MAJOR: MATHEMATICS – GENERAL, APPLIED OR PURE CONCENTRATION
DEGREE: BACHELOR OF ARTS OR BACHELOR OF SCIENCE

The Concentration in Applied Mathematics or Pure Mathematics is designed for mathematics students who plan to either enter graduate school after graduation from CMU or use mathematics as an adjunct skill in their professional life outside academe. This includes students planning to enter professions as wide-ranging as mathematical modeling, accounting and finance, actuary, computer programming, engineering, and a variety of positions within the health and social sciences.

<table>
<thead>
<tr>
<th>Schoolcraft College</th>
<th>Credits</th>
<th>Central Michigan University Equivalent</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENG 101 College Composition</td>
<td>3</td>
<td>ENG 101 Freshman Composition</td>
</tr>
<tr>
<td>ENG 102 College Composition 2</td>
<td>3</td>
<td>ENG 201 Intermediate Composition</td>
</tr>
<tr>
<td>Mathematics</td>
<td></td>
<td>Satisfied by COMA 103 or THEA 241 (see below)</td>
</tr>
<tr>
<td>Writing Intensive</td>
<td></td>
<td>Six credits waived if MTA or MACRAO is satisfied. The remaining 6 must be completed at CMU</td>
</tr>
</tbody>
</table>

**General Education – University Program Requirements**

All MTA applicable courses require a grade “C” or higher

**Group I Humanities (6 – 8) from at least 2 subjects**

MACRAO: Requires 8 hours – MTA: Requires 2 courses

| Select one of the following: | |
| COMA 103 Fundamentals of Speech | 3 |
| THEA 241 Oral Interpretation of Literature | 3 |

**Group II Natural Sciences (4 – 8) from at least 2 subjects**

MACRAO: Requires 8 hours (Math + Natural Science) – MTA: Requires 2 courses

At least one course must be a lab science

Select courses from: BIOL 100, 101, 103, 104, 105, 114, 115, 120, 130, 140, 236, 237, 238, 240, 243; CHEM 100, 111, 117, 120, 213, 214; GOEG 105, 105, 135, 212, 217, 225; GEOL 133, 134, 237; PHYS 104, 123, 181, 182, 211, 212 | 4 – 8 |

**Group III Social Sciences (6 – 8) from at least 2 subjects**

MACRAO: Requires 8 hours – MTA: Requires 2 courses

Select courses from: ANTH 112, 117, 201, 211, 214; ECON 103, 201, 202; GOEG 133, 241; HIST 134, 137, 138, 141, 151, 152, 153, 230; POLS 105, 109, 205, 207, 209; PSYCH 153, 201, 205, 206, 207, 209, 219, 229, 239, 249; SOC 201, 205, 209, 210, 220, 290 | 6 – 8 |

**Group IV Studies in Culture and Diversity**

Waived if MTA/MACRAO is satisfied

**Mathematics (3 – 4):**

MACRAO: Requires 8 hours (Math + Natural Science) - MTA: Requires 1 course

MATH 150 Calculus w/ Analytical Geometry 1 | 5 |

**Major or Degree Related Transferable Courses**

| MATH 151 Calculus w/ Analytical Geometry 2 | 5 |
| MATH 230 Linear Algebra | 4 |
| MATH 240 Calculus w/ Analytical Geometry 3 | 5 |
| MATH 252 Differential Equations | 5 |

**Important Notes**

- It is strongly recommended that transfer students contact CMU early in their college career to ensure proper course sequencing for their major, optimizing course scheduling, and timely degree completion at CMU. CMU College of Science & Engineering 989.774.1870
Transfer Credit Guide

This guide is subject to change and should be used in consultation with an academic advisor.

---

Central Michigan University Competency and University Program Course Requirement Information

**Mathematics Major**

**Required Courses I (24 hours)**
- MTH 132 satisfied at Schoolcraft with MATH 150
- MTH 133 satisfied at Schoolcraft with MATH 151
- MTH 223 satisfied at Schoolcraft with MATH 230
- MTH 233 satisfied at Schoolcraft with MATH 240
- MTH 332 Introduction to Mathematical Proof (3)
- MTH 499 Capstone Course in Mathematics (3)
- MTH 523 Modern Algebra I (3)

**Required Courses II (3 hours)**
Select one of the following:
- MTH 532 Advanced Calculus I (3)
- MTH 545 Introduction to Point-Set Topology (3)

**Electives (9 hours)**
Nine or more hours of electives are to be selected from MTH, STA, or CPS in consultation with and approved by a mathematics advisor and must be numbered MTH 296 or higher, STA 382QR or higher, or CPS 181 or higher. **Contact an academic advisor about double counting.**
- MTH 175 (3) Discrete Mathematics may be included as an elective. If MTH 175 is included, then at least 33 hours of the total hours must be in mathematics or statistics.

**Applied Mathematics Concentration**

<table>
<thead>
<tr>
<th>Core Courses (30 hours)</th>
<th>Pure Mathematics Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>MTH 132 satisfied at Schoolcraft with MATH 150</td>
<td>MTH 132 satisfied at Schoolcraft with MATH 150</td>
</tr>
<tr>
<td>MTH 133 satisfied at Schoolcraft with MATH 151</td>
<td>MTH 133 satisfied at Schoolcraft with MATH 151</td>
</tr>
<tr>
<td>MTH 223 satisfied at Schoolcraft with MATH 230</td>
<td>MTH 223 satisfied at Schoolcraft with MATH 230</td>
</tr>
<tr>
<td>MTH 233 satisfied at Schoolcraft with MATH 240</td>
<td>MTH 233 satisfied at Schoolcraft with MATH 240</td>
</tr>
<tr>
<td>MTH 332 Introduction to Mathematical Proof (3)</td>
<td>MTH 332 Introduction to Mathematical Proof (3)</td>
</tr>
<tr>
<td>MTH 334 satisfied at Schoolcraft with MATH 252</td>
<td>MTH 334 satisfied at Schoolcraft with MATH 252</td>
</tr>
<tr>
<td>MTH 499 Capstone Course in Mathematics (3)</td>
<td>MTH 499 Capstone Course in Mathematics (3)</td>
</tr>
<tr>
<td>MTH 523 Modern Algebra I (3)</td>
<td>MTH 523 Modern Algebra I (3)</td>
</tr>
<tr>
<td>MTH 532 Advanced Calculus I (3)</td>
<td>MTH 532 Advanced Calculus I (3)</td>
</tr>
</tbody>
</table>

**Required Courses (12 hours)**
Select four of the following:
- MTH 434 Methods of Applied Mathematics (3)
- MTH 438 Numerical Analysis I (3)
- MTH 439 Numerical Analysis II (3)
- MTH 520 Optimization Theory (3)
- MTH 534 Applied Mathematics/Differential Equations (3)
- MTH 586 Operations Research I (3)
- MTH 587 Operations Research II (3)
- STA 580 Applied Statistical Methods I (3)

**Electives (9 hours)**
Nine or more hours of electives are to be selected from MTH, STA, or CPS in consultation with and approved by a mathematics advisor and must be numbered MTH 296 or higher, STA 382QR or higher, or CPS 181 or higher. **Contact an academic advisor about double counting.**
- MTH 175 (3) Discrete Mathematics may be included as an elective. If MTH 175 is included, then at least 33 hours of the total hours must be in mathematics or statistics.

**BACHELOR OF ARTS:** Completion of the 202 course in any foreign language. This requirement may also be satisfied by passing the 202 examination or equivalent. Two foreign language courses from the University Program may be counted toward satisfying this requirement.

**General Notes**
- A grade of C- or better is required for a course to transfer.
- A bachelor's degree requires a minimum of 124 semester hours of credit. CMU will accept community college transfer credits beyond the recommended 64 semester hours; however students will need to complete a minimum of 60 semester hours from an accredited 4-year-degree granting institution. A minimum of 40 hours must be completed at the 300 level or above. A minimum of 30 semester hours of credit must be earned from CMU.
- The University Program Requirements and competencies may be fulfilled by students who satisfy the MACRAO Agreement or the MTA.
- Students are required to meet CMU Competency Requirements prior to reaching 56 credit hours. Competency requirements consist of: two Written English (composition) courses, one Oral English (communication) course, and one Mathematics course be completed with a grade of “C” or above.

Any remaining required and elective courses for a bachelor’s degree will be selected in consultation with an academic advisor to ensure that CMU degree requirements are being met.

Contact Undergraduate Admissions at cmuadmit@cmich.edu for major related course information and or explore http://cmich.edu/transfer, CMU’s Transfer Equivalency Tool and the CMU’s Transfer Simulation Tool.

Effective Bulletin Year: 2017 – 2018

---

CENTRAL MICHIGAN UNIVERSITY
Admissions: Warriner Hall 102 | Mount Pleasant, MI 48859 | 1-888.292.5366 Toll Free

CMU is an AA/EQ institution, providing equal opportunity to all persons, including minorities, females, veterans and individuals with disabilities. (see cmich.edu/aeoo) UComm 9063