

MATHEMATICS EDUCATION (33 Semester Hours plus Capstone Experience)

Purpose

The purpose of the program is to facilitate the continuing professional development of practicing K-12 mathematics teachers. It is not for the purpose of the initial preparation of teachers. The program consists of four parts: Professional Education Core (15 hours), Mathematics Content Core (9 hours), Guided Electives (9 hours), and a Capstone Experience (2 hours) In order to meet the diverse professional development needs of practicing K-12 mathematics teachers, the program is flexible. More specifically it meets the needs of teachers who hold bachelor degrees in Secondary Mathematics Education, Mathematics, the sciences, Elementary Education, Early Childhood Education, Special Education, and teachers who have alternative certification. Therefore, the programs rely on strong academic advising that takes into account the current knowledge and skills of program applicants when developing individual degree plans. Courses are offered on a rotating basis that will require a minimum of three years for completion of the plan of study. The Master of Education in Mathematics Education program is administered through the College of Science and Health Professions.

Admission to the Program

All applicants to the M.Ed. in Mathematics Education must first be admitted to the Graduate College. The minimum requirements for regular admission to the Graduate College are:

1. An earned bachelor's degree from an accredited college or university.
2. Scores no more than five years old on either the Miller Analogies Test (MAT) or the Graduate Record Exam (GRE).
3. A grade point average of at least 2.5 based on a 4.0 scale on all undergraduate course work attempted.
4. Proof of citizenship for a U.S. citizen born outside of the United States and for a resident alien. An international applicant for whom English was their first language and is the spoken language in the home must sign a statement to that effect.

The following additional prerequisites to begin the M.Ed. in Mathematics Education program also apply:

1. Have an earned grade point average of at least 3.0 based on a 4.0 system for the last 60 hours of course work attempted at either the undergraduate or graduate level; or attain a raw score of 35 or more on the Miller Analogies Test; or attain a score of 900 (verbal plus quantitative) or more on the Graduate Record Examination.
2. Hold or be eligible for a standard teaching certificate or teaching license or be eligible for an alternative certification program with a plan of study for certification on file with NSU's Office of Teacher Certification and the Graduate College.

3. Submit an essay addressing the individual's personal and professional goals.
4. Letters of recommendation may be required.

Admission decisions are based upon evaluation of all application materials submitted by the individual. An applicant who has not met admission requirements may be admitted for one semester on a tentative (temporary) basis. An applicant may continue in the program beyond the first enrollment only if admission requirements are met. Otherwise, any coursework completed may not apply in the program.

Note: This degree is not structured for the purpose of initial teacher certification.

Admission to Candidacy

Students are eligible to be admitted to candidacy if they have:

1. Completed all requirements for admission to the Graduate College.
2. Been formally admitted to the Masters of Education Degree in Mathematics Education.
3. Completed a minimum of 12 semester hours, or a maximum of 18 hours of the degree as described by the plan of study.
4. Satisfactorily completed EDUC 5103, Educational Research.
5. Maintained a grade point average of at least 3.0 in all graduate course work taken prior to candidacy.
6. Completed academic requirements for a standard teaching certificate.
7. Filed a plan of study (degree plan) approved by the advisor and the Dean of the Graduate College.
8. Filed a Statement of Understanding, signed by the student and advisor, with the Graduate College.

Students are advised to meet candidacy requirements within the first 16 semester hours of their program. These requirements must be met within the first 24 semester hours. In any event, 16 semester hours toward the Master of Education degree must be completed after being admitted to candidacy.

Advisement

Upon admittance to the Graduate College an advisor is assigned to the student. It is the responsibility of the student to contact the faculty member and make an appointment for advisement to develop a degree plan. The advisor develops the plan of study and a Statement of Understanding in conference with the student, assists in the selection of classes each semester, and counsels the student as needed.

Transfer Credit

A maximum of nine semester hours of approved transfer credit may be applied toward the master's degree. Students who wish to transfer credit

applicable to a degree program at Northeastern State University must have maintained a “B” average in all graduate course work attempted at the transferring institution. No credit will be given for a transfer course in which the grade is lower than a “B.”

Retention

All plans of study are valid for only six years. All graduate course work must be completed within six years in order to be counted toward the degree.

Graduation Requirements

1. Complete an approved program in Mathematics Education.
2. Possess a grade point average of at least 3.0 in all graduate work on the plan of study.
3. Request a degree check prior to the semester of graduation.
4. Apply for the degree at the beginning of the semester of expected graduation.
5. Satisfactorily complete an approved capstone experience 60 days before conferral of the degree.

Capstone Experience

A capstone experience is an academic activity that encourages the use of skills learned and knowledge gained in one or more areas of the field of study. It is a culminating experience that goes beyond the course work required of the Master of Education degree and should be completed near the end of the student’s program. Capstone experiences for the Mathematics Education program will have a significant writing component and may include satisfactorily completing one of the following:

1. A teaching portfolio that may be submitted for National Board Certification in a mathematics certification area.
2. An applied research project, or action research project, on the student’s own mathematics teaching and a research paper discussing the project and its findings.
3. A mathematics curriculum project that requires students to apply skills and knowledge acquired in the program.

Structure of the Degree Plan

The Professional Education Core is required for all graduates and provides a strong core of knowledge and skills that are necessary for professional teachers. The advisor will assess teacher knowledge and skills in consultation with the teacher and determine the remaining coursework for the degree plan. Below are two sample courses of study. One is for an Elementary Education major who is a middle school mathematics teacher and the other is for a high school mathematics teacher who has a strong mathematics background.

Middle School Mathematics Teacher with Elementary Education Degree

In most cases the teacher, unless he or she has taken additional mathematics courses, would benefit from additional mathematics content. A typical degree plan would include 18 hours of additional mathematics content, nine hours from the Mathematics Content Core and nine hours from the Guided Electives. These courses include Algebra Concepts, Technology in Mathematics Education, Geometry, Data Analysis, Number Theory, and Rate of Change and teach the competencies in the Framework for the Middle Level/ Intermediate Mathematics Oklahoma Subject Area Test using reform based methods. The capstone experience is completed near the end of the course of study. (Note that this plan would also be appropriate for elementary teachers who wish to become mathematics specialists.)

High School Mathematics Teacher with Strong Mathematics Background

Students with strong mathematics backgrounds will choose nine hours of course work having calculus as a prerequisite. These courses include: Abstract Algebra II, Elementary Number Theory, Statistical Inference, Vector Analysis, and History of Mathematics. They will also choose nine hours of additional course work from the Guided Electives list with the approval of their advisor. Additional courses on that list include: Instructional Strategies, Cognitive Learning Styles, Modern Philosophies of Education, and Modern Geometries. The capstone experience is completed near the end of the course of study. The program credit requirements are summarized below.

Summary of Graduate Credits Required for M.Ed. in Mathematics Education

| | Number of Graduate Hours |
|--|--------------------------|
| Total Number of Graduate Hours Required for the Degree | 35 |
| Professional Education Core | 15 |
| Mathematics Content Core (with advisor approval) | 9 |
| Guided Electives (with advisor approval) | 9 |
| Capstone Experience | 2 |

**Plan of Study for M.Ed. in Mathematics Education
(33 hours plus 2 hour Capstone Experience)**

Professional Education Core (15 hours)

- EDUC 5103 Educational Research
- EDUC 5403 Fundamentals of Curriculum Design I
- EDUC 5483 Advanced Educational Measurements
- EDUC 5753 Advanced Educational Psychology
- EDUC 5823 Advanced Technology in Education

Mathematics Content Core (Choose 9 hours with advisor approval.)

MATH 5323 Algebra Concepts
MATH 5513 Technology in Mathematics Education
MATH 5273 Geometry
MATH 5233 Data Analysis
MATH 5023 Number Theory
MATH 5463 Rate of Change
MATH 5013 Abstract Algebra II
MATH 5243 Elementary Number Theory
MATH 5283 Statistical Inference
MATH 5413 Vector Analysis
MATH 5613 History of Mathematics

Guided Electives (Choose 9 hours with advisor approval.)

MATH 5323 Algebra Concepts
MATH 5513 Technology in Mathematics Education
MATH 5273 Geometry
MATH 5233 Data Analysis
MATH 5023 Number Theory
MATH 5463 Rate of Change
MATH 5013 Abstract Algebra II
MATH 5243 Elementary Number Theory
MATH 5283 Statistical Inference
MATH 5313 Modern Geometries
MATH 5413 Vector Analysis
MATH 5613 History of Mathematics
EDUC 5303 Modern Philosophies of Education
EDUC 5463 Instructional Strategies
EDUC 5633 Cognitive Learning Styles

Capstone Experience

MATH 5992 Capstone (Arranged with permission from advisor)