Learn more about becoming a math educator at these websites: National Council of Teachers of Mathematics, *www.nctm.org*, and Wisconsin Mathematics Council, *www.wismath.org*

Technical Writing: This includes everything from science reporting for periodicals; to writing documentation for computer software; to editing textbooks. For more about what science writers and technical writers do, visit these sites: Council for the Advancement of Science Writing: *http://casw.org/casw/guide-careers-science-writing* or Society for Technical Communication: *http://www.stc.org/story/*

For examples of mathematics career paths, advice from professionals, and other good informational resources:

- *http://www.maa.org/careers/profiles.html*
- *http://www.ams.org/profession/career-info/career-index*
- Recent bachelor's level math grads: *http://www.ams.org/profession/career-info/early-careers/early-careers*
- *http://www.ams.org/programs/students/undergrad/undergrad*

For more information about the Mathematics Major and Minor at Edgewood College, contact:

Steven Post, Chair, post@edgewood.edu, 608-663-2275

EDGEWOOD COLLEGE

www.edgewood.edu

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MATHEMATICS DEPARTMENT

EDGEWOOD COLLEGE

*So what **can** you do with a degree in mathematics? Just about **anything**. No, really. We mean it! Read on.*

Content below is adapted from http://www.toroidalsnark.net/mathcareers.html. Visit the site for more great links and information.

Actuarial Mathematics: The application of mathematics, particularly probability and statistics, to the insurance industry. For more info, check out *http://www.beanactuary.org*, which is supported and maintained by the actuarial professional societies and some major employers. The Princeton Review has an Actuarial Career Profile: *http://www.princetonreview.com/Careers.aspx* Explore this actuarial info and jobs site: *http://www.actuaryjobs.com/*

A related career is that of a **Research Analyst.** They research compensation trends and problems internally and externally; perform statistical analyses and predictive modeling on current and proposed compensation scenarios; measure performance of field sales (insurance reps) against established goals; model and track incentive and bonus programs; determine economic impact of various scenarios on the company and the individual. This job specifically requires a mathematics degree.

Applied Mathematics: Often this means working on problems in physics, chemistry, geology, and engineering from a mathematical perspective. There are broad possibilities, ranging from being a **climate analyst,** who models long-term changes in global weather, to working as a **forensic analyst,** who investigates data collected at crime scenes, to being a **population ecologist,** who works to prevent species from becoming endangered. For more info, check the Society for Industrial and Applied Mathematics career site at *http://www.siam.org/careers/* especially their pages on "Thinking of a Career in Applied Mathematics?" *http://www.siam.org/careers/thinking.php*

Most government jobs, such as with Sandia, Argonne, Oak Ridge National Labs, NASA, the Jet Propulsion Lab, NIST, or the Dept. of Agriculture are within applied mathematics. Some positions at the National Security Agency are applied mathematics and some are pure mathematics. Courses in mathematical modeling are helpful in preparing for an applied mathematics career.

Biomathematics: The application of mathematics in the health sciences. It's an up-and-coming field, and some say it's the next big trend within mathematics. The Society for Mathematical Biology lists undergraduate and graduate programs: *http://www.smb.org/education/index.shtml*

Biomathematics includes bioinformatics, a sort of computer science/math/biology hybrid field. The Bioinformatics Organization has job listings in bioinformatics: *http://www.bioinformatics.org/jobs/* There's plenty of information at these sites as well: *http://bioinformaticsweb.net/* and *http://www.colorbasepair.com*

Biostatistics and Epidemiology: The application of statistics in the health sciences. Epidemiologists study the spread of diseases and model how to respond to epidemics. Find out more at this link: *http://www.amstat.org/careers/biostatistics.cfm*

Computer Science: This is a field on its own, but one of the mathiest parts of it is **graphics and animation**. A great example is Pixar, where employees publish research papers involving things like using differential equations to make sure animated clothing doesn't intersect itself. Another especially mathy part is the **cryptography** involved in **network security**; think e-commerce and mathematical algorithms like RSA and Rijndael. Here's a detailed overview of cryptography for networks: *http://www.garykessler.net/library/crypto.html* A high level of mathematical ability and background is needed. Consider a double major.

Financial Mathematics (or Mathematical Finance, also known as Quantitative Finance): Mathematics used on Wall Street for mortgage backing, financial derivatives, and stock market analysis. Here's a short book list: *http://quantlib.org/books.shtml* The field is fairly new, and there are lots of professional master's programs springing up. SUNY-Stony Brook has excellent information: *http://www.ams.sunysb.edu/~frey/QuantitativeFinance/Resources/CareerGuide/* There are plenty of mathematics graduates who are **traders**, **stock workers**, **commodities**, or **foreign exchange** workers.

Law or Medicine: A major in mathematics is a good preparation for law or medical school; learn more through career profiles at: *http://www.maa.org/careers/profiles.html*

Operations Research: The application of mathematics to problems of optimization, especially large-scale or complex problems mostly in the field of business. This discipline is sometimes called Management Science or Industrial Engineering. For more info, explore these sites: *http://www.informs.org.vt.edu/index.php,* and *http://www.informs.org/*

Public Policy: A mathematics degree can lead to advisory positions in educational and/or science policy, as well as work in quantitative public policy. A master's degree in public policy is often useful.

Research Mathematics: The study of mathematics for its own sake. Just about any mathematics faculty member will be more than happy to chat with you about this. As a career, this almost always requires graduate school to investigate the possibilities. Think about doing something (REU, internship) during the summer; more information at: *http://www.ams.org/programs/students/undergrad/emp-reu*, or *http://www.ams.org/programs/students/undergrad/emp-internships*

Statistics: The study of methods for collecting, classifying, analyzing and making inferences from data. There are *tons* of jobs in statistics. For more info, check "About Careers in Statistics" at the American Statistical Association's website: *http://www.amstat.org/careers/* or check ASA's job site: *http://www.amstat.org/jobweb/index.cfm*

Teaching: At all levels. To teach at the community college level, you should get a Master's degree in mathematics or a Master of Arts in Teaching; to teach at the college level, you should get a Ph.D. (in mathematics, mathematics education, applied mathematics, or statistics).