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 the year-long sequence in real analysis, as well as rigorous 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

This option prepares students for a rewarding career in teaching mathematics at the secondary level (grades 5-12). Teachers are able to combine the pleasure of doing mathematics with the added benefits of building relationships and changing the lives of young learners. Graduates of this program are eligible for licensure in Montana and a number of other states where secondary mathematics teachers continue to be in high demand. Students may also consider pursuing a teaching minor in an additional content area (this may require more than eight semesters). For more information on admission to MSU's programs for teacher preparation, field experience, and licensure, please visit the Teacher Education Program (http://catalog.montana.edu/undergraduate/education-health-human-development/department-education/) page.

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/)
- M.S. in Data Science (http://catalog.montana.edu/graduate/letters-science/mathematical-sciences/ms-data-science/)
- 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/)