Major in Mathematics with Concentration in Mathematics Education
Secondary Education Licensure
Effective Fall 2023

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.

Advising Information

This document, **Major Requirements**, summarizes the requirements for graduating with a Bachelor of Science degree in mathematics with mathematics education concentration, and the course requirements to become licensed to teach secondary mathematics.

You are required to talk to one or more of the **faculty advisors** in the area of mathematics education (listed below) as well as a secondary education advisor as you plan your academic program.

Further information about current course offerings, as well as email addresses and office hours for faculty advisors, is available through the Department's Web site at

https://msudenver.edu/math

Also, be sure to contact the **School of Education** for advising on courses and requirements for licensure in secondary education. (303-615-1555)

Faculty Advisors in Mathematics Education

Dr. John Carter	SI 1050	303-615-0726	jcarte11@msudenver.edu
Dr. Brooke Evans	SI 1056	303-615-0733	bevans21@msudenver.edu
Dr. Don Gilmore	SI 1065	303-615-0738	gilmored@msudenver.edu
Dr. Mark Koester	SI 1038	303-615-0759	koesterm@msudenver.edu
Dr. Patricia McKenna	SI 1057	303-615-0734	mckennap@msudenver.edu

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.

Requirements for the Major

The mathematics major with Mathematics education concentration requires completion of the courses listed below, and satisfaction of the minimum grade and currency requirements stated below.

Core Mathematics Courses   Semester Hours
MTH 1410 Calculus I.. 4
MTH 2410 Calculus II 4
MTH 2420 Calculus III 4
MTH 3100 Introduction to Mathematical Proofs 3

Advanced Mathematics Courses   Semester Hours
MTH 3110 Abstract Algebra I 4
MTH 3140 Linear Algebra* 4
MTH 3210 Probability and Statistics 4
MTH 3470 Intro to Discrete Math 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
(Senior experience)………………………………………4

Mathematics or Computer Science Elective
Choose 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
Any MTL course except MTL 3600

Subtotal ……………………………………………………3-4

* MTH 3130 and one of the following (MTH 4110 or MTH 4150 or MTH 4410 or MTH 4660) may substitute for MTH 3140.

Requirements for the Degree
In addition to completing the courses required for the major (with a grade of "C" or better in all courses in the major), the requirements for a bachelor's degree stated in the catalog must be satisfied. An approved **minor** consisting of at least 18 hours must be completed. Students seeking licensure in Mathematics Education should declare a Secondary Education Minor.

Requirements for Licensure

Below is a list of courses required for licensure as a secondary mathematics teacher. Check with the Secondary Education Department about additional requirements for licensure.

Before the Department of Mathematics and Statistics will approve you for student teaching, you must have completed all the mathematics and computer science courses required for the major, with a cumulative grade point average of at least 2.75.

Course		Semester Hours
[a] EDS 3130	Foundations of Educational Psychology and Philosophy	4
[a] EDS 3140	Field Experience in Secondary Education	1
EDS 3150	Issues in Multicultural Education in Secondary Schools	3
SED 3600	Exceptional Learners in the Classroom	3
[b] EDS 3210	Classroom Management, Planning and Assessment in Secondary Schools	3
[b] EDS 3240	Field Experience: Classroom Mgmt. Planning and Assessment in Secondary Schools	1
RDG 3280	Teaching Content Literacy Skills	4
EDT 3010	Integrating Educational Tech into Teaching	3
MTL 3620	Mathematics of the Secondary Curriculum	4
[c] MTL 4630	Teaching Secondary Mathematics	4
[c] MTL 3638	Secondary Mathematics Field Experience	2
MTL 4690	Student Teaching and Seminar: Sec. 7-12	12

[a] These two courses must be taken concurrently.
[b] These two courses must be taken concurrently.
[c] These two courses must be taken concurrently.

Sample Program of Study

Here is a suggested sequence of courses required for the major and licensure. Note that it does not include courses needed for the minor, General Studies, and other requirements.

Semester	Courses
1:	MTH 1410
2:	MTH 2410, CS 1050
3:	MTH 2420, MTH 3100
4:	MTH 3140, MTH 3210
5:	MTH 3110, MTH 3470, EDS 3130, EDS 3140*
6:	MTL 3620, MTH 3650, EDS 3150, SED 3600, RDG 3280
7:	MTH 3640, MTL 3638*, MTH 4600, EDS 3210, EDS 3240*, EDT 3010, MTL 4630**
8:	MTL 4690* (student teaching)

* Field Experience courses
** Senior Experience Course

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 Praxis 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.

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.