

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.

AREAS	EMPLOYERS	STRATEGIES
<u>EDUCATION</u> Teaching Research Higher Education Administration	Public and private K-12 schools Universities and colleges	Develop excellent communication skills, verbal and written. Gain experience working with age group of interest through volunteering and tutoring. Acquire appropriate state teacher certification for K-12 teaching opportunities. Math majors may be eligible for alternative certification programs in certain public school systems. Some private schools may hire candidates with degrees in mathematics who don't hold certification. Earn a doctoral degree in math to teach at four-year institutions. A master's degree may be sufficient for two-year colleges. Maintain a high grade point average and secure strong faculty recommendations to prepare for graduate school. Assist a professor with research. Seek appropriate graduate degree to enter higher education administration. Gain experience on campus in student leadership roles such as Resident Assistant or Orientation Leader.
<u>COMPUTERS</u> Programming Systems Development Systems Analysis Software Development Network Administration Web Administration Technical Support Training	Most areas of business including: Computer services companies Software publishers Internet related companies Financial institutions Insurance companies Consulting firms Manufacturers Telecommunications companies Retailers Healthcare organizations Hotels and restaurants Entertainment companies Environmental management firms	Develop substantial knowledge of computer programming and software administration. Take classes to earn relevant certifications. Gain related experience through internships, part-time positions, or summer jobs. Work in a campus computer lab or volunteer to maintain the website for a student organization. Learn effective listening and verbal communication skills and how to work well with end users. Stay abreast of the latest developments in computer technology through reading journals and participating in professional associations. Consider earning an advanced degree in computer science or management information systems. Research degree requirements.

AREAS	EMPLOYERS	STRATEGIES
<u>COMPUTERS CONTINUED</u>	Education institutions City, state, and federal government	Exhibit patience and creativity for designing programs. To advance into management, learn to effectively manage multiple projects and to meet deadlines. Obtain experience with public speaking/teaching and learn to develop curriculums for training positions.
<u>INSURANCE</u> Actuarial Science Risk Management/Assessment Loss Management/Control Underwriting	Insurance carriers Insurance agents and brokers Professional, scientific, and technical consulting firms Government agencies	Take additional courses in statistics and finance. Complete an internship with an insurance agency to gain relevant experience. Actuarial science is a good career path for those who want to extensively use math on the job. Areas such as claims, underwriting, and risk management are less math-intensive. Talk to professionals in the industry to learn more about various positions. Develop strong communication skills, as many positions require interaction with others and the ability to explain information clearly and concisely. Learn how to use statistical analysis software and various computer programming languages. Plan to take a series of actuarial exams to gain licensure from either the Society of Actuaries or the Casualty Actuarial Society. The type of insurance you deal with will determine which path to pursue. Most actuaries take these exams while working full-time, and the process takes several years. More than half of actuaries work for insurance carriers.

AREAS	EMPLOYERS	STRATEGIES
<u>BANKING AND FINANCE</u> Corporate and Consumer Credit Analysis Commercial Lending Trust Management Capital Services and Mergers and Acquisitions Mortgage Loans Originations and Packaging Branch Management Operations Cash Management Credit Scoring and Risk Management Private Banking Financial Analysis Investment Banking	Commercial banks Credit unions Savings and loan associations Savings banks Mortgage banks Captive finance companies Regulatory agencies including: Federal Reserve Federal Deposit Insurance Corporation (FDIC) Office of the Comptroller of the Currency (OCC) Office of Thrift Supervision (OTS) Brokerage firms	Double major or minor in business to build a solid background in marketing, finance, and accounting. Gain experience through part-time, summer or internship positions in a financial services firm. Develop strong interpersonal and communication skills in order to work well with a diverse clientele. Serve as the financial officer or treasurer of a student organization. Plan to earn an MBA to enter investment banking. Be geographically flexible when job searching.

OTHER BUSINESS AREAS

Buying Purchasing Sales: Industrial Sales Consumer Product Sales Financial Services Sales Services Sales Advertising Sales E-commerce Customer Service Sales Management: District, Regional, and Higher	Retailers Wholesalers Hospitals Universities and schools Local, state, and federal government For-profit and nonprofit organizations Product and service organizations Manufacturers Financial companies Insurance companies Print and electronic media outlets Software and technology companies Internet companies	Obtain experience through internships or summer and part-time jobs. Seek leadership positions in campus organizations. Become highly motivated and well-organized. Develop strong analytical skills and the ability to communicate effectively with a wide range of people. Take additional courses in interpersonal communication and public speaking. To prepare for a buying position, work in a retail store to learn about the industry. Research certification options within the purchasing field. For Sales: Work for the campus newspaper, directory, or radio station selling advertisements. Learn to work well under pressure and to be comfortable in a competitive environment. Prepare to work independently and to be self-motivated. Plan to work irregular and/or long hours.
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GENERAL INFORMATION

- 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 in the work place. This may determine the types of experiences and further education necessary to prepare for area of interest.
- People with math backgrounds may work in jobs with titles such as: analyst, research associate, technical consultant, computer scientist, or systems engineer to name a few.
- Math majors develop many transferable skills including critical thinking, problem diagnosis and solving, computer skills, and quantitative skills. Other important skills to develop include good reasoning, persistence, and communication, both verbal and written.
- Seek relevant experiences through internships or part-time jobs.
- Supplement curriculum with courses in business, economics, computers, or statistics for increased opportunities.
- Consider earning a graduate degree in a related area such as statistics, computer science, science, or engineering. Some examples of specialties that utilize a background in math combined with study in another field include: bioinformatics, computer animation and digital imaging, climatology, or financial mathematics.
- Research the Professional Science Master's degree as an option to earn an interdisciplinary graduate degree and prepare for a job in industry.
- Join relevant organizations and seek leadership roles. Learn to work well in a team environment.
- Conduct informational interviews with professionals in areas of interest to enhance knowledge and make contacts.
- Stay informed of new developments and current trends in the field.