

# MATHEMATICS

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Haughey Hall, Room

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[math@andrews.edu](mailto:math@andrews.edu)

[www.andrews.edu/math](http://www.andrews.edu/math)

- . MATH , , (Calculus with Applications, Calculus I, Calculus I for Biology)
  - . MATH , , (Reasoning with Functions, Precalculus Algebra, Precalculus)
- Minimum grade for prerequisites, except for MATH and , is C-.

Mathematics Placement Examination (MPE). See p. for information on the MPE and the General Education Mathematics requirement. The MPE score is valid as a prerequisite for mathematics courses for years after it is earned.

## Graduate Program

### MS: Mathematics and Science

The Department of Mathematics collaborates with the Departments of Biology, Chemistry, and Physics in this degree. See Mathematics and Science, p. .

**Courses** (Credits)  
See inside front cover for symbol code.

### Developmental Courses

MATH and MATH are provided for students not achieving a score of at least P on the Mathematics Placement Examination (MPE).

Students complete the sequence MATH / by passing a set of proficiency tests in arithmetic and algebra, at which time a ID 2t

Taylor and Maclaurin series, tests of convergence, error estimates, polar coordinates, parameterized curves, vectors, dot and cross products. Prerequisite: MATH 101 or 102. Spring

MATH 103 ( )

Calculus I for Biology

Introduction to single-variable calculus in the context of the life sciences from the dynamical systems point of view. Limits, continuity, derivatives, integration by substitution and by parts. Formal definitions of limit, derivative, and Riemann integral. Proofs of standard theorems, including the Fundamental Theorem of Calculus. In addition to standard topics, includes research applications to biology and medicine, an introduction to mathematical models and differential equations, equilibria, stability, and eigenvalues. Equivalent to MATH 101 in serving as prerequisite to higher-level courses. Fulfills the General Education Mathematics reasoning requirement. Prerequisite: MPE=P or MATH 101 or MATH 102 with grade no lower than C; pre- or corequisite: BIOL 101 or 102 or consent of the instructor. Spring

MATH 104 ( )

Introduction to Linear Algebra

Vectors, Euclidean-space, matrices, systems of linear equations, determinants, eigenvalues, eigenvectors, vector spaces, and

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MAED ( )  
 Mathematical Modeling for Middle Grades Educators  
 Investigation of concepts and practices of mathematical modeling with an emphasis on application to middle grades education. The pedagogy of the course models that of effective middle school mathematics teachers.

MAED ( )  
 Mathematical Investigations for Middle Grades Classrooms  
 Participants investigate topics in mathematics, including probability, programming, fractals, and chaos theory. Emphasis is placed on participant understanding of these topics and their appropriate use as investigations with middle grades students. The pedagogy of the course models that of effective middle school mathematics teachers.

MAED ( - )  
 Seminar: \_\_\_\_\_  
 Seminar in specific topics relevant to mathematics education. Each seminar examines one topic in detail. Repeatable with different topics. May be graded S/U.

## MATHEMATICS & SCIENCE

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Haughey Hall, Room

kingman@andrews.edu physics@andrews.edu

### Faculty

Robert E. Kingman, Physics Coordinator  
 Gordon J. Atkins, Biology  
 Gary W. Burdick, Physics  
 Bill Chobotar, Biology  
 H. Thomas Goodwin, Biology  
 James L. Hayward, Biology  
 Shandelle M. Henson, Mathematics  
 Joon Hyuk Kang, Mathematics  
 Mickey D. Kutzner, Physics  
 Margarita C. K. Mattingly, Physics  
 David N. Mbungu, Biology  
 Getahun Merga, Chemistry  
 Robert C. Moore, Mathematics  
 Desmond H. Murray, Chemistry  
 Marlene N. Murray, Biology  
 D. David Nowack, Chemistry  
 Yun Myung Oh, Mathematics  
 S. Clark Rowland, Physics  
 David A. Steen, Biology  
 Tiffany Z. Summerscales, Physics  
 Stephen C. Thorman, Physics, Computer Science  
 Lynelle M. Weldon, Mathematics  
 Robert E. Zdor, Biology

### Mission

Inspire and equip students to celebrate learning, sense the action of God in the Universe, extend their analytical skills and knowledge base in mathematics and science, and identify and seek solutions to scientific issues.

### MS: Mathematics and Science

The Master of Science: Mathematics and Science is designed for students who wish to acquire a breadth of knowledge which cannot be achieved within any one discipline among mathematics, biology, chemistry and physics. Such a degree may be useful for secondary or middle-school teachers who teach mathematics and science subjects, but who do not desire a traditional MAT program; for those who wish to develop skills in areas of overlap in these disciplines; for those who wish to study the interrelationships among the disciplines; and for those who wish further preparation for careers in industry or government.

In addition to the general requirements for admission to and enrollment in graduate degree programs outlined in this bulletin, students must meet departmental requirements.

### Admission Requirements

- A bachelor's degree with a major in Mathematics, Biology, Chemistry, or Physics, and a minimum GPA of . (B) in mathematics and science courses.
- Completed the GRE General Exam for admission to regular student status. Completion of the GRE Subject Exam in one of the four areas of Mathematics, Biology, Chemistry or Physics is recommended.