MATHEMATICS  What can I do with this degree?

According to the Occupation Outlook Handbook, 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. The work of mathematicians fall into two broad classes— theoretical (pure) mathematics and applied mathematics.

**Skills**
- Problem solving
- Flexibility
- Computation
- Teamwork
- Statistics
- Computer programming
- Organize, analyze and interpret data
- Detail-oriented
- Methodical and practical
- Energetic and self-motivated
- Logical critical thinking
- Objective

**Licenses**
- **Society of Actuaries (SOA):** certifies actuaries in the fields of life insurance, health benefits systems, retirement systems, and finance and investment.
- **Casualty Actuarial Society (CAS):** gives a series of examinations in the property and casualty field, which includes car, homeowners, medical malpractice, workers compensation, and personal injury liability.
- **American Society of Pension Actuaries:** offers credentials to all professionals in the retirement plan industry.
- **Joint board for the Enrollment of Actuaries:** is a U.S. government agency that provides licenses for all professionals in the pension plan industry.

---

**CAREER PATHS**

*(Some of the occupations outlined in this brochure may require additional education or training)*

...in Health

**Sample Job Titles**
- Biomathematican
- Biomedical Engineer
- Ecologist
- Bioinformaticians

**Possible Work Settings**
- Pharmaceutical companies
- Engineering research groups
...in Government

**Possible Work Settings**
- U.S. Census Bureau
- Defense Mapping Agency
- Department of Agriculture
- Department of Energy
- Department of Interior
- IRS
- Department of Commerce
- Health Care Financing Administration
- Housing & Mortgage Finance
- Insurance Department
- Justice Department
- Library of Congress
- NASA
- National Institute of Standards & Tech.
- Defense Logistics Agency
- Department of Defense
- Department of Health and Human Services
- Department of Transportation
- Drug Enforcement Administration
- Employment & Training Admin.
- National Security Agency
- National Technical Info. Service
- NOAA
- Research Agencies
- Social Security Administration
- U.S. Armed Forces
- U.S. Bureau of Justice
- U.S. Bureau of Labor Statistics
- U.S. Customs Service
- Weights & Measures

...in Business/Industry

**Sample Job Titles**
- Applied Mathematician
- Business Analyst
- Communications Engineer
- Economic Analyst
- Investment Manager
- Market Researcher
- Product Developer

**Possible Work Settings**
- Hospitals and clinics
- Criminal justice
- Protective service
- Environment
- Social services
- Transportation
- Energy policy
- Defense
- Natural resources management
- Technology
- Communications
- Manufacturing
- Biological sciences
...in Operations Research

**Sample Job Titles**
- Operations research analyst
- Systems engineer
- Operations research specialist

**Possible Work Settings**
- Telecommunications firms
- Air carriers
- Computer and data processing firms
- Financial institutions
- Government agencies
- Automobile manufacturers

management analyst
- Principal analyst
- Strategic financial manager

**Sample Job Titles**
- Biometrician
- Demographer
- Econometrician
- Psychometrician
- Quality control analyst
- Statistician
- Sports statistician (official scorer)

**Possible Work Settings**
- Professional athletic teams
- Television and radio stations and networks
- College and university sport programs
- Elias Sports Bureau, Stats, & Sports Ticker
- Government agencies
- Insurance companies

**Sample Job Titles**
- Actuary
- Securities
- Benefits specialist
- Financial analyst
- Investment analyst

**Possible Work Settings**
- Utility research and testing services
- Management and public relations firms
- Computer and data processing firms
- Manufacturing companies
- Financial services firms
- Pharmaceutical industry

What can I do with this degree?  Page 3 of 6
**Possible Work Settings**

Insurance companies  
Pension plans  
Consulting firms  
Government agencies  
Financial service firms

Health maintenance organizations  
Brokerage firms  
Banks  
Savings & loans associations

**...in Education & Research**

**Sample Job Titles**

Theoretical mathematician  
Applied mathematician  
Research scientist  
College or University Professor

Community College Instructor  
Teacher - Primary, Junior High, High School

**Possible Work Settings**

Colleges and universities

Private and public schools

**...in Computer and Information Sciences**

**Sample Job Titles**

Applications Programmer  
Computational Scientist  
Computer Applications Software Engineer  
Computer Programmer

Computer Systems Analyst  
Weight Analyst  
Cryptanalyst  
Mathematical modeling  
Database Administrator

**Possible Work Settings**

Government laboratories  
Chemical industry  
Biotechnology industry  
Computer service firms

Computer and electronics manufacturers  
Energy companies  
Defense contractors

**...in Other Areas**

**Sample Job Titles**

Computational Biology and Genomics  
Data Mining  
Neuroscience  
Materials Science  
Engineering

Law  
Medicine  
Economist  
Computer Animation and Digital Imaging  
Imaging
**Possible Work Settings**

<table>
<thead>
<tr>
<th>Hospitals and clinics</th>
<th>Transportation</th>
<th>Technology</th>
</tr>
</thead>
<tbody>
<tr>
<td>Criminal justice</td>
<td>Energy policy</td>
<td>Communications</td>
</tr>
<tr>
<td>Protective service</td>
<td>Defense</td>
<td>Manufacturing</td>
</tr>
<tr>
<td>Environment</td>
<td>Natural resources</td>
<td>Biological sciences</td>
</tr>
<tr>
<td>Social services</td>
<td>management</td>
<td></td>
</tr>
</tbody>
</table>

**RESOURCES**

**Career Library Resources**
Great Jobs for Math Majors by Stephen E. Lambert and Ruth J. DeCotis
Career Opportunities in Science by Susan Echaore-McDavid
Ferguson’s Careers in Focus: Mathematics & Physics.

**Professional Organizations**

| Actuarial Foundation | http://www.actuarialfoundation.org/ |
| American Academy of Actuaries | http://www.actuary.org/ |
| American Federation of Teachers | http://www.aft.org/ |
| American Mathematical Society | http://www.ams.org/ |
| American Society of Pension Actuaries | http://www.aspa.org/ |
| American Statistical Association | http://www.amstat.org/ |
| Association for Symbolic Logic | http://www.aslonline.org/index.htm |
| Association for Women in Mathematics | http://www.awm-math.org/ |
| Casualty Actuarial Society | http://www.casact.org/ |
| Caucus for Women in Statistics | http://www.caususforwomeninstatistics.com/ |
| Conference of Consulting Actuaries | http://www.ccactuaries.org/ |
| Consortium for Mathematics and Its Applications | http://www.comap.com/ |
| Econometric Society | http://www.econometricsociety.org/ |
| Institute for Operations Research and the Management Sciences | http://www.informs.org/ |
| Institute of Mathematical Statistics | http://www.imstat.org/ |
| International Association for Mathematical Geosciences | http://www.jamg.org/ |
| Mathematical Association of America Online | http://www.maa.org/ |
| National Association of Mathematicians | http://www.nam-math.org/ |
| National Council of Supervisors of Mathematics | http://www.ncsmonline.org/ |
| National Council of Teacher of Mathematics | http://www.nctm.org/ |
| National Education Association | http://www.nea.org/ |
| Professional Science Masters | http://www.scienemasters.com/ |
| School Science and Mathematics Association | http://www.ssma.org/ |
| Society for Industrial and Applied Mathematics | http://www.siam.org/ |
| Society of Actuaries | http://www.soa.org/ |
| Women and Mathematics Education | http://wme-usa.org/ |
Job Search
Be an actuary, http://www.beanactuary.com/

Additional Resources
What you can do with a math degree,
http://www.math.ucsc.edu/undergraduate/careers/index.html
Young Mathematicians’ Network, http://concerns.youngmath.net/

Information for this handout compiled from:
Texas State University Career Services, Department of Mathematics at Rice University, Department of Mathematics at University of California Santa Cruz, Career Services at University of Tennessee-Knoxville, Career Services at University of Wisconsin-Eau Claire, Career Service at Oklahoma State University