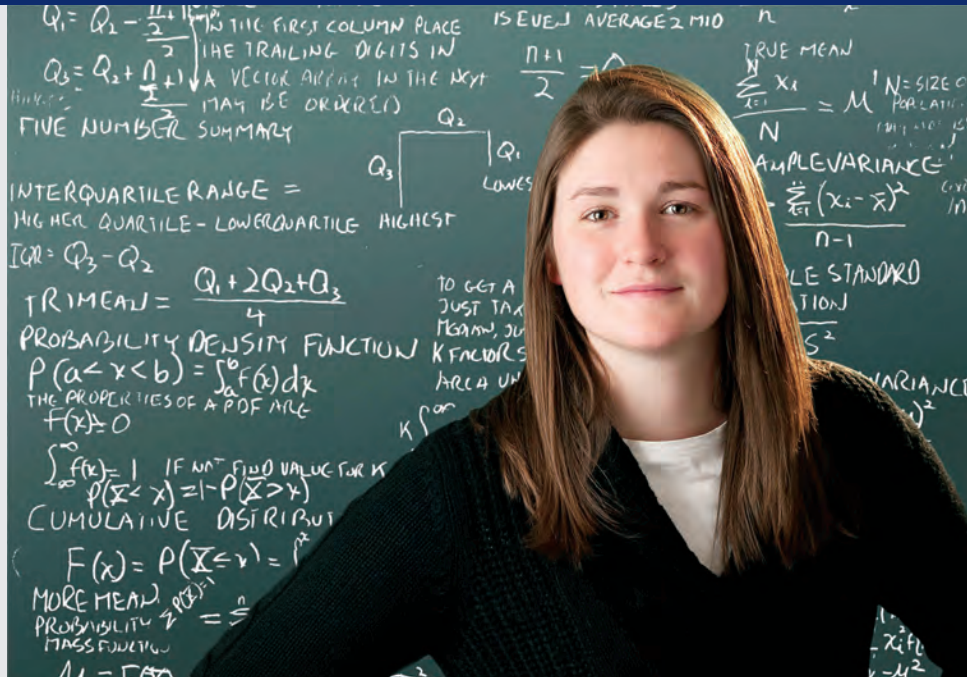


# Department of Mathematical Sciences

The Department of Mathematical Sciences provides unique opportunities for innovative instruction and cooperative research. With approximately 30 Ph.D. faculty, and over 100 undergraduate majors and 100 graduate students, the department is large enough to attract and retain the most capable faculty, but small enough to allow faculty and students an intimate atmosphere for the easy exchange of ideas.



## A FORMULA FOR SUCCESS

Applied and theoretical mathematics research in the department emphasizes dynamical systems, algebraic and differential topology, mathematical biology, and applied and computational mathematics.

Statistics research encompasses a broad range of theoretical and applied topics, with interdisciplinary opportunities in the environmental and biological sciences and statistics education.

The emerging area of data science is at the crossroads of statistical and mathematical research in the department.

Mathematics education research addresses applied and practical areas including teacher preparation, coaching and mentoring for in-service teachers, online learning and the teaching of mathematical modeling.

The Department of Mathematical Sciences is recognized as a leading department in mathematics, mathematics education, and statistics in the Rocky Mountain region. Bachelors, masters and doctoral graduates in all areas are pursuing successful careers in industry, government and academia.

## OPPORTUNITIES IN MATHEMATICAL SCIENCES

**Study abroad:** Study abroad in countries such as England, Turkey and New Zealand.

**Honors courses:** Honors courses are available in Calculus I, Calculus II, Multivariable Calculus and Ordinary Differential Equations.

**Research opportunities:** There are research opportunities for undergraduate students either in the classroom (Software

Applications in Mathematics), one-on-one with individual faculty, or through internships.

**Undergraduate workshops:** The department has an active undergraduate workshop series covering careers, graduate schools, study abroad, internships and undergraduate research opportunities.

Mathematical Sciences major Zane Huttinga received a 2016 Goldwater Scholarship.

## Options within Major

- Applied Mathematics
- Mathematics
- Mathematics Teaching
- Statistics

## Specialized Areas of Study/Minors

- Mathematics (non-teaching)
- Statistics (non-teaching)
- Mathematics Teaching

## Graduate Programs

- M.S. in Mathematics
- M.S. in Mathematics Education (online)
- M.S. in Statistics
- Ph.D. in Mathematics
- Ph.D. in Mathematics (Mathematics Education)
- Ph.D. in Statistics

## Accelerated M.S. Program

- With careful planning, a student can earn both a B.S. and a M.S. in five years.

## Research Areas

- Adaptive cluster sampling
- Algebraic and differential topology
- Complex dynamics
- Data science
- Fractals
- Knowledge construction in online courses
- Mathematical biology
- Numerical analysis
- Pre-service teacher knowledge
- Scientific computation
- Spatial statistics
- Statistical computing
- Teaching practice and professional development

## Interdisciplinary Opportunities

- Atmospheric data modeling
- Bacterial biofilms
- Environmental statistics
- Fluid dynamics
- Gene regulation
- Greater Yellowstone Ecosystem monitoring
- Hazardous waste assessment
- Microbial communities
- Neuroscience
- Physical mathematics
- Statistical ecology
- Topological data analysis

## For additional information, contact:

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## WHERE CAN I WORK WITH A DEGREE IN MATHEMATICAL SCIENCES?

**Aerospace industry:** Companies such as Aerospace Corporation, Boeing, Lockheed Martin and Raytheon

**Computer software and hardware industry:** Companies such as Intel, Microsoft, Century Link, Oracle and Zoot Enterprises

**Federal government agencies:** Examples include the Internal Revenue Service, U.S. Census Bureau and the National Security Agency

**Research laboratories:** National research laboratories, such as Argonne, Idaho, Los

Alamos and Pacific Northwest, and private research facilities such as the Santa Fe Institute

**State government:** Montana University System (MUS) Employee Benefit Program, Montana Fish, Wildlife and Parks, Montana Office of Public Instruction, and Department of Public Health and Human Services

**Teaching:** K-12 or universities

**Pharmaceutical industry:** Companies such as Abbott, Bristol Myers Squibb, Eli Lilly and GlaxoSmithKline

## GREAT LEARNING FACILITIES

### Mathematics Learning Center:

The Department of Mathematical Sciences manages a free drop-in tutoring center, which provides tutoring services for most 100- and 200-level math and statistics courses.

### Mathematics Testing Center:

This center provides a convenient and quiet environment for pre-arranged testing.

### Mathematics Education Classroom:

This lab consists of PC's, projection system, digital document camera, smartboard, and graphing calculators in a math education learning environment suitable for K-12 math teaching techniques.

### Multi-media Computing Lab:

This lab offers 28 workstations with retractable flat screen monitors, projection system, digital document camera, DVD/sound in a high-tech setting suitable for multimedia lectures and presentations.

### Seminar/Department Library:

This room offers space for small study groups and instructor-led sessions.

### Student Computer Lab:

This lab consists of several UNIX workstations and PC's, and is available for student use weekdays and evenings.



Fifteen MSU undergraduates competed in the 96-hour COMAP international math competition.

