AMERICAN MATHEMATICAL SOCIETY

Resources for undergraduates in mathematics

AMS
American Mathematical Society
www.ams.org

Explore mathematics

Here are just some of the resources available from the AMS to assist undergraduate students interested in math. Visit the library, talk with the mathematics department faculty, or contact the other organizations listed in this brochure directly to find out more about publications, internships, careers, and funding.

Research Experience for Undergraduates Summer Programs

www.ams.org/outreach/reu.html

Link to 70 summer REU programs around the country. The length, size, and subject areas of the sessions vary, and many of the participants take the opportunity to present posters of their work at the Joint Mathematics Meetings. (Note that most REU application deadlines fall in February–March.)

Melanie Wood, the first woman to represent the U.S. in the International Mathematics Olympiad, and the first woman to receive the AMS-MAA-SIAM Morgan Prize for Outstanding Research in Mathematics by an Undergraduate Student, gives a talk at the Duluth REU.

Math in Moscow Scholarship Program

www.ams.org/outreach/mimoscow.html

Photos courtesy of the Math in Moscow Program.

Spend 15 weeks in Moscow studying mathematics in English in the city's historic center. The AMS administers five $5,000 scholarships per semester, with funding provided by the National Science Foundation (deadline for spring semesters is September 30; deadline for fall semesters is April 15). The web page has guidelines on how to apply and links to the Math in Moscow program containing detailed information on courses, faculty, accommodations, Moscow, alumni lists, and feedback. Read the impressions of Math in Moscow students at **www.mccme.ru/mathinmoscow/imp.php.**

Cover graphic, "Double Cusp Group," courtesy of D. Wright, can be seen in *Notices of the AMS*, Volume 51, Number 11 (December 2004), 1332-1333.

Feature Column

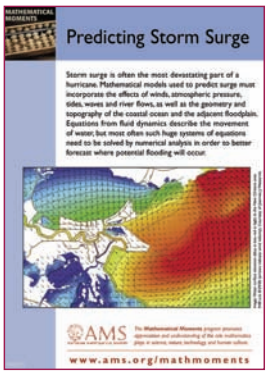
www.ams.org/featurecolumn

Read accessible essays on a variety of topics written by mathematicians **Joe Malkevitch** (York College, CUNY), **David Austin** (Grand Valley State University), **Tony Phillips** (Stony Brook University), and **Bill Casselman** (University of British Columbia): Voting Games, Mathematical Marriages, Resolving Bankruptcy Claims, Slingshots and Spaceshots, among others.

Math in the Media

www.ams.org/mathmedia

Keep informed and entertained with this centralized tracker of articles about mathematics that appear in newspapers and science magazines. The collection includes "Tony Phillips' Take on Math in the Media," "Math Digest" (summaries of math in the news), and "Reviews" of books, plays, films, and TV shows with math themes.



Mathematical Moments

www.ams.org/mathmoments

See what math has to do with Being a Better Sport, Recognizing Speech, Designing Aircraft, Storing Fingerprints, Investing in Markets, Defeating Disease, Making Votes Count, Enhancing Your Image, Securing Internet Communication, Making Movies Come Alive, Listening to Music, Beating Traffic, Bringing Robots to Life, Routing Traffic through the Internet, Tracking Products, Forecasting Weather, Manufacturing Better Lenses, Mapping the Brain…

Resources for Undergraduates Web Page

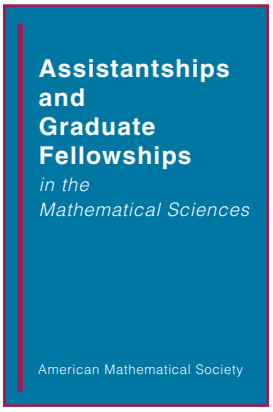
www.ams.org/outreach/undergrad.html

Find carefully selected resources on graduate schools, summer programs, semester programs, mathematics help, clubs, conferences, competitions, prizes, honorary societies, and leads to find internships, jobs, and career information.

Applying to graduate school in mathematics?

Assistantships and Graduate Fellowships

www.ams.org/employment/asst.pdf



Here's *the* central source to find information on support for graduate study in the mathematical sciences in the U.S. and Canada. Instead of the inconvenience and time-consuming process of searching institutions one by one on the internet to find information on support for graduate students, use the AMS's annually updated "Assistantships & Graduate Fellowships."

The consistent format makes it easier to:

- compare different graduate math programs
- find number of faculty, graduate students, degrees awarded
- see stipend amounts, number of awards available, foreign language requirements
- locate sources of support for graduate study and travel, summer internships, and graduate study in the U.S. for foreign nationals
- learn additional information in display ads

"What can I do with a math degree?"

College graduates with a bachelor's degree in mathematics have the foundation for a broad range of positions in business, industry, government, and education. Companies in the computer and communications industries employ many mathematicians, as do energy companies, banks, insurance and financial services companies, and consulting firms. Almost every bureau and branch of the federal government—including the Department of Health and Human Services, Department of Energy, Department of Defense, and the National Security Agency—employ mathematicians in various capacities.

The Early Career Profiles Network

www.ams.org/early-careers/

Many students have only a vague idea about the utility of a major in the mathematical sciences: "What can I do with a math degree?" In response, the AMS recruits and supports a network of math departments to systematically provide job profiles of their recent bachelors-degree alumni. Read about graduates of small colleges and large universities who majored in math, where they work, how they use math on the job, and what advice they give to students. The program is supported in part by the Alfred P. Sloan Foundation.

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View profiles of individuals employed in the following industry sectors:

- Agriculture, forestry, fishing, and hunting
- Arts, entertainment, and recreation
- Construction
- Education
- Finance and insurance
- Government
- Health care and social assistance
- Information technology
- Legal services
- Management of companies and enterprises
- Manufacturing
- Mining
- Nonprofit
- Other science and technology
- Publishing, communications, and libraries
- Real estate and rental and leasing
- Retail trade
- Transportation and warehousing
- Travel and food services
- Utilities
- Wholesale trade

Jobs & Careers

www.ams.org/employment/undergrad.html

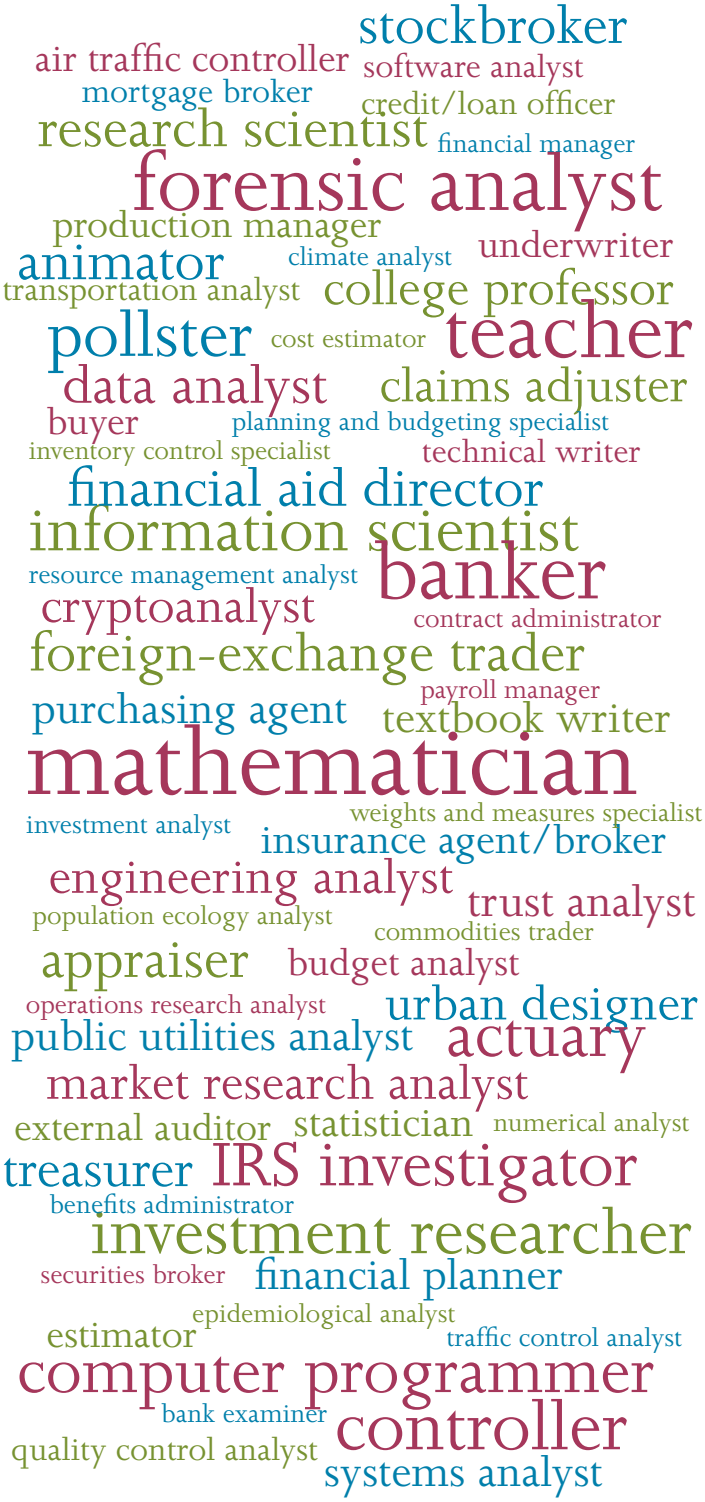
The AMS lists over 50 websites with internship and co-op opportunities for undergraduates. These include positions at universities, in government agencies, and in a wide range of private industries including high tech, communications, investments, and manufacturing. Note that the application deadlines for summer programs usually occur during the previous fall or winter.

go to:

www.ams.org

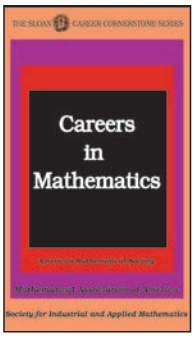
Career Choices

All these careers can begin with an education in mathematics and a curiosity about the use of mathematics to solve problems.



Careers in Mathematics

www.msri.org/ext/CareersInMathematics.html



Watch this video of interviews with mathematicians working in industry, business and government—at industrial based firms such as Kodak and Boeing, business and financial firms such as Price Waterhouse and D. E. Shaw & Co., and government agencies such as the National Institute of Standards and Technology and the Naval Sea System Command. Hear what people working outside academia have to say about what their day-to-day work life is like and how their background in mathematics contributes to their ability to do their job. *Careers in Mathematics* was developed jointly by the American Mathematical Society (AMS), the Society for Industrial and Applied Mathematics (SIAM), and the Mathematical Association of America (MAA). The video is posted on the Mathematical Sciences Research Institute website.

The American Mathematical Society for students

The AMS, founded in 1888, furthers the interests of mathematical research and scholarship, and serves the national and international community through its meetings, publications, advocacy, and other programs. The Society serves the community by providing products, services, and programs that help students and professionals move their research and careers forward. A strong interest in mathematics currently draws 30,000 individuals worldwide into membership.

Notices of the AMS (**www.ams.org/notices**) includes feature articles, profiles, book reviews, a meetings calendar, reference lists, surveys, and updates on what's going on at the AMS. Consider joining the Society at a reduced student rate to receive *Notices* in the mail, along with other benefits. For membership information go to **www.ams.org/membership.** Many full-time graduate students in mathematics will find themselves named by their departments as nominee members of the AMS. This is a full membership offered for free by schools which are AMS institutional members. If you enroll in graduate school, ask about this benefit.