MATHEMATICS

What is Mathematics?

“Mathematics is one of the oldest and most fundamental sciences. Mathematicians use mathematical theory, computational techniques, algorithms and the latest computer technology to solve economic, scientific, engineering, physics and business problems.” (from http://www.bls.gov/oco/ocos043.htm)

“Mathematics is the study of the measurement, properties and relationships of quantities and sets, using numbers and symbols. It is a body of related courses concerned with knowledge of measurement, properties and relations quantities, which can include theoretical or applied studies of arithmetic, algebra, geometry, trigonometry, statistics and calculus.” (from http://uncw.edu/career/mathematics.html)

What are the career opportunities for a mathematics concentrator?

**Related Career Titles** (Some may require education beyond bachelor’s degree.)(from http://uncw.edu/career/mathematics.html)

<table>
<thead>
<tr>
<th>Actuary</th>
<th>Cost Estimator/Analyst</th>
<th>Inventory Control Spec.</th>
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</thead>
<tbody>
<tr>
<td>Aerospace Engineer</td>
<td>Cryptographer/Cryptologist</td>
<td>Investment Banker</td>
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<tr>
<td>Air Traffic Controller</td>
<td>Data Control Administrator</td>
<td>ISO 2000 Specialist</td>
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<tr>
<td>Applications Programmer</td>
<td>Data Processing Manager</td>
<td>Market Research Analyst</td>
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<tr>
<td>Applied Science Technologist</td>
<td>Database Manager</td>
<td>Mathematician</td>
</tr>
<tr>
<td>Artificial Intelligence</td>
<td>Demographer</td>
<td>Media Buyer</td>
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<tr>
<td>Astronomer</td>
<td>Econometrician</td>
<td>Meteorologist</td>
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<tr>
<td>Banking/Credit/Invest. Mgr.</td>
<td>Economist</td>
<td>Mortgage Researcher</td>
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<tr>
<td>Biometrician/ Biostatistician</td>
<td>EDP Auditor</td>
<td>Network Programmer</td>
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<tr>
<td>Commodity Manager</td>
<td>Employee Relations</td>
<td>Numerical Analyst</td>
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<tr>
<td>Compensation/Benefits Adm.</td>
<td>Engineer</td>
<td>Operations Research Analyst</td>
</tr>
<tr>
<td>Computer Consultant</td>
<td>Engineering Lab Technician</td>
<td>Physicist</td>
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<tr>
<td>Computer Engineer</td>
<td>Environmental Technologist</td>
<td>Pollution Meteorologist</td>
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<tr>
<td>Computer Facilities Mgr</td>
<td>Estate Planner</td>
<td>Production Manager</td>
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<tr>
<td>Computer Installation</td>
<td>External Auditor</td>
<td>Production Support</td>
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<tr>
<td>Computer Marketing Rep</td>
<td>Financial Auditor</td>
<td>Psychometrician</td>
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<tr>
<td>Computer Programmer</td>
<td>Financial Consultant</td>
<td>Public Health Statistician</td>
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</table>
Computer Scientist | Financial Manager | Purchasing/Contract Agent
---|---|---
Computer-Aided Design Tech. | Hydro Geologist | Quality Assurance Analyst
Loan/Credit Officer | Hydrologist | Rate Analyst
Cartographer | Software Engineer | Teacher
Risk & Insurance Specialist | Statistician | Technical Writer
Risk Analyst | Systems Analyst | Transportation Planner
Robotics Programmer | Systems Engineer | Treasury Management Spec.
Satellite Communications | Systems Programmer | Underwriter
Software Developer | Urban Planner | Value Engineer
Industrial/Institutional Buyer | Mathematics Editor | Weight Analyst

How do you get ready? (from http://career.utk.edu/students/majors/pdf/mathematics.pdf)

- Math majors develop transferable skills, including critical thinking, problem diagnosis and solving, computer skills, and quantitative skills.
- A bachelor’s degree is often sufficient for entry-level positions, but an advanced degree may open the door to more upper-level opportunities. Pair a strong background in mathematics with another technical discipline, such as computer science or engineering.
- Gain experience through volunteering, internships, and part-time or summer jobs.
- Develop competencies in a specific area of interest.
- Supplement curriculum with courses in business, economics, computers or statistics for increased job opportunities.
- Maintain a high grade point average. Demonstrate attention to detail and commitment to accuracy.
- Build relationships with faculty for career information, contacts and letters of recommendation.
- Join related student professional associations and seek leadership positions.
- Develop the ability to work well in teams.
- 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.

Related Major Skills (from http://uncw.edu/career/mathematics.html)

<table>
<thead>
<tr>
<th>Problem solving</th>
<th>Organizational skills</th>
<th>Numerical computation</th>
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<tbody>
<tr>
<td>Ability to analyze &amp; interpret data</td>
<td>Critical thinking</td>
<td>Computer literacy</td>
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<tr>
<td>Logical thinking</td>
<td>Team skills</td>
<td>Efficient</td>
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<tr>
<td>Systemizing skills</td>
<td>Advanced quantitative skills</td>
<td>Testing skills</td>
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What about the future?

“Employment of mathematicians is projected to grow 23 percent from 2012 to 2022, much faster than the average for all occupations. However, because it is a small occupation, the fast growth will result in only about 800 new jobs over the 10-year period.”

For additional job outlook information, refer to [www.bls.gov/ooh](http://www.bls.gov/ooh)

**Available at Albright College Career Development’s Resource Library**

- **Great Jobs for Math Majors**, by Stephen Lambert and Ruth J. DeCotis
- **Career Opportunities in Banking, Finance and Insurance**, by Thomas Fitch
- **Career Opportunities in Science**, by Susan Echaore-McDavid
- **Careers for Born Leaders and Other Decisive Types**, by Blythe Camenson
- **Careers for Computer Buffs and Other Technological Types**, by Marjorie Eberts and Margaret Gisler
- **Careers for Financial Mavens and Other Money Movers**, by Marjorie Eberts and Margaret Gisler
- **Careers for Number Crunchers and Other Quantitative Types**, by Rebecca Burnett
- **Careers for Perfectionists and Other Meticulous Types**, Blythe Camenson
- **Careers for Puzzle Solvers and Other Methodical Thinkers**, by Jan Goldberg
- **Careers for Scientific Types and Others with Inquiring Minds**, by Jan Goldberg
- **Opportunities in Aerospace Careers**, by Wallace Maples
- **Opportunities in Banking Careers**, by Adrian A. Paradis
- **Opportunities in Engineering Careers**, by Nicholas Basta
- **Opportunities in Financial Careers**, by Michael Sumichrast
- **Opportunities in Information System Careers**, by Douglas B. Hoyt
- **Opportunities in Insurance Careers**, by Robert M. Schrayer
- **Opportunities in Purchasing Careers**, by Kent Banning
- **Opportunities in Teaching Careers**, by Janet Fine

**Disclaimer**

Links to Internet sites are provided for your convenience and do not constitute an endorsement by Albright College Experiential Learning and Career Development Center.

**Job and Internship Search Links**

- Actuary.com [http://www.actuary.com](http://www.actuary.com)
Career Planning Links

- Mathematical Association of America http://www.maa.org/careers
- Careers in math http://www.cln.org/themes/careers_math.html
- NASA http://www.nasa.gov
- Be An Actuary http://www.beanactuary.com
- Mathematics of Cartography http://math.rice.edu/~lanius/pres/map/mapcar.html
- PLUS Magazine http://www.pass.maths.org
- AWM Career Advice and Opportunities https://sites.google.com/site/awmmath/awm-resources/career

Professional Associations

- American Mathematical Society http://www.ams.org
- National Council of Teachers of Mathematics http://www.nctm.org
- Mathematical Association of America http://www.maa.org
- Society for Industrial and Applied Mathematics http://www.siam.org
- U.S. Census Bureau http://www.census.gov/hrd/www/index.html
- National Association of Mathematicians www.nam-math.org/
- Association for Women in Mathematics https://sites.google.com/site/awmmath/home