



AMERICAN INSTITUTE OF
BIOLOGICAL SCIENCES

Outside Witness Testimony in Support of FY 2027 Funding for the National Science Foundation

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Submitted by:

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House Committee on Appropriations
Subcommittee on Commerce, Justice, Science and Related Agencies

The American Institute of Biological Sciences (AIBS) appreciates the opportunity to provide testimony in support of fiscal year (FY) 2027 appropriations for the National Science Foundation (NSF). We encourage Congress to reject the steep cuts to science proposed in the President's budget request and instead provide NSF with **at least \$9.9 billion** in FY 2027.

AIBS is a scientific association dedicated to promoting informed decision-making that advances biological research and education for the benefit of science and society. AIBS works to ensure that the public, legislators, funders, and the community of biologists have access to information that can guide informed decision-making.

Importance of Biological Research

Biological research is a national imperative. It deepens our understanding of the living world and drives innovative solutions to critical challenges. Advancing knowledge of genes, cells, organisms, and ecosystems is essential to improving the human condition. From food security and public health to national defense, economic growth, and environmental stewardship, the biological sciences provide a foundational framework for informed decision-making and meaningful progress. Importantly, biological research supports biodiversity and sustains healthy ecosystems that are vital to community livelihoods and resilience. NSF-funded research not only expands our scientific understanding but also fuels the development of new tools, technologies, and entire industries.

Biological research is also a powerful engine for economic growth. Research funding from NSF powers the expansion of the bioeconomy and has given rise to successful companies, such as Genentech and Ginkgo BioWorks, as well as new industries that provide more robust food crops and disease detection tools and techniques. The translation of biological knowledge into formal and informal education programs fosters the development of the scientifically and technically

skilled workforce needed by employers. Data show that employers continue to seek workers with scientific and technical skills. The U.S. science, technology, engineering, and mathematics (STEM) workforce grew 26% from 2013 to 2023, compared with 9% growth in non-STEM occupations. In 2023, STEM workers represented 36 million Americans—one-quarter of the U.S. workforce.

Importance of NSF-Funded Biological Research

The cornerstone of NSF excellence is a competitive, merit-based review system that underpins the highest standards of excellence. Through its research programs, NSF invests in the development of new knowledge and tools that solve the most challenging societal problems.

- **Combating emerging diseases:** NSF-funded research played a crucial role in our response to the COVID-19 pandemic. Fundamental research supported by NSF led to the development of critical diagnostic tools and medical devices to combat the outbreak. NSF supported the discovery of bacteria from thermal pools at Yellowstone National Park that contain thermostable enzymes that allow for the rapid copying of genetic material through a process called Polymerase Chain Reaction (PCR). This process was integral to manufacturing a widely used clinical test for determining whether a patient has been infected with the virus that causes COVID-19.
- **Mobilizing big data:** Access to and analysis of vast amounts of data are driving innovation. NSF enables integration of big data across scientific disciplines, including applications in the biological sciences. Digitization of biodiversity and natural science collections involves multi-disciplinary teams, which have brought nearly 150 million specimens and their associated data online for use by researchers, educators, and the public.
- **Enabling synthetic biology:** DNA editing has become more advanced and targeted with techniques such as CRISPR-CAS9, allowing scientists to modify genetic code and redesign biological systems. NSF funds research on how these techniques can be used to bio-manufacture new materials, treat diseases, and accelerate growth of the bioeconomy.

NSF is the primary federal funding source for biological research at our nation's universities and colleges, providing 65 percent of extramural federal support for non-medical, fundamental biological and environmental research at academic institutions.

Strengthening Biological Research Infrastructure

NSF is also an important supporter of biological research infrastructure, such as field stations, natural history museums, and living stock collections. These place-based research centers enable long-term research, strengthen preparedness for invasive species and emerging diseases, and support innovation in agriculture, biotechnology, and conservation.

Scientific collections are an important component of our nation's research infrastructure. Recent reports have highlighted the value of mobilizing biodiversity specimens and data in spurring new scientific discoveries that grow our economy, improve our public health and well-being, and increase our national security.

In 2019, the Biodiversity Collections Network released their report, “[Extending U.S. Biodiversity Collections to Promote Research and Education](#),” outlining a national agenda that leverages digital data in biodiversity collections for new uses and calling for building an Extended Specimen Network. A 2020 report by the National Academies of Science, Engineering and Medicine (NASEM), “[Biological Collections: Ensuring Critical Research and Education for the 21st Century](#),” argued that collections are a critical part of our nation’s science and innovation infrastructure and a fundamental resource for understanding the natural world. The NASEM report’s recommendations for establishing an action center for biological collections and requiring specimen management plans for research generating new specimens, underscore the importance of collections and have been supported by the CHIPS and Science Act.

Both reports articulate a common vision of the future of biological collections and define the need to broaden and deepen collections and associated data to realize their full potential to inform 21st century science. This endeavor requires robust investments in our nation’s scientific collections, whether they are owned by a federal or state agency or are part of an educational institution, free-standing natural history museum, or another research center. Because NSF is the only agency that supports research in all fields of science, it is ideally suited to lead a national effort to establish the action center and build the Extended Specimen Network, which will require the engagement of computer and information scientists, geoscientists, life and environmental scientists, and anthropologists.

Building the STEM Workforce

National scientific competitiveness depends on our ability to attract and retain the best research talent. NSF is indispensable to training the next generation of scientists and engineers through programs such as the Graduate Research Fellowship Program (GRFP) and the Faculty Early Career Development program.

The prestigious GRFP—widely viewed as a career-defining award for aspiring scientists—has supported more than 75,000 students since 1952. While we were encouraged by a record 2,599 GRFP awards in 2026, current funding uncertainties threaten this momentum; awards dropped to just 1,500 in FY 2025, and the President’s FY 2027 budget proposes maintaining that lower threshold. Renewed investment is vital to expand the GRFP, nurturing the human capital required to secure U.S. leadership in global innovation. Recent funding instability has also reduced the overall number of NSF-supported personnel: after supporting 358,000 researchers, postdocs, trainees, teachers and students in FY 2024, that figure fell to 305,400 in FY 2025 and is projected to plummet to just 94,100 under the President’s FY 2027 budget proposal. To sustain essential STEM training pathways, the NSF requires robust and predictable federal investments.

Investing in NSF is Critical for U.S. Global Leadership in Science

Unfortunately, federal research and development (R&D) investments are shrinking as a share of the U.S. economy. In the mid-1960s, federal R&D spending as a share of the Gross Domestic Product was approximately 2%. Since then, that share has steadily declined to less than 1%. While our economy has grown, our country has not prioritized federal R&D as it once did.

The U.S. is still the largest producer of R&D globally, but our share of worldwide scientific activity has declined considerably over the past two decades, while other countries, particularly China, have rapidly expanded their investments, putting our nation's status as a leader in scientific discovery and innovation at risk. Over the decade leading up to 2023, Chinese government R&D spending grew by 90%, compared to 12% growth in the United States. In fact, China is on the cusp of matching—or potentially surpassing—the United States as the world's leading R&D investor. Recent analyses indicate that, when adjusted for purchasing power, China likely edged ahead in 2024, with approximately \$1.03 trillion in R&D expenditures compared to \$1.01 trillion in the United States. Furthermore, the Chinese government recently announced plans to increase annual research spending by at least 7% per year for the next five years.

To remain at the global forefront of innovation and to fully realize the benefits of NSF-supported research, the government must make bold and sustained investments in NSF. Unpredictability in funding disrupts research programs, creates uncertainty in the research community, and stalls the development of the next great idea. Enacting robust funding increases for NSF will allow for critical federal investments in scientific research, education, and the STEM workforce pipeline, especially as the agency undergoes a major reorganization.

Conclusion

Providing NSF with at least \$9.9 billion in FY 2027 is necessary to reverse years of underinvestment in research. This funding would strengthen and expand the U.S. bioeconomy while enabling NSF to accelerate work at the frontiers of science and engineering, including strategic priorities such as artificial intelligence, biotechnology, and advanced biomanufacturing. It would also support critical research on infectious diseases and pandemics, closing key knowledge gaps regarding the spread and evolution of biological threats. The Social, Behavioral, and Economic Sciences (SBE) Directorate is an indispensable partner in the nation's research enterprise. Eliminating SBE, as proposed in the budget request, would be self-defeating, as solving our most pressing challenges—from public health crises to the societal impacts of emerging technology—requires integrating technical research with an understanding of the fundamental human behaviors that drive them.

Despite its essential role, NSF received an 8% budget cut in FY 2024, flat funding in FY 2025, and a 3.4% cut in FY 2026—well below the bipartisan CHIPS and Science Act targets. That law authorized NSF funding to grow to \$18.9 billion in FY 2027, recognizing the importance of sustained federal investment in research and innovation. Instead, current funding remains well below that trajectory. More troubling still, the President's FY 2027 budget request proposes a 55% cut to NSF that would sharply curtail research, weaken the STEM talent pipeline, and undermine U.S. competitiveness at a time of growing global challenges.

We urge Congress to reject the steep funding cuts to NSF and plan to dismantle the SBE Directorate proposed in the President's budget, and instead provide at least \$9.9 billion for NSF in FY 2027—restoring the agency to its FY 2023 funding level and reaffirming our national commitment to scientific excellence. Please also ensure that appropriated funds are spent as intended by Congress. Thank you for your thoughtful consideration of this request and for your prior efforts on behalf of science and the National Science Foundation.