# MATHEMATICS
What can I do with this major?

## AREAS

**MATHEMATICS/COMPUTATIONAL SCIENCE**
- Research:
  - Theoretical
  - Applied
- Mathematical Specialties Include:
  - Modeling and Simulation
  - Numerical Methods and Analysis
  - Statistics and Probability
  - Engineering Analysis
  - Differential Equations
  - Operations Research
  - Discrete Mathematics
- Functional Areas Include:
  - Accounting and Finance
  - Computer Programming
  - Computer Systems Analysis
  - Operations
  - Sales and Marketing
  - Management
  - Actuarial Science
  - Engineering
  - Analysis and Control of Processes
  - Optimization and Scheduling of Resources

## EMPLOYERS

- State government agencies
- Federal government including:
  - Department of Defense
  - National Aeronautics and Space Administration
  - National Oceanic and Atmospheric Administration
  - Social Security Administration
  - Department of Homeland Security
  - Department of Energy
  - Military
  - Government laboratories
- Scientific research and development services
- Consulting firms
- Computer services companies and software publishers
- Electronics and computer manufacturers
- Engineering firms
- Insurance companies
- Financial services firms
- Chemical and pharmaceutical companies
- Aerospace and transportation equipment manufacturers
- Airlines and airports
- Communications firms
- Energy companies and petroleum producers
- International government agencies
- Nonprofit organizations, e.g. American Institute of Mathematics

## STRATEGIES

- Plan to earn a doctoral degree to work as a "mathematician."
- To work in applied mathematics, consider earning a double major in a scientific or technical area. Many students with a bachelor's or master's degree in math work in related fields such as computer science, engineering, science, or economics.
- Some entry-level jobs in industry and government may be available at the bachelor's level.
- Develop substantial knowledge of computer programming and software administration. Seek experience with relevant software packages.
- Learn to work well with a team of people from diverse backgrounds and differing technical specialties.
- Gain experience in an area of interest through internships or research programs such as those sponsored by the National Science Foundation.
- Maintain a high grade point average and secure strong faculty recommendations to gain graduate school admittance.
- Research government hiring processes and internship opportunities if the public sector appeals to you.
careers

- More than half of actuaries work for insurance companies.
- Several years of work experience in the field is required, and the process takes about 4 years.
- Many actuaries choose to pursue a professional degree, which is typically 2-3 years of full-time study.
- Actuaries are qualified to take a series of professional exams to gain membership in the Society of Actuaries or the Casualty Actuarial Society.
- Learn how to use statistical analysis software and consider taking courses in actuarial science.

- Various positions within the industry require interaction with others and technical and business skills, as many actuaries work in a team environment.
- Professional, scientific, and technical consulting firms, insurance agencies, and brokers.
- Government agencies.
- Underwriting.
- Risk Management/Assessment.
- Actuarial Science.
- Insurance.
- Finance.
- Education.

- Observe and develop communication skills.
- Learn about the industry to identify potential job opportunities.
- Core skills include math, statistics, and computer science.
- Complete an internship with an insurance agency or gain relevant experience in a related field.
- Take additional courses in statistics and finance.
- Manage multiple projects and meet deadlines.
- Exhibit patience and creativity for designing products.
- City, state, and federal government.

(End of page, please see next page.)
Plan to work regular and/or long hours.

Motivated.

Prepare to work independently and to be self-

Economically competitive in a competitive environment.

Learn to work well under pressure and to be

Self-starter with good organizational and

Willing to move to different locations.

For Sales:

- Field research, collect data, and develop

- Create business opportunities within the publishing

- Learn about the industry.

- To prepare for a buying position, work in a retail

- Communication skills, and project management

- People skills, take additional courses in interpersonal

- Develop strong analytical skills and the ability to

- Become highly motivated and well-rounded.

- Seek leadership positions in campus organizations.

- Gain experience through internships or summer

- Be geographically flexible when job searching.

- Plan to earn an MBA or enter investment banking.

- Student organization experience.

- Serve as the editorial director of a business-oriented journal.

- Skills in order to work well with a diverse

- Develop strong interpersonal and communication

- Gain experience through part-time, summer or

- Double major or minor in business to build a solid

Internet companies

Software and technology companies

Print and electronic media outlets

Insurance companies

Manufacturers

Product and service organizations

For-profit and nonprofit organizations

Local, state, and federal government agencies

Universities and schools

Hospitals

Wholesalers

Retailers

Business Strategies

Employers

Areas

Investment Banking

Financial Analyst

Mortgage Lenders

Commercial Loan Officers

Banking and Finance

Commercial Banking

Credit Analyst

Loan Officers

Regulatory Agencies

Credit Union

Mortgage Banking

Securities

Credit Bureaus

Commercial Real Estate

Commercial and Consumer Credit Analysts

Corporate and Consumer Credit Analysts

Sale Management District, Regional, and

Customer Service

E-commerce

Advertising Sales

Service Sales

Financial Services Sales

Consumer Product Sales

Industrial Sales

Publishing

Buying

Other Business Areas

Office of the Comptroller of the Currency (OCC)

Federal Reserve

Credit and Risk Management

Cash Management

Operations

Capital Services and Mergers and Acquisitions

Investment Banking

Transaction Management

Commercial Banking

Credit Bureaus

Commercial and Consumer Credit Analysts

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Transaction Management

Commercial Banking

Credit Bureaus

Commercial and Consumer Credit Analysts

Corporate and Consumer Credit Analysts
Stay informed of new developments and current trends in the field.

Conduct Informational Interviews with professionals in areas of interest to enhance knowledge and make contacts.

Join relevant organizations and seek leadership roles. Learn to work well in a team environment.

Research the Professional Science Master's degree as an option to earn an interdisciplinary graduate degree and prepare for a job in industry.

Mathematics:
- Utilize a background in math combined with study in another field such as: biomathematics, computer animation, and digital imaging, or earth science.
- Consider earning a graduate degree in a related area such as statistics, computer science, economics, or engineering. Some examples of specialties that utilize a background in math include: biomathematics, computer animation and digital imaging, or earth science.
- Supplement curriculum with courses in business, economics, computers, or statistics for increased opportunities.
- Seek relevant experiences through internships or part-time jobs.
- Skills to develop include good reasoning, persistence, and communication, both verbal and written.
- Math majors develop many transferable skills including critical thinking, problem diagnosing and solving, computer skills, and quantitative skills. Other important skills to develop include:
  - Logical reasoning ability
  - Effective communication
  - The ability to think on one’s feet
  - The ability to manage and prioritize multiple tasks
  - The ability to think abstractly
  - The ability to work independently
  - The ability to work in a team
  - The ability to write clearly and concisely
  - The ability to learn quickly
  - The ability to analyze data and interpret results

People with math backgrounds may find work in jobs with titles such as: analyst, researcher, statistician, computer scientist, or systems engineer.

In the work place, this may determine the types of experiences and further education necessary to prepare for area of interest.

Since math can be found in almost every sector of the world of work, students majoring in math should consider if they want to use math skills directly or indirectly.