What can I do with a major in...

Mathematics

ACTIVITIES MATHEMATICS MAJORS DO:
Mathematicians use mathematical theory, computational techniques, algorithms, and the latest computer technology to solve economic, scientific, engineering, physics, and business problems. There is a wide variety of activities and careers that math majors pursue. However, mathematical work itself is largely theoretical or applied.

Theoretical mathematicians advance mathematical knowledge by developing new principles and recognizing previously unknown relationships between existing principles of mathematics. Although these professionals seek to increase basic knowledge without necessarily considering its practical use, such pure and abstract knowledge has been instrumental in producing or furthering many scientific and engineering achievements. Many theoretical mathematicians are employed as university faculty, dividing their time between teaching and conducting research.

Applied mathematicians use theories and techniques to formulate and solve practical problems in business, government, engineering, and in the physical, life, and social sciences. For example, they may analyze the most efficient way to schedule airline routes between cities, the effects and safety of new drugs, the aerodynamic characteristics of an experimental automobile, or the cost effectiveness of alternative manufacturing processes. Applied mathematicians working in industrial research and development may develop or enhance mathematical methods when solving a difficult problem. Some mathematicians, called cryptanalysts, analyze and decipher encryption systems designed to transmit military, political, financial, or law enforcement related information in code.

INDUSTRIES MATHEMATICS MAJORS WORK IN (SAMPLE LISTING):
Clinical trials Management Technology Computer information
Consulting Government Banking Research
Financial services Manufacturing Public health Pharmaceuticals
Agriculture Education Business Insurance
Biostatistics Statistics Product reliability Sports
Ecology/environmental research

EMPLOYERS WHO HIRE MATHEMATICS MAJORS (SAMPLE LISTING):
Accenture Corporate Card, Inc. LSS Data Systems Deloitte Consulting
Travelers Insurance Allianz Life Fast Enterprises, LLC Zimmer, Inc.
ING Lockheed Martin Allina Hospitals & Clinics St. Jude Medical
Express Scripts Garmin International US Bank Goodrich Corp.
Microsoft Corporation Towers Watson Securian Financial Bose Corporation
Cray Inc.

TYPES OF POSITIONS FOR MATHEMATICS MAJORS (SAMPLE LISTING):
- **Actuary**: Deals with the financial impact of risk and uncertainty. Actuaries mathematically evaluate the likelihood of events and quantify the contingent outcomes in order to minimize losses.
- **Financial analyst**: Provides guidance to businesses and individuals making investment decisions and assess the performance of stocks, bonds, commodities, and other types of investments.
- **Personal financial advisor**: Manages and assesses the financial needs of individuals and assists them with investments, tax laws, and insurance decisions.
- **Mathematician**: Uses mathematical theory, computational techniques, algorithms, and the latest computer technology to solve economic, scientific, engineering, and business problems.
TYPES OF POSITIONS FOR MATHEMATICS MAJORS (Continued):

- **Insurance sales agent:** Sells one or more types of insurance, such as property and casualty, life, health, disability, and long-term care.
- **Insurance underwriter:** Decides whether insurance is provided and, if so, under what terms. Insurance underwriters identify and calculate the risk of loss from policyholders, establish who receives a policy, determine the appropriate premium, and write policies that cover this risk.
- **Statistician:** Applies mathematical and statistical knowledge to the design of surveys and experiments.
- **Database administrator:** Works with database software to develop and implement ways to manage and store data.
- **Market/survey researcher:** Gathers information and statistical data to help companies understand what types of products people want, who will buy them, and at what price.
- **Operations research analyst:** Helps managers make better decisions and solve problems by applying mathematical modeling methods to develop, interpret, and implement information.
- **Economist:** Studies how society distributes resources to produce goods and services. Economists conduct research to develop forecasts on a wide variety of issues, including energy costs, inflation, interest rates, exchange rates, business cycles, taxes, employment levels, and more.
- **Math teacher/professor:** Plays a role in fostering the intellectual mathematical development of children, adolescents, and young adults by instructing students.

**Some of these positions may require an advanced degree.**

USEFUL WEBSITES FOR MATHEMATICS MAJORS:

Department of Mathematics  
Jobs for Mathematicians  
National Council of Teachers of Mathematics  
Plus Magazine  
Science, Math, and Engineering Career Resources  
math.umn.edu  
mathjobs.org/jobs  
nctm.org  
plus.maths.org  
phds.org

PROFESSIONAL ORGANIZATIONS:

American Mathematical Society (AMS)  
American Statistical Association (ASA)  
Association for Women in Mathematics (AWM)  
Institute of Mathematical Statistics (IMS)  
Mathematical Association of America (MAA)  
Society of Actuaries (SOA)  
Society for Industrial and Applied Math (SIAM)  
National Council of Teachers of Math (NCTM)  
americanmath.org  
amstat.org  
awm-math.org  
imstat.org  
amERICAN MATHEMATICAL SOCIETY  
maa.org  
soa.org  
siam.org  
nctm.org

*Additional job/internship search websites and resources can be found at cse.umn.edu/career.

Information on this page was compiled from the Occupational Outlook Handbook, the Encyclopedia of Careers and Vocational Guidance, University of Minnesota departmental websites, and student-reported data.