Career Paths

MATHEMATICS

Mathematics is used directly or indirectly in many sectors of work.

A bachelor's degree in mathematics can be used in almost every sector of the world so you should consider if you want to use math skills directly or indirectly in the workplace. This may determine the types of experiences and further education necessary to prepare for your area of interest.

People with math backgrounds may work in jobs with titles such as actuary, analyst, research associate, technical consultant, computer scientist, or systems engineer, to name a few. You will develop many transferable skills such as 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 and supplement curriculum with courses in business, economics, computers, or statistics for increased opportunities.

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 to learn to work well in a team environment. Make sure to conduct informational interviews with professionals in areas of interest to enhance knowledge, make contacts, and stay informed of new developments and current trends in the field.

Mathematics/Computational Science

Example Career Paths: Research: Theoretical & Applied

Mathematical specialties:

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

Potential Employers: State government agencies | Federal government | 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, Mathematical Association of America, American Mathematical Society)

Professional Associations: Society for Industrial and Applied Mathematics | American Mathematical Society | Association for Computing Machinery

Related Occupations: Mathematician | Actuary | Bioinformatics Scientist | Data Scientist | Business Intelligence Analyst | Clinical Data Manager | Computer and Information Research Scientist | Statistician | Budget Analyst | Physicist | Machine Learning/AI Engineer | Quantitative Analyst

Education

Example Career Paths: Teaching | Research | Higher education administration

Potential Employers: Public and private K-12 schools | Universities and colleges

Professional Associations: National Council of Teachers in Mathematics | Mathematical Association of America | Association of Mathematics Teacher Educators

Related Occupations: Mathematics Teacher, Postsecondary | High School Math Teacher | Middle School Math Teacher | STEM Academic Advisor | Math Curriculum Developer/Instructional Designer | Math Coach/Tutor | STEM Outreach Coordinator

Computers

Example Career Paths: Programming | Systems development | Systems analysis | Software development | Network administration | Web administration | Technical support | Training

Potential Employers: Most areas of business:

Examples of areas of businesses:

Computer companies: Computer services companies | Software publishers | Internet related companies | Consulting firms

Businesses that hire computer competence: Financial & insurance companies | Manufacturers | Telecommunications companies | Retailers | Healthcare organizations | Hotels and restaurants | Entertainment companies | Environmental management firms | Education institutions | City, state, and federal government

Professional Associations: Association for Computing Machinery | Mathematical Association of America

Related Occupations: Mathematician | Actuary | Bioinformatics Scientist | Computer and Information Research Scientist | Statistician | Data Scientist | Software Engineer/Developer | Computer Systems Analyst | Cybersecurity Analyst | Video Game Developer | Network and Computer Systems Administrator | Machine Learning/AI Engineer | Operations Research Analyst | GIS Analyst/Geospatial Programmer

Insurance

Example Career Paths: Actuarial Science | Risk management/Assessment | Loss management/Control | Underwriting

Potential Employers: Insurance carriers | Insurance agents and brokers | Professional, scientific, and technical consulting firms | Government agencies

Professional Associations: Society of Actuaries | Casualty Actuarial Society

Related Occupations: Actuary | Financial Risk Specialist | Management Analyst | Data Scientist | Fraud Examiner, Investigator, Analyst | Insurance Agent | Insurance Underwriter | Pricing Analyst | Machine Learning/AI Engineer | Quantitative Analyst

Banking and Finance

Example Career Paths: 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

Potential Employers: Regulatory agencies: Federal Reserve, Federal Deposit Insurance Corporation (FDIC), Office of the Comptroller of the Currency (OCC), Office of Thrift Supervision (OTS) | Commercial banks | Credit unions | Savings and loan associations | Savings banks | Mortgage banks | Captive finance companies | Brokerage firms

Professional Associations: International Association for Quantitative Finance | Global Association of Risk Professionals

Related Occupations: Financial Quantitative Analyst | Financial Manager | Accountant and Auditor | Credit Analyst | Financial Investment Analyst | Financial Advisor | Loan Officer | Budget Analyst | Treasurer and Controller | Chief Financial Officer | Bank Teller | Investment Fund Manager

Other Business Areas

Example Career Paths: 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

Potential Employers: 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

Professional Associations: Institute for Operations Research and the Management Sciences | American Statistical Association | Society for Industrial and Applied Mathematics

Related Occupations: Compensation, Benefits and Job Analysis Specialist | Compliance Manager | Business Analyst | Online Commerce Manager | Financial Quantitative Analyst | Sales Manager | Sales Analyst | Programmatic Advertising Analyst | Sales Forecasting Analyst | CRM and Customer Insights Analyst

Preparing for your Career

- 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.
- 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.
- 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.
- Gain experience through part-time, summer, or internship positions in a financial services firm.
- Develop strong interpersonal, teamwork, and communication skills in to work well with a diverse clientele.

This resource was adapted from What Can I Do With My Major.
For more, visit https://web.uri.edu/career/wcidwmm/