



NSF STRENGTHENS THE U.S. WORKFORCE



NSF supports initiatives that build the STEM-capable U.S. workforce of the future and ensure Americans are prepared to meet evolving workplace demands. NSF partners with academia, government and industry to develop and leverage education and training opportunities, which result in increased levels of STEM employment and job creation. The following are just a few examples of NSF's varied workforce development portfolio.

SHAPING THE FUTURE OF WORK AND WORKPLACES

The Future of Work at the Human-Technology Frontier, one of NSF's 10 Big Ideas, supports fundamental research to advance understanding of how people and technology interact, distribute tasks, cooperate and complement each other in various work contexts. This research will develop new technologies to augment human performance, explore the risks and benefits of these technologies, examine the impact of artificial intelligence on workers and work, and discern the influence of human-technology partnerships on society. New approaches to training and education will yield new information on how adults adapt to emerging technologies and changing work environments.

CONNECTING WITH STUDENTS

NSF's **Advanced Technological Education** program improves education of technicians for high-technology industries important to the nation's economy and security. Most often, these technicians, whose highest level of education is either high school or some college, are prepared for their jobs through associate degree programs in community colleges and related technology programs in secondary schools. In 2016, out of nearly 1.1 million associate's degrees awarded in the U.S., 9% were in science and engineering and 13% in science and engineering technologies.



6.7M

Skilled technical workers employed in the U.S. in 2015.*

The **Innovative Technology Experiences for Students and Teachers** supports projects to encourage preK-12 students to participate in the STEM and information and communications technology workforce of the future. Programs heighten awareness of STEM occupations, motivate students to pursue education pathways leading to STEM careers, and develop the reasoning and communications skills to enter the STEM workforce.

BROADENING PARTICIPATION

A number of NSF-supported programs focus on increasing opportunities for underrepresented populations to pursue STEM careers. Among these programs: **NSF INCLUDES**, the agency's comprehensive initiative to broaden STEM participation; the **Established Program to Stimulate Competitive Research**, also known as EPSCoR, which fosters STEM training, professional development and research competitiveness in underserved regions of the country; and the **Scholarships in Science, Technology, Engineering and Mathematics** program, which provides scholarships for low-income, academically talented students who are pursuing two-year, four-year or graduate degrees in STEM fields. The program also provides support to institutions and their partners for activities that encourage student recruitment, retention and career advancement.

PARTNERING WITH INDUSTRY

NSF supports a variety of world-class research centers across multiple fields of science and engineering. Many of the centers foster partnerships with industry to expand opportunities for research and training in areas of critical importance such as manufacturing, natural hazards mitigation, communications and biotechnology.

Examples include **NSF Engineering Research Centers**, which engage students of diverse backgrounds in real-world engineering environments; **Industry-University Cooperative Research Centers**, which train students in emerging technology areas that impact multiple industry sectors; and **NSF Science and Technology Centers**, which provide a rich environment for encouraging future scientists, engineers and educators to take risks in pursuing discoveries and new knowledge. Graduate students in **NSF's INTERN** program also gain practical experience working with Fortune 500 companies, small businesses, government labs and think tanks.

DEVELOPING SKILLS IN CRITICAL FIELDS

The number of degrees in computer sciences has been on the rise at the bachelor's, master's and doctoral levels since the late 2000s. NSF's commitment to building the computer science knowledge base extends to funding R&D for rigorous and engaging computer science programs in schools across the United States. For example, NSF and the Department of Education, in partnership with other federal agencies, are leading a national effort called **CS for All** to ensure computer science education is available to all students.

NSF funds **CyberCorps: Scholarship for Service** to strengthen the cadre of cybersecurity professionals who protect the government's critical infrastructure. The program provides tuition and a stipend to students in exchange for a commitment to serve in a cybersecurity role in the U.S. government for up to three years after graduation.



Between 2014 and 2024, projected net job openings in S&E occupations that will be in computer and mathematical sciences. *

REPORTING WORKFORCE TRENDS

To inform policy discussions related to the U.S. STEM workforce, NSF's **National Center for Science and Engineering Statistics** (NCSES) leads multiple activities to measure workforce characteristics including STEM diversity; U.S. competitiveness in science, engineering, technology and research and development; and the condition and progress of U.S. STEM education. The National Science Board, NSF's governing body, presents the data to Congress in a biennial report, the *Science and Engineering Indicators*, which comprises high-quality quantitative data on the U.S. and international science and engineering enterprise. NCSES also produces for Congress the biennial report, *Women, Minorities, and Persons with Disabilities in Science and Engineering* that provides statistical information about the participation of these groups in science and engineering education and employment.



11%

Rate of increase for total employment in S&E occupations between 2014 and 2024; compared to 7% rate of increase for all occupations.*



\$84K

Median annual salary in S&E occupations in 2016, more than double the median (\$37,040) for all U.S. workers.*

DID YOU KNOW?

Over the last 25 years, NSF has invested \$1.1 billion to advance technician training in a range of high-tech fields.

* Science and Engineering Indicators 2018 | January 2018

Image Credit: txieyuliang/Shutterstock.com