

# Mathematics

The mathematics major aims to give students insight into the nature of mathematics as an intellectual discipline and to develop the powers of clear and logical thinking, accuracy, flexibility in problem solving, and clarity and precision in expressing mathematical ideas. It further aims to prepare the prospective teacher, provide a sound basis for those students who plan to pursue graduate studies, and provide a background in computing for those students who wish to pursue opportunities in that field.

Mathematics is a requirement for a variety of fields, including actuarial science, operations research, statistics and quality control. In addition, mathematics emphasizes logic and precise communication, providing a good accessory background for students in rational thinking areas such as law and medicine. A Mount Mercy student who wishes to teach secondary mathematics earns the major Mathematics – Education. (See Education section of this *Catalog* for the major requirements).

Mathematic majors build skills that prepare them, for example, to: understand topics in pure and applied mathematics; perform rigorous mathematical proofs; apply mathematics and technology to solve problems in related fields such as science or business; and express mathematical ideas in standard English to a general audience.

Mathematics supports an interdisciplinary degree program in Actuarial Science (<http://catalog.mtmercy.edu/archives/2014-15/curriculum/actuariescience>) offered through the Business Department. (See Business Administration section of this *Catalog* for the major requirements).

See the Graduate section (<http://catalog.mtmercy.edu/archives/2014-15/graduateprograms>) of this *Catalog* for more information on Graduate programs offered at Mount Mercy.

## Major

MA 164	Calculus I	4
MA 165	Calculus II	4
MA 166	Calculus III	3
MA 202	Linear Algebra	4
MA 245	Differential Equations	3
MA 380	History Of Mathematics	3
MA 364	Modern Algebra	3
or MA 374	Analysis I	
Mathematics electives (MA courses 150 or higher)		12
At least one course chosen from the following:		3
MA 214	Probability And Statistics	
MA 323	Foundations Of Modern Geometry	
MA 364	Modern Algebra	
MA 374	Analysis I	
Total Hours		39

Students planning to pursue teacher education should follow the program guidelines within the education section of this *Catalog* and contact an advisor in the education department for assistance.

## Academic Requirements

Minimum cumulative grade point average of 2.00 in courses required for the major. MA 364 Modern Algebra, MA 374 Analysis I and MA 380 History Of Mathematics must be passed with a grade of C- or better to be counted toward the major.

No major or minor credit is given in mathematics unless the course has the prefix MA and a number 150 or above, excluding MA 160 Business Calculus, with the following exception: one (*only one*) Computer Science course may be used as a mathematics elective: CS 105 Fundamentals Of Computer Science or higher, excluding CS 203 Information Ethics.

## Mathematics Minor

MA 164	Calculus I	4
MA 165	Calculus II	4
MA 166	Calculus III	3
MA 202	Linear Algebra	4
MA 245	Differential Equations	3
At least three courses chosen from the following:		6
MA 214	Probability And Statistics	
MA 323	Foundations Of Modern Geometry	
MA 364	Modern Algebra	
MA 374	Analysis I	
Total Hours		24

## Academic Requirements

Minimum cumulative grade point average of 2.00 in courses required for the major. , and must be passed with a grade of C- or better to be counted toward the major.

No major or minor credit is given in mathematics unless the course has the prefix MA and a number 150 or above, excluding MA 160 Business Calculus, with the following exception: one (*only one*) Computer Science course may be used as a mathematics elective: CS 105 Fundamentals Of Computer Science or higher, excluding CS 203 Information Ethics.