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Support Mathematical Sciences Education at all Levels

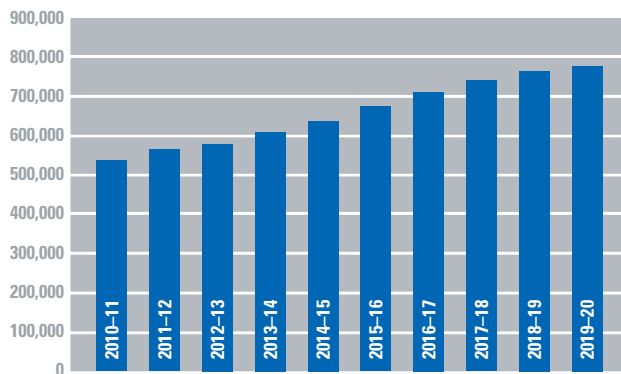
Facing increased global economic competition, an ongoing pandemic, and frequent national security threats, the United States depends on advances in science, technology, engineering and mathematics (STEM) to chart a path to continued prosperity. Mathematics, statistics, and data science are being deployed to address the most pressing policy issues of our time, including advancing cybersecurity, artificial intelligence, manufacturing, and other critical areas of science and engineering.

The mathematical sciences are critical for innovation and discovery across STEM fields.

Cutting-edge research in—and conventional applications of—the mathematical sciences support the US science and technology ecosystem. Mathematicians and statisticians perform foundational STEM research, while scientists and engineers are equipped with mathematical skills that are necessary for their work. Put simply: our STEM workforce is incredibly talented in the mathematical sciences. This mathematically-skilled workforce models the spread of pandemics, enables advances in artificial intelligence, expedites manufacturing, and visualizes deep space.

Mathematics coursework is required for all STEM degrees and the number of STEM degrees awarded continues to increase.

Number of STEM degrees and certificates conferred by US postsecondary institutions



Source: https://nces.ed.gov/programs/digest/d21/tables/dt21_318.45.asp

Percentage of undergraduate and graduate STEM majors who took college-level math courses = 100%

High-quality and universally-accessible mathematical sciences education in the United States is essential for global leadership in STEM innovation and discovery and the prosperity of all. As we support the next generation of STEM scholars and professionals and strive for universal literacy in mathematics, effective and engaging mathematical sciences education—at all levels—should be a top priority for the United States.

We can support mathematical sciences education in four key areas.

Provide robust funding for undergraduate and graduate education

- Appropriate the maximum authorized budget for the **National Science Foundation (NSF)** —The Graduate Research Fellowship Program, Research Training Groups in the Mathematical Sciences, Mathematical Sciences Postdoctoral Research Fellowships, and other NSF programs are incredibly helpful in supporting very talented mathematicians and statisticians.
- Increase funding for the **Graduate Assistance in Areas of National Need (GAANN)** program in the Department of Education—GAANN is a program designed to help future educators and funding has been relatively flat over the past decade.
- Pass the **Pell Grant Preservation and Expansion Act of 2021 (H.R. 3946)**—This bill includes a number of improvements to one of the most impactful programs in US higher education, including increased award amounts.

Enhance STEM education with improved curriculum and training

- Pass the **Mathematical and Statistical Modeling Education Act (H.R. 3588, S. 1839)**—Already passed in the House, this bill creates a voluntary program administered by the NSF to enable K–16 educational institutions to apply for grants to enhance mathematical and statistical modeling education in public elementary and secondary schools.
- Become an original sponsor of the **Data Science and Literacy Act**—This bill creates a voluntary program administered by the Department of Education to enable K–16 educational institutions to improve student access to data science and data literacy instruction.
- Cosponsor the **STEM Pathways Through College Act (H.R. 8231)**—Recently introduced, this bill seeks to increase access to high-quality post-secondary STEM education.

Expand US-residence pathways for international students

- Pass the **Keep STEM Talent Act (H.R. 5924, S. 3638)**—This bill would create lawful permanent residence pathways for US-educated international STEM professionals who want to work in the US after they complete their advanced degrees.

Help recruit and retain mathematical sciences teachers

- Pass the **Teachers LEAD Act of 2022 (H.R. 7122, S. 3881)**—This bill directs the Department of Education to award competitive grants to carry out teacher leadership programs.
- Pass the **Teacher Loan Forgiveness Improvement Act of 2022 (S. 3827)**—This bill increases the amount of loan forgiveness available for certain teachers who have federal student loans.
- Appropriate the maximum authorized budget for the **Robert Noyce Teacher Scholarship Program at NSF**—This program helps recruit and prepare STEM majors and professionals to become K–12 teachers.

About the American Mathematical Society

Founded in 1888, the American Mathematical Society (AMS) is dedicated to advancing the interests of mathematical research and scholarship and connecting the diverse global mathematics community. The AMS has 30,000 individual members worldwide and supports mathematical scientists at every career stage.

Office of Government Relations

*Advocating at the federal level for
the mathematical sciences*

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