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Career Information
For
**Mathematics
Majors**



Compliments of:

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The Hertz Foundation's Graduate Fellowship Award

Contact: Applications can be found at <http://www.hertzfndn.org/awards.html>

Eligibility: The Hertz Foundation's Graduate Fellowship award, which is based on merit (not need) consists of a cost-of-education allowance and a personal-support stipend. The Fellowship award is renewable annually (upon a showing of satisfactory progress toward receipt of the Ph.D. degree) for a total Fellowship tenure of no more than five years

Amount: The personal stipend, paid over the nine-month academic year, is \$25,000 for Fellowships awarded for the 2003-2004 academic year

National Science Foundation

Contact: NSF Graduate Research Fellowship Program, Oak Ridge Associated Universities, P.O. Box 3010 Oak Ridge, Tennessee 37831-3010, Phone: 865-241-4300, E-mail: nsfgrfp@ornl.gov www.ornl.gov/nsf/nsffel.htm

Eligibility: Offers three-year graduate research fellowships in science, mathematics, and engineering, including Women in Engineering and Computer and Information Science awards. New fellowships to be offered in March 2003 will be for maximum tenure periods of three years usable over a five-year period.

Disciplines- Fellowships are awarded for graduate study leading to research-based master's or doctoral degrees in the mathematical, physical, biological, engineering, and behavioral and social sciences, including the history of science and the philosophy of science, and to research-based Ph.D. degrees in science education.

Amount: \$16,800 stipend, for 12-month tenures, and a cost-of-education allowance of \$10,500 per tenure year. A \$1,000 International Research Travel.

The Goldwater Scholarship Program

Contact: See <http://www.act.org/goldwater/>

Eligibility: The Foundation will award undergraduate scholarships to outstanding students, to be known as Barry M. Goldwater Scholars, in the fall of 2002 for use during the 2003-2004 academic year. The awards will be made on the basis of merit to two groups of students -- those who will be college juniors and those who will be college seniors in the 2003-2004 academic year -- who have outstanding potential and intend to pursue careers in mathematics, the natural sciences, or engineering.

SCHOLARSHIPS

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Here are some examples of the variety of scholarships available to Math majors. This list is not exhaustive. Please consult with the Scholarship Advisor in Career Services for information on the Rhodes, Marshall, Mitchell, Fulbright, DAAD, Truman, Luce, Beinecke, Reynolds, McGorrian, Dartmouth General, and Priest Scholarships. See the Career Services Web Site (www.dartmouth.edu/~csrc) for more information.

James M. Vaughn, Jr. Foundation Fund

Contact: c/o Ameritrust Texas, PO Box 149036, Austin, TX 78714-9036
Eligibility: Fellowships to scholars pursuing research or publishing work in the field of mathematical research format conjecture.

CIC Graduate Fellowships for Minorities

Contact: Indiana University Minorities Fellowship Program
Kirkwood Hall, Room 111 Bloomington, IN 47405
Eligibility: Offers 4-year awards to members of under represented minority groups seeking PhD degrees in the humanities, sciences, mathematics and engineering. Recipients of the fellowships may use them at any of the 11 CIC universities where they have been accepted for admission. Awards are for four years.
Amount: \$9,000+Tuition for four years.

Society for Exploration Geophysicists

Contact: SEG Education Foundation POB 702740 Tulsa, OK 74101
www.students.seg.org
Eligibility: Supports those who intend to pursue a career in geophysics and have interest and aptitude for mathematics.
Deadline: March 1

Teaching Assistantships

Contact: University of Texas at San Antonio Division of Mathematics,
Computer Science & Statistics San Antonio, TX 78249-0601
Eligibility: Teaching assistantships available to students with B.S. degrees in mathematics, computer science and statistics to pursue graduate work leading to the M.S. degree.
Amount- \$8,670

PORTFOLIO OF SKILLS

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Through completing a math major, you will develop skills that will serve you well in virtually whatever you do after leaving Dartmouth. The DartmouthPortfolio, available from the Career Services website (www.dartmouth.edu/~csrc) is a good starting point to reflect on and to document your abilities and skills. Some key examples to consider are the following:

Analytical Skills

- **Problem solving:** The very essence of mathematics is problem solving. You will be trained to recognize problems, distill and define the pertinent issues, determine under exactly what circumstances a solution exists and to find that solution
- **Mastering new ideas and skills:** You will be trained to absorb very complex new concepts quickly and to immediately begin the process of discovering the implications and depth of these new ideas

Innovation

- A critical tool in mathematics is abstraction; that is, you will have the ability to distill the common threads of diverse concepts and techniques into their fundamental principles and then apply these principles in new areas. This naturally leads to the ability to develop new ideas and products by bringing such principles to bear on new problems

Technical Skills

- **Computer Skills:** You will develop a wide range of computer skills from the mundane -- such as spreadsheets, email, the Internet -- to cutting edge tools such as symbolic manipulation, computing theory and beyond
- **Probability and Statistics:** You will have all the basic skills such as statistical analysis, sampling techniques and data acquisition as well as a fundamental understanding of the underlying principles
- **Modeling:** Much of mathematics stresses the development and use of mathematical models of physical phenomena and understanding the importance and limitations of the predictions based on these models
- **The Ability to Master New Technology:** Today's technology is changing incredibly rapidly and the new economy will require people who can stay current. The language of science and its resulting technology is mathematics

Research and Presentation Skills

- Ability to make and interpret graphs, tables and charts
- Library research techniques
- Technical writing skills

In some sense, the beauty of a major in mathematics is that the choice of an eventual career need not be an overriding concern. Obviously if you pursue a career in a mathematically oriented field, the particular courses you take may be rather important. However, even if you are interested in a career in business or in attending a professional graduate school (business, law, medicine), a math major is highly regarded because studying mathematics develops analytical skills and the ability to work effectively in a problem-solving environment.

(from <http://www.math.dartmouth.edu/faq/majors/>)

Jobs with a Bachelor's Degree:

College graduates with a bachelor's degree in mathematics can qualify for a broad range of positions in business, industry, government and education. Companies in the computer and communications industries employ many mathematicians, as do oil companies, banks, insurance companies, and consulting firms. Almost every bureau and branch of the federal government - including the Department of Health and Human Services, the General Accounting Office, Department of Energy, Department of Defense, the National Aeronautics and Space Administration and the National Security Agency - employ mathematicians in various capacities.

(from <http://www.ams.org/employment/undergrad.html>)

Graduate Training:

University and college teaching and research have always attracted many mathematicians. In most four-year colleges and universities, the Ph.D. is necessary for full faculty status. Many mathematicians with a bachelor's or master's degree teach at the K-12 level.

Many other job titles apply to mathematicians who have specialized in an applied branch of mathematics. Actuaries assemble and analyze statistics to calculate probabilities, and thereby set rates in the insurance industry. Operations Research Analysts apply scientific methods and mathematical principles to organizational problems. Statisticians design, carry out, and interpret the numerical results of surveys and experiments. All of these careers begin with an education in mathematics, and curiosity about the use of mathematics to solve problems.

(from <http://www.ams.org/employment/>)

The Math Forum Homepage

<http://mathforum.org>

International Society on Multiple Criteria Decision Making

<http://www.terry.uga.edu/mcdm/>

American Mathematical Society

<http://www.ams.org/>

Mathematical Association of America Online

<http://www.maa.org/Welcome.html>

Association for Women in Mathematics

<http://www.awm-math.org/>

American Statistical Organization

<http://www.amstat.org>

International Federation of Nonlinear Analysts

<http://www.fit.edu/AcadRes/math/ifna.html>

Pure Math for Mathematicians

<http://www.maths.uwa.edu.au/~mike/PURE/math.html>

Society for Industrial and Applied Mathematics

<http://www.siam.org/nnindex.htm>

National Association of Mathematicians

<http://www.caam.rice.edu/~nated/orgs/nam/index.html>

Electronic Journal of Probability

<http://math.washington.edu/~ejpecp/>