# **MATHEMATICS MAJOR (B.A.)**

https://ceps.unh.edu/mathematics-statistics/program/ba/mathematics

#### Description

The bachelor of arts degree with the mathematics major may offer a broader liberal arts program than the bachelor of science degree programs. By a careful selection of electives, students can shape this major into a preparation for graduate school, business, or industry.

#### 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: Yes

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		
Required Courses				
MATH 425	Calculus I	4		
MATH 426	Calculus II	4		
MATH 445	Mathematics and Applications with MATLAB	4		
or CS 410P	Introduction to Scientific Programming/Python			
or CS 410C	Introduction to Scientific Programming/C			
MATH 527	Differential Equations with Linear Algebra <sup>1</sup>	4		
MATH 528	Multidimensional Calculus <sup>1</sup>	4		
MATH 531	Mathematical Proof	4		
MATH 539	Introduction to Statistical Analysis	4		
MATH 545	Introduction to Linear Algebra <sup>1</sup>	4		
or MATH 645	Linear Algebra for Applications			
MATH 761	Abstract Algebra	4		
MATH 767	One-Dimensional Real Analysis	4		
THREE additional approved MATH courses (selected in consultation with the academic advisor) 12				
Capstone				
Select one of the following:		4		
MATH 797	Senior Seminar			
MATH 799	Senior Thesis			
Other Required Courses				
Foreign language requirement as defined by the University for all B.A. degrees.				
Total Credits		56		

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

MATH 525 may be used to replace the MATH 545 or MATH 645 requirement.

### **Degree** Plan

# Sample Degree Plan

This sample degree plan serves as a general guide; students collaborate with their academic advisor to develop a personalized degree plan to meet their academic goals and program requirements.

First Year		
Fall		Credits
MATH 425	Calculus I	4
Language Course		4
Discovery Course		4
Inquiry Course		4
MATH 400	Freshman Seminar	1
	Credits	17
Spring		
MATH 426	Calculus II	4
MATH 445 or CS 410C	Mathematics and Applications with MATLAB	4
or CS 410P	Programming/C	
	or Introduction to Scientific	
	Programming/Python	
ENGL 401	First-Year Writing	4
Language Course		4
	Credits	16
Second Year Fall		
MATH 528	Multidimensional Calculus	4
MATH 539	Introduction to Statistical Analysis	4
Discovery Course		4
Discovery Course		4
	Credits	16
Spring		
MATH 527	Differential Equations with Linear Algebra	4
MATH 531	Mathematical Proof	4
Discovery Course		4
Discovery Course		4
	Credits	16
Third Year Fall		
MATH 545 or MATH 645	Introduction to Linear Algebra or Linear Algebra for Applications	4
MATH 761	Abstract Algebra	4
Discovery Course		4
Writing Intensive	Course	4
	Credits	16
Spring		
MATH 767	One-Dimensional Real Analysis	4
MATH Elective Co	urse	4

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Discovery Course		4
Writing Intensive	Course	4
	Credits	16
Fourth Year		
Fall		
MATH 797 or MATH 799	Senior Seminar or Senior Thesis	4
MATH Elective Course		4
Elective Course		4
Elective Course		4
	Credits	16
Spring		
MATH Elective Course		4
Elective Course		4
Elective Course		4
Elective Course		4
	Credits	16
	Total Credits	129

# **Student Learning Outcomes**

# **Program 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.