

Applied Mathematics, B.S.

Student Learning Outcomes

1. To demonstrate analytic and quantitative competency in core subject content.
2. To demonstrate a sound conceptual understanding of the theoretical foundations of mathematics.
3. To use problem solving skills, mathematical modeling techniques and technology to solve real world problems.
4. To demonstrate proficiency in oral and written communication of mathematics.

Students must earn a grade of 'C' or better in all major and cognate courses, including [MATH 160 - Calculus I \(4 credits\)](#), [MATH 161 - Calculus II \(4 credits\)](#), and [MATH 242/MATH 242L Modeling for Scientists I/Laboratory](#).

The major in applied mathematics develops a high degree of mathematical proficiency and is designed to apply mathematical knowledge to the solution of real world problems. The major prepares students for a broad range of graduate programs. Students who successfully complete the applied mathematics degree will be competitive for careers in actuarial sciences, business, cryptology, government, industry, manufacturing and design, mathematical modeling, management, medicine, statistics, teaching, and space technology

Degree Requirements (120 Credits)

Core Curriculum Requirements

[Core Curriculum \(38-40 Total Credit Hours\)](#)

Graduation Requirements

[Graduation Requirements \(3-6+ Credits\) *](#)

~~Foundation Courses (13-17 Credits) *~~ **(12-16 Credits)**

Complete the following courses:

- ~~CSCI 140 - Introduction to Algorithmic Design I (3 credits)~~ **CSCI 135 Introduction to Programming (3 credits)**
- ~~CSCI 140L - Introduction to Algorithmic Design I Laboratory (1 credit)~~
- [MATH 160 - Calculus I \(4 credits\) *](#) OR
- [MATH 160A - Calculus I A \(2 credits\)](#) AND
- [MATH 160B - Calculus I B \(2 credits\)](#)
- [MATH 161 - Calculus II \(4 credits\)](#) OR
- [MATH 161A - Calculus II A \(2 credits\)](#) AND
- [MATH 161B - Calculus II B \(2 credits\)](#)
- [MATH 190 - Freshman Seminar in Mathematics \(1 credit\)](#)
- [STAT 201 - Elementary Statistics \(3 credits\)](#) AND
- [STAT 201L - Elementary Statistics Computer Laboratory \(1 credit\)](#)

Note:

* Course credit hours only count once toward the total university graduation credit hour requirements. Click on [Credit Sharing](#) for more information.

Major Requirements (19 Credits)

Complete the following courses:

- [MATH 220 - Mathematical Proofs and Problem Solving \(3 credits\)](#)
- [MATH 260 - Calculus III \(4 credits\)](#)
- [MATH 320 - Elementary Differential Equations \(3 credits\)](#)
- [MATH 344 - Linear Algebra \(3 credits\)](#)
- **MATH 390 Mathematics and the Profession (2 credits)**
- [MATH 490 - Seminar in Mathematics \(~~3 credits~~\) \(1 credit\)](#)
- [STAT 412 - Statistical Inference I \(3 credits\)](#)

Choose one concentration from the following: (21-22 Credits)

Concentration 1 (21 credits)

For students who are interested in a career in K-12 education

- [MATH 331 - Foundation of Geometry \(3 credits\)](#)
- [MATH 384 - Functions, Applications and Chaos \(3 credits\)](#)
- [MATH 446 - Abstract Algebra \(3 credits\)](#)
- [MATH 450 - Advanced Calculus I \(3 credits\)](#) OR
- [MATH 452 - Complex Variables \(3 credits\)](#)
- Choose two MATH or STAT courses numbered 300 or above
- Choose one MATH or STAT course numbered 400 or above

Concentration 2 (22 credits)

For students who are interested in graduate school and/or a career in the industry

- [MATH 242 - Modeling for Scientists I \(3 credits\)](#)
- [MATH 242L - Modeling for Scientists I Laboratory \(1 credit\)](#)
- [MATH 450 - Advanced Calculus I \(3 credits\)](#)
- [MATH 446 - Abstract Algebra \(3 credits\)](#) OR
- [MATH 454 - Advanced Calculus II \(3 credits\)](#)
- Choose two MATH or STAT courses numbered 300 or above (except [MATH 330](#), [MATH 331](#) and [MATH 384](#))
- Choose two MATH or STAT course numbered 400 or above

Cognate Requirements (9 Credits)

Mathematics majors will select an interdisciplinary cognate of upper level courses numbered 300 or above with the approval of their faculty adviser. A grade of 'C' or better is required in each course to be applied toward the cognate. A minor will fulfill this requirement.

Electives (~~7-17 Credits~~) **(8-18 Credits)**

Total Credits Required: 120