METROPOLITAN STATE UNIVERSITY OF DENVER

Department of Mathematics and Statistics

# Major in Mathematics
# Concentration in Mathematics Education
# Secondary Education (7-12) *or* Middle Math (6-8) Licensure

Effective Fall 2025

**The BS in Mathematics with Concentration in Mathematics Education with Secondary Education (7-12) *or* Middle Math (6-8) Licensure*:** No minor is required. Please Note: This degree plan can result in only one licensure recommendation from MSU Denver (Secondary or Middle). Please see Mathematics Education Advisor if you have any questions.

* The BS in Mathematics with Concentration in Mathematics Education can also be taken with a non-licensure option as a major which requires a minor (Please see Mathematics Education Advisor for more details)

## Course Requirements

### General Studies Courses: 33 Credits minimum

Please see https://www.msudenver.edu/generalstudies for options and information.

| Category | Credit Hours |
|---|---|
| Written Communication | 6 |
| Oral Communication | 3 |
| Quantitative Literacy – *Met within Degree Program* | 3 |
| Arts and Humanities | 6 |
| History | 3 |
| Natural and Physical Sciences | 6 |
| Social and Behavioral Sciences – *may be met by EDS 3150 (3 hours) & EDS 3130 (3 hours)* | 6 |
| Global Diversity **-** *Students will fulfill the global diversity requirement by taking an approved course within one of the following categories: arts and humanities; historical; natural and physical sciences; or social and behavioral sciences.* | 3 |

### Mathematics Major, Mathematics Education Concentration Required Courses: 50 Credits minimum

| **Core Mathematics Courses:** | | Credit Hours |
|---|---|---|
| MTH 1410 | Calculus I | 4 |
| MTH 2410 | Calculus II | 4 |
| MTH 2420 | Calculus III | 4 |
| MTH 3100 | Introduction to Mathematical Proofs | 3 |

| **Additional Required Courses:** | | Credit Hours |
|---|---|---|
| MTH 3110 | Abstract Algebra I | 4 |
| MTH 3140 | Linear Algebra - *Note: MTH 3130 and one of the following: MTH 4110 or MTH 4150 or MTH 4410 or MTH 4660 may substitute for MTH 3140.* | 4 |
| MTH 3210 | Probability and Statistics | 4 |
| MTH 3470 | Introduction to Discrete Mathematics and Modeling | 4 |
| MTL 3620 | Mathematics of the Secondary Curriculum | 4 |
| MTH 3640 | History of Mathematics | 4 |
| MTH 3650 | Foundations of Geometry | 4 |
| MTL 4630 | Teaching Secondary Mathematics – *for the licensure track, MTL 4630 must be taken concurrently with MTL 3638 and EDS 3280 (courses listed in Educational Foundation and Methods section below). - Senior Experience Course* | 4 |
| ### **** | Mathematics or Computer Science Elective - *One of the following courses: MTH 2540 – Scientific Programming with Python, MTH 2520 – R Programming, MTH 3510 – SAS Programming, Any 1000 level (or higher) course with a CS prefix,, Any 3000 or 4000 level MTH course except MTH 3240, OR Any MTL course except MTL 3600* | 3-4 |

## Faculty Advisors in Mathematics Education


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|---|---|---|---|
| Dr. John Carter | SI 1050 | 303-615-0726 | jcarte11@msudenver.edu |
| Dr. Mark Koester | SI 1038 | 303-615-0759 | koesterm@msudenver.edu |
| Dr. Patricia McKenna | SI 1057 | 303-615-0734 | mckennap@msudenver.edu |


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## Educational Foundations and Methods for Licensure: 38 Credits

**Continuation for TRACK 1: Licensure Option**

Students seeking teacher licensure at the secondary or middle level with endorsement in mathematics must take the following sequence of courses and be admitted to the teacher education program. Students should pay particular attention to corequisites and prerequisites.
*Note: This section not required for Track 2: Non-Licensure option. Students pursuing a Mathematics Major with a Mathematics Education Concentration but who are NOT seeking licensure are not required to complete the following courses but are instead required to complete a minor. See a Mathematics Education advisor for more information on this option.*

| Course | | Credit Hours |
|---|---|---|
| EDS 3130 | Foundations of Educational Psychology and Philosophy - *EDS 3130 and EDS 3140 must be taken concurrently.* | 4 |
| EDS 3140 | Field Experience in Secondary Education - *EDS 3130 and EDS 3140 must be taken concurrently.* *All candidates must obtain provisional admission to the teacher preparation program before they can register for their first field experience course(s). Provisional admission requires attending an application meeting, submitting application materials and satisfying the fingerprinting requirement.* | 1 |
| EDS 3150 | Issues in Multicultural Education in Secondary Schools | 3 |
| EDT 3010 | Integrating Educational Tech into Teaching | 3 |
| CLD 3510 | Perspectives in Education for Culturally and Linguistically Diverse Learners | 3 |
| EDS 3210 | Classroom Management, Planning and Assessment in Secondary Schools - *EDS 3210 and EDS 3240 must be taken concurrently.* | 3 |
| EDS 3240 | Field Experience: Classroom Mgmt. Planning and Assessment in Secondary Schools - *EDS 3210 and EDS 3240 must be taken concurrently.* | 1 |
| SED 3600 | Exceptional Learners in the Classroom | 3 |
| EDS 3280 | Disciplinary Literacy in Culturally and Linguistically Diverse Schools - *for the licensure track, MTL 4630 must be taken concurrently with MTL 3638 and EDS 3280 (MTH 3630 listed above in Mathematics Concentration section).* | 3 |
| MTL 3638 | Secondary Mathematics Field Experience - *for the licensure track, MTL 4630 must be taken concurrently with MTL 3638 and EDS 3280 (MTH 4630 listed above in Mathematics Concentration section).* | 2 |
| MTL 4690 | Student Teaching and Seminar: Sec. 7-12 - *This course requires formal admission to the teacher preparation program.* | 12 |

For licensure, students must also achieve satisfactory scores on the Colorado state licensure examination. See your advisor for more information.

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**Total Credits for the Degree:** 120 credits minimum. Students in this program may exceed 120 credits total.

**Track 1: Mathematics Education Concentration *with Licensure* recommendation in Secondary or Middle Mathematics**

NOTE: *Track 1 does not require a minor.*

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|---|---|
| General Studies Requirement | 33 credits |
| Mathematics Major Requirements | 50 credits |
| Educational Foundations and Methods | 38 credits |
| General Electives | 8 credits |
| **Total for the Mathematics Major, B.S., Mathematics Education Concentration with Licensure - Track 1** | **120 credits** |

***PLEASE NOTE:*** There are courses required for state licensure that also satisfy General Studies requirements. Overall major credit hour calculations assume students are taking these required courses to also meet the General Studies requirement. Taking other General Studies options may require additional coursework for licensure recommendation. These General Studies courses that also count toward licensure are noted.

## Purposes of the Major

The Department of Mathematics and Statistics offers a major in Mathematical Sciences with a concentration in **Mathematics Education** and the option of secondary licensure. The goals of this program are to provide degree-seeking candidates with

- broad-based and coherent preparation in the various disciplines that constitute the mathematical sciences and,
- the pedagogical knowledge of mathematics needed to begin a career as a middle or high school mathematics teacher.
- the state requirements for obtaining licensure.

Obtaining this degree, however, does not require that you obtain licensure to be a middle or high school mathematics teacher. This concentration also prepares students for continued study of the mathematical sciences at the graduate level.

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## Declaring a Major

To declare a major in mathematics with concentration in mathematics education, visit the Department of Mathematics and Statistics in SI 1022, or call (303) 615-0299. You should declare your major/concentration at least by the time you have finished the core requirements (listed below), and you absolutely must do this by the time you have completed 60 credit hours toward the degree.

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## General Advising Guidelines

The suggestions below will help you complete your course of study in a timely manner.

- Obtain Advising Materials from the Department Website at https://www.msudenver.edu/math . Materials are located at: Home> Degrees and Programs> Mathematics Major. You will find information on the Basic Degree Requirements for all degrees and information on the Secondary Education Mathematics Concentration. It will also give you details on the department's course rotation schedule and program completion sequences and inform you of times the courses will be offered (day, evening, summer). Note that very few upper-division mathematics courses are offered in the summer semester.
- Complete the core mathematics courses and courses needed to satisfy the General Studies requirements as quickly as possible.
- Declare the major/concentration by the time you complete the core courses.
- Plan your sequence of courses with prerequisites in mind. Note that MTH 3100 is a prerequisite for most upper-division courses.
- Note that 2 or 3 credit hour linear algebra courses taken at most other colleges are not equivalent to MTH 3140. They may not be accepted and/or additional coursework may be required.
- Take no more than two upper-division mathematics courses in the same semester. To do otherwise may jeopardize your grades and content understanding.
- Plan to take MTL 3620 two semesters before student teaching.
- Plan to take MTL 4630 and MTL 3638 in the semester immediately prior to student teaching.
- Note that you must complete all course work before student teaching, and that you must have at least a 2.75 GPA in all courses required for the major.
- Plan to take the mathematics portion of PLACE prior to student teaching. An analysis of scores on the different strands will determine, along with the GPA in the major, whether you will be approved for student teaching.

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## Requirements for Transfer Students

- A faculty advisor in Mathematics Education must evaluate your transcript.
- In order for mathematics courses from another institution to satisfy a requirement for the major, the content must match, not just the name of the course.
- You must meet all the requirements for the program based on all courses taken both at other institutions and at MS Denver.
- You must take at least eight hours of upper-division mathematics courses at MS Denver.
- The last 12 hours of coursework toward the degree must be taken at MS Denver.

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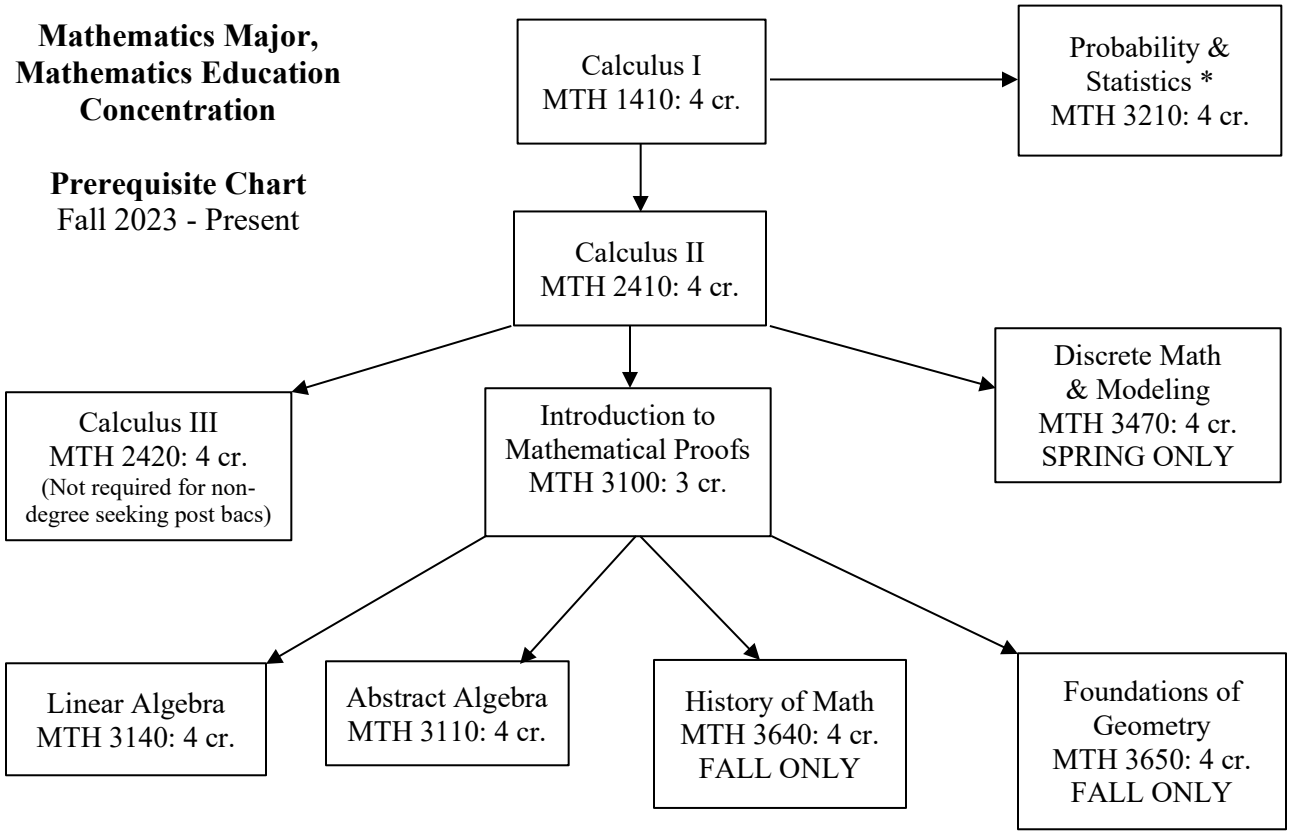
If you would like additional information on this program or other programs offered by the Department of Mathematics and Statistics, please visit the Department's Web site at: https://msudenver.edu/math

Or write or call:
Metropolitan State University of Denver
Department of Mathematical and Computer Sciences
P.O. Box 173362, Campus Box 38
Denver, Colorado 80217-3362
(303) 615-0299

UPDATED 04/15/25

**Mathematics Major, Mathematics Education Concentration**

**Prerequisite Chart**
Fall 2023 - Present




**Notes:**
* The only upper-level math course offered in the summer is MTH 3210.

**Mathematics Teaching and Learning Courses**


**Additional Requirements**

Mathematics or Computer Science Elective
See an advisor or above for details
(Not required for non-degree seeking post bacs)

**Student Teaching Notes**:
Complete all course work BEFORE Student Teaching.
Students must have a 2.75 GPA **in their mathematics courses** to student teach.