



College Connections



CAREERS IN MATHEMATICS

According to a study released in 2010 by JobsRated.com at www.careercast.com, being a mathematician is one of the best jobs to have in the U.S. The study evaluated 200 jobs to determine the best and worst according to five “core criteria”: work environment; compensation (income); employment opportunities; degree of stress; and physical demands. The top four jobs – actuary, software engineer, computer systems analyst, and biologist – are also jobs that require knowledge of mathematics, while other jobs among the top 10, such as statistician and accountant, rely on a knowledge of math.

Another survey, conducted in 2009 by the National Association of Colleges and Employers, revealed that the top 15 highest-earning college degrees have one thing in common: they all require math skills. Students with mathematical skills and training will have an advantage no matter what career they pursue; math teaches discipline, patience, and step-by-step problem solving that can be applied to any number of occupations. Those hoping for a career in law, the social sciences, business, or medicine also benefit from a solid education in mathematics.

Some of the career opportunities for students majoring or concentrating in mathematics include:

π Actuary: Analyzes and organizes statistics, often for insurance companies, in order to calculate the probability of various events, such as death, illness, or property loss.

π Computer Scientist: Will work with a variety of applications of computer technology, such as medical diagnoses, design, and graphics animation.

π Cryptologist: Works on the secure transmission of information required for, among other things, shopping on-line; involves data encryption and working with codes and algorithms.

π Economist: Interprets and analyzes the factors driving the economics of organizations, industries, and countries.

π Engineer: An engineer generally specializes in one of a number of different fields. A *civil engineer* plans, designs, and directs transportation and irrigation systems, and analyzes topographical and geological data. A *biomedical engineer* works with health care technology; a *software engineer* often works with communications technology; and a *systems engineer* may design and manage complex projects for information companies, electronic firms, and software companies. Other specialties include: *aerospace, ceramic, chemical, electrical, environmental, mechanical, naval architecture and marine, and optics engineering.*

π Operations Research Analyst: Applies math to business operations by helping organizations develop efficient and cost-effective solutions to problems; includes forecasting, resource allocation, inventory control, and distribution systems.

π Statistician: Produces, analyzes, and draws conclusions from data, and may apply statistical

methods to a variety of fields, including biology, economics, engineering, medicine, psychology, marketing, and sports.

π Teacher: Math teachers or instructors are in high demand at all levels, from elementary school to college-level graduate studies. A number of scholarships and grants are available to college students in exchange for a commitment to being a secondary school math teacher, among them the New York State Math and Science Teaching Incentive Scholarships. Applications for the 2010 series will be available in January 2011. Click [here](#) for more information.

Sources:

“Mathematics Careers,” <http://www.maa.org/careers>

“Why Choose a Mathematics-Related Profession?,” <http://www.math.ucdavis.edu/~kouba/MathJobs.html>

“Careers in Mathematics,” <http://www.toroidalsnark.net/mathcareers.html>

“NYS Math and Science Teaching Incentive Scholarships;” http://www.hesc.com/Content.nsf/SFC/NYS_Math_and_Science_Teaching_Incentive_Scholarships

“Most Lucrative College Degrees,” <http://finance.yahoo.com/college-education/article/107402/most-lucrative-college-degrees.html?mod+edu-collegeprep>

“Doing the Math to Find the Good Jobs,” <http://online.wsj.com/article/SB123119236117055127.html>

15 Top-Earning College Degrees

Degree	Starting Salary 2009
1. Petroleum Engineering	\$83,121
2. Chemical Engineering	\$64,902
3. Mining Engineering	\$64,404
4. Computer Engineering	\$61,738
5. Computer Science	\$61,407
6. Electrical Engineering	\$60,125
7. Mechanical Engineering	\$58,766
8. Industrial Engineering	\$58,358
9. Systems Engineering	\$57,438
10. Engineering Technology	\$56,447
11. Actuarial Science	\$56,320
12. Aeronautical Engineering	\$56,311
13. Agricultural Engineering	\$54,352
14. Biomedical Engineering	\$54,158
15. Construction Management	\$53,199

Source: “Most Lucrative College Degrees,” CNNMoney.com, <http://finance.yahoo.com/college-education/article/107402/most-lucrative-college-degrees.html?mod+edu-collegeprep>. Survey conducted by the National Association of Colleges and Employers, 2009.

RESOURCES: MATHEMATICS

The Connectory

<http://www.connectamillionminds.com/connectory.php>
Part of the “Connect a Million Minds” program sponsored by Time Warner, this site allows students, parents, and teachers to search for after-school activities in their own communities that can inspire young people to develop science, technology, engineering, and math skills.

The Math Forum

<http://mathforum.org/mathed>
This portal for math educators, presented by Drexel University’s Goodwin College of Professional Studies, offers links to information on professional development, research about math education, mathematical organizations, journals, technology, adult education, and public policy.

MATH2.org

<http://www.math2.org>
This comprehensive math site, handy for looking up terms and formulas quickly, contains tables for elementary

through college-level math. It is also available in Spanish at <http://math2.org/math/es-tables.htm>.

New York Math Circle

<http://www.nymathcircle.org/>
A non-profit organization dedicated to enriching and supplementing mathematical education in New York City. NYMC also encourages and supports the teaching of mathematics through courses for teachers and other programs.

Platonic Realms

<http://www.mathacademy.com/pr/>
This informative site includes, among many other features, an interactive database of math quotes, searchable by author or topic, and an exhaustive encyclopedia that covers mathematical terms, the history of math, and famous mathematicians.

Selected Programs in Mathematics at Independent Colleges and Universities

Students interested in mathematics have a number of colleges and programs of study available to them at the 100+ independent colleges and universities in New York. The list below is not exhaustive. To discover which colleges offer a bachelor's degree program, minor, or major area of concentration in other areas of study where a knowledge of math is important – actuarial science, computer and information sciences, game design, digital design, astronomy, engineering, environmental science, chemistry, geology, and meteorology, to name only a few – you can search a database containing more than 500 academic programs on New York's private (independent) colleges and universities' admissions and financial aid Web site, www.nycolleges.org. Here's how to search:

At the site's home page, click on "Academic Programs"

- At *Step 1*, select a degree level (Associate or Bachelor's); we'll pick "Bachelor's" as an example.
- At *Step 2*, choose an area of study; we'll select "Mathematics" here.
- At *Step 3*, you'll see a list of the programs of study offered; as an example, we'll click on "Applied Mathematics" (the use of math in other fields).

A list of colleges and universities will appear at the bottom of the screen. Click on one of the colleges to go to its campus profile and a link to the college's Web site.

This database is a general listing to start you on a search for academic programs. Always be sure to consult with the colleges directly for details about their programs and to distinguish registered degree programs from minors or major areas of concentration offered within larger programs.

Associate Degree Programs

Mathematics/Applied Mathematics

The use of math in other fields, such as biology, statistics, sociology, or computer science. Program offered at:

- Rochester Institute of Technology

Bachelor's Degree Programs

Actuarial Science

The use of math to assess risks in finance and insurance. Program offered at:

- Hofstra University
- Le Moyne College
- New York University
- St. John's University/Manhattan Campus
- St. Thomas Aquinas College

Applied Mathematics

The use of math in other fields, such as biology, statistics, sociology, or computer science.

Program offered at:

- Barnard College
- Clarkson University
- Colgate University
- Columbia University
- Dowling College
- Fordham University
- Hofstra University
- Iona College
- Marist College
- Rensselaer Polytechnic Institute
- Rochester Institute of Technology
- Siena College
- St. Thomas Aquinas College
- Union College
- University of Rochester

Applied Mathematics and Computer Science

The use of math in computer systems analysis, software design, programming, and databases.

Program offered at:

- Adelphi University
- Clarkson University
- Columbia University
- Daemen College
- Dowling College
- Fordham University
- Hamilton College
- Hobart and William Smith Colleges
- Hofstra University
- Ithaca College
- Le Moyne College
- Long Island University/C.W. Post Campus
- Manhattan College
- New York University
- Rensselaer Polytechnic Institute
- Rochester Institute of Technology
- Siena College
- Skidmore College
- St. John Fisher College
- St. Joseph's College/Long Island Campus
- St. Thomas Aquinas College
- Touro College
- Wagner College
- Wells College

2011 NYS REGENTS EXAM SCHEDULE

JANUARY*	Tuesday, January 25 through Friday, January 28
JUNE	Wednesday, June 15 through Friday, June 24
AUGUST	Wednesday, August 17 through Thursday, August 18
For more information about the NYS Regents or other NYS Assessment Tests, visit http://www.p12.nysed.gov/osa/schedules/home.html	

Computational Science

The use of math to construct mathematical models; the use of computer simulation to analyze and solve scientific problems. Program offered at:

- Siena College

Mathematics

69 independent colleges and universities in New York State offer a bachelor's degree program, minor, or major area of concentration in mathematics.

Mathematics-Economics/Business Economics

The use of math in economic theories and to analyze problems in business and economics. Program offered at:

- Hofstra University
- Ithaca College
- University of Rochester

Mathematics-Physics

The use of mathematical analysis in physics and engineering. Program offered at:

- Alfred University
- The College of New Rochelle
- Fordham University
- Hofstra University
- Ithaca College
- Long Island University/C.W. Post Campus
- Polytechnic Institute of NYU
- Rensselaer Polytechnic Institute
- St. John's University/Queens Campus
- St. Lawrence University
- Wells College

Statistics

Math applied to the collection, analysis, interpretation, and presentation of data. Program offered at:

- Barnard College
- Clarkson University
- Columbia University
- Cornell University
- Le Moyne College
- New York University
- Rensselaer Polytechnic Institute
- Rochester Institute of Technology
- Sarah Lawrence College
- St. John Fisher College
- St. Lawrence University
- University of Rochester

The 10 Best Jobs of 2010

Profession	Average Yearly Income (May 2008)
Actuary*	\$95,980
Software Engineer*	\$85,430
Computer Systems Analyst*	\$75,500
Biologist*	\$82,840
Historian	\$54,530
Mathematician*	\$95,150
Paralegal Assistant	\$46,120
Statistician*	\$72,610
Accountant*	\$59,430
Dental Hygienist	\$66,570

* These professions require mathematics

Factors considered by JobsRated.com were physical demands, work environment, income, level of stress, and hiring outlook. Find details on methodology at www.careercast.com/jobs/content/jobs-rated-methodology-2010.

Sources:

Andrew Streiber, "The 10 Best Jobs of 2010," <http://www.careercast.com/jobs/content/ten-best-jobs-2010-jobs-rated>; "Occupational Outlook Handbook (OOH), 2010-11 Edition, U.S. Department of Labor/Bureau of Labor Statistics, <http://www.bls.gov/oco/>.

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