

# What Can I **Do** With a Major In...

## Mathematics-Applied Mathematics Option?

**Applied Mathematics programs**<sup>1</sup> teach individuals to use mathematical methods in solving problems. Students in mathematics may use mathematical theory, computational techniques, algorithms, and the latest computer technology to solve economic, scientific, engineering, physics, and business problems. These programs focus on the analysis of quantities, magnitudes, forms, and their relationships, using symbolic logic and language. Mathematics programs fall into two classes of mathematics, applied mathematics and theoretical (pure) mathematics. Applied mathematicians use theories and techniques, such as mathematical modeling and computational methods, to formulate and solve practical problems in business, government, engineering, and the physical, life, and social sciences. They focus on the application of mathematics and statistics to the solution of functional problems in fields. Applied mathematicians also use computer-assisted mathematical analysis and the develop customized algorithms related to specific research problems.

**The program at Montana State University**<sup>2</sup> prepares students for employment in business, industry, or government or for graduate work in mathematics, statistics, or scientific computing. The program demonstrates the utility of mathematics to solve problems arising in real industrial applications and is built around courses in differential equations, applied mathematics, and numerical analysis. Graduates will be qualified for professional careers in computational applications of mathematics, statistics, and other related fields.

**Characteristics associated with success**<sup>1</sup> in this major include an interest in solving problems and puzzles, and enthusiasm in working with numbers, equations, and algorithms.

### **You should**<sup>1</sup>:

- have good computational skills and programming skills
- be proficient in organizing, synthesizing, and analyzing data
- be able to concentrate for long periods of time
- be able to make logical decisions
- be able to communicate well, both orally and in writing
- be able to conduct and interpret research studies
- have good reasoning ability
- have an ability to work alone or as part of a team

**Occupations in this field require the ability to**<sup>1</sup>: apply mathematics to everyday problems, see patterns and themes where others may not, use computer applications for computation and analysis, and being well-versed in the industry of employment.

### **Related occupations include**<sup>1</sup>:

- Statistician
- Actuary
- College/University Professor
- Computer Systems Analyst
- Mechanical Engineer
- Aerospace Engineer
- Computer Software Engineer
- Operations Research Analyst
- Computer Programmer
- Market Research Analyst
- Production Planner

# What Can I **Do** With a Major In...

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*MSU graduates (Bachelor's degree) were hired in the following selected fields<sup>3</sup>:*

Aerospace Scientist-Lockheed-Martin  
Engineer-Honeywell Inc  
Financial Analyst-JDH Financial  
Investment Advisor-D.A. Davidson  
Mechanical Engineer-General Dynamics  
Solutions Designer-Zoot Enterprises

### **Salary averages of survey respondents: (# of respondents in parentheses)<sup>3</sup>**

The data reported for in-state and out-of-state salaries is insufficient and does not appear in the Career Destinations surveys for these years. As sufficient data becomes available, it will be published here.

### **Graduates from this program entered programs of further education at these institutions:**

|   |                                 |
|---|---------------------------------|
| Boston University                           | North Carolina State University |
| Massachusetts Institute of Technology (MIT) | University of Arizona           |
| Montana State University                    | Virginia Tech                   |

### **Other Sources of Information:**

American Mathematical Society (AMS): <http://e-math.ams.org>  
American Statistical Association (ASA): [www.amstat.org](http://www.amstat.org)  
Association for Women in Mathematics (AWM): [www.awm-math.org](http://www.awm-math.org)  
Canadian Mathematical Society (CMS): <http://camel.math.ca>  
International Statistical Institute (ISI): [www.cbs.nl/isi](http://www.cbs.nl/isi)  
Mathematical Association of America (MAA): [www.maa.org](http://www.maa.org)  
National Council of Teachers of Mathematics (NCTM): [www.nctm.org](http://www.nctm.org)  
Society for Industrial and Applied Mathematics (SIAM): [www.siam.org](http://www.siam.org)  
Society of Actuaries: [www.soa.org](http://www.soa.org)  
Department of Mathematical Sciences , Montana State University: [www.math.montana.edu](http://www.math.montana.edu)

For more information contact:



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177 Strand Union Building  
Bozeman, MT 59717  
(406) 994-4353  
[www.montana.edu/careers](http://www.montana.edu/careers)

<sup>1</sup>University of Oregon. 2007. Created by intoCareers, a unit of the University of Oregon. Montana information Montana Career Information System. Discover: 2008 by ACT, Inc.

<sup>2</sup>Montana State University Department of Mathematical Sciences

<sup>3</sup>Montana State University Career & Internship Services

Number of graduates/number of respondents: 2004: 6/3; 2005: 1/0; 2006: 2/1; 2007: 7/2