MATHEMATICS MAJOR (B.S.)

https://ceps.unh.edu/mathematics-statistics/mathematics-bs

Description

This program offers the strongest concentration in mathematics, requiring courses that are intended to prepare the student for graduate work in mathematics. Through a judicious choice of electives, students may design stronger pre-graduate programs, a program in applied mathematics, or slant the program toward a career in business or industry.

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.

Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tr>
<td>Required MATH Courses</td>
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<tr>
<td>MATH 425</td>
<td>Calculus I</td>
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<tr>
<td>MATH 426</td>
<td>Calculus II</td>
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<tr>
<td>MATH 445</td>
<td>Mathematics and Applications with MATLAB or CS 410P or CS 410C</td>
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<tr>
<td>MATH 527</td>
<td>Differential Equations with Linear Algebra 1</td>
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<tr>
<td>MATH 528</td>
<td>Multidimensional Calculus 1</td>
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</tr>
<tr>
<td>MATH 531</td>
<td>Mathematical Proof</td>
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</tr>
<tr>
<td>MATH 539</td>
<td>Introduction to Statistical Analysis</td>
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<tr>
<td>MATH 545</td>
<td>Introduction to Linear Algebra 2</td>
<td>4</td>
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<tr>
<td>or MATH 645</td>
<td>Linear Algebra for Applications</td>
<td>4</td>
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<tr>
<td>MATH 761</td>
<td>Abstract Algebra</td>
<td>4</td>
</tr>
<tr>
<td>MATH 763</td>
<td>Abstract Algebra II</td>
<td>4</td>
</tr>
<tr>
<td>MATH 767</td>
<td>One-Dimensional Real Analysis</td>
<td>4</td>
</tr>
<tr>
<td>MATH 784</td>
<td>Topology</td>
<td>4</td>
</tr>
<tr>
<td>MATH 788</td>
<td>Complex Analysis</td>
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<td>MATH elective, selected in consultation with the academic advisor</td>
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<td>Select TWO of the following electives</td>
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<td>MATH 750</td>
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<td>MATH 755</td>
<td>Introduction to Commutative Algebra and Algebraic Geometry</td>
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<td>MATH 768</td>
<td>Real Analysis II</td>
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<td>MATH 769</td>
<td>Introduction to Differential Geometry</td>
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<tr>
<td>MATH 770</td>
<td>Foundations of Number Theory</td>
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<td>MATH 772</td>
<td>Combinatorics</td>
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<td>MATH 797</td>
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<td>MATH 799</td>
<td>Senior Thesis</td>
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<td>Other Required Courses</td>
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<tr>
<td>PHYS 407</td>
<td>General Physics I</td>
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<tr>
<td>PHYS 408</td>
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1 MATH 525 Linearity I may be substituted for MATH 645. MATH 525 & MATH 526, Linearity, may be substituted for MATH 527, MATH 528, and MATH 645.

Degree Plan

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<thead>
<tr>
<th>Course</th>
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<tr>
<td>First Year</td>
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<tr>
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<td>Multidimensional Calculus</td>
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<td>Introduction to Statistical Analysis</td>
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<td>MATH 545 or MATH 645</td>
<td>Introduction to Linear Algebra or Linear Algebra for Applications</td>
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<td>Abstract Algebra</td>
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<td>MATH 784</td>
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Mathematics Major (B.S.)

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**Spring**

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<tr>
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<td><strong>Credits 16</strong></td>
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</table>

**Total Credits 129**

**Student Learning Outcomes**

- Students can explain core concepts from a range of different branches of mathematics, including analysis, algebra, calculus and statistics.
- Students can correctly interpret mathematical definitions and construct simple proofs which use definitions and logical arguments to establish properties of mathematical objects.
- Students are aware that mathematical objects may have multiple representations and are able to select representations which clarify problems and simplify calculations.
- Students can recognize valid and invalid mathematical arguments.