Mathematics programs 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 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 include an interest in solving problems and puzzles, and enthusiasm in working with numbers, equations, and algorithms.

You should:
- 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 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:
- Statistician
- Actuary
- College/University Faculty
- Computer Systems Analyst
- Economist
- Financial Manager
- Accountant
- Computer Programmer
- Financial Planner
MSU graduates (Bachelor’s degree) were hired in the following selected fields:

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

Salary averages of survey respondents: (# of respondents in parentheses)

2007: MT: $28,360 (2) Out of State: Insufficient Data
2006: MT: Insufficient Data Out of State: Insufficient Data
2005: MT: Insufficient Data Out of State: Insufficient Data
2004: MT: Insufficient Data Out of State: Insufficient Data

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 Statistical Association (ASA): www.amstat.org
Association for Women in Mathematics (AWM): www.awm-math.org
Mathematical Association of America (MAA): www.maa.org
National Council of Teachers of Mathematics (NCTM): www.nctm.org
Society of Actuaries: www.soa.org
Department of Mathematics, Montana State University: www.math.montana.edu

2 Montana State University Department of Mathematical Sciences
3 Montana State University Career & Internship Services
Number of graduates/number of respondents: 2004: 3/2; 2005: 5/2; 2006: 11/7; 2007: 6/5