# Applied Mathematics Major: Solid Mechanics and Vibrations Option (B.S.)

https://ceps.unh.edu/mathematics-statistics/program/bs/applied-mathematics-solid-mechanics-vibrations-option

## Description

This degree program prepares students for employment and/or graduate study in a variety of fields and research specializations in which mathematics plays a critical role in the solution of important scientific and technological problems.

## 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

### Major 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 IAM 550</td>
<td>Introduction to Engineering Computing</td>
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</tr>
<tr>
<td>MATH 527</td>
<td>Differential Equations with Linear Algebra ¹</td>
<td>4</td>
</tr>
<tr>
<td>MATH 528</td>
<td>Multidimensional Calculus ¹</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 645</td>
<td>Linear Algebra for Applications ¹</td>
<td>4</td>
</tr>
<tr>
<td>MATH 753</td>
<td>Introduction to Numerical Methods I</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 407</td>
<td>General Physics I</td>
<td>4</td>
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</table>

**Capstone - select one of the following:**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>MATH 797</td>
<td>Senior Seminar</td>
<td></td>
</tr>
<tr>
<td>MATH 798</td>
<td>Senior Project</td>
<td></td>
</tr>
<tr>
<td>MATH 799</td>
<td>Senior Thesis</td>
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</table>

**Total Credits** 44

¹ MATH 525 Linearity I may be substituted for: MATH 645 Linear Algebra for Applications.

MATH 525 Linearity I & MATH 526 Linearity II may be substituted for: MATH 527 Differential Equations with Linear Algebra, MATH 528 Multidimensional Calculus, and MATH 645 Linear Algebra for Applications.

### Solid Mechanics and Vibrations Option Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 408</td>
<td>General Physics II</td>
<td>4</td>
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<tr>
<td>MATH 647</td>
<td>Complex Analysis for Applications</td>
<td>4</td>
</tr>
<tr>
<td>MATH 745</td>
<td>Foundations of Applied Mathematics I</td>
<td>4</td>
</tr>
<tr>
<td>ME 525</td>
<td>Statics</td>
<td>3</td>
</tr>
<tr>
<td>or CEE 500</td>
<td>Statics for Civil Engineers</td>
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<tr>
<td>ME 526</td>
<td>Mechanics of Materials</td>
<td>3</td>
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<tr>
<td>or CEE 501</td>
<td>Strength of Materials</td>
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</tr>
<tr>
<td>ME 561</td>
<td>Introduction to Materials Science</td>
<td>4</td>
</tr>
<tr>
<td>ME 627</td>
<td>Dynamics</td>
<td>3</td>
</tr>
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</table>

**Select TWO of the following:**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>ME 724</td>
<td>Vibration Theory and Applications</td>
<td></td>
</tr>
<tr>
<td>ME 727</td>
<td>Advanced Mechanics of Solids</td>
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<tr>
<td>ME 730</td>
<td>Mechanical Behavior of Materials</td>
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</tr>
<tr>
<td>ME 731</td>
<td>Fracture and Fatigue Engineering Material</td>
<td></td>
</tr>
</tbody>
</table>

**Total Credits** 33