



# Mathematics Education, M.S. *master*

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Required Credits: 32

Required GPA: 3.00

## I. REQUIRED EDUCATION CORE

Complete the following courses:

- ED 6107 Advanced Educational Psychology (3 credits)
- MATH 6050 Assessment in the Mathematics Classroom (3 credits)
- MATH 6069 Mathematics and Culture (3 credits)

## II. REQUIRED MATHEMATICS ELECTIVE COURSES

Select at least 12 credits from the following:

Note: Some courses listed have prerequisites not required in this program.

Other math content courses may be used with consent of advisor.

- MATH 5240 Number Theory (3 credits)
- MATH 5260 Mathematical Problem Solving (3 credits)
- MATH 5310 Linear Algebra (4 credits)
- MATH 5371 Modern Algebra (3 credits)
- MATH 5410 Introduction to Analysis (3 credits)
- MATH 5440 Introduction to Fractals & Chaos (3 credits)
- MATH 5560 Classical and Modern Geometry (3 credits)
- MATH 5710 Mathematical Modeling (3 credits)
- MATH 5720 Numerical Methods (3 credits)
- MATH 5760 Topics in Applied Mathematics (3 credits)
- MATH 5820 History of Mathematics (3 credits)
- MATH 6350 Advanced Abstract Algebra (3 credits)
- MATH 6550 Advanced Geometry (3 credits)
- STAT 5610 Time Series Analysis (3 credits)
- STAT 5631 Probability and Statistics I (4 credits)
- STAT 5632 Probability and Statistics II (3 credits)
- STAT 5660 Statistics for the Health Sciences (3 credits)

## III. REQUIRED MATHEMATICS PEDAGOGY ELECTIVE COURSES

Select at least 9 credits from the following (or other pedagogy courses approved by an advisor):

- MATH 5065 Mathematical Foundations of Algebra (4 credits)
- MATH 5066 Geometry and Technology (4 credits)
- MATH 5067 Data, Probability, and Statistics (4 credits)
- MATH 6061 Number Sense for Teachers (3 credits)
- MATH 6062 Number Theory for Teachers (3 credits)
- MATH 6200 Structures of Discrete Mathematics (3 credits)
- MATH 6500 Geometry in the Classroom for Teachers (3 credits)
- MATH 6600 Probability for Teachers (3 credits)

## IV. REQUIRED PORTFOLIO EVALUATION AND RESEARCH

Note: Consult with an advisor before registering for MATH 6055:

- MATH 6055 Pedagogical Portfolio and Action Research (2 credits)

## COMPETENCY REQUIREMENT

Completion of MATH 6050, Assessment in the Mathematics Classroom, with a

grade of 'B' or better, or the equivalent as approved by the department.

## Program Learning Outcomes | Mathematics Education, M.S.

1. Knowledge: Students will gain an in depth understanding of mathematics content appropriate for secondary school teachers.

2. Pedagogy: Students will develop an understanding of the uses and limitations of a variety of instructional methodologies.

3. Curricular Design: Student will design lessons and curriculum that communicate mathematical concepts to learners with diverse learning styles and ability levels.

4. Research: Students will gain a understanding of the literature and use that understanding to answer research questions in a specialized area of mathematics education.

5. Professional Advancement: Students will apply what they have learned to improve the learning of their students and enhance the mathematics curriculum at their schools.