN SOURCE NETWORKING..... 3(2-2)**
**Normally Offered: F**
Students will learn the foundational differences between open source and commercially purchased software. By utilizing LINUX in a lab setting, a comparison to and contrast with Microsoft Server products will be drawn. The class will help participants become familiar with freely available software using command line and graphical user interface options.
**Prerequisite:** CIS 140 or instructor permission.

## CONCRETE TECHNOLOGY

**CON 110 INTRODUCTION TO CONCRETE TECHNOLOGY ..... 1(1-0)**
**Normally Offered: F**
Introduces the various divisions of the concrete industry. Course reviews each divisions (Ready Mixed Concrete, Concrete Masonry, Prestress/Precast, Engineering, etc.), and shows the types and needs of employment in each division.

**CON 121 AGGREGATES .....3.5(2.1-2.8)**
**Normally Offered: F**
Studies the entire aggregate industry. The purpose and function of fine aggregates (sand) and coarse aggregates (gravels, crushed stone, etc.) and their relationship in the construction industry are examined. Both natural and manufactured lightweight aggregates are studied. Industrial standards for testing evaluation are covered in lecture and in a hands-on laboratory.

## CONCRETE TECHNOLOGY

**CON 122 CONCRETE ADMIXTURES ..... 1(1-0)**
**Normally Offered: SP**
Examines the nature of concrete and how its characteristics can be altered through the use of admixtures. The effects of both chemical and mineral admixtures to Portland Cement are studied. Industrial standards for these materials will be covered.

**CON 123 CEMENTITIOUS MATERIALS ..... 1.5(.9-1.2)**
**Normally Offered: F**
Examines the chemical and physical components of various cementitious materials such as Portland Cement, slag cement, fly ash, silica fume, etc. Also included are the production methods and standard tests of cement performance.

**CON 124 CONCRETE MIX PROPORTIONING ..... 4(2-4)**
**Normally Offered: SP**
Covers several theories of proportioning concrete mixes, including normal weight, lightweight, high strength and others. Emphasis is given to the effect of altering mix ingredients and proportions on the properties of plastic and hardened concrete. Lab exercises intended to assist in developing a better understanding of equipment and procedures standard to the industry.
**Prerequisite:** CON 121 and CON 123 or permission of instructor.

**CON 221 PLACED CONCRETE I ..... 4(3-3)**
**Normally Offered: F**
Studies the placed concrete industry from surveying for form layout to the final finishing of placed concrete. Mixing, placing, forming, finishing, curing and jointing are covered. Mix proportioning to solve placing problems is examined.
**Prerequisite:** CON 124 or permission of instructor.

**CON 222 PLACED CONCRETE II ..... 4(3-3)**
**Normally Offered: SP**
Continues Placed Concrete I in studying industrial standards including ASTM and ACI using standard deviation methods. The course covers the use of fibers, pozzolans, pumping, engineering properties of placed concrete, high performance mixes, soils and roller-compacted concrete.
**Prerequisite:** CON 124 and CON 221.

**CON 223 CONCRETE MASONRY PRODUCTION ..... 4(3-3)**
**Normally Offered: F**
Covers the manufacturing of concrete masonry products including sieve analysis, aggregate blending, mix designs and proportioning, manufacturing techniques on full scale block equipment, and curing methods. Testing methods of masonry products and architectural specifications as they pertain to the masonry producer are studied.
**Prerequisite:** CON 121 and CON 123 or permission of instructor.

**CON 224 PRESTRESS/PRECAST CONCRETE ..... 3(2-3)**
**Normally Offered: SP**
Covers the final use of various precast concrete masonry, prestress concrete, roofing tile, pavers, pipe, panels and other precast units. Special attention is given to the layout and manufacturing of prestress units according to industrial standards, engineering properties, testing methods and product specifications.
**Prerequisite:** CON 223.

## CONCRETE TECHNOLOGY

**CON 226 CONCRETE TROUBLESHOOTING & REPAIR ..... 2(2-0)**
**Normally Offered: SP**
Examines the basics of concrete inspection including equipment, materials and procedures. Covers the process of determining problems with concrete and deals with repair of problems. Studies the ways that problems can be reduced by using proper construction procedures.
**Prerequisite:** CON 221.
**Co-requisite:** CON 222.

**CON 227 CONSTRUCTION INSPECTION ..... 2(2-0)**
**Normally Offered: F**
Covers inspection procedures required in the construction industry with main emphasis on concrete related materials and procedures. Building codes, specifications, reporting procedures and contract requirements will be covered in detail.
**Prerequisite:** CON 124 or permission of instructor.

**CON 231 CONCRETE PROJECT LAB ..... 1(1-0)**
**Normally Offered: F**
Provides the opportunity for individual research and experimentation. Students are encouraged to pursue research in areas of interest that are not included in regular classes. Results of project labs are shared with other students, thereby increasing their values. The course is taken during the sophomore year with hours arranged. Each student is assigned an instructor in the field of his/her technical specialty.
**Prerequisite:** Sophomore standing.

**CON 232 CONCRETE PROJECT LAB ..... 2(2-0)**
**Normally Offered: SP**
Continues CON 231.
**Prerequisite:** CON 231.

**CON 271 CONCRETE PIPE TECHNOLOGY..... 2(2-0)**
**Normally Offered: On Demand**
Course covers aggregate grading and blending, cementitious materials and the methods of curing used in the manufacturing of concrete pipe. Concrete pipe specifications, testing methods required and the multiple use of the end product are also covered. Lab testing of raw materials and pipe will be completed.

## CONSTRUCTION

**CST 101 CONSTRUCTION TECHNOLOGY I ..... 3(3-0)**
**Normally Offered:**
This course is a study of the principles of Construction Technology. This course applies the concepts of Modern Carpentry, engineering and technology utilizing the framework of Green and Sustainability to Residential Construction.

**CST 102 CONSTRUCTION TECHNOLOGY II ..... 3(3-0)**
**Normally Offered:**
This course is a continuation of Construction Technology I. It is the study of the principles of Construction Technology. This course applies the concepts of Modern Carpentry, engineering and technology utilizing the framework of Green and Sustainability to Residential Construction.

**CST 112 BUILDING CONSTRUCTION ANALYSIS ..... 3(3-0)**
**Normally Offered: SP**
Studies construction designs and methods. Materials and methods of construction in the categories of wood, steel and concrete are covered individually to show the capabilities of each.

## CONSTRUCTION

**CST 151 CONSTRUCTION SUMMER CO-OP..... 6(0-6)**
**Normally Offered: SUM**
Gives the student opportunity to gain "on-the-job" experience with summer employment in a construction firm or related business during the interval between the freshman and sophomore years.

**CST 201 GREEN BUILDING SUSTAINABILITY..... 3(3-0)**
**Normally Offered: On Demand**
This is a basic study of the principles of Green Building and Sustainability. Topics will include sustainability, xeriscaping, high performance building, energy efficiency, indoor air quality and environmental stewardship.

**CST 214 BLUEPRINT READING & ESTIMATING ..... 3(2-2)**
**Normally Offered: SP**
Studies various types of residential and commercial building blueprints. Students analyze and interpret prints as to their content and estimate quantities and cost from excavation to completion.

**CST 222 ADVANCED GREEN ENERGY SYSTEMS ..... 3(3-0)**
**Normally Offered:**
This course is the study of the principles of solar, wind, bio-mass fuels, nuclear and alternative energy. This course applies the concepts of advanced Green energy systems utilizing the framework of sustainability to Green Residential and Green Commercial Buildings.

**CST 240 SUSTAINABILITY ..... 3(3-0)**
**Normally Offered:**
Sustainability is defined, demonstrated and applied, beginning with how the environment and ecosystems work from a scientific perspective, understanding climate and geology, and applying ecological stewardship to improve sustainability in our environment. Students will learn about implementing engineering and technology that focuses on sustainability.

## CRIMINAL JUSTICE

**CRJ 101 CRIMINAL JUSTICE PHYSICAL EDUCATION..... 3(1-2)**
**Normally Offered: SP**
Designed for the Criminal Justice student that needs to improve his or her fitness level and lose weight. This is a low impact fitness course (i.e. walk/run, use of resistance bands, building endurance, introduction to weight training) with lectures on benefits of exercise and guidelines, fitness and wellness, coronary risk factors and physical fitness, stress, motivation, and behavior change, issues in weight control, and nutrition.
**Prerequisite:** Criminal Justice student or instructor permission. Participants with physical restrictions or other medical health problems must have a written permission statement from their physician prior to active participation in this program.

**CRJ 110 CRIMINAL JUSTICE PHYSICAL EDUCATION..... 2(1-2-0)**
**Normally Offered: F**
Physically prepares student to meet entry-level physical agility testing requirements for police officer and corrections officer and introduced military style discipline. Includes advanced development of exercise skills to increase and maintain levels of flexibility, muscle strength, body composition and cardiovascular endurance. Instruction will be a military style workout, including running, upper body strength workouts, push-ups, sit-ups, leg lifts and jumping jacks.
**Prerequisite:** Criminal Justice student or instructor permission. Participants with physical restrictions or other medical health problems must have a written permission statement from their physician prior to active participation in this program.

## CRIMINAL JUSTICE

**CRJ 119 INTRODUCTION TO HOMELAND SECURITY ..... 3(3-0)**
**Normally Offered: SP**
The Introduction to Homeland Security course will define the role of the Federal, State and Local Governments when dealing with a terrorist attack from an emergency management and first responder perspective. The topic of what prompts people to engage in a terrorist attack will be explored. The student will learn how to prepare and recover from a terrorist attack. Finally, what future challenges emergency managers and first responders can expect to face when dealing with homeland security issues will be discussed.

**CRJ 121 INTRODUCTION TO CRIMINAL JUSTICE ..... 3(3-0)**
**Normally Offered: F**
Surveys the field of law enforcement, including the role of police officers in society, the history of law enforcement and the organization of law enforcement agencies.

**CRJ 131 INTRODUCTION TO CORRECTIONS ..... 3(3-0)**
**Normally Offered: F**
Covers the history and development of penology, treatment of convicted law violators of all ages, appraisal of correctional treatment on post correctional behavior and an evaluation of rehabilitative efforts in modern penology.

**CRJ 132 INTRODUCTION TO COMPUTER FORENSICS & CYBERCRIME ..... 3(2-2)**
**Normally Offered: SP**
This course instructs the foundational skills necessary for the collection, evaluation, and investigation of computer crimes and electronic evidence. Lecture and lab sessions will explain how information is stored and retrieved from different types of devices.
**Prerequisite:** CRJ 121 and CIS 120; or CRJ 121 and CNS 230; or instructor consent

**CRJ 211 ETHICS IN CRIMINAL JUSTICE ..... 3(3-0)**
**Normally Offered: F**
Introduces students and practitioners to the fundamentals of ethical theory, doctrines and controversies, and rules of moral judgment. Covers ways and means of making moral judgment. Addresses the state of ethics in police, corrections, probation and parole.

**CRJ 220 JUVENILE DELINQUENCY ..... 3(3-0)**
**Normally Offered: F**
Analyzes the causes and control of crime, including juvenile delinquency, statistics of crime, problems of juvenile offenders, juvenile court procedures, and the work of youth agencies.

**CRJ 221 CRIMINAL LAW ..... 3(3-0)**
**Normally Offered: F**
Consists of the study of the origin, nature, and purpose of substantive law with particular emphasis on the basic elements of the crimes, both statutory and common law. Criminal law topics covered are: Crime defined, sources of, legal limits, elements of, scope, defenses, crimes against people, habitation and property; offenses against government and justice.

**CRJ 222 CRIMINAL PROCEDURES ..... 3(3-0)**
**Normally Offered: SP**
A basic survey of criminal procedure and constitutional rights as they apply to the criminal process from apprehension through the appellate process. Topics covered: Arrest, search and seizure, self-incrimination, pre-trial proceedings, trial, punishment, appeal, juvenile offenders, prisoner's rights, double jeopardy, confessions.
**Prerequisite:** Consent of instructor or CRJ 221.

**CRJ 223 POLICE ADMINISTRATION ..... 3(3-0)**
**Normally Offered: SP**
Deals with staff functions, management, budgeting, training, public relations, record keeping and other areas of the administration of a law enforcement agency.

## CRIMINAL JUSTICE

**CRJ 224 POLICE OPERATIONS ..... 3(3-0)**
**Normally Offered: SP**
Deals with line functions: patrol operations, investigative divisions, traffic divisions, non-crime functions and basic organization of modern law enforcement agencies.

**CRJ 229 CRIMINAL INVESTIGATION ..... 4(3-1)**
**Normally Offered: SP**
Introduces criminal investigation procedures, including conduct at crime scenes, collecting evidence, methods used in police laboratories and presentation of evidence in court.

**CRJ 230 FIELD SERVICE PRACTICUM ..... 3(3-0)**
**Normally Offered: F**
Presents structured practical training with the student obtaining experiences which fit particular interests in law enforcement. Experiences are on campus or at local law enforcement agencies.
**Prerequisite:** CRJ 121, and all students must be at least 18 years of age and have completed the Hepatitis B shot series.

**CRJ 233 COMMUNITY POLICING ..... 3(3-0)**
**Normally Offered: F**
Surveys the relationships between policing agencies and the communities which they serve. The emphasis is placed on communications and orientation toward common goals, with an examination of current problems in community tensions and conflict involving the police.

**CRJ 234 MULTICULTURAL LAW ENFORCEMENT ..... 3(3-0)**
**Normally Offered: SP**
Multicultural Law Enforcement will provide practical guidelines on how the police can work with cultural groups in the community. This course will examine the historical context of police relationships and identify the key issues that must be addressed. This course will focus on the cross-cultural contact that police officers have with citizens, victims, and suspects from diverse backgrounds. Multicultural Law Enforcement will stress the need for awareness, understanding of cultural differences, and respect toward those of different backgrounds.

**CRJ 235 CLIENT RELATIONS IN CORRECTIONS ..... 3(3-0)**
**Normally Offered: SP**
This course will examine the dynamics of human interaction within correctional facilities. Human relations in general will be presented to establish a basis for more specific examination of the unique and complex situation found in corrections. The meaning and impact of culture will be explored, as well as the causes and influence of prejudice on clients and corrections staff. Considerable discussion time will focus on values, ethics, and professional responsiveness.

**CRJ 236 CORRECTIONAL CLIENT GROWTH & DEVELOPMENT ..... 3(3- 0)**
**Normally Offered: F**
The purpose of this course is to give the student an understanding of and sensitivity to the motivations and behaviors of correctional clients. The course begins by reviewing general factors believed to be influential in human development, then analyzes specific problems of prisoners. The course examines prevention theories, as well as intervention and treatment strategies.

**CRJ 237 CORRECTIONAL INSTITUTIONS & FACILITIES ..... 3(3-0)**
**Normally Offered: SP**
Provides the student with a concentrated overview of correctional institutions and facilities. Designed primarily for students intending to pursue a career in the criminal justice system or for those already employed within the system, this course has relevance to other students pursuing a social sciences orientation. The course explores federal, state, county, and local facilities, including maximum, close, medium, and minimum custody facilities. It addresses community facilities, co-educational facilities, and the safety and security requirements and considerations related to each. Constitutional and managerial issues are stressed. The course includes historical developments and philosophy.

## CRIMINAL JUSTICE

**CRJ 238 LEGAL ISSUES IN CORRECTIONS ..... 3(3-0)**
**Normally Offered: F**
This course studies state and federal law related to corrections. Particular emphasis is placed on constitutional issues and remedies for violations of rights. Students will gain insights into a wide range of policy considerations behind corrections law and administrative procedures. Leading cases and court decisions will be discussed at length and their impact on corrections explored.

**CRJ 248 LOCAL CORRECTIONS OFFICER ACADEMY ..... 10(6.5-5)**
**Normally Offered: SU**
This course is certified by the Michigan Sheriff's Coordinating and Training Council. The Michigan Sheriff's Coordinating and Training Council has approved a 160-hour Local Corrections Officer Academy for correctional personnel supervising inmates in county jails. The Academy consists of 14 modules: Booking and Intake, Correctional Law, Cultural Diversity, Custody and Security, Defensive Tactics, Ethics, Fire Safety, First Aid/CPR/AED, Interpersonal Communications, Prisoner Behavior, Report Writing, Workplace Harassment, Stress Management, and Suicide Awareness. After the student has successfully completed the Academy and met all Michigan Sheriff's Coordinating and Training Council requirements, he/she will be certified by the Training Council as having completed the required 160-hour Academy.

## DIRECTED STUDIES

**251 DIRECTED STUDIES ..... MAXIMUM 5**
Aids advanced students or those who have exhausted regular offerings in their area of interest. The average student pursuing an associate degree will not find room in their program for this type of credit. The concept does not apply to remedial work. A directed study must be planned in advance of registration and cannot be used at the end of a semester to fill requirements. Careful attention must be given to the description of the work proposed because this constitutes the record of a course outline which is filed with the instructor, the Vice President of Instruction, and the Registrar's Office. The student is responsible for securing proper forms with all required signatures.

## ECONOMICS

**ECN 225 MONEY AND BANKING ..... 3(3-0)**
**Normally Offered: On Demand**
This course examines the role of money in society and the role of the financial system. Banking fundamentals and monetary policy are reviewed from a macroeconomic viewpoint. Focus is given to the contemporary issues relating to our monetary economic system. Students completing this course will have an enhanced knowledge of public monetary policy and how our banking system operates.

**ECN 227 THE INTERNATIONAL POLITICAL ECONOMY ..... 3(3-0)**
**Normally Offered: On Demand**
This course introduces students to the interdependence of national and regional issues as they relate to economics, sociology and political science. Study includes interests in the varying ways different regions and cultures throughout the world perceive the global economic institutions (WTO, EU, NAFTA, etc.) that are designed to supplement the management and distribution of our scarce global resources. Completion of this course will enable the student to recognize both the competitive and cooperative nature of international relationships and how they may affect domestic concepts and policies.
**Prerequisite:** Eligibility placement in MTH 121.

**ECN 231 ECONOMICS (MICRO) ..... 3(3-0)**
**Normally Offered: F, SP**
This course focuses on the analysis of individual consumer and supplier behavior. Students will learn the basics of consumer demand theory, labor supply theory, price theory, and various production decisions in different types of competitive markets. Upon completion, students should have a fundamental appreciation and comprehension for the motivation of individual firms and consumers.
**Prerequisite:** Eligibility placement in MTH 113 or instructor permission.

## ECONOMICS

**ECN 232 ECONOMICS (MACRO) ..... 3(3-0)**
**Normally Offered: F, SP**
This course is a study of the behavior of the economy as a whole. It examines certain principles of aggregate behavior as suggested by the famous economist John Maynard Keynes and how certain deductions taken from microeconomic behavior effect the entire economy. Students who complete this course will have an improved understanding of our national economy and the critical economic issues of our times.

## EDUCATION

**EDU 121 INTRODUCTION TO EDUCATION ..... 3(3-0)**
**Normally Offered: F, SP**
This is a basic introductory course into the discipline of teacher education. The primary objective of the course is designed to facilitate an understanding of "what it means to become a teacher in today's society." The course requires participation in the school environment through a 35-hour service project in which students learn to investigate and understand educational concepts through classroom and personal experience.

**EDU 220 MULTICULTURAL EDUCATION ..... 3(3-0)**
**Normally Offered: SP (even years)**
Provides a theoretical and empirical overview of educational issues affecting low-income immigrant and U.S.-born minority student populations in an increasingly diverse and changing society. Special attention is given to the transformative practices that enable students to dismantle inequality and struggle for a more democratic society.
**Prerequisite:** EDU 121 or SOC 123.

## ELECTRICAL POWER TECHNOLOGY

**EPT 230 POLY-PHASE METERING ..... 3(2-2)**
**Normally Offered: SP**
In this course, students learn about single-phase metering and poly-phase metering, including meter design, adjustments, compensations, and applications. They also learn about power factor analyzers, meter demand theory, high amperage CT cabinets and primary metering. Students will construct and test single-phase and poly-phase transformer rated meter installations.
**Prerequisite:** APP 100E.
**Co-requisite:** APP 104E.

## ELECTRICAL SYSTEMS TECHNOLOGY

**EST 301 POWER SYSTEMS ..... 3(3-0)**
**Normally Offered: SP**
This course applies electrical theory accompanied with physics to electrical systems including power flows, system design, and load management of different types of electrical power systems.
**Prerequisite:** PHY 221, EST 302, EST 304.
**Co-requisite:** PHY 222.

**EST 302 CIRCUITS ..... 4(4-0)**
**Normally Offered: F**
Course covers circuit analysis of DC circuits (resistance, capacitance, inductance) and AC circuits; DC power and energy calculations; DC power consuming devices and harmonies; conversion of AC to DC and brief introduction of DC power electronics; defines phasors complex power and impedance; mathematical calculations showing AC power and energy; apply metering theories to determine system qualities such as electricity power and energy; and using basic calculus to show how energy is power integrated over time.
**Prerequisite:** APP 104E.
**Co-requisite:** PHY 221.

## ELECTRICAL SYSTEMS TECHNOLOGY

**EST 304 PHASOR ANALYSIS/THREE PHASE POWER..... 3(3-0)**
**Normally Offered: F**
Course uses trigonometric functions showing sinusoids; why three phase and not two or four? Compare the different types of three-phase systems (Wye, Delta, grounded, ungrounded). Course covers transforming the AC time domain into phasors for analysis of steady state systems. Vector quantities and vector math.
**Prerequisite:** APP 104E.
**Co-requisite:** PHY 221.

**EST 306 ELECTRIC POWER GENERATION ..... 3(3-0)**
**Normally Offered: F**
Course covers DC, AC, single-phase, and three-phase rotating machines; synchronous and asynchronous motors and generators; types of generators and turbines; DC vs AC generation; conservation of energy during generation, i.e. losses of mechanical energy to electrical energy.
**Prerequisite:** APP 104E.
**Co-requisite:** PHY 221, EST 302, EST 304.

**EST 307 INTRODUCTION TO COMPUTER MODELING OF POWER SYSTEMS..... 3(2-2)**
**Normally Offered: S**
Course covers power system parameters and what they mean in the model; how power system components' and lines' impedances determine how energy flows. Uses computer models of electric systems to accurately control and predict the electric grid.
**Prerequisite:** EST 301.

**EST 308 DISTRIBUTION/TRANSFORMER POWER..... 3(3-0)**
**Normally Offered: F**
Course is designed to provide a broad overview of the transmission of electricity versus the distribution of electricity.
**Prerequisite:** EST 306.
**Co-requisite:** EST 301.

**EST 401 RENEWABLES ..... 3(3-0)**
**Normally Offered: F**
Course provides an overview of modern types of renewable generation sources. Included are photovoltaics (solar), wind, wave, and geothermal.
**Prerequisite:** EST 306.

**EST 402 SCADA ..... 3(2-2)**
**Normally Offered: F**
Course covers Supervisory Control And Data Acquisition (SCADA) Systems and what they do; implementing and operating existing SCADA systems; SCADA components such as PLC's, relays, contracts, and communication schemes.
**Prerequisite:** IND 120, APP 114E.

**EST 403 PROTECTION..... 3(3-0)**
**Normally Offered: S**
Course covers the protection of the system from anomalies; general protection rules and why the system needs such protection; protection devices such as fuses, sectionalizers, reclosures, circuit switchers, and breakers; and coordination of protection devices.
**Prerequisite:** EST 301.

**EST 404 POWER LINE PARAMETERS ..... 3(3-0)**
**Normally Offered: SP**
Course is a basic introduction to power line and system parameter calculations; finding X/R ratios for short, medium, and long lines; wire and cable properties, resistivity/conductivity; and power line construction efforts.
**Prerequisite:** EST 301
**Co-requisite:**.406

## ELECTRICAL SYSTEMS TECHNOLOGY

**EST 405 RELAYING ..... 3(2-2)**
**Normally Offered: S**
Course covers the three generations of relaying, electromechanical, solid-state, and microprocessor; relay functions and operations i.e. 50/51 Instantaneous/Time overcurrent; testing relays; general relaying principles such as protection zones, and proper relay connections.
**Prerequisite:** EST 301.

**EST 406 THE GRID ..... 3(3-0)**
**Normally Offered: F**
Course covers the history of the grid; why AC dominated over DC; the elements of the electric grid i.e. Generation, Transmission, Distribution, and Consumption; and Independent System Operators.
**Prerequisite:** EST 301, EST 306.
**Co-requisite:** EST 404.

**EST 408 ELECTRICAL SYSTEMS CAPSTONE PROJECT ..... 3(2-2)**
**Normally Offered: S**
Course covers safety practices in the electric utility industry, print reading, and assigns a capstone project that will require students to use knowledge gained in prior courses to complete.
**Prerequisite:** EST 308, EST 404.
**Co-requisite:** EST 307, EST 403, EST 405

## ELECTRONICS

**ELE 220 PC BASE DATA ACQUISITION & CONTROL..... 3(2-2)**
**Normally Offered: SP**
An introduction to Data Acquisition (DAQ), signal conditioning, sensors, digital and analog inputs and outputs, instrumentation communications, and basic controls. Through projects, students will learn how to setup, program, build, and troubleshoot PC-based DAQ and control systems.
**Prerequisite:** APP100E and basic computer proficiency recommended.

## ENGINEERING

**EGR 122 INTRODUCTION TO ENGINEERING..... 1(1-0)**
**Normally Offered: F**
Introduces the student to the profession of engineering. Topics include engineering colleges and curricula, scholarships and other financial aid, engineering work-study (co-op) programs, work opportunities, salaries, professional responsibilities and engineering registration. Field trips to Alpena area industries that employ engineers acquaint the student with practical applications of engineering.

**EGR 130 TEAM DESIGN PROJECT ..... 2(1-2)**
**Normally Offered: SP**
This project based course utilizes each student's diverse skills in a semester long development of a project or projects selected by the class. The course is structured as a company with multiple projects and objectives designed to give students real world project experience. Students will work in teams. Each team will progress through all stages of a project – conception, design, build, redesign, and formal presentation. Each student is assigned a part of the project with a required written report that is in line with their skills and interests. This course is open to all students; however, priority is given to Marine Technology, Mechanical Design Technology, and Pre-Engineering students.
**Prerequisite:** Permission of Instructor.

**EGR 221 STATICS..... 3(3-0)**
**Normally Offered: F**
Covers the fundamental principles of mechanics with engineering applications. Topics include forces, moments, machines, structures, friction, hydrostatics and virtual work.
**Prerequisite:** PHY 221, MTH 231 (may be taken concurrently).

## ENGLISH

**ENG 090 FUNDAMENTALS OF WRITING ..... 4(4-0)**
**Normally Offered: F, SP**
Provides remedial instruction for college freshmen who have demonstrated very limited ability in communication skills. The major emphasis is on the sentence (including basic usage, vocabulary, grammar, punctuation, and sentence combining skills), leading to the composition of paragraphs.
**Prerequisite:** None. E-Write 3 or below.
**Co-requisite:** CSS 095, CSS 100, MTH 090, or instructor permission.

**ENG 102 BASIC ENGLISH ..... 4(4-0)**
**Normally Offered: F, SP**
Provides remedial instruction for college freshmen who have demonstrated limited ability in communication skills. Students first learn paragraph development and then expand their writing to longer essay-length writings. Classroom practice and laboratory instruction focus on writing skills to improve students' appropriate use of Standard English in their writing. This course prepares students for entry into the traditional freshman level composition sequence.

**ENG 111 ENGLISH COMPOSITION I..... 3(3-0)**
**Normally Offered: F, SP, SUM**
Provides basic instruction for the college freshman in communication skills. Reading skills are developed through the analysis of essays. Writing skills are developed through a study of expository writing, language usage, structure, and mechanics.
**Prerequisite:** Average competence in reading and writing skills as determined by placement tests. (A minimum of a 12th grade reading level is required for placement in this course.)

**ENG 112 ENGLISH COMPOSITION II..... 3(3-0)**
**Normally Offered: F, SP, SUM**
Non-fiction and short fiction materials are used to further develop written communication skills introduced and practiced in ENG 111. Special emphasis is placed on critical thinking, critical analysis, and research leading to academic writing.
**Prerequisite:** Grade of 2.0 or better in ENG 111 or ENG 121.

**ENG 120 APPLIED COMMUNICATIONS..... 3(3-0)**
**Normally Offered: F**
Coordinates education in the technical and the academic fields. The course demonstrates the application of academic concepts by relating these concepts to technical subjects. Students review the types of communication skills needed in the workplace. This course is not intended for transfer students.
**Co-requisite:** Enrollment in one of the following programs: Automotive Service & Repair, Computer-Aided Drafting & Design, Concrete Technology, Machine Tool Technology.

**ENG 121 ADVANCED ENGLISH COMPOSITION I..... 3(3-0)**
**Normally Offered: F**
Provides instruction for the college freshman who has demonstrated above-average ability in communication skills. The instructor uses essays to teach a variety of expository writing forms.
**Prerequisite:** Above-average competence in grammatical/writing skills as determined by the English Dept. and placement tests.

**ENG 122 ADVANCED ENGLISH COMPOSITION II..... 3(3-0)**
**Normally Offered: SP**
Non-fiction and short fiction materials are used to develop further the written communication skills introduced and practiced in ENG 121. Special emphasis is placed on critical thinking, critical analysis and research leading to academic writing.
**Prerequisite:** Grade of 2.0 or better in ENG 111 or ENG 121.

## ENGLISH

**ENG 123 TECHNICAL COMMUNICATION ..... 3(3-0)**
**Normally Offered: SP**
Develops practical written communication skills for the workplace. Students design and prepare a variety of conventional technical and business documents, including business letters, memoranda, job application materials, short reports, empirical and comparative studies, instructional manuals and proposals. Topics include purpose and audience analysis, text production, page layout and document design.
**Prerequisite:** ENG 111 or ENG 120 or ENG 121 or consent of instructor.

**ENG 203 INTRODUCTION TO MYTHOLOGY..... 3(3-0)**
**Normally Offered: F**
Studies myths from several cultures. They are examined from the perspective of their common themes and capacity to be transformed through time while maintaining their universal motifs. Attention is also focused on the functions of mythology, including a primary one of providing guidance for the individual through important passages of life. Several works of literature are examined to demonstrate the mythic process at work and the fundamental part that myth plays in literary expression.
**Prerequisite:** Sophomore standing or permission of instructor.

**ENG 204 INTRODUCTION TO LITERATURE..... 3(3-0)**
**Normally Offered: SP (odd years), SU**
Introduces students to three basic forms of imaginative literature: short fiction, poetry, and drama. Instructs students in the skills to appreciate, enjoy, and critically analyze such literary texts. Components of the course include themes, formal elements, and critical approaches.
**Prerequisite:** ENG 111 or 121 and sophomore standing, or permission of instructor.

**ENG 221 BRITISH LITERATURE I ..... 3(3-0)**
**Normally Offered: On Demand**
Helps the student read literature with understanding and appreciation. The course consists of the study of representative English fiction, poetry and drama.
**Prerequisite:** ENG 112 or ENG 122.

**ENG 222 BRITISH LITERATURE II ..... 3(3-0)**
**Normally Offered: On Demand**
Continues ENG 221 British Literature I.
**Prerequisite:** ENG 112 or ENG 122.

**ENG 223 AMERICAN LITERATURE I..... 3(3-0)**
**Normally Offered: On Demand**
This is the first semester of a two-semester survey of American literature, beginning with readings from the colonial conquest period, covering the Puritan writings of the 17th century, the Deist and Rationalistic writings of the American Revolution, early Romanticism, and ending with works of the abolitionists and Transcendentalists at approximately the time of the Civil War. Readings will consist of classic American works, as well as those of lesser known writers, and will sample several genres to provide variety and a broader insight into American thought.
**Prerequisite:** ENG 111 or ENG 121 and ENG 112 or ENG 122.

**ENG 224 AMERICAN LITERATURE II..... 3(3-0)**
**Normally Offered: F (odd years)**
This second semester of a two-semester survey of American literature, begins approximately at the time of the Civil War and leads into a study of contemporary literature. Emphasis will be placed on the historical development of American thought and literature, with an effort to include culturally diverse writings that may have been previously excluded from American literature. The course will also sample various genres and diverse regions of the country, as well as represent different schools of writing, such as Naturalism, Realism and Modernism.
**Prerequisite:** ENG 111 or ENG 121 and ENG 112 or ENG 122.

## ENGLISH

**ENG 229 CREATIVE WRITING ..... 3(3-0)**
**Normally Offered: F**
Develops skills in writing one or more of the following forms: the short story, the play, the poem and the essay. The students meet individually with the instructor for criticism of their manuscripts. The class meets regularly to discuss common problems and successes.
**Prerequisite:** Grade of 2.0 or better in ENG 111 or 121.

**ENG 242 CHILDREN'S LITERATURE ..... 3(3-0)**
**Normally Offered: F (even years), SP**
Provides the second semester freshman and sophomore student with a general understanding of the development and uses of children's literature from its beginning to the present. Methods of analysis of both fiction and non-fiction prose as well as poetry are emphasized.
**Prerequisite:** Grade of 2.0 or better in ENG 111 or ENG 121

**ENG 243 THE SHORT STORY ..... 3(3-0)**
**Normally Offered: SP**
This course presents an intensive study of the short story as a literary form. In addition to its primary focus on formal elements, the course considers historical context/development, author biography, and critical theory. Readings are drawn from a variety of international, as well as American literary sources.
**Prerequisite:** ENG 111, ENG 121, or Instructor permission

**ENG 244 THE NOVEL ..... 3(3-0)**
**Normally Offered: F, SP**
Presents an intensive study of the novel as a literary genre. Concentration on how the formal elements of the novel (such as narrative technique, point of view, tone, plot, character development, style and the structure of time and place) define the theme the novelist is presenting. The readings for the course are selected from representative novels. Some written work is a partial requirement for the course.

## ENVIRONMENTAL SCIENCE

**ENV 101 ENVIRONMENTAL SCIENCE ..... 4(3-2)**
**Normally Offered: F**
This course analyzes environmental issues, including ecology, natural cycles, populations, energy, and human impact on the environment. Politics, public policy, and sustainability will be discussed. The lab portion will include outdoor experiences.

## FRENCH

**FRN 121 FRENCH I ..... 4(4-0)**
**Normally Offered: F, SP**
This is a basic French course designed to introduce the French language to students, giving them a rudimentary knowledge of written and spoken French. Six skills will be addressed: reading, writing, listening, speaking, pronunciation, and translation. These skills will be developed throughout the course through instruction, drill, choral response, readings, music, and class interaction. Systemic grammar instruction as well as whole-language techniques will be incorporated to enhance learning. Students will also be introduced to French culture, literature, geography, famous persons, and history through a variety of media. Students who already have a strong background in French, e.g., having had more than two years in high school or other institutions, should refrain from taking this elementary class since it is intended for beginners. FRN 122 French II, which is offered in the spring semester, will be a better course for stronger students.

**FRN 122 FRENCH II ..... 4(4-0)**
**Normally Offered: F, SP**
This second semester of college French corresponds roughly to one to two semesters of high school French. This basic French course will focus on the continued development of linguistic skills, i.e., reading, listening, speaking, and pronunciation, with emphasis on the written language.
**Prerequisite:** FRN 121 or two semesters of high school French.

## GEOGRAPHY

**GEO 125 GEOGRAPHY ..... 3(3-0)**
**Normally Offered: On Demand**
Analysis of characteristics and significance of world land form, climate, soils, vegetation, mineral and water resources, as well as tectonic and glaciation forces.

**GEO 126 CULTURAL GEOGRAPHY ..... 3(3-0)**
**Normally Offered: SP**
Introduction to the theme of human alterations of the natural scene and creation of cultural landscapes from ancient times to the present.

**GEO 127 PHYSICAL GEOGRAPHY ..... 4(3-2)**
**Normally Offered: F**
Analysis of characteristics and significance of world land forms, climate, soils, vegetation, mineral and water resources, as well as tectonic and glaciation forces. This course includes a laboratory component and complies with MTA requirements.

**GEO 151 INTRODUCTION TO GIS ..... 1.5(1-1)**
**Normally Offered: SP**
Introduces principles of geographical information systems (GIS) in an ArcGIS software environment, providing the student with fundamental knowledge of GIS system components and how to utilize ArcGIS software in the creation of maps and analysis of spatial data. Students will also gain basic experience with the use of global positioning system (GPS). Applications will be cross disciplinary in nature, including such fields as the environmental sciences, oceanography, business, marketing, demographics, history, tourism, and real estate management.
**Prerequisite:** Satisfactory completion of CSS 098 or ACCUPLACER placement in ENG 111.

**GEO 152 ADVANCED GIS ..... 1.5(1-1)**
**Normally Offered: SP**
Continues utilization of GIS technology in an ArcGIS software environment. Previously learned principles are reviewed and their use expanded. More advanced spatial data analysis, editing, and geocoding concepts and methods are introduced. As a final project, students will collect field data using a GPS unit and create a formal GIS map for presentation. Applications will be cross disciplinary in nature, including such fields as the environmental sciences, oceanography, business, marketing, demographics, history, tourism, and real estate management.
**Prerequisite:** GEO 151.

## GERMAN

**GER 123 GERMAN ..... 4(4-0)**
**Normally Offered: F**
An introductory course for anyone interested in developing basic speaking, reading, listening and writing skills in the German language. No previous experience with German is required.

**GER 124 GERMAN ..... 4(4-0)**
**Normally Offered: SP**
A second semester level course for anyone interested in developing and improving their basic speaking, reading, listening and writing skills in the German language.
**Prerequisite:** GER 123 or other previous experience with German is required

## HEALTH

**HEA 102 NUTRITION ..... 3(3-0)**
**Normally Offered: FA, SP**
This course offers information about human nutrition and how it influences personal health. Emphasis is placed on current nutritional research; U.S. Government guidelines and goals; U.S. RDA's human nutritional needs of foods; human energy needs of foods; human growth and development; and nutrition and human performance.

**HEA 107 HEALTH CARE ASSISTANT ..... 6.9(6.9-0)**
**Normally Offered: F, SP**
This course allows the student to develop the basic skills and knowledge required to provide human services to individuals in a home or institutional setting. Topics include resident rights, communication, infection control, safety, personal care, nutrition, psychosocial care, activity planning, care across the lifespan, problem solving and home management.
**Co-requisite:** CIS 120, ENG 111, NUR 133, HEA 107LC, and HEA 113.

**HEA 107LC HEALTH CARE ASSISTANT LAB COURSE ..... 0.8(0-2.4)**
**Normally Offered: F, SP**
This course allows the student to develop and apply the basic skills required to provide human services to individuals in a home or institutional setting. Skills include standard precautions, hygiene care, infection control, safety measures, activities of daily living, nutrition, psycho-social care, problem solving, and home management.
**Co-requisite:** CIS 120, ENG 111, NUR 133, HEA 107, and HEA 113.

**HEA 113 HEALTH CARE ASSISTANT CLINICAL ..... 0.8(0-0-2.4)**
**Normally Offered: F, SP**
This course allows the student to practice skills obtained in HEA 107 and 107LC in the extended care environment. Proficiency must be demonstrated in real life situations related but not limited to standard precautions, hygiene care, infection control, safety measures, activities of daily living, nutrition, psycho-social care, problem solving, and home management.
**Co-requisite:** CIS 120, ENG 111, NUR 133, HEA 107, and HEA 107LC.

## HISTORY

**HST 121 HISTORY OF WESTERN CIVILIZATION ..... 3(3-0)**
**Normally Offered: F**
Studies the emergence of Europe from the Ancient World through the Dark Ages and Feudalism into the modern state system. Also studies the rise of modern capitalism and the impact of the new emerging social structure upon intellectual and religious life.

**HST 122 HISTORY OF WESTERN CIVILIZATION ..... 3(3-0)**
**Normally Offered: SP**
Studies the revolutionary destruction of the old regimes, the establishment of liberal parliamentary democracies and the rise of the totalitarian movements in the present era of global conflict.

**HST 140 UNITED BY WATER: UNDERWATER ARCHAEOLOGY & MARITIME HISTORY ..... 3(2-2)**
**Normally Offered: SU**
This course explores the interdisciplinary study of shipwrecks and the maritime landscape found within the Thunder Bay National Marine Sanctuary through the exploration of the maritime history of the Great Lakes and examining how the region played a critical role in the growth of the nation. The course also introduces students to the theory and practice of underwater archaeology. Students will gain hands on experience with archaeological recording techniques and basic underwater archaeological mapping skills. The field techniques used in this course are versatile and skills can be applied in a variety of fields. The course contains practical, hands-on sessions that teach underwater surveying and recording. The practical elements of the course could be held in sheltered open water or on a shore site for non-divers. Diving not required. Completion of course can result in certification(s) from Nautical Archaeology Society.

## HISTORY

**HST 221 UNITED STATES HISTORY ..... 3(3-0)**
**Normally Offered: F**
This course surveys the history of the United States from the period of colonization to reconstruction. The course is designed to achieve breadth of understanding and appreciation for social, political, economic and cultural history of the United States within a global context and while emphasizing the responsibilities of citizenship for students with broad academic and professional interests. The topics include pre-European society in the Americas, European settlement, colonial development, the development of constitutional government and representative democracy, social and economic development, the western territorial expansion of the United States, sectionalism and the Civil War.

**HST 222 UNITED STATES HISTORY ..... 3(3-0)**
**Normally Offered: SP**
Surveys the history of the United States from the period of Civil War reconstruction to the present time. This course is designed to achieve breadth of understanding and appreciation for the social, political, economic and cultural history of the United States within a global context and while emphasizing the responsibilities of citizenship for students with broad academic and professional interests. The topics include the Civil War and its causes, the period of post-war reconstruction, the expansion of industrialization and subsequent implications for the socio-political order, the Gilded Age, the Progressive Era, World War I, the Great Depression and the New Deal, World War II, and the Cold War and Post-Cold War era.

**HST 224 HISTORY OF MICHIGAN ..... 3(3-0)**
**Normally Offered: F, SP**
This course traces the history of Michigan from ancient times through French and British rule. It relates the growth of Michigan as a territory and state within the national union, drawing connections with regional, national and international social, political and economic trends into the present.

**HST 225 TWENTIETH CENTURY U.S. HISTORY ..... 3(3-0)**
**Normally Offered: SP (odd years)**
This course aims to increase the student's factual and structural knowledge of the social, political, economic and foreign and domestic developments of the United States since 1900, providing great detail and breadth of understanding, appreciation and global context for students with broad academic and professional interests.

**HST 227 CONTEMPORARY AMERICAN PROBLEMS ..... 3(3-0)**
**Normally Offered: F, SP**
Surveys the current social, political, economic and cultural domestic and international problems facing the United States and the region (state and local) in which the student lives. Ideological, economic, and social factors are stressed within an historical perspective. Considerable emphasis is placed on relating these issues to the student's own local environment and their personal and professional interests.

**HST 228 THE CIVIL WAR ..... 3(3-0)**
**Normally Offered: SP (odd years)**
Introduces the causes of the war between the North and the South. Emphasizes the shifting tide of battle during that period, as well as the subsequent impact of the war on American culture.

## HUMANITIES

**HUM 110 INTRODUCTION TO OLD TESTAMENT LITERATURE ..... 3(3-0)**
**Normally Offered: F**
Introduces the student to the Old Testament canon, its historical antecedents and development, cultural setting, literary styles, and subject matter. Attention is given to the importance of the Old Testament's leading ideas in developing Western culture. Critical problems related to the ancient texts will be introduced in the context of Medieval and modern debates.

## HUMANITIES

**HUM 114 INTRODUCTION TO NEW TESTAMENT LITERATURE..... 3(3-0)**
**Normally Offered: SU**
Introduces the student to the New Testament canon, its historical antecedents and development, cultural setting, literary styles, and subject matter. Attention is given to the importance of the New Testament's leading ideas to developing Western culture. Critical problems related to the ancient texts will be introduced in the context of Medieval and modern debates.

**HUM 210 INTRODUCTION TO CINEMA ..... 3(3-0)**
**Normally Offered: F, SP**
This course provides a broad introduction to the study of film. Emphasis will be placed on a particular genre while exploring certain historical and contemporary pieces of cinematic art for examination, analysis, and evaluation. Filmmakers, important schools of filmmaking, and film production will also be investigated.

**HUM 241 HUMANITIES I..... 4(4-0)**
**Normally Offered: F, SP**
Introduces the student to the terminology, ideas, concepts and attitudes that are needed to be able to appreciate, describe, interpret and evaluate humanities and art-related artifacts. Special emphasis is placed on the interrelationships among the visual and performing arts, as well as between these arts and other humanities, including literature, history, philosophy and religion.

**HUM 242 HUMANITIES II..... 4(4-0)**
**Normally Offered: SP**
Continues to develop the terminology, ideas, concepts, and attitudes that are needed to be able to appreciate, describe, interpret, and evaluate Humanities and art-related artifacts. In addition, Humanities II further emphasizes the interrelationships amongst the arts — including but not limited to sculpture, architecture, painting, and film — and examines how these art forms aid in the process of self-discovery.
**Prerequisite:** HUM 241 or permission of instructor

## INDUSTRIAL

**IND 110 INDUSTRIAL ORGANIZATIONS..... 3(3-0)**
**Normally Offered: On Demand**
A detailed survey of organizational theories and structures, operational, financial, marketing, and accounting activities; duties of management, planning, control, personnel, safety, wages, policy and human factors necessary for effective management of an industrial organization.

**IND 120 INDUSTRIAL COMPUTERS & NETWORKING..... 3(2-2)**
**Normally Offered: F**
An introduction to computers and networks as used in an industrial setting. The course will start with the basics of computer usage and file management and work up to hands on building of basic industrial networks between personal computers and instrumentation.

**IND 225 STRENGTH OF MATERIALS..... 4(3-2)**
**Normally Offered: F**
This course employs a practical approach to stress, strain, shear, torsion, and moments found in mechanical and construction design. Bolted and welded constructions, axial tension and compression members, shafts, beams, columns, and trusses will be studied. Shear and moment diagrams will be used to analyze beams. Lab testing of the strengths of materials will be utilized.
**Prerequisite:** MTH 102 or higher.

**IND 229 HYDRAULIC & PNEUMATIC POWER..... 3(2-2)**
**Normally Offered: F**
An introduction to hydraulic and pneumatic principles and components. Covers primary laws and formulas, calculations, schematics, design considerations, and troubleshooting. Consists of lectures, hands-on labs, and projects.
**Co-requisite:** MTH 110 or higher.

## LAW

**LAW 125 INTRODUCTION TO LEGAL PRINCIPLES AND COURT SYSTEMS..... 3(3-0)**
**Normally Offered: F**
Introduces the American legal system, including the philosophy of law and the principles on which legal rules are based. Shows the origin and development of law, types of law and how they function in society. Examines lawmaking institutions and their evolution in the U.S. with a focus on Michigan courts. Covers the different kinds of substantive law and how one goes about using the law. Emphasis on recognition of legal issues and terminology.

**LAW 239 FAMILY LAW..... 4(4-0)**
**Normally Offered:**
Studies areas of family law including marriage contracts, divorce, separation, child custody and support, adoption, child abuse and neglect, guardianship and conservatorship.
**Prerequisite:** LAW 125.

**LAW 240 LEGAL RESEARCH AND WRITING I..... 3(3-0)**
**Normally Offered: F**
Introduces legal research, including use of a law library. Students complete research assignments utilizing publications from law library; learn to analyze court opinions and apply them; and write summaries of court opinions, legal memoranda, briefs, appellate briefs and other legal documents. Includes basic legal reasoning and writing skills for organized problem-solving and sets for the scope of language in the law office.
**Prerequisite:** ENG 112 or ENG 122, CIS 152, LAW 125.

**LAW 241 LEGAL RESEARCH AND WRITING II..... 3(3-0)**
**Normally Offered: SP**
Reviews principles of legal research, analysis and writing. Introduces computer-assisted research. Students will draft legal memoranda, opinion letters and an appellate brief based on extensive research assignments.
**Prerequisite:** LAW 125, LAW 240.

**LAW 242 PROBATE LAW, WILLS, TRUSTS, AND ESTATES ..... 3(3-0)**
**Normally Offered: SP**
Studies probate law, including wills, estates, estate planning and trusts. Emphasis on document preparation.
**Prerequisite:** LAW 125 or instructor's permission.

**LAW 243 LEGAL ASSISTANT PROFESSION AND ETHICS..... 3(3-0)**
**Normally Offered: SP**
In-depth study of Michigan Rules of Professional Conduct and the code of judicial conduct and their application to attorneys, legal assistants and judges. Particular focus on confidentiality, conflict of interest, legal advertising, competency considerations, legal malpractice and the unauthorized practice of law.
**Prerequisite:** LAW 125.

**LAW 244 CIVIL PROCEDURE ..... 4(4-0)**
**Normally Offered: F**
Provides understanding of civil law procedures with a review of the preparation of basic pleadings, including summons, complaint, answer, counter-complaint, motions, interrogatories and depositions, preparation for trial, court orders and appeals. Methods may be drawn from practical situations in wills, trusts, family law, property law and personal injury.
**Prerequisite:** LAW 125 or instructor's permission.

## MANUFACTURING TECHNOLOGY

**MFG 101 MACHINING PROCESSES I..... 4(2-4)**
**Normally Offered: F**
Students will receive instructions on shop safety, measuring instruments, layout, and bench work. They will also receive instructions on lathes, milling machines, drill presses, pedestal grinders, saws, and basic CNC operations.

## MANUFACTURING TECHNOLOGY

**MFG 102 MACHINING PROCESSES II ..... 4(2-4)**
**Normally Offered: SP**
Continuation of Machining Processes I with more specialization in machine setups. Topics include: precision grinding, lathe inside thread cutting, mill boring, broaching, the use of indexable cutting tools, CNC machining operations, lean manufacturing, and advanced methods of inspection.
**Prerequisite:** MFG 101.

**MFG 120 PRINT INTERPRETATION & PROCESSES..... 3(2-2)**
**Normally Offered: F**
Introduces blueprint symbols and their meanings as used in a manufacturing operation. Provides instruction and practice to develop skill in spatial visualization, sketching, including auxiliary and sectional views, design standards, detail and assembly drawings, geometric dimensioning rules and tolerances, thread callouts, title blocks, material lists, and notes for use by various manufacturing personnel. Including machining and welding processes also covers examination and testing of welds.

**MFG 122 MANUFACTURING PROCESSES ..... 3(2-2)**
**Normally Offered: F**
This course provides an introduction to understanding manufacturing: the manufacturing business, classifications of manufacturing, design process, graphical language, advantages and limitations, materials, process capabilities, selection, cost analysis, quality assurance, and application. The course will study plastics, metals, ceramics, and composites along with forming, cutting, joining, and finishing technologies.

**MFG 201 CNC I ..... 4(2-4)**
**Normally Offered: F**
This is an introductory course for CNC machinery. Students will develop safe working habits and calculate machine speeds and feeds of milling machines and lathes. They will study the Cartesian coordinate system, absolute and incremental positioning, and datum and delta dimensioning for CNC machines. Math for CNC programming and calculation of linear and circular interpolation will be covered.
**Prerequisite:** MFG 101, or instructor permission.

**MFG 202 CNC II ..... 4(2-4)**
**Normally Offered: SP**
This is a follow-up course for MFG 201 Introduction to CNC and MFG 204 Computer Aided Manufacturing courses. Students will learn how to set up and run various types of computer numerical control machines and associated tooling, as well as CMM inspection of the finished parts. The student will also use machine conversational controls and CAD/CAM to create CNC programs, master records and inspection sheets.
**Prerequisite:** MFG 201, and MFG 220, or permission of instructor.

**MFG 204 COMPUTER-AIDED MANUFACTURING..... 3(2-2)**
**Normally Offered: F**
Provides the student with the basic knowledge of Computer Aided Manufacturing (CAM) systems and how to manipulate various types of Computer Aided Drafting (CAD) data in the creation of Computer Numerical Control part programs. The student will create CNC programs, tooling set-up sheets, process sheets, and fixture sheets to create a CNC master record. Calculations for proper Speeds and Feeds will also be required. The programs created in this course will run on machines in MFG 202 CNC II.
**Prerequisite:** MFG 101, basic computer skills, or permission of instructor.

**MFG 205 CNC III..... 4(2-4)**
**Normally Offered: SP**
This is a follow-up course for MFG 201 CNC I, MFG 202 CNC II, MFG 204 Computer-Aided Manufacturing, and MFG 220 Jigs and Fixture design Fundamentals. This is a lab only course designed to give the student an experience similar to working in a job or production shop. The student will apply all previous classes by being required to design parts in CAM, apply fixturing using multiple set-ups, inspect the parts using CMM and optical comparators, apply change orders to parts, and produce a master record.
**Prerequisite:** MFG 202, MFG 204, and MFG 220, or permission of instructor.

## MANUFACTURING TECHNOLOGY

**MFG 210 GREEN MANUFACTURING AND SUSTAINABILITY ..... 3(3-0)**
**Normally Offered:**
This course covers how environmentally conscious decisions can impact the processes involved in manufacturing and organizational management. Green Revolution, green standards and certifications for manufacturing and business, including global guidelines are core concepts. Students will work through a road map to a green organization and understand ISO programs for sustainability.

**MFG 220 JIGS AND FIXTURE DESIGN FUNDAMENTALS ..... 4(2-4)**
**Normally Offered: F**
This is a tool design course using Autodesk® (Fusion 360) software. It covers types and functions of jigs, CNC fixtures, and check gauges. Included in the design process are part nesting, locating, clamping, work holding, and application of commercially available tool components. The complete design includes economic tool budgets, proper application of tolerances and datums, selection of materials, and generation of complete working drawings. Fixture designs in this course will be used in MFG 202, CNC II, and MFG 205, CNC III.
**Prerequisite:** MFG 201 or instructor's permission.

## MARINE TECHNOLOGY

**MRT 101 INTRO TO SUBMERSIBLE ROBOTICS WITH BUILD ..... 3(2-2)**
**Normally Offered: F**
An introductory hands-on course for anyone with an interest in submersible technology and/or working with underwater robotics. This course follows International Marine Contractors Association's (IMCA) Guidance for the Safe and Efficient Operations of Remotely Operated Vehicles (ROV) with a heavy emphasis on hands-on operations and working in the field.

**MRT 110 INTRODUCTION TO CAREERS ON THE WATER ..... 2(1-2)**
**Normally Offered: SU**
This course is a hands-on introduction to marine technology related careers that perform work on, under, and near the water. Through a partnership with the Thunder Bay National Marine Sanctuary, students will have the opportunity to experience working on the water through the lens of maritime archaeological research. This includes exposure to technology, methodologies, and research vessel operations that apply to a wide range of on-the-water career paths. Topics include: careers on the water, maritime archaeology, remote sensing theory and practice, Great Lakes maritime heritage and culture, ocean and Great Lakes conservation issues, and safety on the water.

**MRT 210 ROV PILOTING ..... 2(1-2)**
**Normally Offered: SU**
This course is a hands-on introduction course in piloting underwater Remotely Operated Vehicles (ROV). Students will have the opportunity to launch, pilot, navigate, and recover an actual ROV. They will be trained on the basic operations of small observation class ROVs to the large work class ROVs used in deep ocean work.

## MATHEMATICS

To enter a new mathematics course or continue a sequence, a grade of 2.0 or higher in any prerequisite course is recommended. SAT or ACCUPLACER scores will also be used as guides in placing new students in mathematics courses.

**MTH 090 ARITHMETIC ..... 4(4-0)**
**Normally Offered: F, SP, SUM**
Provides a foundation in the four basic operations on whole numbers, fractions, decimals, percentages, and applications of these processes in every day problem solving. A remedial mathematics course using an open classroom approach.

## MATHEMATICS

**MTH 102 ELEMENTARY ALGEBRA ..... 5(5-0)**
**Normally Offered: F, SP, SUM**
Covers natural numbers, signed numbers, fractions, radicals, products, factors, first-degree equations in one and two variables, inequalities, graphing and quadratics. A one-semester remedial course in beginning algebra for those students who have not taken an algebra course or who have a deficiency in first year algebra.
**Prerequisite:** MTH 090 with a grade of 2.0 or higher, or by ACCUPLACER placement.

**MTH 110 TECHNICAL MATH I ..... 3(2-2)**
**Normally Offered: F, SP**
This course is designed for those who will apply mathematics to various technical fields. Topics covered include a review of basic arithmetic, units of measure, algebra fundamentals, simple equations and formulas, geometric principles, and calculator usage will be introduced. In all areas there is strong emphasis placed on solving industrial applications.
**Prerequisite:** MTH 090 or equivalent.

**MTH 111 MATHEMATICS FOR ELEMENTARY TEACHERS I ..... 3(3-0)**
**Normally Offered: F**
Includes historical and present numeration systems, real number systems for concept of set through systems of natural numbers, whole numbers, integers and rational numbers, geometric concepts from set viewpoint, irrational numbers, operations and properties applied to mathematical sentences, square root, cube root, and metric system. A required course for elementary teachers.
**Prerequisite:** MTH 102 with a grade of 2.0 or better or successful completion of one year of high school algebra.

**MTH 112 TECHNICAL MATH II ..... 3(2-2)**
**Normally Offered: SP**
This course is a continuation of MTH 110 Technical Math I, which places emphasis on applying mathematics to various technical industrial fields. Topics covered include advanced algebra, trigonometry, geometry, quadratics, statistical process control, and calculator usage. In all areas there will be a strong emphasis placed on solving practical industrial applications.
**Prerequisite:** MTH 110 or permission of instructor.

**MTH 113 INTERMEDIATE ALGEBRA..... 4(4-0)**
**Normally Offered: F, SP, SUM**
Reviews the important topics considered in the first year of high school algebra or MTH 102. Further work on factoring, fractions, equations, functions and graphs, exponents and radicals, quadratics and logarithms. Does not count toward a major or minor in mathematics.
**Prerequisite:** A grade of 2.0 or higher in MTH 102, or by ACCUPLACER placement.

**MTH 115 APPLIED ALGEBRA & TRIGONOMETRY I..... 5(4-2)**
**Normally Offered: F**
Presents the mathematical topics most frequently encountered in technical work. Application of various functions of algebra, plane geometry and trigonometry are used. Emphasis is on the numerical approach rather than the analytical.
**Prerequisite:** MTH 090 or satisfactory math placement score.

**MTH 116 APPLIED ALGEBRA & TRIGONOMETRY II..... 5(4-2)**
**Normally Offered: SP**
Covers advanced algebra, geometry and trigonometry. Applications of the various topics are made to different technical areas.
**Prerequisite:** MTH 115.

## MATHEMATICS

**MTH 117 MATHEMATICS FOR ELEMENTARY TEACHERS II ..... 3(3-0)**
**Normally Offered: SP**
Covers algebra, coordinate geometry, functions, geometric construction, rotation and symmetry, mapping, statistics and experimentation. This course is designed for elementary education majors and use of computers in the elementary classroom will be emphasized.
**Prerequisite:** MTH 111 with a grade of 2.0 or higher.

**MTH 119 INTRODUCTION TO COMPUTERS AND PROGRAMMING..... 3(3-0)**
**Normally Offered: F, SP**
This course introduces the student to a collection of contemporary computer applications, including operating system concepts, word processing, spreadsheets, and programming concepts. Computer terminology is introduced; however, the major emphasis is placed upon computer usage and applications. Students should have some keyboarding skills.

**MTH 121 COLLEGE ALGEBRA ..... 4(4-0)**
**Normally Offered: F, SP**
Reviews previous mathematics, stressing modern approaches. Including topics related to business such as compound interest installment buying and annuities, matrices, linear algebra, linear programming and logarithms. May require some written interpretations of mathematical applications. For non-science majors.
**Prerequisite:** MTH 113 or equivalent with a grade of 2.0 or higher.

**MTH 122 PLANE TRIGONOMETRY ..... 3(3-0)**
**Normally Offered: F, SP**
Includes the study of trigonometric functions, identities, graphing, inverse trigonometric functions and sinusoidal functions. Exponential and trigonometric equations are solved. Oblique and right triangles are studied, as well as radian measure and complex numbers. This is a required course for students who plan to take advanced mathematics and lack a high school background in this subject.
**Prerequisite:** A grade of 2.0 or higher in MTH 113 or one-and-one-half years of high school algebra with a grade of 2.0 or higher.

**MTH 123 COLLEGE ALGEBRA AND ANALYTIC TRIGONOMETRY ..... 4(4-0)**
**Normally Offered: F, SP**
Covers sets, inequalities, functions, and inverse functions, real and complex number systems, introduction to coordinate geometry, trigonometric identities and functions, trigonometric equations, elementary theory of equations, progressions, mathematical induction, determinants, matrices, permutations, combinations and the binomial theorem. Offered for students who intend to enter the analytic geometry and calculus sequence, but who do not meet the necessary prerequisites.
**Prerequisite:** A grade of 2.0 or higher in MTH 113 and MTH 122, or one-and-one-half years of high school algebra and one semester of high school trigonometry with a grade of 2.0 or higher.

**MTH 130 CALCULUS FOR BUSINESS/SOCIAL SCIENCES ..... 4(4-0)**
**Normally Offered: On Demand**
This course continues the study of mathematical applications in Business and social sciences beyond the finite linear forms of MTH 121 College Algebra into a variety of non-linear forms. Functional analysis, differentiation, applications of derivatives, anti-differentiation, applications in integration, and functions of two variables are studied.
**Prerequisite:** MTH 121 or MTH 123 or instructor permission.

**MTH 131 ANALYTIC GEOMETRY AND CALCULUS I ..... 5(5-0)**
**Normally Offered: F, SP**
Covers rate of change of functions, limits, differentiation, and integration of algebraic and trigonometric functions and applications.
**Prerequisite:** MTH 123 or equivalent with a grade of 2.0 or higher.

## MATHEMATICS

**MTH 132 ANALYTIC GEOMETRY AND CALCULUS II ..... 5(5-0)**
**Normally Offered: SP**
Includes transcendental functions, techniques of integration, analytic geometry, polar coordinates, parametric equations and infinite series.
**Prerequisite:** MTH 131 with a grade of 2.0 or higher.

**MTH 221 C++ PROGRAMMING..... 4(3-2)**
**Normally Offered: SP**
This course is intended to satisfy the programming requirements for engineering and science students and is designed to teach the traditional concepts of programming such as integer, floating-point, and character data types, I/O, control structures, loops, functions, and arrays using the C++ programming language. It also teaches modern, object-oriented programming techniques using classes and data abstraction. Additional topics include dynamic array allocation, pointers, file manipulation, and inheritance. A brief introduction to MATLAB® software is included
**Prerequisite:** MTH 123 or above.

**MTH 223 STATISTICAL METHODS..... 4(4-0)**
**Normally Offered: F, SP**
This course covers elementary statistics. Topics are: the nature of statistical methods, frequency distributions and graphs, measure of central tendency, dispersion, probability including conditional probability, the binomial, normal, T-, chi-square, and F-distributions, confidence intervals, hypothesis testing, linear regression modeling, and analysis of variance (ANOVA). Computer software will be used to reinforce student mathematical skills.
**Prerequisite:** MTH 113 or equivalent with a grade of 2.0 or higher.

**MTH 231 ANALYTIC GEOMETRY AND CALCULUS III ..... 5(5-0)**
**Normally Offered: F**
This course covers vectors, vector-valued functions and motion in space, linear algebra, partial differentiation, multiple integrals, and vector analysis.
**Prerequisite:** MTH 132 with a grade of 2.0 or higher.

**MTH 232 DIFFERENTIAL EQUATIONS ..... 4(4-0)**
**Normally Offered: SP**
This course includes differential equations of order one with applications, linear equations with constant coefficients (homogeneous and nonhomogeneous), variation of parameters, inverse differential operations, systems of linear equations, Laplace transforms with applications, nonlinear systems of differential equations, and an introduction to power series solutions. This is a required course for students majoring in engineering, mathematics, and physics.
**Prerequisite:** MTH 231 with a grade of 2.0 or higher.

## MEDICAL ASSISTING

**MED 221 MEDICAL ASSISTANT CLINICAL SEMINAR ..... 3(3-0)**
**Normally Offered: F**
Students will be introduced to the clinical procedures for hands-on work in MED 222 and MED 223. Students will use software programs to practice and assess their ability to correctly perform clinical office procedures and soft skills. Must be in the Medical Assistant program
**Prerequisite:** BIS 220 with a grade of 2.0 or higher.
**Co-requisite:** MED 222, MED 223

## MEDICAL ASSISTING

**MED 222 MEDICATION ADMINISTRATION FOR MEDICAL ASSISTANTS..... 5(4-2)**
**Normally Offered: F**
Teaches the student how to measure and calculate drug dosages, techniques of medication administration, and the laws that specify the condition under which medical assistants may administer drugs. Students will also learn how to administer intradermal, subcutaneous, and intramuscular injections. Must be in the Medical Assistant program.
**Prerequisite:** BIS 220 with a grade of 2.0 or higher. Placement in MTH 102 or completion of MTH 090.
**Co-requisite:** MED 221, MED 223

**MED 223 MEDICAL ASSISTANT CLINICAL LAB ..... 4(2-4)**
**Normally Offered: F**
Equips students with skills for the medical assistant to prepare patients and to assist the physician with routine physical exams in the office or clinic. Emphasizes patient preparation, accuracy in test performance, and safety in the laboratory according to current guidelines. Includes theory and procedures for microbiology, urinalysis, electrocardiography, and hematology. Must be in the Medical Assistant program.
**Prerequisite:** BIS 220 with a grade of 2.0 or higher. ACCUPLACER placement in MTH 102 or completion of MTH 090.
**Co-requisite:** MED 222.

**MED 224 MEDICAL ASSISTANT CLINICAL PRACTICUM..... 4(0-4)**
**Normally Offered: SP**
Provides a practical educational/work experience in a selected physician's office or health care facility. The student is supervised and evaluated by qualified/licensed medical personnel. The student applies knowledge in performing clinical procedures and in developing professional attitudes for interacting with other professionals and consumers in the health field. Must be in the Medical Assistant program.
**Prerequisite:** MED 221, MED 222, MED 223 with a grade of 2.0 or higher.
**Co-requisite**: MED 225, MED 226.

**MED 225 MEDICAL CONDITIONS AND PROCEDURES ..... 4(4-0)**
**Normally Offered: SP**
Provides a basic review of anatomy and physiology followed by exploration of diseases, disorders, malformations, and injuries encountered in a medical office. Disease description, etiology, symptoms, diagnosis, treatment, and prevention will be covered.

**MED 226 MEDICAL ASSISTANT CERTIFICATION TEST PREPARATION..... 4(4-0)**
**Normally Offered: SP**
Reviews topics encountered during both the administrative and clinical portions of the Medical Assistant program. Review will span the general, administrative, and clinical categories covered on the American Association of Medical Assistant test for the credential of CMA (AAMA) as set out in the AAMA Examination Content Outline.
**Prerequisite:** MED 221, MED 222, MED 223 with a grade of 2.0 or higher.
**Co-requisite**: MED 224, MED 225.

## METALLURGY

**MET 200 MATERIAL SCIENCE..... 3(2-2)**
**Normally Offered: F**
Introduction to the study of the science of engineering metals. Included in topics of study are atomic structure and bonding, properties and testing of materials. Methods of production and fabrication, methods of changing properties including heat treatment of metals, alloying and surface treatments. Introduces mechanical properties, phase diagrams, thermal processing, alloying, and corrosion. The common classification systems used to identify the various engineering materials are also covered. Laboratory exercises include heat treatment and destructive and non-destructive materials testing.

## MUSIC

**MUS 110 MUSIC APPRECIATION ..... 3(3-0)**
**Normally Offered: F**
Students will be exposed to many forms and periods of Western music, with emphasis on listening in order to follow the composer's musical ideas.

**MUS 120 FUNDAMENTALS OF MUSIC ..... 3(3-0)**
**Normally Offered: F, SP**
Acquaints the student (both with and without a musical background) with the fundamental elements of music. Including, but not limited to: pitch, meter and rhythm, chords/harmony, notation, and ear training.

**MUS 121 PIANO..... 2(0-2)**
**Normally Offered: F, SP**
Gives individual instruction in the fundamentals of keyboard technique. Graded pieces comprise the repertoire that is chosen according to the student's proficiency. One-half hour lessons each week, by prior arrangement with instructor.

**MUS 122 PIANO..... 2(0-2)**
**Normally Offered: F, SP**
Continues instruction in the fundamentals of keyboard technique. Graded pieces comprise the repertoire that is chosen according to the student's proficiency. It is a continuation of MUS 121 and is comprised of a one-half hour lesson each week by prior arrangement with instructor.
**Prerequisite:** MUS 121.

**MUS 123 VOICE I ..... 2(0-2)**
**Normally Offered: F, SP**
Student begins his/her study of voice with simple folk songs and easily-learned art songs. Subject matter includes: an attitude of enthusiasm, pleasure and confidence in singing, proper posture and diaphragmatic breathing, clear enunciation of pure vowel sounds and precise articulation of consonant sounds. A variety of styles are studied including: art songs and arias, texts in foreign languages and proper pronunciation of these texts.

**MUS 124 VOICE II ..... 2(0-2)**
**Normally Offered: F, SP**
This course continues one-on-one instruction and builds upon concepts learned in MUS 123 Voice I. Students will add some foreign language songs in this course.
**Prerequisite:** MUS 123 Voice I for instructor permission.

**MUS 125 MUSIC THEORY ..... 4(4-0)**
**Normally Offered: F, SP**
Studies the elements of musical notation, ear training and part-writing techniques. This is a fundamental course. Theory is recommended of all students who expect to continue in music after leaving Alpena Community College, whether majoring or minoring in music.

**MUS 126 MUSIC THEORY ..... 4(4-0)**
**Normally Offered: F, SP**
Further studies the elements of musical notation, ear training and part-writing techniques. This is a continuation of MUS 125. Both semesters of Music Theory are recommended for all students who expect to continue in music after leaving Alpena Community College, whether majoring or minoring in music.
**Prerequisite:** MUS 125.

**MUS 130 COMMUNITY CHORUS WITH THUNDER BAY ARTS COUNCIL ..... 1(2-0)**
**Normally Offered: F**
Partnership with Thunder Bay Arts Council community chorus will allow students to learn, prepare, and perform approximately fifteen choral arrangements. Chorus, study, and rehearsals include the basics of informed singing in a group setting such as proper breathing, pronunciation, maintenance of relative pitch, counting, blend, dynamics, and interpretation.

## MUSIC

**MUS 160 APPLIED FLUTE I..... 2(0-2)**
**Normally Offered: F, SP**
Applied Flute I will provide the student with private instruction in flute pedagogy and flute literature. Student must provide own flute, purchase method book and music.

**MUS 161 APPLIED FLUTE II..... 1(0-2)**
**Normally Offered: F, SP**
Applied Flute II will provide students with private instruction in more advanced flute pedagogy and flute literature than provided in Applied Flute I.
**Prerequisite:** MUS 160.

**MUS 221 PIANO..... 2(0-2)**
**Normally Offered: F, SP**
Gives individual instruction in the fundamentals of keyboard technique. Graded pieces comprise the repertoire which is chosen according to the student's proficiency. It is a continuation of MUS 122. It is comprised of a one-half hour lesson each week, by prior arrangement with instructor.
**Prerequisite:** MUS 121 and MUS 122.

**MUS 222 PIANO..... 2(0-2)**
**Normally Offered: F, SP**
Gives individual instruction in the art of piano mastery. Graded pieces comprise the repertoire that is chosen according to the student's proficiency. It is a continuation of MUS 221. It is comprised of a one-half hour lesson each week by prior arrangement with instructor.
**Prerequisite:** MUS 221.

**MUS 228 MUSIC IN THE ELEMENTARY CLASSROOM ..... 3(3-0)**
**Normally Offered: SP**
Acquaints the prospective elementary school teacher with music fundamentals and musical activities used in the classroom. Students receive practical experience in teaching elementary songs and using various teaching aids such as piano, rhythm instruments, and autoharp.

**MUS 229 MUSIC COMPOSITION ..... 2(2-0)**
**Normally Offered: On Demand**
Studies the works of a variety of composers to understand how melodies are written and musical material is organized to form a unified piece. Students will complete their own composition using the Finale 2004 program.
**Prerequisite:** MUS 125.

## NURSING

**NUR 128 PHARMACOLOGY I..... 1.5(1.5-0)**
**Normally Offered: F, SP**
This course introduces the study of the effect of specific medications on body systems and ways to promote therapeutic effect and recognize and treat side effects or toxic effects.
**Prerequisite:** BIO 201, CEM 111, ENG 111, NUR 133, BIO 140, BIO 203.
**Co-requisite:** NUR 140, NUR 140LC, NUR 142, NUR 143, NUR 152.

**NUR 133 DOSAGE CALCULATIONS..... 1.5(1.5-0)**
**Normally Offered: F, SP, SUM**
This course introduces the concept of dimensional analysis as a means of solving nursing mathematics problems. Abbreviations, conversion factors, simple and advanced calculations will be covered. This is a prerequisite course for the Level I nursing program.
**Co-requisite:** ENG 111, CEM 111, BIO 140, BIO 201, BIO 203.

## NURSING

**NUR 135 PN TRANSITION TO PRACTICE ..... 1(1-0)**
**Normally Offered: F, SP**
This course presents opportunities to gain knowledge and skills necessary to transition from student to entry level practicing nurse. Content includes a discussion of current issues in health care, practical nursing leadership and management, professional practice issues, and transition into the workplace. Emphasis is placed on NCLEX-PN test-taking skills, computer-assisted practice tests, development of a plan for remediation, and review of selective content specific to the practice of entry level practical nursing.
**Prerequisite:** BIO 201, CEM 111, ENG 111, NUR 133, BIO 140, BIO 203, NUR 128, NUR 140, NUR 140LC, NUR 142, NUR 143, NUR 152.
**Co-requisite:** NUR 150, NUR 151, NUR 153, NUR 155, NUR 156, NUR 157.

**NUR 140 FOUNDATIONS OF NURSING ..... 3(3-0)**
**Normally Offered: F, SP**
This course is an introduction to nursing care stressing the importance of providing holistic care and valuing the culturally diverse clients that are experienced throughout the healthcare system. This course introduces nursing theory and expands on the practical nurse role with an emphasis on critical thinking. The principles and skills of nursing practice as applied to common physical and psychosocial manifestations of illness are taught. Additional topics include demonstrating professionalism by maintaining confidentiality, recognizing legal/ethical responsibilities, acting as a patient advocate, maintaining positive patient/colleague relationships, and implementing appropriate standards of care.
**Prerequisite:** BIO 201, CEM 111, ENG 111, NUR 133, BIO 140, BIO 203.
**Co-requisite:** NUR 128, NUR 140LC, NUR 142, NUR 143, NUR 152.

**NUR 140LC NURSING FOUNDATIONS LAB ..... 1.5(0-4.5)**
**Normally Offered: F, SP**
This course will provide students with basic nursing skills within the laboratory setting. Skills taught will enable students to function in a safe and professional manner in the role of the practical nurse.
**Prerequisite:** BIO 201, CEM 111, ENG 111, NUR 133, BIO 140, BIO 203.
**Co-requisite:** NUR 128, NUR 140, NUR 142, NUR 143, NUR 152.

**NUR 142 MEDICAL SURGICAL NURSING I ..... 2.5(2.5-0)**
**Normally Offered: F, SP**
This course continues to build on the practical nursing role in disease management and the continuum of care for the individual from early through late adulthood in various settings. The student identifies and describes nursing concepts that assist the patient in achieving optimal functioning for patients with medical/surgical problems.
**Prerequisite:** BIO 201, CEM 111, ENG 111, NUR 133, BIO 140, BIO 203.
**Co-requisite:** NUR 128, NUR 140, NUR 140LC, NUR 143, NUR 152.

**NUR 143 MEDICAL SURGICAL NURSING CLINICAL I ..... 2(0-6)**
**Normally Offered: F, SP**
The student will have the opportunity to provide direct patient care to the adult resident in the long term care (LTC) environment strengthening his/her understanding of the nursing process, nursing theory, patient care data collection and fundamental skills. Management of disease processes related to various body systems will be emphasized with the expectation of consistent use of the nursing process addressing the physiological, psychosocial and emotional needs of the client. Strategies that enhance critical thinking and problem solving skills are incorporated into the curriculum.
**Prerequisite:** BIO 201, CEM 111, ENG 111, NUR 133, BIO 140, BIO 203.
**Co-requisite:** NUR 128, NUR 140, NUR 140LC, NUR 142, NUR 152.

## NURSING

**NUR 150 MEDICAL SURGICAL NURSING II ..... 2.5(2.5-0)**
**Normally Offered: F, SP**
This course continues to build on the practical nursing role in disease management and the continuum of care for the individual from early through late adulthood in various settings. The student identifies and describes nursing concepts that assist the patient in achieving optimal functioning for patients with medical/surgical problems.
**Prerequisite:** BIO 201, CEM 111, ENG 111, NUR 133, BIO 140, BIO 203, NUR 128, NUR 140, NUR 140LC, NUR 142, NUR 143, NUR 152.
**Co-requisite:** NUR 135, NUR 151, NUR 153, NUR 155, NUR 156, NUR 157.

**NUR 151 MEDICAL SURGICAL NURSING CLINICAL II..... 2(0-6)**
**Normally Offered: F, SP**
The student will be introduced to providing direct patient care to the adult population in the hospital environment. The student will be expected to function at the level of a basic team member in the practical nurse role, providing total patient care to a minimum of 3-4 patients.
**Prerequisite:** BIO 201, CEM 111, ENG 111, NUR 133, BIO 140, BIO 203, NUR 128, NUR 140, NUR 140LC, NUR 142, NUR 143, NUR 152.
**Co-requisite:** NUR 135, NUR 150, NUR 153, NUR 155, NUR 156, NUR 157.

**NUR 152 OB/REPRODUCTIVE HEALTH/PEDS THEORY ..... 2(2-0)**
**Normally Offered: F, SP**
This course provides the theoretical background to prepare the Level I nursing student to care for women in all phases of the reproductive cycle and all aspects of newborn care in the delivery room and newborn nursery.
**Prerequisite:** BIO 201, CEM 111, ENG 111, NUR 133, BIO 140, BIO 203.
**Co-requisite:** NUR 128, NUR 140, NUR 140LC, NUR 142, NUR 143.

**NUR 153 OB/REPRODUCTIVE HEALTH/PEDS CLINICAL..... 1.5(0-4.5)**
**Normally Offered: F, SP**
Building on the information learned in NUR 152 and 152LC, this course allows the student to participate in the application of the nursing process as it applies to the care of the childbearing and child rearing family. Clinical patient care assignments will focus on the normal process of pregnancy, labor and delivery and postpartum care. The needs of the expectant and new mother, newborn, and pediatric patient will be incorporated into clinical assignments. Students will be performing both physical and emotional assessments of their patients. Reproductive care across the lifespan will be observed, including factors influencing this process. Basic principles of human growth and development and care of the ill and hospitalized child will be addressed.
**Prerequisite:** BIO 201, CEM 111, ENG 111, NUR 133, BIO 140, BIO 203, NUR 128, NUR 140, NUR 140LC, NUR 142, NUR 143, NUR 152.
**Co-requisite:** NUR 135, NUR 150, NUR 151, NUR 155, NUR 156, NUR 157.

**NUR 155 NUTRITION IN HEALTH & ILLNESS ..... 2(2-0)**
**Normally Offered: F, SP**
This course introduces the study of nutrition and the effect on the body systems. Principles of proper nutrition and the impact of illness will be discussed.
**Prerequisite:** BIO 201, CEM 111, ENG 111, NUR 133, BIO 140, BIO 203, NUR 128, NUR 140, NUR 140LC, NUR 142, NUR 143, NUR 152.
**Co-requisite:** NUR 135, NUR 150, NUR 151, NUR 153, NUR 156, NUR 157.

**NUR 156 PHARMACOLOGY II..... 2.0(2-0)**
**Normally Offered: F, SP**
This course continues the study of the effect of specific medications on the body systems and ways to promote therapeutic effect and recognize and treat side effects or toxic effects.
**Prerequisite:** BIO 201, CEM 111, ENG 111, NUR 133, BIO 140, BIO 203, NUR 128, NUR 140, NUR 140LC, NUR 142, NUR 143, NUR 152.
**Co-requisite:** NUR 135, NUR 150, NUR 151, NUR 153, NUR 155, NUR 157.

## NURSING

**NUR 157 MEDICAL SURGICAL NURSING CLINICAL III ..... 1.5(0-4.5)**
**Normally Offered: F, SP**
This course continues the practice of nursing care in the acute care clinical setting. Students will successfully manage a team of patients in the LPN role.
**Prerequisite:** BIO 201, CEM 111, ENG 111, NUR 133, BIO 140, BIO 203, NUR 128, NUR 140, NUR 140LC, NUR 142, NUR 143, NUR 152.
**Co-requisite:** NUR 135, NUR 150, NUR 151, NUR 153, NUR 155, NUR 156.

**NUR 158 PHARMACOLOGY ..... 3(3-0)**
**Normally Offered: F, SP**
This course involves the study of the effect of specific medications on the body systems and ways to promote therapeutic effects, recognize and treat side effects or toxic effects.
**Prerequisite:** CEM 111, ENG 111, BIO 201, NUR 133, BIO 203, NUR 140, NUR 140L, NUR 142, NUR 143.
**Co-requisite:** NUR 135, NUR 150, NUR 151, NUR 152, NUR 153, NUR 157.

**NUR 234 HEALTH CARE THERAPIES I ..... 2(2-0)**
**Normally Offered: SP**
Students will receive an education in a variety of complimentary care modalities for self and clients through creative movement, engaging activities, and purposeful discussion. This course focuses on exploration of self, progress toward self-realization, and self-enhancement to encourage the building of skills and awareness for holistic individual and client care.

**NUR 235 HEALTH CARE THERAPIES II ..... 2.5(2.5-0)**
**Normally Offered: F**
Students will acquire an education on an array of complimentary care modalities for self and clients through creative movement, engaging activities, and purposeful discussion. This course spotlights the exploration of self, progress toward self-realization and self enhancement to inspire the building of skills and awareness of holistic individual and client care. Specific topics covered in this course include breath work, yoga, self-exploration, color therapy, massage, acupressure (Tapping), hypnosis, doshas, muscle memory, anxiety management, heart mapping, vibrations/frequencies, growth boards, mindfulness/sleep, and advancing knowledge of chakras.

**NUR 236 HEALTH CARE THERAPIES III ..... 2.5(2.5-0)**
**Normally Offered: SP**
Students will gain an education on a range of complimentary care modalities for self and clients through creative movement, engaging activities, and purposeful discussion. This course targets the exploration of self, progress toward self-realization and self enhancement to support the building of skills and awareness of holistic individual and client care. Specific topics covered in this course include green living, astrology/natal chart, numerology, grounding, Tai Chi/Pilates, art therapy, geology/gemology, pranic healing, dance therapy, improving self-esteem, Feng Shui, and kinetics.

**NUR 237 HEALTH CARE THERAPIES IV ..... 2.5(2.5-0)**
**Normally Offered: F**
Students will gain an education on a cross section of complimentary care modalities for self and clients through creative movement, engaging activities, and purposeful discussion. This course centers on the exploration of self, progress toward self-realization and self enhancement to strengthen the building of skills and awareness for holistic individual and client care. Specific topics covered in this course include acupuncture, archetypes, Bach flower remedies, past life regressions, shamanic journey, drum therapy, dream interpretation, angel cards/readings, auras, Zuni fetishes, persuasion, and religions of the world.

**NUR 240 ADVANCED MEDICAL SURGICAL I THEORY ..... 2(2-0)**
**Normally Offered: F, SP**
This course provides the theoretical background to prepare the Level II nursing student to provide holistic care for adult patients with common acute and chronic medical/surgical problems.
**Prerequisite:** BIO 201, CEM 111, ENG 111, NUR 133, BIO 140, BIO 203, all Level I NUR courses.
**Co-requisite:** ENG 112, NUR 241, NUR 242, NUR 243, NUR 244, NUR 244LC.

**NUR 241 ADVANCED MEDICAL SURGICAL NURSING I CLINICAL ..... 2(0-6)**
**Normally Offered: F, SP**
This clinical course provides experiential learning opportunities that provide the fundamental skills of the registered nurse including basic team leading, physical and psychosocial assessment, and introduction to management and delegation. Emphasis will also be placed on interdisciplinary communication. These experiences will be obtained in both the acute care and a variety of ambulatory settings where the students will begin to provide collaborative and holistic nursing care to medical/surgical patients with complex health care needs.
**Prerequisite:** BIO 201, CEM 111, ENG 111, NUR 133, BIO 140, BIO 203, all Level I NUR courses.
**Co-requisite:** ENG 112, NUR 240, NUR 242, NUR 243, NUR 244, NUR 244LC.

**NUR 242 ADVANCED PARENT/CHILD NURSING THEORY ..... 2.5(2.5-0)**
**Normally Offered: F, SP**
Building on information learned in NUR 152 and NUR 153, this course will provide the theoretical background to prepare the student to care for women in all phases of the reproductive cycle as well as children with health problems. The focus will be on health promotion and patient education. The concepts of growth and development will be discussed as they relate anticipatory guidance specific to age groups from infancy through adolescence.
**Prerequisite:** BIO 201, CEM 111, ENG 111, NUR 133, BIO 140, BIO 203, all Level I NUR courses.
**Co-requisite:** ENG 112, NUR 240, NUR 241, NUR 243, NUR 244, NUR 244LC.

**NUR 243 ADVANCED PARENT/CHILD NURSING CLINICAL ..... 1.5(0-4.5)**
**Normally Offered: F, SP**
This course is a continuation of Advanced Parent/Child Nursing Theory in which challenging concepts of caring for women during labor, delivery, and the postpartum period as well as newborns in the delivery room and newborn nursery will be explored. Complex care of women admitted for conditions related to reproductive health will be included. Supplemental learning experiences will be offered through area agencies dealing with women's health and pediatric issues.
**Prerequisite:** BIO 201, CEM 111, ENG 111, NUR 133, BIO 140, BIO 203, all Level I NUR courses.
**Co-requisite:** ENG 112, NUR 240, NUR 241, NUR 242, NUR 244, NUR 244LC.

**NUR 244 PHYSICAL ASSESSMENT ..... 1(1-0)**
**Normally Offered: F, SP**
This course is designed to teach the student a health oriented approach to nursing assessment of clients across the life span in a variety of settings. The primary focus of the course is on health assessment findings of every major body system, with recognition of abnormal findings. The course emphasizes development of the skills needed to perform a comprehensive health assessment. Data collection through comprehensive history taking and physical assessment is emphasized. Utilization of assessment findings in clinical decision making and application of the nursing process is focused on health promotion and disease prevention strategies.
**Prerequisite:** BIO 201, CEM 111, ENG 111, NUR 133, BIO 140, BIO 203, all Level I NUR courses.
**Co-requisite:** ENG 112, NUR 240, NUR 241, NUR 242, NUR 243, NUR 244LC.

**NUR 244LC PHYSICAL ASSESSMENT LAB ..... 1(0-3)**
**Normally Offered: F, SP**
This course is designed to provide students the opportunity to learn and practice history taking and physical examination skills. The focus is on physical assessments findings of every major body system. Students will be able to utilize critical thinking skills in identifying health alterations, interpreting abnormalities, formulating nursing diagnoses, and documenting findings appropriate to nursing.
**Prerequisite:** BIO 201, CEM 111, ENG 111, NUR 133, BIO 140, BIO 203, all Level I NUR courses.
**Co-requisite:** ENG 112, NUR 240, NUR 241, NUR 242, NUR 243, NUR 244.

## NURSING

**NUR 249 ADVANCED MEDICAL SURGICAL NURSING II THEORY ..... 2 (2-0)**
**Normally Offered: F, SP**
This course is a continuation of NUR 240 which provides the theoretical background to prepare the Level II nursing students to provide holistic care for adult patients with common acute and chronic medical/surgical problems.
**Prerequisite:** BIO 201, CEM 111, ENG 111, NUR 133, BIO 140, BIO 203, all Level I NUR courses, ENG 112, NUR 240, NUR 241, NUR 242, NUR 243, NUR 244, NUR 244LC.
**Co-requisite:** PLS 221/222, NUR 249LC, NUR 250, NUR 252, NUR 252LC, NUR 253, NUR 255, NUR 257.

**NUR 249LC ADVANCED MEDICAL SURGICAL NURSING II LAB ..... .5(0-1.5)**
**Normally Offered: F, SP**
This course provides an opportunity to enhance nursing practice skills through managing nursing care of a group of hospitalized patients. Students will expand on the concepts of delegation, professionalism, evidence-based practice, patient-centered care, teamwork, safety, informatics and quality improvement. Providing care, managing care and functioning as a member of a health care team will be the main focus to prepare the student for entry level Associate Degree Nursing practice.
**Prerequisite:** BIO 201, CEM 111, ENG 111, NUR 133, BIO 140, BIO 203, all Level I NUR courses, ENG 112, NUR 240, NUR 241, NUR 242, NUR 243, NUR 244, NUR 244LC.
**Co-requisite:** PLS 221/222, NUR 249, NUR 250, NUR 252, NUR 252LC, NUR 253, NUR 255, NUR 257.

**NUR 250 ADVANCED MEDICAL SURGICAL NURSING II CLINICAL..... 1.5(0-4.5)**
**Normally Offered: F, SP**
This course provides experiential learning experiences to prepare the Level II nursing student with knowledge of techniques used to perform culturally congruent health assessments on adult patients with acute and chronic medical/surgical problems. An emphasis will be placed on coordination of care. The acute care setting will be utilized to expand existing knowledge and skills as well as develop beginning skills as a team leader and provider of primary care.
**Prerequisite:** BIO 201, CEM 111, ENG 111, NUR 133, BIO 140, BIO 203, all Level I NUR courses, ENG 112, NUR 240, NUR 241, NUR 242, NUR 243, NUR 244, NUR 244LC.
**Co-requisite:** PLS 221/222, NUR 249, NUR 249LC, NUR 252, NUR 252LC, NUR 253, NUR 255, NUR 257.

**NUR 252 PSYCHIATRIC NURSING THEORY..... 2(2-0)**
**Normally Offered: F, SP**
This course provides the theoretical background to prepare the Level II nursing student to provide care for clients with acute and chronic psychiatric disorders, and chemical dependency problems.
**Prerequisite:** BIO 201, CEM 111, ENG 111, NUR 133, BIO 140, BIO 203, all Level I NUR courses, ENG 112, NUR 240, NUR 241, NUR 242, NUR 243, NUR 244, NUR 244LC.
**Co-requisite:** PLS 221/222, NUR 249, NUR 249LC, NUR 250, NUR 252LC, NUR 253, NUR 255, NUR 257.

**NUR 252LC PSYCHIATRIC NURSING LAB..... 0.5(0-1.5)**
**Normally Offered: F, SP**
This course provides an opportunity to reinforce concepts presented in NUR 252, Psychiatric Nursing Theory, and applied in NUR 253, Psychiatric Nursing Clinical. Students will assimilate practice concepts of professionalism, advocacy, therapeutic communication, safety, community resources, clinical presentations, and treatment options in preparation for practice as an Associate Degree prepared RN.
**Prerequisite:** BIO 201, CEM 111, ENG 111, NUR 133, BIO 140, BIO 203, all Level I NUR courses, ENG 112, NUR 240, NUR 241, NUR 242, NUR 243, NUR 244, NUR 244LC.
**Co-requisite:** PLS 221/222, NUR 249, NUR 249LC, NUR 250, NUR 252, NUR 253, NUR 255, NUR 257.

## NURSING

**NUR 253 PSYCHIATRIC NURSING CLINICAL .....1.5 (0-4.5)**
**Normally Offered: F, SP**
This is a clinical course with experience on an acute inpatient behavioral health unit, a residential drug and alcohol treatment program, and a community setting for the chronically mentally ill members. Level II nursing students assume aspects of the scope of practice of the Registered Nurse in Michigan by providing care to clients with acute and chronic behavioral health problems.
**Prerequisite:** BIO 201, CEM 111, ENG 111, NUR 133, BIO 140, BIO 203, all Level I NUR courses, ENG 112, NUR 240, NUR 241, NUR 242, NUR 243, NUR 244, NUR 244LC.
**Co-requisite:** PLS 221/222, NUR 249, NUR 249LC, NUR 250, NUR 252, NUR 252LC, NUR 255, NUR 257.

**NUR 255 NURSING LEADERSHIP..... 1(1-0)**
**Normally Offered: F, SP**
This course provides the basics of leadership and management techniques to enable students to provide care to groups of patients. Legal and ethical problems in nursing will be identified and investigated. It will also include the concepts of role transition from student to graduate nurse as well as job-seeking strategies for an entry level Registered Nurse position. Developing strategies for first-time success on the NCLEX-RN exam will be discussed /explored.
**Prerequisite:** BIO 201, CEM 111, ENG 111, NUR 133, BIO 140, BIO 203, all Level I NUR courses, ENG 112, NUR 240, NUR 241, NUR 242, NUR 243, NUR 244, NUR 244LC.
**Co-requisite:** PLS 221/222, NUR 249, NUR 249LC, NUR 250, NUR 252, NUR 252LC, NUR 253, NUR 257.

**NUR 257 ADVANCED MEDICAL SURGICAL NURSING III CLINICAL..... 1.5(0-4.5)**
**Normally Offered: F, SP**
Building on skills learned in Medical/Surgical I and II and incorporating material from NUR 240 and NUR 249, the focus of this clinical rotation will be on coordination of care, advanced physical and psychosocial assessment of patients, and team leading. During this rotation the student will spend time in the intensive care unit and the emergency department. By the end of this rotation the student will be expected to manage a full team of patients on a medical/surgical unit in the acute care setting.
**Prerequisite:** BIO 201, CEM 111, ENG 111, NUR 133, BIO 140, BIO 203, all Level I NUR courses, ENG 112, NUR 240, NUR 241, NUR 242, NUR 253, NUR 244, NUR 244LC.
**Co-requisite:** PLS 221/222, NUR 249, NUR 249LC, NUR 250, NUR 252, NUR 252LC, NUR 253, NUR 255.

## PHYSICAL EDUCATION & HEALTH FITNESS

**PEH 104 OPEN WATER DIVER..... 1(0.5-1)**
**Normally Offered: SUM**
The course covers the basic principles and practices of scuba diving skills, including terminology, theory, and safety procedures. Class includes classroom/online materials and confined water activities. Upon satisfactory completion of course, students will have the option to complete their open water dives and obtain PADI certification.
**Prerequisite:** Successful completion of PADI swim test required for certification.

**PEH 105 ADVANCED OPEN WATER DIVER..... 1(0.5-1)**
**Normally Offered: SUM**
The Advanced Open Water Diver course provides the fundamentals to increase diving skills and knowledge with a strong focus on enhancing comfort in the water. The course builds on PEH 104 and develops new capabilities by introducing skills such as underwater navigation and deeper water diving (60-100 ft.), including the practical aspects and physiological effects of deeper scuba diving. Class includes classroom/online materials, pool session and open water dives. PADI certification upon satisfactory completion of course.
**Prerequisite:** PEH 104 or proof of equivalent certification and successful completion of PADI swim test required for certification. Instructor permission required.

## PHYSICAL EDUCATION & HEALTH FITNESS

**PEH 110 PERSONALIZED FITNESS I..... 2(0-3)**
**Normally Offered: F, SP, SUM**
Provides development of basic exercise skills to increase and maintain levels of cardiovascular endurance, muscular strength, flexibility and body composition. Students will perform a personalized Tri Fit fitness profile and be responsible for documenting progress toward personal goals.
**Prerequisite:** Participants with physical restrictions or other medical health problems must have a written permission statement from their physician prior to active participation in this program.

**PEH 112 PERSONALIZED FITNESS II..... 2(0-3)**
**Normally Offered: F, SP, SUM**
Includes advanced development of exercise skills to increase and maintain levels of cardiovascular endurance, muscular strength, flexibility and body composition. Provides a basic overview of nutrition guidelines that will enable students to perform a 3-day personal dieting analysis.
**Prerequisite:** PEH 110 and participants with physical restrictions or other medical health problems must have a written permission statement from their physician prior to active participation in this program.

**PEH 181 YOGA FOR FITNESS I..... 2(0-4)**
**Normally Offered: F, SP**
This course incorporates powerful poses with relaxation poses. The sequential order allows for flowing movements designed to increase flexibility, strength and balance.

**PEH 182 YOGA FOR FITNESS II..... 2(0-4)**
**Normally Offered: SP**
This course incorporates powerful poses with relaxation poses. The sequential order allows for flowing movements designed to increase flexibility, strength and balance. The poses will build on skills acquired in PEH 181 Yoga for Fitness I and, therefore, will be more advanced.

**PEH 247 ADVANCED KARATE TANG SOO DO II..... 2(0-4)**
**Normally Offered: F, SP**
Continuation of the study and practice of Tang Soo Do Karate. Students may train and test for the next belt level in Tang Soo Do.
**Prerequisite:** PEH 162 or instructor permission.

**PEH 263 WORKPLACE FIRST AID/CPR/AED ..... 1(1-0)**
**Normally Offered: F, SP**
This course seeks to help participants identify and eliminate potentially hazardous conditions in their environment, recognize emergencies and make appropriate decisions for first aid care. It teaches the knowledge and skills that individuals in the workplace need to know to give immediate care to an ill or injured person until more advanced medical care arrives. Students who successfully complete this course according to American Red Cross standards will receive adult, child, and infant First Aid, CPR and AED certification.

**PEH 264 COMMUNITY FIRST AID/CPR/AED (BLS) ..... 1(1-0)**
**Normally Offered: F, SP, SU**
This course seeks to help participants identify and eliminate potentially hazardous conditions in their environment, recognize emergencies and make appropriate decisions for first aid care. It teaches the knowledge and skills that individuals in the community need to know to give immediate care to an ill or injured person until more advanced medical care arrives. Students who successfully complete this course according to American Heart Association standards will receive adult, child, and infant First Aid, CPR and AED certification. There is a separate course fee for this course.

## PREFORMING ARTS

**PFA 101 INTRODUCTION TO DANCE..... 3(3-0)**
**Normally Offered: On Demand**
This course will introduce the student to the basic components in ballet and jazz techniques.

## PREFORMING ARTS

**PFA 102 DANCE II ..... 3(3-0)**
**Normally Offered: On Demand**
Continues the curriculum in dance principles in creative and contemporary movement, ballet basics and jazz techniques from Dance I.
**Prerequisite:** PFA 101 or instructor permission.

**PFA 108 ACTING I ..... 3(3-0)**
**Normally Offered: F, SP**
Acting I will focus on improvisation, creative dramatics and basic acting skills.

**PFA 110 ACTING II ..... 3(3-0)**
**Normally Offered: F, SP**
Acting II continues to develop improvisational and creative dramatic skills for more complex performance situations. In addition, Acting II will introduce students to scene study utilizing Stanislavski techniques for performance of scripted material.
**Prerequisite:** PFA 108.

**PFA 203 DANCE III ..... 3(3-0)**
**Normally Offered: On Demand**
This course is geared for the student of dance who has a background in dance and would like to continue their education in ballet and jazz techniques. An introduction to choreography will also be covered.
**Prerequisite:** PFA 102 or instructor permission.

**PFA 204 DANCE IV ..... 3(3-0)**
**Normally Offered: On Demand**
This course is designed for the student of dance who has had extensive experience in the field before attending college. Jazz, ballet and modern technique will be covered along with an introduction to the art of choreography. This is meant to be a continuation of Dance III.
**Prerequisite:** PFA 203 or instructor permission.

**PFA 211 ACTING III ..... 3(3-0)**
**Normally Offered: F, SP**
Acting III will focus on developing audition techniques, script analysis and advanced character analysis utilizing the Stanislavski technique.
**Prerequisite:** PFA 110.

**PFA 212 ACTING IV ..... 3(3-0)**
**Normally Offered: F, SP**
Acting IV will focus on advanced performance activity and character analysis and development utilizing the Stanislavski point of view. Acting IV will concentrate on preparing students for continued studies in theatre at the university level.
**Prerequisite:** PFA 211.

## PHILOSOPHY

**PHL 125 LANGUAGE AND REASON ..... 3(3-0)**
**Normally Offered: F, SP**
Develops the student's problem solving and thinking skills and enhances the student's understanding of the relationship between language and thinking. Topics covered include, but are not limited to, critical thinking, verbal reasoning, analogical thinking, pattern recognition, mathematical thinking, etc. Emphasis is on the development of specific skills that are necessary for the student to effectively read and process information in a critical way.

## PHILOSOPHY

**PHL 225 PHILOSOPHY ..... 3(3-0)**
**Normally Offered: F, SP, SU**
Surveys some of the main problems of philosophy and the ideas of great thinkers from ancient times to the present.
**Prerequisite:** Sophomore standing or consent of instructor.

**PHL 228 INTRODUCTION TO ETHICS ..... 3(3-0)**
**Normally Offered: F, SP, SU**
Introduces the student to both a variety of classical ethical theories as well as to the application of these theories to a number of contemporary moral issues. Areas of focus include bio- and business ethics, environmental ethics, crime and punishment issues, and political and economic ethical issues, etc. The principal aim of the course is to help students become more knowledgeable about ethical theories and issues as well as to help them develop practical methods for reaching critically defendable positions on the moral questions that affect their lives.
**Prerequisite:** ENG 111 or ENG 121 with a grade of 2.0 or higher, or permission of instructor.

## PHYSICAL SCIENCE

**PHS 113 INTRODUCTION TO PHYSICAL SCIENCE ..... 4(3-2)**
**Normally Offered: F, SP**
Develops fundamental concepts in mass, energy, space and time through use of selected material from the areas of physics, chemistry, astronomy and earth science. Attention is given to methods and the process of scientific investigation. May be elected by those not majoring in science to meet science requirements.
**Prerequisite:** MTH 102 with a grade of 2.0 or higher, or consent of instructor.

## PHYSICS

**PHY 111 APPLIED PHYSICS ..... 3(2-2)**
**Normally Offered: F, SP**
Includes classical mechanics, simple machines, power transmission, structure and properties of matter, thermodynamics and heat. The emphasis is placed upon practical, technical and industrial aspects of physics rather than upon philosophical and theoretical considerations. Designed specifically to furnish a sound scientific background for students majoring in certain technical fields.
**Prerequisite:** Elementary algebra and preferably high school physics. Technical students having two years of algebra with trigonometry are encouraged to enroll in PHY 121-122 as a substitute for PHY 111-112.

**PHY 121 GENERAL COLLEGE PHYSICS ..... 4(4-2)**
**Normally Offered: F**
Meets the needs of liberal arts students, especially those on pre-medical, pre-dental, pre-law, general science and secondary education programs. This course also meets the needs of technical students who satisfy the prerequisites. Topics covered include classical mechanics, heat, thermodynamics, wave motion, and sound.
**Prerequisite:** One and one-half years of high school algebra with one-half year of trigonometry or the equivalent college mathematics courses. Students having one semester of calculus sequence are encouraged to enroll in PHY 221 in place of PHY 121.

**PHY 122 GENERAL COLLEGE PHYSICS ..... 4(4-2)**
**Normally Offered: SP**
Continues PHY 121. Topics included are electricity and magnetism, light and optics, special relativity, and some other aspects of modern physics.
**Prerequisite:** PHY 121.

## PHYSICS

**PHY 123 INTRODUCTION TO ASTRONOMY ..... 3(3-0)**
**Normally Offered: F**
Includes historical introduction, methods of astronomy, the solar system, the sun, stars, stellar systems, galaxies and some current topics in cosmology. Designed for liberal arts students. Although no prerequisites are required, simple algebra and geometry are used and a general science background is desired.

**PHY 124 INTRODUCTION TO PHYSICAL GEOLOGY ..... 4(3-0-2)**
**Normally Offered: SP**
Lecture, discussion, labs, and field trips will be used to study the processes that shape our world. Topics include: minerals, rocks, volcanism, earthquakes, continental drift, erosion and deposition, the ice age, and the economic significance of geology to humankind.

**PHY 221 PHYSICS ..... 5(3-2-2)**
**Normally Offered: F**
Includes topics in classical mechanics, heat, thermodynamics, wave motion, and sound. The class is designed primarily for students majoring in chemistry, engineering, mathematics, or physics; but other students who desire a rigorous course in physics and who satisfy the prerequisites are encouraged to enroll in this course. The course consists of three lecture hours per week along with two one-hour problem-solving sessions and one double period laboratory session.
**Prerequisite:** High school physics and MTH 131 or its equivalent.

**PHY 222 PHYSICS ..... 5(3-2-2)**
**Normally Offered: SP**
Continues Physics 221. Includes electricity, magnetism, light and optics, and some special topics of modern physics. The course consists of three hours of lecture per week along with one double period problem session and one double period laboratory session.
**Prerequisite:** PHY 221 or consent of instructor.

## POLITICAL SCIENCE

**PLS 221 AMERICAN GOVERNMENT AND POLITICS ..... 3(3-0)**
**Normally Offered: F, SP, SUM**
Introduces U.S. politics and government at the national level while providing local, state and international context. Fosters breadth of understanding and appreciation for the structure of the political process and the responsibilities of citizenship for students with broad academic and professional interests. Emphasis is placed on the nature of representative democracy, political philosophies, the U.S. Constitution and its historical evolution, federalism, and practical politics, including political behavior, political parties and interest groups.

**PLS 222 STATE AND LOCAL GOVERNMENT ..... 3(3-0)**
**Normally Offered: F**
Studies politics, government and civic engagement at the state and local level with comparative perspective from a variety of states within the United States. Considerable attention is afforded the formal institutions of government at the state level as well as county, township, city, and village government and the challenges facing each level of government within the federal system of the United States. Special attention is given to practical application of individual involvement in civic engagement at the local level as it applies to the student's role and their professional pursuits in a participatory social and political system.

**PLS 228 INTERNATIONAL RELATIONS ..... 3(3-0)**
**Normally Offered: F**
Provides a broad and comprehensive survey of the historical, social, cultural, economic and political characteristics of modern international political systems and relations among nation-states throughout the world, including such organizations as the United Nations and NATO and regions such as the Middle East, Africa, the Indian sub-continent, Asia, Europe and the Americas, placing the United States within a larger international context. Considers relations among nations from a regional perspective and the larger trends in contemporary global politics.

## POLITICAL SCIENCE

**PLS 230 COMPARATIVE GOVERNMENT ..... 3(3-0)**
**Normally Offered: SP**
Studies governmental structures, practices and ideological foundations of democratic and non-democratic countries, inclusive of Britain, France, Germany, China and Iran, in comparison with one another and the United States. Consideration is given to the scientific methodology of comparative study of politics, nation-states and their development, state institutions (parliamentary versus presidential systems), democracy, political ideologies, electoral systems, political parties, interest groups, political culture and political economy.

## PSYCHOLOGY

**PSY 101 GENERAL PSYCHOLOGY ..... 3(3-0)**
**Normally Offered: F, SP, SUM**
Presents the basic subjects of the field of psychology from the scientific study of behavior and mind of humans and animals. Subjects include, but are not limited to, biology of behavior, learning, memory and cognition, human development and emotions, health, abnormal behavior and therapy, and social interaction.

**PSY 226 DEVELOPMENTAL PSYCHOLOGY ..... 3(3-0)**
**Normally Offered: F, SP, SUM**
This course covers the physiological development of humans from conception through old age. The course includes social, emotional and cognitive development, relations with parents, peers and others, and problems related to school, work and society.
**Prerequisite:** PSY 101; ENG 111 or permission of instructor.

**PSY 230 HUMAN SEXUALITY ..... 3(3-0)**
**Normally Offered: F, SP**
This course will cover the biological, psychological and socio-cultural aspects of human sexuality.
**Prerequisite:** PSY 101; ENG 111 or instructor permission.

**PSY 241 SOCIAL PSYCHOLOGY ..... 3(3-0)**
**Normally Offered: F, SP**
This course begins with a discussion surrounding the methods used to study social psychology. Then, we will look at how we view ourselves and others by examining the accuracy of our impressions, institutions, and explanations. In part three, we will explore the cultural sources of our attitudes to better recognize the social forces at work upon us. Finally, part four focuses on social relations. Our discussions will be directed at subjects such as prejudice, aggressions, attraction, altruism, conflict, and peacemaking.
**Prerequisite:** PSY 101; ENG 111 or instructor permission.

**PSY 242 ABNORMAL PSYCHOLOGY ..... 3(3-0)**
**Normally Offered: F, SP**
This course will familiarize students with the history of how people have reacted to abnormal behavior in others, biological and psychosocial theories about the origins and dynamics of mental illness and abnormal behavior, classification and assessment of disorders and therapeutic methods to treat these disorders.
**Prerequisite:** PSY 101; ENG 111 or instructor permission.

## SOCIOLOGY

**SOC 123 INTRODUCTION TO SOCIOLOGY ..... 3(3-0)**
**Normally Offered: F, SP, SUM**
This introduction to sociology offers students foundational understandings of central sociological approaches, including terminology, theory, and methods that sociologists use to understand life worlds, social order, social conflict, and social change. Students will learn how sociologists examine social arrangements to shape human experience and how people create order and conflict.
**Prerequisite:** Eligibility for ENG 111.

## SOCIOLOGY

**SOC 140 INTRODUCTION TO SOCIAL WORK ..... 4(4-0)**
**Normally Offered: SP (odd years)**
This is an exploratory course that introduces students to the profession and practice of social work and examines the history, principles, functions, and knowledge base of social work. Students are required to do 35-40 hours of volunteer work at human service agencies in addition to scheduled class sessions.
**Co-requisite** or **Prerequisite:** SOC 123.

**SOC 210 SOCIAL INEQUALITY: RACE, CLASS, AND GENDER ..... 3(3-0)**
**Normally Offered: Fall (even years), SP**
Race, ethnicity, class, and gender have all been, and continue to be, significant areas of social difference and discrimination in American society. This course will examine contemporary social conditions as they relate to race, ethnicity, class, and gender. The course will also address the ways in which these three elements are interconnected and how the interconnection of these three elements serves to further complicate social difference in America.
**Prerequisite:** SOC 123 or instructor permission.

**SOC 227 SOCIOLOGY OF MARRIAGE AND THE FAMILY ..... 3(3-0)**
**Normally Offered: SP (odd years)**
This course will involve an analysis of the social construction and social experience of marriage and the family as institutions. The course will explore the concepts of marriage and the family as important cornerstones that structure social interactions at various levels, and especially relations of power and inequality in society.
**Prerequisite:** SOC 123.

**SOC 252 GREAT BOOKS ON LEADERSHIP ..... 3(3-0)**
**Normally Offered: SP**
Helps prepare students to assume increasingly responsible leadership roles in their personal, professional, community and academic lives. Focus on significant theories of leadership and fellowship; includes experiential learning opportunities in which the students will practice leadership in action. Readings based in the great books of western civilization series provide a broad cultural perspective. This course satisfies associate degree general education requirements for either Group III Social Science or Group IV Humanities, but may not be used for both.

## SPEECH

**SPE 121 SPEECH COMMUNICATION ..... 3(3-0)**
**Normally Offered: F, SP, SUM**
Presents communication fundamentals with emphasis on oral communication. Topics include origin of language, semantics, interpersonal and intrapersonal communication, etc. Students discuss materials and participate in informal and formal speech activities.

**SPE 123 PUBLIC COMMUNICATION ..... 3(3-0)**
**Normally Offered: F, SP**
A course in public communication including practical experience and theoretical study of small group discussions and the public speech.

**SPE 126 ORAL INTERPRETATION OF LITERATURE ..... 3(3-0)**
**Normally Offered: On Demand**
An introduction to the analysis, interpretation, rehearsal and oral performance of literature. Students work with selections of prose, poetry and drama written for adults and children.

## SPANISH

**SPN 117 CONVERSATIONAL SPANISH ..... 1(1-0)**
**Normally Offered: On Demand**
An introductory, exploratory course for prospective travelers or those who are considering enrolling in a full language study course.

## SPANISH

**SPN 125 SPANISH ..... 4(4-0)**
**Normally Offered: F, SP**
Promotes grammatical, cultural and geographic appreciation of the Spanish language and the people who speak it. This introductory course will begin to develop the student's fluency in listening to, speaking, reading and writing Spanish.

**SPN 126 SPANISH ..... 4(4-0)**
**Normally Offered: F**
Continues SPN 125. Promotes grammatical, cultural and geographic appreciation of the Spanish language and the people who speak it. This course will continue developing the student's fluency in listening to, speaking, reading and writing Spanish.
**Prerequisite:** SPN 125 or instructor's permission.

## STUDENT DEVELOPMENT EDUCATION

**SDE 101 INTRODUCTION TO CAREERS ..... 1(1-0)**
**Normally Offered: F, SP, SUM**
This class provides multiple opportunities for students to enhance their self-awareness in relation to the world of work. Various careers are explored through the use of videotapes, inventories and campus resources. Life-long decision-making skills are emphasized and applied to personal goals and values.

**SDE 201 JOB SEARCH STRATEGIES ..... 1(1-0)**
**Normally Offered: F, SP**
Students learn how to create a professional resume, cover letter and job search strategies as well as interviewing techniques; also, they learn how to use Internet sites to find jobs in their field of study and post resumes electronically. Students complete a job search portfolio containing documents required for an effective job search and interview. A variety of course activities promote students' understanding of the competitive job market and how to effectively present their "best self" to prospective employers.

## UTILITY TECHNICIAN

**UTT 101 INTRODUCTION TO THE UTILITY INDUSTRY ..... .5(.5-0)**
**Normally Offered: F**
Orients student to the importance of and opportunities in the utility industry.

**UTT 102 CLIMBING ELEVATED WORK SITES ..... 1(1-0)**
**Normally Offered: F**
Provides practical experience in working in an elevated work site. Climbing and bucket truck operation will be stressed.

**UTT 103 OVERHEAD CONSTRUCTION ..... 1(1-0)**
**Normally Offered: F**
Proper overhead construction techniques will be demonstrated and practiced. Topics will include tool selection, pole selection and setting, rigging, safety procedures, maintenance techniques, and vehicle trailer operations.
**Co-requisite:** UTT 102.

**UTT 110 LINE MECHANIC LAB I ..... 6(1.5-9)**
**Normally Offered: F**
Orient students, in an outdoor lab setting, to proper and safe climbing techniques and the use of aerial lift devices. Students will construct overhead and underground primary and secondary electrical systems. Safe equipment operation will be stressed.
**Co-requisite:** UTT 102, UTT 103, UTT 203.

## UTILITY TECHNICIAN

**UTT 111 LINEWORKER PHYSICAL FITNESS I ..... 2(1-2)**
**Normally Offered: F**
Designed for the Utility Technician student to improve fitness levels to meet the demands of lineworker training and unique job requirements. Course focuses on injury prevention, flexibility, endurance, and strength. Course will include individual and group workout activities.
**Prerequisite:** UTT student or instructor permission.
**Co-requisite:** UTT 110 or instructor permission.

**UTT 202 TRANSFORMER FUNDAMENTALS ..... 2(1-2)**
**Normally Offered: SP**
Orients student to the operation of and types of transformers used by the utility industry. Selection of proper transformer for a given application and maintenance of transformers will be stressed.
**Co-requisite:** UTT 201.

**UTT 203 UNDERGROUND CONSTRUCTION ..... 2(2-0)**
**Normally Offered: F**
Introductory course in underground utility construction and equipment operation. Includes hands-on experience in cable laying, splicing and terminations of both primary and secondary cable.

**UTT 204 SYSTEM DESIGN AND OPERATION ..... 4(4-0)**
**Normally Offered: SP**
Orients student to the design and operation of an electrical utility system from point of generation, transmission, distribution, to end user.
**Co-requisite:** UTT 201, UTT 202.

**UTT 206 EQUIPMENT/VEHICLE OPERATION ..... 2(1-2)**
**Normally Offered: SP**
Orients student to equipment and vehicles common to the utility industry.

**UTT 208 CLIMBING & WORKING IN ELEVATED WORK SITES ..... 2(2-0)**
**Normally Offered: SP**
Classroom study of climbing and elevated work platforms used in the utility industry to perform construction and maintenance. Topics include dead line and live line techniques as well as safety instruction.
**Prerequisite:** Student must be a qualified climber.
**Co-requisite:** UTT 210.

**UTT 210 UTILITY LINE/MECHANIC LAB ..... 5(1-8)**
**Normally Offered: SP**
Orient students, in an outdoor lab setting, to the proper and safe construction and maintenance of overhead and underground electric systems. To include test and diagnostic equipment as well as transformer function, installation, selection and troubleshooting of single phase and three-phase power banks.
**Prerequisite:** First semester of Utility Technology program.
**Co-requisite:** UTT 201, UTT 202, and UTT 208.

**UTT 211 LINEWORKER PHYSICAL FITNESS II ..... 2(1-2)**
**Normally Offered: SP**
Advanced lineworker fitness course concentrating on stamina, strength, and mental toughness required to complete a lineworker apprentice program and be successful as a career lineworker. Course includes individual and group workout activities.
**Prerequisite:** UTT 110 or instructor permission.
**Co-requisite:** UTT 210 or instructor permission.

## UTILITY TECHNICIAN

**UTT 221 LINE WORKER ORIENTATION..... 1.5(1-1)**
**Normally Offered: During Christmas Break or Summer Semester**
The purpose of this class is to give prospective lineman apprentice candidates a good demonstration of the work they will be required to do as an apprentice and journeyman line worker. Students will be given an introduction to the physical aspects and mental disciplines required to perform the duties of a line worker with demonstrations and physical tests.
**Prerequisite:** College reading level.

**UTT 222 ELECTRIC BASIC LINE CLIMBING ..... 4(2-4)**
**Normally Offered: SU**
This course is designed to provide students with the basic knowledge and pole climbing skills necessary to successfully progress through the Electric Line Apprentice Program.
**Prerequisite:** Must have successfully completed UTT Basic Certificate Program.

**UTT 223 GROUND/UTILITY WORKER..... 5(2-6)**
**Normally Offered: SU**
This course is designed to provide students with the basic Ground/Utility Worker knowledge and skills necessary to progress through the Electric Line Apprentice Program.
**Prerequisite:** Must have successfully completed UTT Basic Certification Program.

**UTT 224 ENERGIZED SECONDARY WORKER..... 5(2-6)**
**Normally Offered: SU**
This course addresses the knowledge and skills necessary to progress through the Utility Technician Advanced Certificate program with a focus on the installation and maintenance of secondary lines of 120/240 Volts. Safe work practices on energized conductors and aerial lifts, digger derricks, and associated equipment are developed and required. This course is normally offered during the summer semester and the Consumers Energy training facility in Marshall, Michigan.
**Prerequisite:** Must have successfully completed UTT Basic Certification program.

**UTT 300 WORKING WITH UTILITY SYSTEMS..... 6(5-2)**
**Normally Offered: SP**
Provides an orientation to, and hands on operation of, test and troubleshooting equipment used in the utility industry. Orients student to the operation of and types of transformers used by the utility industry. Selection of proper transformer for a given application and maintenance of transformers will be stressed. Orients student to the design and operation of an electrical utility system from point of generation, transmission, and distribution, to end user.
**Co-requisite:** APP 100E.

## WELDING

**WLD 123 SMAW WELDING PROCESSES..... 4(2-4)**
**Normally Offered: F**
This course covers basic Shielded Metal Arc Welding using E6010 and E701 electrodes, used in all positions. Welding safety, oxyacetylene and plasma cutting, equipment set-up, electrodes, joint design, and welding theory will be discussed.

**WLD 124 CMAW AND FCAW WELDING PROCESSES..... 4(2-4)**
**Normally Offered: F, SP**
Gives the student experience in Gas Metal Arc Welding (GMAW), Flux Cored Arc Welding (FCAW) and out-of-position shielded metal arc welding. Welding equipment setup, welding theory and processes, nonferrous metals, testing and inspection, welding design, welding blueprints, and general welding shop equipment will be studied.

## WELDING

**WLD 134 INTRODUCTION TO WELDING TECHNIQUES ..... 2(1-2)**
**Normally Offered: F, SP**
This course provides students with an introductory course in basic SMAW welding techniques, equipment set-up, safety, and applications.

**WLD 135 INTERMEDIATE WELDING.....1.5(.75-1.5)**
**Normally Offered: F, SP**
This course provides students with an intermediate level of SMAW welding techniques, equipment set-up, safety, and applications.
**Prerequisite:** WLD 134.

**WLD 138 AMERICAN WELDING SOCIETY LEVEL I..... 4(2-4)**
**Normally Offered: F, SP**
This course will cover intermediate welding practices which will prepare students for the American Welding Society Level I entry level welding certification requirements. Welding will be performed in the flat, horizontal, vertical, and overhead positions. This is an additional course to provide the student with more time to fi8nish the Level I assignments that have not been competed in prior coursework.
**Prerequisite:** WLD 123, WLD 124, or instructor permission.

**WLD 238 AMERICAN WELDING SOCIETY LEVEL II..... 4(2-4)**
**Normally Offered: F, SP**
This course will cover advanced pipe welding practices which will prepare students for the American Welding Society Level II advanced welding certification requirements. Welding will be performed on pipe in the 2G, 5G, and 6G positions. This is an additional course to provide the student with more time to finish the Level II assignments that have not been competed in prior coursework.
**Prerequisite:** WLD 123, WLD 124, or instructor permission.

**WLD 240 GAS TUNGSTEN ARC AND PIPE WELDING ..... 4(2-4)**
**Normally Offered: F, SP**
Students will develop the skills, principles, and application of gas tungsten arc welding. Welds will be done on different thicknesses of ferrous and non-ferrous metals in all positions. Proper material cleaning, joint fit-up, and safety are also introduced. Base pipe welding practices will also be introduced in this course.

**WLD 242 WELDING FABRICATION ..... 3(1-4)**
**Normally Offered: SP**
This course covers sheet metal, structural steel, AWS structural D1.1 welding code practices and weldments, CNC plasma cutting and layout, material processing, WPS development, creating a bill of materials, and fabrication to print specifications. Students will be required to complete a capstone fabrication project.
**Prerequisite:** WLD 123 or WLD 124 and MFG 120 or instructor permission.

**WLD 250 ADVANCED PIPE WELDING ..... 5(2-6)**
**Normally Offered: F**
This course is designed to train the student in advanced pipe and tube welding procedures, using various welding processes. Students will learn to weld carbon steel, aluminum and stainless steel pipe and tubing in the 2G, 5G, and 6G positions. Strong emphasis will be placed on proper joint preparation and adherence to the applicable AWS, ASME, and API welding code standards.
**Prerequisite:** WLD 240 or instructor permission.

## WELDING

**WLD 252 SPECIALTY WELDING AND TESTING PROCEDURES ..... 5(2-6)**
**Normally Offered: SP**
This course is designed to train welders in the weldability of less common metals and the proper equipment and electrode selection, machine set-up, and base metal preparation required to make a high quality weld. Students will be taught the basic Destructive (DT) and Nondestructive (NDT) weld control testing procedures for checking discontinuities and defects that could affect weld integrity, appearance, and strength. Strong emphasis will be placed on confirming weld quality and adherence to all applicable AWS, ASME, and API welding code standards.
**Prerequisite:** WLD 124 or instructor permission.

**WLD 260 WELDING AUTOMATION ..... 3(2-2)**
**Normally Offered: SP**
This is an introductory course designed to train the student in the basic operation and programming of a robotic welding cell. Emphasis will be placed on safety, justification, fixturing, set-up, programming, and troubleshooting. Laboratory will include the set-up and operation of basic automatic welding systems with a sturdy of the effects of welding parameters on weld outcomes.
**Prerequisite:** WLD 124 or instructor permission.

## ACCREDITATIONS AND AFFILIATIONS

(Accreditation documents can be examined upon request in the ACC Library.)
Alpena Community College is accredited by:

**North Central Association of Colleges and Schools**
**Commission on Institutions of Higher Education**
30 North LaSalle Street, Suite 2400
Chicago, Illinois 60602-2504
Phone: 800.621.7440

**Michigan Commission on College Accreditation**
The Alpena Community College Medical Assisting Program is accredited by the **Commission on Accreditation of Allied Health Education Programs** (www.caahep.org), upon the recommendation of the Medical Assistant Educational Review Board (MAERB).

Commission on Accreditation of Allied Health Education Programs
25400 US 19 North, Suite 158
Clearwater, FL 33756
Phone: 727.210.2350
FAX: 727.210.2354
Website: www.caahep.org

Medical Assistant Educational Review Board (MAERB)
20 N. Wacker Dr., Ste. 1575
Chicago, IL 60606
Phone: 800.228.2262
Website: www.maerb.org

The **Michigan Board of Nursing** has approved the following Alpena Community College programs: Certificate in Licensed Practical Nursing; and Associate in Applied Science Degree in Registered Nursing. Alpena Community College's Nursing Program is accredited by the Accreditation Commission for Education in Nursing (ACEN).

Accreditation Commission for Education in Nursing (ACEN)
3343 Peachtree Road NE, Suite 850
Atlanta, Georgia, 30326
Website: www.acenursing.org

The **Michigan Correctional Officers Training Council** has accredited the following Alpena Community College certificate: Corrections Officer Academic Program.

Alpena Community College is a member of: **American Association of Community Colleges; College Entrance Examination Board; Michigan Association of Collegiate Registrars & Admissions Officers; and Michigan Community College Association.**

## Alpena Community College Mission

The mission of Alpena Community College is to meet lifelong learning needs by providing educational opportunities through effective stewardship of resources.

## Alpena Community College Goals

1. Present and position ACC as a compelling, attractive institution of choice for all learners
2. Achieve excellence in program areas of transfer, occupational/technical, developmental, community and continuing education
3. Serve as a primary center for regional economic development, diverse programming, recreational/wellness opportunities, and cultural enrichment
4. Foster an environment of learning that embraces change, cultural diversity, personal accountability, and global thinking
5. Conduct college business with a view to developing partnerships and alliances to expand learning opportunities

## Alpena Community College Vision

To be recognized in our local and global communities as the premier resource and first choice for exceptional, affordable, and innovative education.

## Alpena Community College Values

We demonstrate **accountability** to all our stakeholders, students, staff, business partners, industry alliances, and taxpayers.

We act with **integrity**, placing fairness and honesty at the center of all our actions.

We aspire to **excellence** in all our endeavors.

We show **respect** for diversity, individual contributions, and educational partnerships.

# HISTORY

Alpena Community College offers educational programs, technical training, and cultural opportunities to all of Northeast Lower Michigan. Its student population is marked by diverse ages, backgrounds, and goals. Small classes and the opportunity for individual attention enhance the quality instruction delivered at Alpena Community College and benefit both the traditional and non-traditional student.

## FOUNDED IN 1952

Situated on 700 acres of land bordered by the Thunder Bay River, ACC is located within the city limits of Alpena and is just a short distance from Lake Huron. It was founded in 1952 and was part of the Alpena K-14 system until 1979, when district voters approved separation of the College from the public school district. Voters also granted a 1.5 charter mill levy for operations and established the Alpena Community College Board of Trustees to govern the institution. The College district encompasses the same geographic voting district as Alpena Public Schools.

The first Alpena Community College classes began in September 1952 at Alpena High School, then located at 400 S. Second Avenue. The first class of 23 students graduated in June 1954. The current Alpena campus was established in 1957 when 23 acres of land were granted to ACC by philanthropist Jesse H. Besser. An additional 14 acres came from the City of Alpena and the Michigan Department of Conservation. Central Hall (now Van Lare Hall) opened in 1958. Additional donations from Besser have provided a total of 700 acres that now constitute the Alpena Campus.

## ACCREDITATION

By 1959, ACC was accredited by the Michigan Commission on College Accreditation, and it awarded associate in arts, associate in commerce, and associate in science degrees. Full accreditation came in March 1963 from the North Central Association of Colleges and Schools. It has remained accredited, with the latest 10-year re-accreditation granted in 2008.

## EXPANDING THE CAMPUS

Besser Technical Center, a 50,000-square-foot facility, opened in September 1963. Space was added in 1967, and in 1979 the Besser Tech Annex opened to provide an additional 9,600 square feet for technical programs. In 2007 the old Concrete Tech lab space was renovated to house seven computer classrooms, four faculty offices, and a 3,000 square foot student commons area.

The Natural Resources Center opened in 1972, and in 1977 the former Alpena Catholic Central High School became Alpena Community College East Campus and housed the Fine Arts programs.

Almost 20 years later a new series of projects brought a new look and feel to ACC, beginning with the August 1996 completion of an $8.2 million construction and renovation project on the north side of Johnson Street. Called the Center Building, it became “a center of activity” as both the College and community found its multiple spaces perfect for a myriad of uses. In 2005 it was renamed the Donald L. Newport Center in honor of President Emeritus Donald L. Newport.

In 1997, College Park Apartments opened, providing on-campus student housing in 16 four-bedroom townhouse units. They were privately built and are privately owned and operated.

The next addition to campus was the World Center for Concrete Technology, which opened in August 2000. The Concrete Technology and Blockmakers Workshop® programs relocated there from Besser Technical Center, and expanded workforce development, testing and research services are available to the concrete and concrete products industries.

In January 2008 the 12,000 square foot Fine Arts Center was constructed on the site of the old Graphic Arts Building and became the new home of the fine arts programs.

### OSCODA EXTENSION CENTER

In 1969, an extension center was established in partnership with the U.S. Air Force at Wurtsmith Air Force Base, Oscoda. Now known as the Oscoda Campus, it continues to serve Iosco County residents following the 1993 closure of the air base. The facilities include 12 classrooms, computer and science labs, a two-way interactive room, administrative office, and a student services center. Library resources for ACC students are available through a partnership with the nearby Robert J. Parks Library.

### 50TH ANNIVERSARY, 1952-2002

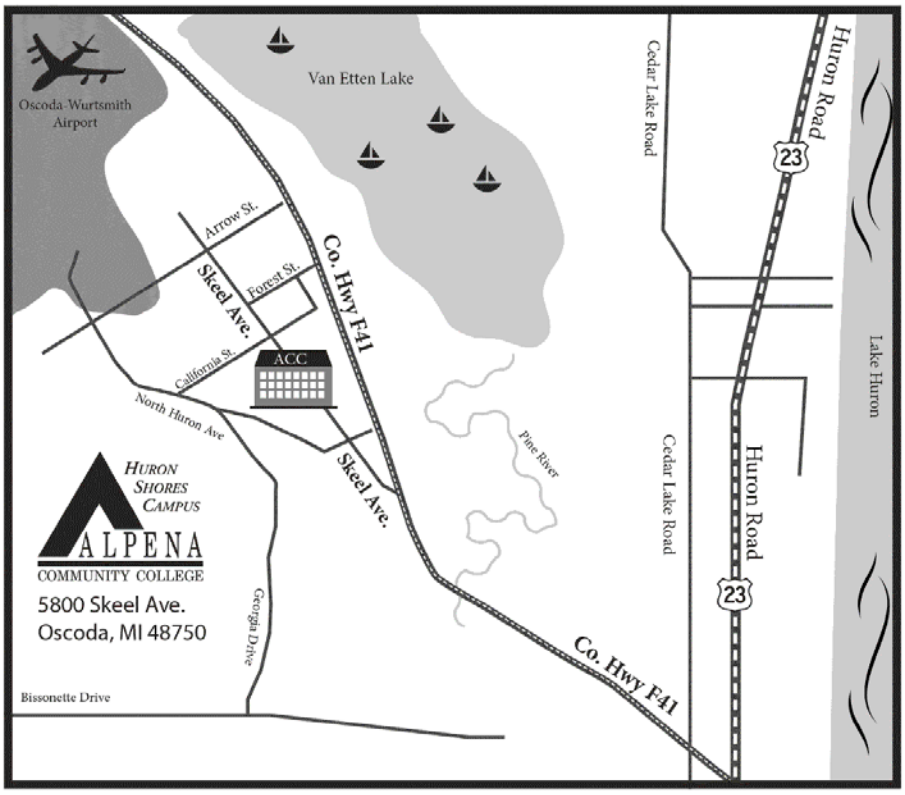
During the 2002-03 academic year, ACC celebrated its 50th year of educating students and enhancing the Northeastern Michigan community. Since its founding in 1952, ACC has awarded approximately 10,300 degrees and directly influenced the lives of nearly 200,000 people through College programs and services. The vast majority of these people are our neighbors, family members, local employees, and our civic, social, and opinion leaders. No other college has touched as many individuals or had so much influence on the future of Northeast Michigan.

## OSCODA CAMPUS INFORMATION

5800 Skeel Avenue • Oscoda, Michigan 48750
989.358.7295 • Toll-Free: 888.468.6222 (press 7 to be connected)

Building hours: Weekdays 8:30 a.m. to 5:00 p.m.

Located in the Huron Shores Educational Center, just off F-41, minutes from US-23 in the renovated Headquarters Building at the former Wurtsmith Air Force Base.




### OSCODA CAMPUS CONTACTS

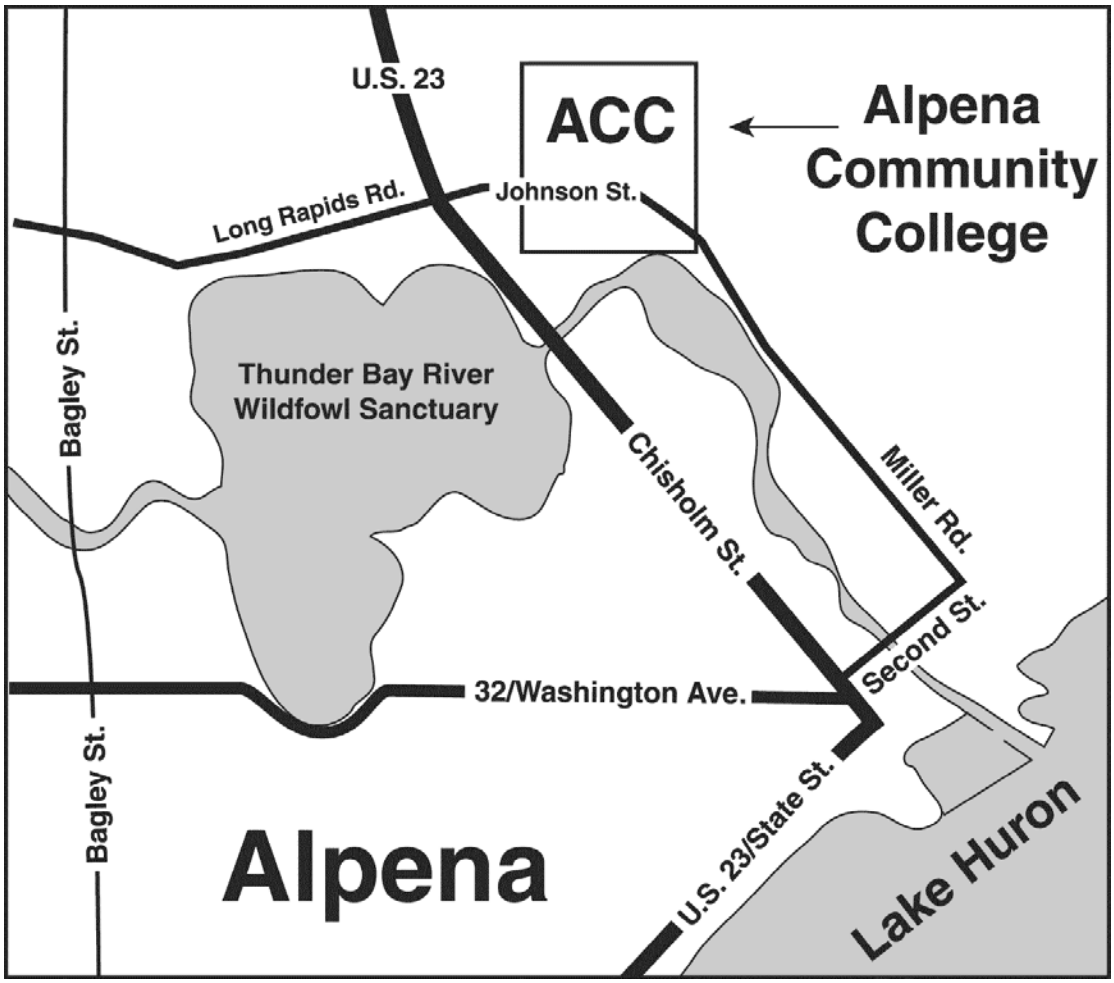
Director .....989.358.7442....OSCC, Second Floor
Administrative Assistant....989.358.7295....OSCC, Second Floor
Student Services Center ...989.358.7445....OSCC, Second Floor

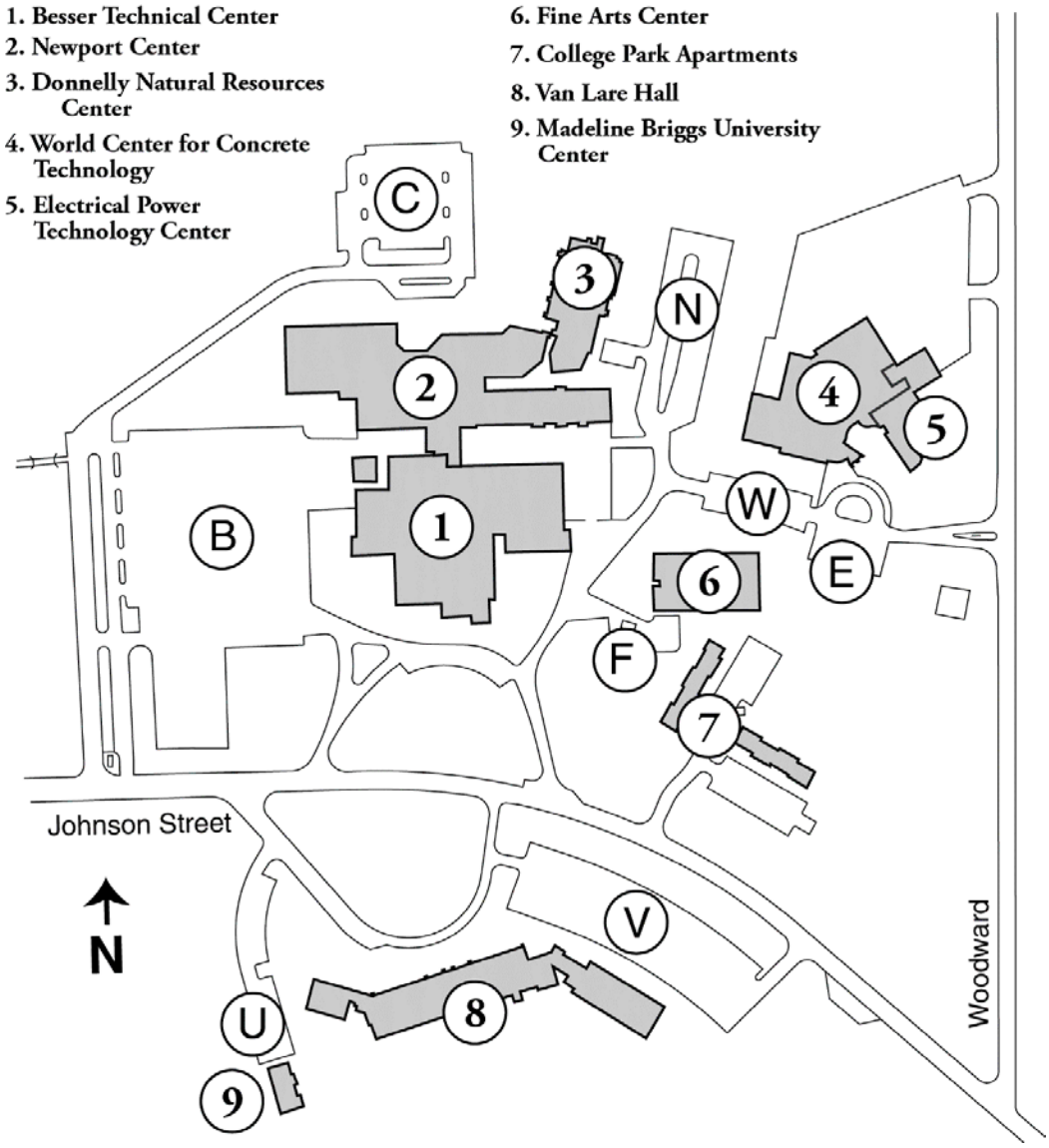
## Alpena Campus Information

665 Johnson St. • Alpena, MI 49707-1495 • 989.356.9021 • Toll-Free: 888.468.6222

Building hours: Weekdays 6:00 a.m. to 10:30 p.m.

Use the last four digits as the extension with the automated phone system.






**Besser Technical Center (BTC)**

ACC Foundation ..... 989.358.7297
Bookstore ..... 989.358.7274
Facilities..... 989.358.7360
Food Service..... 989.358.7216
Parking Office ..... 989.358.7201
Public Information ..... 989.358.7215
President ..... 989.358.7246

**Newport Center (CTR)**
ACC Library ..... 989.358.7252
Center for Professional, Community & Volunteer Services... 989.358.7234
Office of Information Technology (IT) ..... 989.358.7374
Volunteer Center ..... 989.358.7335
Wellness Center ..... 989.358.7391

**Electrical Power Technology Center (EPTC)**

**Fine Arts Center (FAC)**
Art Classrooms ..... 989.358.7343

**Natural Resources Center (NRC)**
Health Occupations/Nursing ..... 989.358.7206

**University Center (MBUC)**
Northwood University ..... 989.358.7302

**Van Lare Hall (VLH)**
Admissions ..... 989.358.7339
Business Office ..... 989.358.7213
Dean of Students ..... 989.358.7212
Financial Aid ..... 989.358.7205
Human Resources ..... 989.358.7351
Registration, Records ..... 989.358.7353
Testing ..... 989.358.7209
Tutoring ..... 989.358.7270
Vice President for Administration and Finance ..... 989.358.7368
Vice President of Instruction ..... 989.358.7458

**World Center for Concrete Technology (WCCT)**
Director ..... 989.358.7293
Small Business & Technology Development Center ..... 989.358.7383

## ALPENA CAMPUS BUILDINGS

The main Alpena Community College campus site is situated on approximately 690 acres located on both sides of Johnson Street, approximately one-half mile east of US-23 North. Much of the property remains undeveloped forest land, and the campus is situated along a portion of Thunder Bay River where the Ninth Avenue Dam forms Lake Besser. Completion of an $8.2 million project in August 1996 provided weather-protected access to virtually all instructional and administrative areas located on the north side of Johnson Street. In 1997, College Park Apartments opened, providing on-campus housing that is privately owned and privately operated. The newest facility is the $5 million Ferris H. Werth Electrical Power Technology Center, which opened in January 2015.

Following are descriptions of campus facilities with building names accompanied by the abbreviations used on course schedules to identify classroom locations.

### BESSER TECHNICAL CENTER (BTC)

Besser Technical Center was built in 1963 by industrialist and philanthropist Jesse Besser to showcase the structural and architectural use of concrete block products. When completed, the building was given to Alpena Community College to support an expanded curriculum featuring technical education programs.

Today, Besser Tech houses specially equipped instructional areas and labs used for manufacturing technology, welding, computer-aided drafting and design, automotive service and repair and physics.

The building is built around an accessible open-air courtyard and houses the ACC Bookstore and Lumberjack Shack (dining services) as well as faculty offices and the offices of the President, Board of Trustees, Director of Public Information & Marketing, Alpena Community College Foundation, Facilities Management, Parking Control, and Educational Talent Search. As part of the Pathways to the Future project, the space which formerly housed the Concrete Tech program was renovated to house seven computer classrooms, faculty offices, and a 3,000-square-foot student commons area.

### DONALD L. NEWPORT CENTER (CTR)

This facility designation names an addition to campus completed in 1996, as well as renovated space which was formerly called the Besser Technical Center Annex. The new and renovated facilities are connected to one another and to Besser Technical Center. It is truly a “center” of activity, housing the College Library and A-V Department, a 250-seat performance and lecture theatre, a health fitness facility and an athletics and events arena. There are two seminar rooms, faculty offices, three general purpose classrooms, a two-way interactive room, classroom and labs for auto body repair, utility technician, electrical apprentice and millwright apprentice courses. A student lounge, activities room and government office are located here. Also in the Center are offices for the Center for Professional, Community and Volunteer Services, which includes workforce training and the Alpena Volunteer Center.

### FERRIS H. WERTH ELECTRICAL POWER TECHNOLOGY CENTER (EPTC)

The $5 million Ferris H. Werth Electrical Power Technology Center supports ACC’s Utility Technician and Electrical Apprentice programs by providing state-of-the-art facilities and equipment. To create this new facility, ACC extended the existing World Center for Concrete Technology building, adding approximately 21,000 square feet of space for classrooms, equipment labs, faculty offices, and bays for four bucket trucks or other pieces of heavy equipment. In addition to the new labs and equipment, ACC has plans for new academic programs to train technicians for occupations in the substations, relay and control, metering, and power generation technologies. The building also features a wind turbine and photovoltaic panel array for generating green energy.

### OLIN H. JOYNTON FINE ARTS CENTER (FAC)

The Fine Arts Center was constructed as part of the Pathways to the Future project to house ACC’s fine arts programs after the closing of the East Campus facility. Opened in January 2008, the 12,000 square foot building contains photography, ceramics, and painting labs in addition to gallery space for displaying artwork.

### CHARLES R. DONNELLY NATURAL RESOURCES CENTER (NRC)

This four-story, contemporary block building provides six natural science laboratories on the first floor used for chemistry, biology, microbiology, and botany. Also on the first floor are a vending area, 130-seat lecture hall (Room 101) and faculty offices. The second floor has three general purpose classrooms, faculty offices, a small conference room, and dedicated classroom, laboratory and faculty and administrative office space for the nursing and health occupations programs. The third floor contains faculty offices, and the fourth floor is the College Board Room. An elevator serves all floors.

### VAN LARE HALL (VLH)

Van Lare Hall, named for Stanley Van Lare, ACC's first president, was the first building constructed on the current ACC campus; its cornerstone was laid by philanthropist and area businessman Jesse Besser, who also donated the land on which the current Alpena campus resides. Van Lare Hall houses student services including the Admissions Office, Financial Aid Office, registration, student records, Student Services Center, Registrar's Office, and the offices of the Vice President and Dean of Students. Van Lare Hall houses the Business Office, the Office of the Vice president for Finance and Administration, the controller, cashier, accounting, payroll/Human Resources Office, and telephone switchboard, word processing, and the Office of Management Information Systems.

Van Lare Hall is also the location of offices for instructors of accounting, social sciences mathematics and criminal justice programs. There are classrooms, microcomputer labs, a conference room, student lounge and outdoor patio overlooking the river.

### WORLD CENTER FOR CONCRETE TECHNOLOGY (WCCT)

Harris Hall, located on six acres at the eastern edge of campus, is a $7.7 million facility which houses the World Center for Concrete Technology. The associate degree Concrete Technology program and the Blockmakers Workshop® program relocated there from Besser Technical Center during the spring of 2000. The WCCT is expanding services to meet the workforce development and research needs of the concrete and concrete products and aggregate industries. It also houses industrial testing services and the Small Business and Technology Development Center (SBTDC).

The 42,360-square-foot building contains a full-size concrete products manufacturing plant as well as labs for mason training, certified testing and instruction; a computer lab; three classrooms, offices and a conference room.

### COLLEGE PARK APARTMENTS

Sixteen four-bedroom student townhouse apartments opened in August 1997 at Alpena Community College. Each two-floor unit features two bathrooms, a range, refrigerator, forced air natural gas heat, and natural gas water heater. Options include furnished or unfurnished units and a nine-month lease. Applications are available online, in the Academic and Student Affairs Office (LVH 109), or the Admissions Office (VLH 111).

### MADELINE BRIGGS UNIVERSITY CENTER (MBUC)

Located just west of Van Lare Hall, the University Center Building houses university partners of Alpena Community College. Offices, a classroom, and conference room are located there. Upper division courses for completion of selected degrees beyond the two-year associate's degree are available through the University Center. Currently, Northwood University resides in the University Center. The MBUC also houses the Association of Lifelong Learners at ACC.

## OSCODA CAMPUS

Alpena Community College has operated a full service extension center in Iosco County since 1969. The Oscoda Campus serves area residents with classes in Oscoda, Tawas, and Whittemore.

In June 1996, renovations at the Headquarters Building of the former Wurtsmith Air Force Base, were completed and the Oscoda Educational Center opened at 5800 Skeel Avenue, Oscoda. Oscoda Campus students have a full service program of advising, assessment and instruction coordinated through the ACC

office. Courses in Fall and Spring semesters are offered, as well as six-week or twelve-week summer courses. Instructional facilities include 12 classrooms, a computer lab, science lab, welding lab, two-way interactive room, and the Student Services Center. ACC is also a partner in supporting the nearby Robert Parks Library which is a resource for students.

Selected classes are offered at community sites in the county as enrollment allows. Customized training for business and industry is provided by the Alpena Community College Workforce Development Office and can be coordinated through the Oscoda Campus office.

For more information, contact the Oscoda Campus at 989.358.7295, or toll-free 888.468.6222, ext. 7295. See page 206 of this catalog for a location map.

## COMMUNITY SERVICES

Note: Student Services are detailed in the Student Handbook.

### ACC BOOKSTORE

The Alpena Community College Bookstore carries a wide variety of merchandise and is open to the public Monday through Friday.

It is located at the Alpena Campus in Besser Technical Center Room 104 and is owned and operated by Alpena Community College. Extended hours are posted for the beginning of each semester and during College special events.

Bookstore phone: 989.358.7274.

### LEARNING RESOURCES CENTER — LIBRARY

Alpena Community College Learning Resources Center consists of the Stephen H. Fletcher Library and the College audio-visual service. Located in the Center Building, the Library and A-V areas provide intellectual access to recorded knowledge and information which is consistent with the present and anticipated teaching and research responsibilities of Alpena Community College. Insofar as possible, these resources are shared with the community and other institutions. The academic library collection is generally suitable for adult use. Non-ACC students 18 years of age and older are invited to obtain an ACC library card at no cost.

The Library consists of books, e-books, periodicals, microforms, reference, CD and on-line materials. Computerized local and regional library catalogs and inter-library loan facsimile service give students, community patrons, and college staff quick access to materials anywhere in the country. Computerized (CD and on-line Internet) full-text access is available for approximately 18,000 unique periodical titles, Michigan newspapers, and an assortment of national and local newspapers. Computer access to the Internet, websites and e-mail are also available in the ACC Library.

Community groups holding meetings in College facilities may also request use of audio-visual equipment.

Library phone: 989.358.7249 or 989.358.7252.

### LUMBERJACK SHACK

The College cafeteria, the Lumberjack Shack, is open to the public Monday through Thursday from 8:00 a.m. to 6:00 p.m. and from 8:00 a.m. to 2:00 p.m. on Fridays. It is located in Besser Technical Center Room 107 and is operated by Fremont Catering, through contractual arrangements with ACC.

Special food service for community groups using ACC facilities is also available by contacting Fremont Catering at 989.358.7216 or 989.354.0016.

### MEETING FACILITIES

ACC facilities, including a 250-seat theatre, events arena and conference rooms, are available for use by community groups. There is no fee for use by non-profit groups between 6 a.m. and 10 p.m. Monday through Friday. A fee is charged for non-profit use outside these hours and to for-profit organizations. A fee chart and

printable facility use form can be obtained from the College website at www.alpenacc.edu or by calling 989.358.7360.

Two-way interactive rooms are available for rent at both the Alpena and Oscoda Campuses. Visit the College website for details, or call 989.358.7360.

### STUDENT SERVICES CENTER (SSC)

The Student Services Center (SSC) is located in Van Lare Hall 101 and houses academic support services for students (details are in the Student Handbook).

### TRIO EDUCATIONAL TALENT SEARCH

This program serves middle and high school students in Alcona, Alpena, Montmorency and Presque Isle counties, as well as the Oscoda, Fairview, Cheboygan, and Mio school districts.

Talent Search's goal is assisting qualified persons 11 years of age or older (including adults) who have completed fifth grade to complete their secondary education and continue with some type of postsecondary education or vocational training. Services provided to eligible students include classroom presentations, career and financial aid advising, college campus visits, interest testing, a summer program, Career Pathways nights, and college application fee waivers.

The program director and staff at Alpena Community College are located in Besser Technical Center Room 108; phone 989.358.7283. Educational Talent Search is funded by U.S. Department of Education TRiO grants.

### WELLNESS CENTER

Membership at the Frederick T. Johnston Wellness Center is open to the public with special senior citizen rates available for College district residents. Registered credit students may utilize the Wellness Center free of charge.

Individual health and fitness programs are developed and designed by the professional staff, and a variety of the newest cardiovascular, weight training and monitoring equipment is available for member use. The Wellness Center is located adjacent Park Arena on the ACC campus. For information on rates and enrollment, call 989.358.7391.

### SMALL BUSINESS DEVELOPMENT CENTER

ACC rents space for the Region 3 Michigan Small Business Development Center (SBDC). The SBDC is a partner program of the Small Business Administration and provides free, confidential, one-on-one counseling for existing businesses or people interested in starting or buying a business. This service includes helping clients with the development of business plans, refining marketing strategies, and financial analysis.

In addition to counseling, the SBDC provides demographic research and low cost training through a variety of local and online workshops designed to address topics of interest including business start-up, developing business plans, customer service, and marketing. For information on the Small Business Development Center, call 989.358.7383, email carl.bourdelais@outlook.com, or online at sbdcmichigan.org.

### VOLUNTEER CENTER

The Alpena Volunteer Center (AVC) encourages volunteerism, responds to community needs, and promotes activities that improve the community. It is located in Room 108 of the Donald L. Newport Center on the ACC campus.

The many services include:

- Coordinating community outreach programs such as the Christmas Wish List, Community Education classes, special events, and the ACC Ropes Course
- Matching volunteers with requests for volunteer help

- Providing community information and networking

For more information contact the Volunteer Center at 989.358.7271.

### CUSTOMIZED TRAINING CENTER

Customized Training programs enable local employers to provide specialized training to their employees. This training is designed to meet specific needs, may be conducted either at the work place or at Alpena Community College, and can be conducted for any number of employees. For more information contact the Customized Training program director in World Center for Concrete Technology Room 108, or by phone at 989.358.7293.

# ACC Personnel

## President

**Dr. Donald C. MacMaster, Ed.D.**
B.A., University of Michigan
M.A., Central Michigan University
Ed.D., Ferris State University

## Administrators

**Cathy Gutierrez-Abraham**
Director of the Volunteer Center
B.B.A., Northwood
M.A., Central Michigan University

**Deborah A. Bayer**
Vice President of Instruction
A.A., Mott Community College
B.S., Ferris State University
M.S., Ferris State University

**Jeff Blumenthal**
Co-Director of
Office of Information Technology
B.A., College of Idaho
M.S., Walden University

**Nicholas Brege**
Director of Facilities Management
A.S., Alpena Community College
B.S., Kettering University
M.B.A., University of Michigan

**Wendy Brooks**
Director of Learning Resources Center/Media
B.S., Central Michigan University
M.A., Central Michigan University
Ed.S., Central Michigan University

**Sarah Burt**
Director of Learning Technology,
Blackboard Support
A.S., Alpena Community College
B.S., Central Michigan University
M.A., Central Michigan University

**Noel Curtis**
Director of the Wellness Center
B.A., Central Michigan University

M.A., Central Michigan University

**Carolyn A. Daoust**
Director of Human Resources,
Title IX Coordinator
A.A., Alpena Community College
A.A.S., Alpena Community College
B.S., Lake Superior State University
M.S.A., Central Michigan University

**Cynthia DeRocher**
Director of Student Life Activities,
Campus Housing, Athletic Director
A.A., Alpena Community College
B.S, Lake Superior State University

**Lori Dziesinski**
Registrar
A.A.S., Alpena Community College

**Melissa Fournier**
Director of Nursing
A.A.S., Alpena Community College
B.S., Lake Superior State University
M.S.N., Wayne State University

**Mark Grunder**
Co-Director of
Office of Information Technology
A.S., Delta College

**Brenda Herman**
Executive Director of Development,
Executive Director of ACC Foundation
B.A., Michigan Technological University

**Michael Kollien**
Director of Admissions
A.A., Alpena Community College
B.A., Concordia College

**Lyn Kowalewsky**
Controller
A.A., Alpena Community College
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