Description

This degree prepares students for careers in science, engineering, and industry by giving students broad exposure to both theoretical and computational models of physical systems in the physical, natural, and social sciences.

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

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.

### Code | Title | Credits
---|---|---
MATH 425 | Calculus I | 4
MATH 426 | Calculus II | 4
MATH 445 | Mathematics and Applications with MATLAB or IAM 550 Introduction to Engineering Computing | 4
MATH 527 | Differential Equations with Linear Algebra | 4
MATH 528 | Multidimensional Calculus | 4
MATH 531 | Mathematical Proof | 4
MATH 545 | Introduction to Linear Algebra | 4
or MATH 645 Linear Algebra for Applications
MATH 644 | Statistics for Engineers and Scientists | 4
MATH 647 | Complex Analysis for Applications or MATH 788 Complex Analysis | 4
MATH 745 | Foundations of Applied Mathematics I | 4
MATH 753 | Introduction to Numerical Methods I | 4
MATH 757 | Mathematical Optimization for Applications | 4
PHYS 407 | General Physics I | 4
PHYS 408 | General Physics II | 4
CS 415 | Introduction to Computer Science I | 4
& CS 416 and Introduction to Computer Science II

Select one course from the following:

- MATH 797 Senior Seminar
- MATH 798 Senior Project
- MATH 799 Senior Thesis

### Electives

Select one (1) approved 700-level CEPS course in consultation with academic advisor 4
Select two courses from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
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<tbody>
<tr>
<td>MATH 476</td>
<td>Foundations of Applied Mathematics II</td>
</tr>
<tr>
<td>MATH 474</td>
<td>Introduction to Nonlinear Dynamics and Chaos</td>
</tr>
<tr>
<td>MATH 767</td>
<td>One-Dimensional Real Analysis</td>
</tr>
</tbody>
</table>

Total Credits: 80

1. The full Linearity sequence, MATH 525 & MATH 526, may be used to replace the MATH 527, MATH 528, and MATH 545 / MATH 645 requirements.
2. MATH 525 may be used to replace the MATH 545 or MATH 645 requirement.

Sample Degree Plan

### First Year

**Fall**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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</table>
| MATH 425 | Calculus I | 4
| CS 415 | Introduction to Computer Science I | 4
| Discovery Course | | 4
| Inquiry Course | | 4
| MATH 400 | Freshman Seminar | 1

**Credits**: 17

**Spring**

<table>
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<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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</table>
| MATH 426 | Calculus II | 4
| MATH 445 or IAM 550 | Mathematics and Applications with MATLAB or Introduction to Engineering Computing | 4
| CS 416 | Introduction to Computer Science II | 4
| ENGL 401 | First-Year Writing | 4

**Credits**: 16

### Second Year

**Fall**

<table>
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<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
</table>
| MATH 527 | Differential Equations with Linear Algebra | 4
| PHYS 407 | General Physics I | 4
| Discovery Course | | 4

**Credits**: 16

**Spring**

<table>
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<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
</table>
| MATH 528 | Multidimensional Calculus | 4
| MATH 531 | Mathematical Proof | 4
| PHYS 408 | General Physics II | 4
| Discovery Course | | 4

**Credits**: 16

### Third Year

**Fall**

<table>
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<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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</thead>
</table>
| MATH 545 | Introduction to Linear Algebra or Linear Algebra for Applications | 4
| MATH 644 | Statistics for Engineers and Scientists | 4
| MATH 753 | Introduction to Numerical Methods I | 4

University of New Hampshire
### Applied Mathematics Major (B.S.)

#### Discovery Course
- Credits: 4

### Spring
- MATH 757 Mathematical Optimization for Applications: 4
- CEPS 700-level elective: 4
- Discovery Course: 4
- Elective: 4

#### Credits
- Total: 16

#### Fourth Year

#### Fall
- MATH 745 Foundations of Applied Mathematics I: 4
- Writing Intensive Course: 4
- Elective: 4
- Elective: 4

#### Credits
- Total: 16

#### Spring
- MATH 647 or MATH 788 Complex Analysis for Applications: 4
- or Complex Analysis: 4
- MATH 797 or MATH 798 or MATH 799
  - Senior Seminar: 4
  - or Senior Project: 4
  - or Senior Thesis: 4
- Writing Intensive Course: 4
- Elective: 4

#### Credits
- Total: 16

### Total Credits
- 129

### Student Learning Outcomes

- Students recognize common mathematical notations and operations used in mathematics, science and engineering.
- Students can recognize and classify a variety of mathematical models including differential equations, linear and nonlinear systems of algebraic equations, and common probability distributions.
- Students have developed a working knowledge (including notation, terminology, foundational principles of the discipline, and standard mathematical models within the discipline) in at least one discipline outside of mathematics.
- Students are able to extract useful knowledge, both quantitative and qualitative, from mathematical models and can apply that knowledge to the relevant discipline.