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

Beginning in the 2022/23 academic year, the Applied Mathematics Major: Solid Mechanics and Vibrations 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 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.

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	4
or IAM 550	Introduction to Engineering Computing	
MATH 527	Differential Equations with Linear Algebra [1]	4
MATH 528	Multidimensional Calculus [1]	4
MATH 531	Mathematical Proof	4
MATH 644	Statistics for Engineers and Scientists [2]	4
MATH 645	Linear Algebra for Applications [1]	4
MATH 753	Introduction to Numerical Methods I	4
PHYS 407	General Physics I	4
Capstone: Select one of the following		
MATH 797	Senior Seminar	4
MATH 798	Senior Project	4
MATH 799	Senior Thesis	2 or 4
Total Credits		**50-52**

1. The full Linearity sequence, MATH 525 and MATH 526, may be used to replace the MATH 527, MATH 528, and MATH 645 requirements. MATH 525 may be used to replace the MATH 645 requirement.
2. Applied Mathematics: Economics Option students must take MATH 539 Introduction to Statistical Analysis.

Solid Mechanics and Vibrations Option Requirements

Code	Title	Credits
PHYS 408	General Physics II	4
MATH 647	Complex Analysis for Applications	4
MATH 745	Foundations of Applied Mathematics I	4
ME 525	Statics	3
or CEE 500	Statics for Civil Engineers	
ME 526	Mechanics of Materials	3
or CEE 501	Strength of Materials	
ME 561	Introduction to Materials Science	4
ME 627	Dynamics	3
Select TWO from the following:		**8**
ME 727	Advanced Mechanics of Solids	
ME #730	Mechanical Behavior of Materials	
700-level elective, selected in consultation with the academic advisor		
Total Credits		**33**

Degree Plan

First Year		
Fall		**Credits**
MATH 425	Calculus I	4
PHYS 407	General Physics I	4
Discovery Course		4
Inquiry Course		4
MATH 400	Freshman Seminar	1
	Credits	**17**
Spring		
MATH 426	Calculus II	4
MATH 445 or IAM 550	Mathematics and Applications with MATLAB or Introduction to Engineering Computing	4
PHYS 408	General Physics II	4
ENGL 401	First-Year Writing	4
	Credits	**16**
Second Year		
Fall		
MATH 528	Multidimensional Calculus	4
MATH 644	Statistics for Engineers and Scientists	4
ME 525	Statics	4
Discovery Course		4
	Credits	**16**
Spring		
MATH 527	Differential Equations with Linear Algebra	4
MATH 531	Mathematical Proof	4

MATH 645	Linear Algebra for Applications	4
ME 526	Mechanics of Materials	3
	Credits	**15**
Third Year		
Fall		
MATH 647	Complex Analysis for Applications	4
MATH 745	Foundations of Applied Mathematics I	4
ME 627	Dynamics	3
Discovery Course		4
Discovery Course		4
	Credits	**19**
Spring		
ME 561	Introduction to Materials Science	4
Elective Course		4
Discovery Course		4
Writing Intensive Course		4
	Credits	**16**
Fourth Year		
Fall		
MATH 753	Introduction to Numerical Methods I	4
Elective Course		4
Discovery Course		4
Writing Intensive Course		4
	Credits	**16**
Spring		
MATH 797 or MATH 798 or MATH 799	Senior Seminar or Senior Project or Senior Thesis	4
Elective Course		4
Elective Course		4
Elective Course		4
	Credits	**16**
	Total Credits	**131**

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.