

# Mathematical Sciences

The Department of Mathematical Sciences has programs leading to the Bachelor of Science, the Master of Science, and the Doctor of Philosophy degrees. The B.S. options in mathematics, applied mathematics, statistics, and teaching are listed below.

Many undergraduate courses are sufficiently basic to be of general interest. Detailed and current information on undergraduate course offerings is available from the department.

The four-year baccalaureate curriculum in mathematics is flexible and can accommodate students desiring to concentrate in mathematics, applied mathematics, mathematics teaching, or statistics. Programs in these concentrations are designed with the help of faculty advisors.

## Mathematics Option

The mathematics option prepares students for graduate work in mathematics. The core of the program is built around three years of analysis, as well as courses in abstract and linear algebra. The program is flexible enough to accommodate students who wish to prepare for employment in business, industry, or government as analysts or specialists in the area of scientific computing. The core mathematics curriculum taken in conjunction with a secondary emphasis in other subject matter areas will prepare a student for employment as an analyst or computational specialist in those areas.

## Applied Mathematics Option

Applied mathematicians learn to describe physical phenomena using deterministic models. These models are applicable to the biological and physical sciences and the student is trained to use differential equations, mathematical analysis and computational science to draw insights into various exciting fields.

Applied mathematics is primarily designed to prepare graduates for employment in business, industry, and government. However, an appropriate choice of electives can ensure the student a solid preparation for graduate work in mathematics, statistics, or scientific computing. The program demonstrates the utility of mathematics to solve problems arising in real industrial applications. Graduates will be qualified for professional careers in computational applications of mathematics, statistics, and other related fields.

## Mathematics Teaching Option

The teaching option in the mathematics curriculum is designed specifically to prepare students to teach mathematics at the middle school and high school levels. The program includes the mathematics courses for a teaching major and the necessary courses in education which qualify the student for teacher's licensure.

Students are encouraged to pursue a teaching minor in an additional area and should contact an advisor for details.

## Statistics Option

Statisticians are trained in principles of quantitative reasoning. They learn how to discover patterns in data, how to display data, how to construct mathematical models for data, and how to detect biases and uncertainties in data summaries or models. They are trained to design and analyze observational studies, surveys, and scientific experiments. The computer is an essential tool for statistical work.

Statisticians are in demand; successful students should find that job opportunities are excellent. Although positions are available nationwide, the best employment opportunities are found in urban areas, industrial

sites, and centers of government. The statistics option prepares students for such positions or for entry into a graduate program in statistics.

## Undergraduate Programs

- Mathematics Option (<http://catalog.montana.edu/undergraduate/letters-science/mathematical-sciences/mathematics-option>)
- Applied Mathematics Option (<http://catalog.montana.edu/undergraduate/letters-science/mathematical-sciences/applied-mathematics-option>)
- Statistics Option (<http://catalog.montana.edu/undergraduate/letters-science/mathematical-sciences/statistics-option>)
- Mathematics Teaching Option (<http://catalog.montana.edu/undergraduate/letters-science/mathematical-sciences/mathematics-teaching-option>)

## Undergraduate Minors

- Mathematics Minor (Non-Teaching) (<http://catalog.montana.edu/undergraduate/letters-science/mathematical-sciences/mathematics-minor-nonteaching>)
- Mathematics Teaching Minor (<http://catalog.montana.edu/undergraduate/education-health-human-development/department-education/teaching-minors/mathematics-minor>)
- Statistics Minor (Non-Teaching) (<http://catalog.montana.edu/undergraduate/letters-science/mathematical-sciences/statistics-minor-nonteaching>)

## Department of Mathematical Sciences

### Degrees Offered

- M.S. in Mathematics (<http://catalog.montana.edu/graduate/letters-science/mathematical-sciences/ms-mathematics>)
- M.S. in Mathematics (Mathematics Education Option) (<http://catalog.montana.edu/graduate/letters-science/mathematical-sciences/ms-mathematics-education-option-msmme>)
- M.S. in Statistics (<http://catalog.montana.edu/graduate/letters-science/mathematical-sciences/ms-statistics>)
- Ph.D. in Mathematics (<http://catalog.montana.edu/graduate/letters-science/mathematical-sciences/phd-mathematics>)
- Ph.D. in Mathematics (Mathematics Education Emphasis) (<http://catalog.montana.edu/graduate/letters-science/mathematical-sciences/phd-mathematics-education>)
- Ph.D. in Statistics (<http://catalog.montana.edu/graduate/letters-science/mathematical-sciences/phd-statistics>)
- Graduate Certificate in Applied Statistics (<http://catalog.montana.edu/graduate/letters-science/mathematical-sciences/graduate-certificate-statistics>)

### **Font Notice**

This document should contain certain fonts with restrictive licenses. For this draft, substitutions were made using less legally restrictive fonts. Specifically:

Times was used instead of Adobe Garamond Pro.

The editor may contact Leepfrog for a draft with the correct fonts in place.