

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

## Mathematics?

**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. Pure mathematics is the study of quantitative and qualitative relationships expressed in numbers or symbols; it is the study of abstract systems and patterns. Theoretical mathematicians advance mathematical knowledge by developing new principles and recognizing previously unknown relationships between existing principles of mathematics. Some mathematicians, called cryptanalysts, analyze and decipher encryption systems designed to transmit military, financial, or law-enforcement related information in code.

**The Mathematics Option at Montana State University**<sup>2</sup> prepares students for employment in business, industry, or government or for graduate work in mathematics. The program is built around courses in analysis, as well as courses in abstract and linear algebra. 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.

**Characteristics associated with success**<sup>1</sup> 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
- be proficient in organizing, synthesizing, and analyzing data
- be able to concentrate for long periods of time
- be good at making logical decisions
- be able to communicate well, both orally and in writing
- have good reasoning ability
- an ability to work alone or as part of a team

**Occupations in this field require ability to**<sup>1</sup>: explain mathematical concepts to individuals unfamiliar with the field, an interest in solving everyday problems using mathematics, and the ability to be persistent in order to identify, analyze, and apply basic principles to technical problems.

### **Related occupations include**<sup>2</sup>:

- Statistician
- Actuary
- College/University Faculty
- Computer Systems Analyst
- Economist
- Financial Manager
- Accountant
- Computer Programmer
- Financial Planner

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

Adjunct Instructor- Montana State University	Pilot- US Air Force
Crime Lab Forensic Scientist- State of Texas	Recruiter- US Air Force
Engineer- Honeywell Inc	Solutions Designer- Zoot Enterprises, Inc
Human Resources Support- Wyoming Medical Center	Sales Manager- Legacy Financial Services
Mathematician- National Security Agency	Technologist 3- Phidine Brown Engineering
Mechanical Engineer- General Dynamics	

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

<b>2007: MT: \$ 28,360 (2)</b>	<b>Out of State: Insufficient Data</b>
<b>2006: MT: Insufficient Data</b>	<b>Out of State: Insufficient Data</b>
<b>2005: MT: Insufficient Data</b>	<b>Out of State: Insufficient Data</b>
<b>2004: MT: Insufficient Data</b>	<b>Out of State: Insufficient Data</b>

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

Montana State University	Northwestern University
Purdue University	University of California- Berkeley
Colorado State University	University of Colorado
University of California	University of Wisconsin

### **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 Mathematics, 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: 3/2; 2005: 5/2; 2006: 11/7; 2007: 6/5