

# Mathematics Major

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## About

The Department of Mathematics & Statistics offers a standard course of study for a mathematics major to provide the student with an introduction to the major branches of mathematics as an academic discipline within the context of a comprehensive education in the liberal arts and sciences. Students who complete the Mathematics program will be prepared for a broad range of opportunities in business, government, and service industries, as well as being prepared to undertake graduate study in mathematics and related disciplines.

**Program:** [Mathematics and Statistics](#)

**Type:** Bachelor of Science

## PRIMARY MAJOR (122 credits)

## Required Major Courses (59 credits)

The program leading to a degree of Bachelor of Science with a Mathematics major is designed to introduce students to the major aspects of contemporary mathematics.

By selecting appropriate electives students may become well prepared either for positions in industry or for graduate study in mathematics and related disciplines. The mathematics major can prepare one for a career in actuarial science, operations research, computer science, statistics, biostatistics, mathematical physics, or any of many other areas which use mathematics.

### Program Notes:

- A student pursuing a double major in mathematics and some other field may petition to have an approved upper-division course from their other major count as one of the four math electives. The course must have substantial mathematical content and may not significantly overlap with any of the other courses that the student is counting towards the major. A student pursuing a double major in mathematics and a closely related field such as computer science or engineering may petition to have two approved upper-division courses from their other major count as math electives.
- MAT majors may only count one course outside of the MAT and STAT subject code toward their elective credit within the major.

Course	Title	Credits
MAT 1000	Math and Stat Communities	1
MAT 1500	Calculus I	4
MAT 1505	Calculus II	4
MAT 2500	Calculus III	4
MAT 2600	Mathematical Reasoning & Proof	3
MAT 2705	Diff Equation with Linear Alg	4
MAT 3300	Advanced Calculus	3
MAT 3400	Linear Algebra	3
MAT 3500	Modern Algebra I	3
MAT 5900	Seminar in Mathematics	3
	MAT Upper-Level Analysis	3
	Mathematics & Statistics Electives	12
	MAT Natural Science Elective	8
	Additional Math Science Elective	4

## Core Curriculum Requirements (33 credits)

Mathematics Majors meet the following core requirements in the major and therefore are omitted from the summary below:

- Core Math (3 cr)
- Natural Science (8 cr)

<b>Course</b>	<b>Title</b>	<b>Credits</b>
ACS 1000	Ancients	3
ACS 1001	Moderns	3
THL 1000	Faith, Reason, and Culture	3
PHI 1000	Knowledge, Reality, Self	3
ETH 2050	The Good Life:Eth & Cont Prob	3
	Literature and Writing Seminar (1 course)	3
	History (1 course)	3
	Social Sciences (2 courses)	6
	Fine Arts (1 course)	3
	Upper-Level Theology (1 course)	3
	Language Requirement	
	Diversity Requirement (2 courses)	

## Free Elective Requirement (30 credits)

Students with a Mathematics primary major have thirty (30) required free elective credits.

## Degree Credit Summary

- **Major Credits:** 59 credits
- **Core Credits:** 33 credits
- **Free Electives Credits:** 30 credits
- **Total Required Credits:** 122 Credits

*Note: The above credit totals are based on the minimum number of required credits in each degree area. The minimum number of required credits in each area listed above must be met. Credits taken beyond the required minimum for one area may not be applied to another area.*

## SECONDARY MAJOR

Students who declare Mathematics as a **secondary major** must complete the Required Major Courses to achieve this major. Students are able to count any eligible course taken in their primary major, the core curriculum, minors, concentrations, or free electives toward these requirements.

## Category Descriptions

### MAT Upper-Level Analysis

Credits: 3

Choose an approved upper-level analysis course from the list below(3 cr).

- Note: MAT 5700 and 8400 are inactive courses that satisfy this requirement.

<b>Course</b>	<b>Title</b>	<b>Credits</b>
MAT 3305	Topics in Analysis	3
MAT 4270	Numerical Analysis	3
MAT 5400	Complex Analysis	3
MAT 5600	Differential Geometry	3
STAT 5700	Probability	3

### Mathematics & Statistics Electives

Credits: 12

12 credits in MAT or STAT courses numbered 3000 or higher.

### MAT Natural Science Elective

Credits: 8

Choose a two-semester sequence of natural science courses with lab at the science-major level from those listed below (8 cr minimum).

## Astronomy Sequence

<b>Course</b>	<b>Title</b>	<b>Credits</b>
AST 2122	Understanding Our Universe	3
MSE 2151	AST:Astronomy Lab - Stars	1
AST 2121	Solar System Astronomy	3
MSE 2150	AST:Astronomy Lab - Planets	1

## Biology Sequence

<b>Course</b>	<b>Title</b>	<b>Credits</b>
BIO 2105	General Biology I	4
BIO 2106	General Biology II	4

## Chemistry Sequence

<b>Course</b>	<b>Title</b>	<b>Credits</b>
CHM 1151	General Chemistry I	4
CHM 1103	General Chemistry Lab I	1
CHM 1152	General Chemistry II	4
CHM 1104	General Chemistry Lab II	1

## Environmental Science Sequence

<b>Course</b>	<b>Title</b>	<b>Credits</b>
GEV 1050	Environmental Science I	4
GEV 1051	Environmental Science II	4

## Physics Sequence, Option 1

<b>Course</b>	<b>Title</b>	<b>Credits</b>
PHY 1100	General Physics I	3
PHY 1101	General Physics I Lab	1
PHY 1102	General Physics II	3
PHY 1103	General Physics II Lab	1

## Physics Sequence, Option 2

<b>Course</b>	<b>Title</b>	<b>Credits</b>
PHY 2410	University Phy:Mechanics	3
PHY 2411	Lab: Mechanics	1
PHY 2412	Univ Physics:Elec & Mag	3
PHY 2413	Lab:Elec & Magnetism	1

## Additional Math Science Elective

Credits: 4

Choose one additional science course at the science-major level with lab if appropriate (4 cr minimum).

## Biology Selection 1

Select 1 class:

<b>Course</b>	<b>Title</b>	<b>Credits</b>
BIO 2105	General Biology I	4
BIO 2106	General Biology II	4

## Environmental Science Section 1

or 1 class:

<b>Course</b>	<b>Title</b>	<b>Credits</b>
GEV 1050	Environmental Science I	4
GEV 1051	Environmental Science II	4

## Chemistry Selection 1

or 2 classes in:

<b>Course</b>	<b>Title</b>	<b>Credits</b>
CHM 1103	General Chemistry Lab I	1
CHM 1151	General Chemistry I	4

## Chemistry Selection 2

or 2 classes in:

<b>Course</b>	<b>Title</b>	<b>Credits</b>
CHM 1104	General Chemistry Lab II	1
CHM 1152	General Chemistry II	4

## Chemistry Selection 3

Or 2 classes in:

<b>Course</b>	<b>Title</b>	<b>Credits</b>
CHM 2201	Organic Chemistry Lab I	1
CHM 2211	Organic Chemistry I	3

## Computer Science Selection 1

<b>Course</b>	<b>Title</b>	<b>Credits</b>
CSC 1051	Algorithms & Data Struc I	4

## Physics Selection 1

or 2 classes in:

<b>Course</b>	<b>Title</b>	<b>Credits</b>
PHY 2410	University Phy:Mechanics	3
PHY 2411	Lab: Mechanics	1

## Physics Selection 2

or 2 classes in:

<b>Course</b>	<b>Title</b>	<b>Credits</b>
PHY 2412	Univ Physics:Elec & Mag	3
PHY 2413	Lab:Elec & Magnetism	1

## Physics Selection 3

or 2 classes in:

<b>Course</b>	<b>Title</b>	<b>Credits</b>
PHY 2414	Univ Physics: Thermo	3
PHY 2415	Lab: Thermodynamics	1