

# MATHEMATICS

This major introduces students to mathematical theories and their applications in engineering, computer science, finance, economics, physics, and computational genomics. This combination of theoretical and practical education gives the department a unique energy. Students use electives to prepare themselves for a specific field, whether in industry, teaching, or advanced graduate research.

## BACHELOR OF SCIENCE (BS) GENERAL OVERVIEW

### Five prerequisite courses:

- Calculus I
- Calculus II
- Calculus III
- Logical Reasoning elective
- Linear Algebra & Linear Differential Equations

### Four core courses:

- Fundamental Concepts of Modern Algebra
- Fundamental Concepts of Analysis A
- Fundamental Concepts of Analysis B
- Topics in Linear Algebra

### Four upper-division math elective courses.

#### Examples include:

- Foundations of Discrete Mathematics
- Probability Theory
- Introduction to Theory of Complex Variables

### Four additional courses in natural sciences or computer science (non-mathematics)

### Bachelor of Arts (BA) requirements:

- Calculus I
- Calculus II
- Calculus III
- Linear Algebra & Linear Differential Equations
- Mathematical Reasoning and Problem Solving
- Fundamental Concepts of Modern Algebra
- Fundamental Concepts of Analysis A
- Euclidean and Non-Euclidean Geometries *or* Introduction to Differential Geometry
- Three additional 400-level math elective courses

## ACADEMIC OPPORTUNITIES

**Pi Mu Epsilon:** This undergraduate math honor society focuses on contest problem solving as well as mathematical games and puzzles. Students have participated in the William Lowell Putnam competition and the National Science Foundation-sponsored Research Experience for Undergraduates.

**USC Women in Math:** This group of current and former USC students and faculty seeks to enhance mentorship and networking possibilities.

**Honors Program:** Math majors wishing to graduate with honors can apply to the department for admission to this special program. A minimum grade point average of 3.5 is required in the first two years of university work.