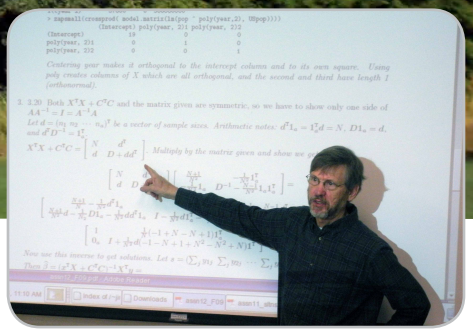
DEPARTMENT OF MATHEMATICAL SCIENCES

The department provides unique opportunities for innovative instruction and cooperative research. With approximately 30 Ph.D. faculty and 70 graduate students, the department is large enough to attract and retain the most capable faculty, but small enough to allow faculty and graduate students an intimate atmosphere for the easy exchange of ideas.



DEGREES OFFERED

M.S. IN MATHEMATICS
M.S. IN STATISTICS
M.S. IN MATHEMATICS EDUCATION
M.S. IN ECOLOGICAL AND ENVIRONMENTAL STATISTICS
PH.D. IN MATHEMATICS
PH.D. IN STATISTICS
PH.D. IN MATHEMATICS EDUCATION

The Department of Mathematical Sciences offers a wide range of technical and research degrees, and is a recognized leader in mathematical research in the Rocky Mountain region. Much of the research is conducted in collaboration with various science departments and university centers.

The department conducts research in both pure and applied mathematics, with emphasis in dynamical systems theory, mathematical biology and numerical method applications.

Statistics research also encompasses a broad range of theoretical and applied topics with several interdisciplinary opportunities including the environmental and biological sciences.

Mathematics education research addresses applied and practical areas, including teacher preparation, coaching and mentoring for in-service teachers, on-line learning research, problem-based learning, and curriculum development for K-12 mathematics.

DEPARTMENT OF MATHEMATICAL SCIENCES
MONTANA STATE UNIVERSITY

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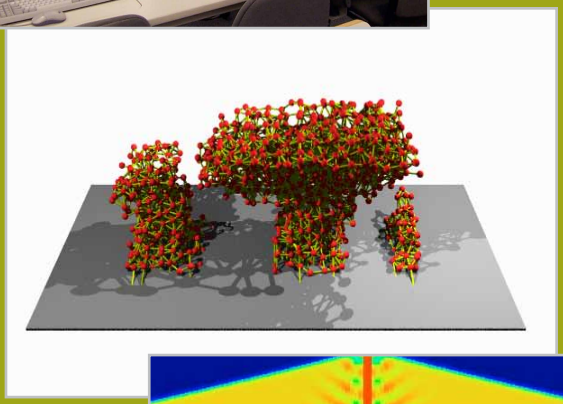
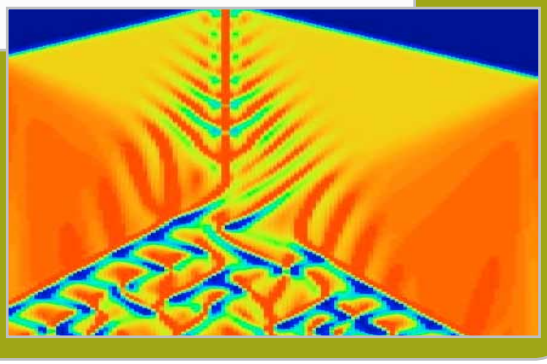
MONTANA STATE UNIVERSITY
DIVISION OF GRADUATE EDUCATION

MONTANA STATE UNIVERSITY





REQUIREMENTS AND APPLICATION

M.S. and Ph.D. degree requirements vary in each of our three areas: Mathematics, Statistics and Mathematics Education. M.S. degrees are predominantly non-thesis degrees but may contain research components. All Ph.D. degrees require new research findings in your area of interest and are to be presented in a dissertation.

For detailed information on degree requirements, course offerings, assistantship details and records of who employs our graduate students we invite you to navigate our website at: www.math.montana.edu/grad

Application procedures begin with a preliminary application form through the same web site.

INTERDISCIPLINARY OPPORTUNITIES

Much of the departmental research is done in conjunction with other departments and university centers. Some past and current collaborations include applications in neuroscience, genetics, ecology, biofilm modeling, analysis of atmospheric data, image deblurring, the Yellowstone ecosystem, solar physics and micro-air vehicles, to name a few.

FINANCIAL ASSISTANCE

Graduate teaching assistantships are available to all qualified graduate students. Such GTA appointments usually require teaching one lower level course each semester. Graduate research assistantships may also be available.

RESEARCH ACTIVITIES

PURE MATHEMATICS

- Substitution tiling spaces
- Dynamics of iterated maps
- Complex dynamics
- Conley index theory
- Symbolic dynamics
- Continuum theory
- Surface dynamics
- Harmonic polynomials

APPLIED MATHEMATICS

- Biofilm and population modeling
- Scientific computation
- Oscillations in excitable media
- Wave phenomena
- Sensitivity theory
- Inverse methods in imaging
- Gene regulation modeling
- Neural coding

STATISTICS

- Analysis of habitat selection
- Functional data analysis
- Adaptive cluster sampling
- Ecological and environmental statistics
- Response surface methodology
- Sampling designs for clustered populations
- Spatial statistics
- Bayesian graphical modeling
- Statistical computing

MATHEMATICS EDUCATION

- Knowledge construction in on-line courses
- Structure & cognitive demand among on-line learners
- Computer algebra systems in developmental mathematics
- Conceptions of proof for undergraduates
- Mathematical content knowledge for teaching
- Pre-service teachers mathematical conceptions
- Professional development of in-service teachers