MATHEMATICS EDUCATION MAJOR: SECONDARY EDUCATION OPTION (B.S.)

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

Description

This professional degree program prepares students for teaching mathematics at the secondary level. The program is coordinated with the education department’s teacher certification programs. Students may complete the degree requirements for the secondary option with full teacher certification in either four or five years.

Students electing the four-year option leading to secondary school certification must plan for one semester of student teaching in their senior year; this requires careful planning with your program adviser to accommodate the scheduling of required MATH courses.

The five-year program 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.

Requirements

Degree Requirements

Minimum Credit Requirement: 128 credits

Minimum Residency Requirement: 32 credits must be taken at UNH

Minimum GPA: 2.0 required for conferral*

Core Curriculum Required: Discovery & Writing Program Requirements

Foreign Language Requirement: No

All Major, Option and Elective Requirements as indicated.

*Major GPA requirements as indicated.

Major Requirements

Requirements for admission to student teaching include receiving credit for EDUC 500 and a minimum cumulative 2.8 GPA.

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.

Degree Plan

First Year

<table>
<thead>
<tr>
<th>Fall</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>MATH 425         Calculus I</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 401        First-Year Writing</td>
<td>4</td>
</tr>
<tr>
<td>Discovery Course</td>
<td>4</td>
</tr>
<tr>
<td>Inquiry Course</td>
<td>4</td>
</tr>
<tr>
<td>MATH 400          Freshman Seminar</td>
<td>1</td>
</tr>
<tr>
<td>Credits</td>
<td>17</td>
</tr>
</tbody>
</table>

Spring

| MATH 426         Calculus II | 4       |
| MATH 445 or MATH 410P Mathematics and Applications with MATLAB or Introduction to Scientific Programming/Python | 4       |
| MATH 410C or CS 410C Introduction to Scientific Programming/C | 4       |
| Discovery Course | 4       |
| Discovery Course | 4       |
| Credits           | 16      |

Second Year

<table>
<thead>
<tr>
<th>Fall</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>MATH 528         Multidimensional Calculus</td>
<td>4</td>
</tr>
<tr>
<td>MATH 531         Mathematical Proof</td>
<td>4</td>
</tr>
<tr>
<td>EDUC 500          Exploring Teaching</td>
<td>4</td>
</tr>
<tr>
<td>Discovery Course</td>
<td>4</td>
</tr>
<tr>
<td>Credits</td>
<td>16</td>
</tr>
</tbody>
</table>

Spring

| MATH 527         Differential Equations with Linear Algebra | 4       |
| MATH 545 or MATH 645 Introduction to Linear Algebra or Linear Algebra for Applications | 4       |

Note: EDUC 751B Methods of Inclusive Secondary Education: Literacies, Learning, and Transitions is a requirement for certification and may be taken as an undergraduate.
MATH 790   Historical Foundations of Mathematics     4  
Discovery Course                         4  

Credits                                   16  

Third Year  
Fall  
MATH 539   Introduction to Statistical Analysis     4  
MATH 700   Introduction to Mathematics Education 4  
MATH 760   Geometry                                 4  
Discovery Course                         4  

Credits                                   16  

Spring  
MATH 709   Teaching of Mathematics in Grades 6-12  4  
MATH 761   Abstract Algebra                         4  
Discovery Course                         4  
Writing Intensive 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                          3  

Credits                                   15  

Spring  
MATH 624   Analysis of Secondary School Mathematics 4  
EDUC 701   Human Development & Learning: Cultural Perspectives 4  
Elective Course                          4  
Elective Course                          4  

Credits                                   16  

Total Credits                              128  

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.