MATH EDUCATION MAJOR: ELEMENTARY/MIDDLE SCHOOL EDUCATION K-8 OPTION (B.S.)

https://ceps.unh.edu/mathematics-statistics/program/bs/mathematics-education-elementarymiddle-school-option

Description

Beginning in the 2022/23 academic year, the Math Education Major: Elementary/Middle School Education K-8 option will no longer be accepting new students. Current students will continue to have access to the same high-quality education and resources until they graduate.

This professional degree program prepares students for teaching mathematics at the elementary and/or middle school level. The program is coordinated with the education department’s teacher certification programs. For the elementary option, full certification requires the five-year program. Students may complete the degree requirements for middle school option with full teacher certification in either four or five years.

Students electing the four-year option leading to middle school certification must plan for one semester of student teaching (EDUC 694C Supervised Teaching/Mathematics) in their senior year; this requires careful planning with your program adviser to accommodate the scheduling of required MATH courses. Requirements for admission to student teaching include receiving credit for EDUC 500 and a minimum cumulative 2.8 GPA.

The five-year program for either option includes a year-long teaching internship in the fifth year. The internship requires admission into a UNH Department of Education graduate program that leads to certification. See Education, College of Liberal Arts.

Graduation Requirements

In all courses used to satisfy the requirements for its major programs, the Department of Mathematics and Statistics requires that a student earn a grade of C- or better and have an overall grade-point average of at least 2.00 in these courses.

For teacher licensure a grade of B- or better is required in all Education courses.

Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 425</td>
<td>Calculus I</td>
<td>4</td>
</tr>
<tr>
<td>MATH 426</td>
<td>Calculus II</td>
<td>4</td>
</tr>
<tr>
<td>MATH 445</td>
<td>Mathematics and Applications with MATLAB</td>
<td>4</td>
</tr>
<tr>
<td>or CS 410P</td>
<td>Introduction to Scientific Programming/Python</td>
<td>4</td>
</tr>
<tr>
<td>or CS 410C</td>
<td>Introduction to Scientific Programming/C</td>
<td>4</td>
</tr>
<tr>
<td>MATH 531</td>
<td>Mathematical Proof</td>
<td>4</td>
</tr>
<tr>
<td>MATH 539</td>
<td>Introduction to Statistical Analysis</td>
<td>4</td>
</tr>
<tr>
<td>MATH 545</td>
<td>Introduction to Linear Algebra</td>
<td>4</td>
</tr>
<tr>
<td>or MATH 645</td>
<td>Linear Algebra for Applications</td>
<td>4</td>
</tr>
<tr>
<td>MATH 621</td>
<td>Number Systems for Teachers</td>
<td>4</td>
</tr>
</tbody>
</table>

Total Credits: 78-80

Note: EDUC 703F Teaching Elementary School Science, EDUC 703M Teaching Elementary Social Studies, EDUC 706 Teaching & Learning Literacy in the Elementary Classroom, and EDUC 751A Inclusive Elementary Education: Literacies and Learning for Diverse Learners are requirements for K-6 or K-8 certification.

EDUC 706 Teaching & Learning Literacy in the Elementary Classroom must be completed prior to the Internship (EDUC 900A Internship and Seminar in Teaching and EDUC 901A Internship and Seminar in Teaching).

Degree Plan

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 425</td>
<td>Calculus I</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 406</td>
<td>Introduction to Modern Astronomy</td>
<td>4</td>
</tr>
<tr>
<td>EDUC 500</td>
<td>Exploring Teaching</td>
<td>4</td>
</tr>
<tr>
<td>MATH 400</td>
<td>Freshman Seminar</td>
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</table>

Total Credits: 17

Second Year

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>MATH 539</td>
<td>Introduction to Statistical Analysis</td>
<td>4</td>
</tr>
<tr>
<td>MATH 621</td>
<td>Number Systems for Teachers</td>
<td>4</td>
</tr>
<tr>
<td>EDUC 500</td>
<td>Exploring Teaching</td>
<td>4</td>
</tr>
</tbody>
</table>

Total Credits: 16
Spring
MATH 531 Mathematical Proof 4
MATH 545 Introduction to Linear Algebra 4
or MATH 645 Linear Algebra for Applications
MATH 622 Geometry for Teachers 4
Discovery Course 4
Credits 16

Third Year
 Fall
MATH 623 Probability and Statistics for Teachers 4
MATH 700 Introduction to Mathematics Education 4
MATH 760 Geometry 4
Discovery Course 4
Credits 16

Spring
MATH 625 Functions and Algebra for Teachers 4
MATH 703 Teaching of Mathematics in Grades K-5 4
or MATH 709 Teaching of Mathematics in Grades 6-12
MATH 790 Historical Foundations of Mathematics 4
Discovery Course 4
Credits 16

Fourth Year
 Fall
MATH 797 Senior Seminar 4
or MATH 799 Senior Thesis 4
EDUC 605 Educational Perspectives in Critical Times 4
Writing Intensive Course 4
Elective Course 4
Credits 16

Spring
EDUC 701 Human Development & Learning: Cultural Perspectives 4
Writing Intensive Course 4
Elective Course 4
Elective Course 4
Credits 16
Total Credits 129

Student Learning Outcomes

Mathematics Concepts, Practices, and Curriculum. Well-prepared beginning teachers of mathematics:

- Demonstrate robust knowledge of mathematical and statistical concepts that underlie what they encounter in teaching of K-8 or secondary mathematics.
- Engage in appropriate mathematical and statistical practices, and use technological tools to solve mathematical problems, and incorporate educational technology in their teaching.
- Analyze and interpret mathematical curricula, assessments, and standards documents.
- Analyze and interpret students’ mathematical work.

Pedagogical Knowledge and Practices for Teaching Mathematics. Well-prepared beginning teachers of mathematics:

- Demonstrate strong foundations of pedagogical knowledge, and effective and equitable mathematics teaching practices.
- Construct instructional explanations, develop tasks, lesson plans and unit plans, that advance students’ mathematical understanding.
- Recognize common patterns of student thinking related to particular mathematical topics, and articulate ways of supporting students’ mathematical thinking.

Productive dispositions. Well-prepared beginning teachers:

- Demonstrate positive and productive dispositions toward mathematics as a discipline, towards students as learners of mathematics and towards teaching mathematics in ways that support students’ sense making, understanding, and reasoning.