MATHEMATICS EDUCATION

Individuals interested in teaching in K-12 schools must complete a degree in the content area they want to teach plus the teacher preparation program through the Department of Teaching and Learning. Individuals must complete the teaching major/teaching track within that degree program, which may contain different course requirements than the academic major since the sequence of courses is designed to meet state standards. Upon completion of the degree program with the teaching track and the secondary licensure program, one will be eligible for a standard Montana teaching license in this content area.

- Secondary Education Licensure Program (http://www.coehs.umt.edu/departments/currinst/undergradprograms/seced/default.php)
- Licensure Degree Requirements (http://catalog.umt.edu/colleges-schools-programs/education-human-sciences/teaching-learning/lic-secondary-licensure)

Bachelor of Arts - Mathematics; Mathematics Education Concentration

College Humanities & Sciences

Degree Specific Credits: 67-68

Required Cumulative GPA: 2.5

Catalog Year: 2017-2018

Note:
1. The number of degree specific credits required is significantly higher if one also counts the additional course work required by the Teacher Education Program.
2. Note that the Teacher Education Program requires in addition an overall cumulative GPA of at least 2.75.

General Education Requirements

Information regarding these requirements can be found in the General Education Section (http://catalog.umt.edu/academics/general-education-requirements) of the catalog.

Summary

Mathematical Sciences Courses Required for the Mathematics Education Concentration

Core Courses

Elective Course

Mathematics Teaching Methods Course

Student Teaching Requirement for the Mathematical Education Concentration

Science Requirement for the Mathematics Education Concentration

Secondary Teaching Licensure

Total Hours 67-68

Mathematical Sciences Courses Required for the Mathematics Education Concentration

Rule: The courses in this category must be completed with a cumulative GPA of at least 2.75.

Core Courses

Rule: Take all of the following courses.

Note:
1. Residency Requirement: At least 4 of the upper-division courses in this category must be taken at UM Missoula (only 3 if the Elective Course is an upper-division course taken at UM-Missoula).
2. Note that taking M 429 satisfies the Advanced College Writing Requirement for this degree.
3. STAT 451 can be substituted for STAT 341, if STAT 451 is not selected as the elective course.

M 171 Calculus I 4
or M 181 Honors Calculus I
M 172 Calculus II 4
or M 182 Honors Calculus II
M 221 Introduction to Linear Algebra 4
M 301 Mathematics Technology for Teachers 3
M 307 Introduction to Abstract Mathematics 3
M 326 Number Theory 3
M 429 History of Mathematics 3
M 431 Abstract Algebra I 4
M 439 Euclidean and Non-Euclidean Geometry 3
STAT 341 Introduction to Probability and Statistics 3
or STAT 451 Statistical Methods I

Total Hours 34

Minimum Required Grade: C-

Elective Course

Select one of the following: 3-4

M 273 Multivariable Calculus
M 311 Ordinary Differential Equations and Systems
M 325 Discrete Mathematics
M 361 Discrete Optimization
M 362 Linear Optimization
M 381 Advanced Calculus I
M 412 Partial Differential Equations
M 414 Deterministic Models
M 432 Abstract Algebra II
M 440 Numerical Analysis
M 445 Statistical, Dynamical, and Computational Modeling
M 461 Practical Big Data Analytics
M 462 Theoretical Basics of Big Data Analytics and Real Time Computation Algorithms
M 472 Introduction to Complex Analysis
M 473 Introduction to Real Analysis
M 485 Graph Theory
Statistics Education

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>STAT 421</td>
<td>Probability Theory</td>
<td></td>
</tr>
<tr>
<td>STAT 422</td>
<td>Mathematical Statistics</td>
<td></td>
</tr>
<tr>
<td>STAT 451</td>
<td>Statistical Methods I</td>
<td></td>
</tr>
<tr>
<td>STAT 452</td>
<td>Statistical Methods II</td>
<td></td>
</tr>
</tbody>
</table>

Total Hours: 3-4

Minimum Required Grade: C-

Mathematics Teaching Methods Course

**Rule:** Take the following course.

**Note:** The course number EDU 497 covers many different teaching methods courses. The section of EDU 497 entitled "Methods: 5 - 12 Mathematics" is required for the Mathematics Education option.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>EDU 497</td>
<td>Teaching and Assessing</td>
<td>4</td>
</tr>
</tbody>
</table>

Total Hours: 4

Minimum Required Grade: C-

Student Teaching Requirement for the Mathematics Concentration

Take the following course:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDU 495</td>
<td>Student Teaching</td>
<td>14</td>
</tr>
</tbody>
</table>

Total Hours: 14

Minimum Required Grade: C-

Science Requirement for the Mathematics Education Concentration

**Rule:** Take 12 credits in at most two areas selected from astronomy (ASTR), biology (BIO*), chemistry (CHMY), computer science (CSCI, except CSCI TR*), economics (ECNS), forestry (FORS, WILD), geosciences (GEO), management information systems (BMIS), and physics (PHSX).

**Note:**

1. Students completing a teaching minor (in another subject) or a second major are exempt from this requirement.
2. Transfer courses listed on the transcript as "CSCI TR*" may include course work in other areas such as Computer Applications (CAPP) and therefore do not count towards this requirement unless a student successfully petitions the Department of Mathematical Sciences.

Minimum Required Grade: C-

12 Total Credits Required

Secondary Teaching Licensure

**Note:** For licensure to teach mathematics, a student must also gain admission to the Teacher Education Program and meet all the requirements for secondary teaching licensure (see the College of Education and Human Sciences [http://catalog.umt.edu/colleges-schools-programs/education-human-sciences]).