Stony Brook University

Federal Funding Recommendations

Fiscal Year 2021

Overview

The FY21 funding recommendations outlined in this document were developed in consultation with the Association of American Universities (AAU) and Association of Pubic Land-Grant Universities (APLU). Stony Brook University (SBU) is a member of both AAU and APLU.

SBU's FY21 funding recommendations are also informed by final FY20 funding levels, SBU's previous funding recommendations, and the Budget Control Act's FY21 discretionary spending caps. For most of the research agencies and programs, SBU's recommendations additionally reflect the charge of *Innovation: An American Imperative* to provide steady and sustained real investment growth of at least four percent for scientific research. This call-to-action draws upon the American Academy of Arts and Sciences' 2014 report *Restoring the Foundation: The Vital Role of Research in Preserving the American Dream*. For student aid and other higher education programs, SBU's recommendations seek to restore programs to at least the highest funding level prior to sequestration cuts or to increase funding in FY21 to meet students' needs, make up for inflation losses in recent years, and meet multi-year funding targets.

Department of Defense (DOD) Research and DARPA

For FY21, SBU recommends $2.760 billion overall for 6.1 basic research, $3.665 billion for DARPA, and $17.038 billion for Defense S&T. Additionally, SBU recommends $17 million for Minerva Research Initiative.

SBU's recommendations are the same as those of the Coalition for National Security Research and constitute a 4-percent increase, plus inflation (+2%) over FY20 levels. These funding recommendations are consistent with the strategic approach to harnessing and protecting the National Security Innovation Base outlined in the 2018 National Defense Strategy, as well as the goals of the 2014 Quadrennial Defense Review. They are also consistent with the federal research investment recommendation in the Innovation: *An American Imperative call-to-action*, which over 500 business leaders, national organizations, universities, and scientific societies have endorsed. These levels of investment would enable the Department to address some of the recommendations contained in the Defense Science Board's Basic Research Task Force report of January 2012. That report outlines the unique and valuable role the Defense Department plays in funding basic research. Among its recommendations is a call for additional investments in graduate fellowships supported by the National Defense Education Program and the National Defense Science and Engineering Graduate (NDSEG) Fellowship program. These funding recommendations also align with the federal research investment recommendation in the

Innovation: An American Imperative call to action, which over 500 business leaders, national organizations, universities, and scientific societies have endorsed.

DOD-funded basic research has contributed significantly to our nation's economic and national security. DOD relies on technological innovation as a force multiplier, and cutting-edge advances have helped make our military the best-equipped and most effective in the world. Addressing complex military challenges requires innovation and technologies and the development of these technologies depends on sustained investments in scientific and engineering basic research performed at U.S. universities.

Department of Education

Student Aid

For FY21, SBU urges Congress to support a Pell Grant maximum award of $7,000. This increase serves as an important step in reclaiming some of the original purchasing power of the Pell Grant. The Pell Grant program is the single most important tool to enable low-income students to afford college, providing more than 7 million students with grants last year according to the Congressional Budget Office (CBO). We also urge Congress to protect the future of the Pell Grant program by ensuring that any unused funding from previous years remains in the program to meet future program funding shortfalls. Because Congress funds the program based on estimated usage and need, the program experiences funding shortfalls and surpluses, and carrying over surplus balances helps address shortfalls when they occur. During financial aid year 2018-19, $33.6 million in Pell Grant funding was provided to SBU students in need. 20% of SBU students depend on Pell Grants.

SBU urges Congress to increase support for other federal student aid programs that provide grants and work-study to low- and middle-income students. **Specifically, SBU supports increasing the Supplemental Educational Opportunity Grants (SEOG) to $1.052 billion and Federal Work-Study to $1.467 billion, to restore the programs to their high-water marks, adjusted for inflation.** During financial aid year 2018-19, $1.9 million of FSEOG and FWS funding was provided to SBU students in need.

Graduate Education

For FY21, SBU urges Congress to provide $35 million for the Graduate Assistance in Areas of National Need (GAANN) program. This is the authorized level for GAANN, and at this level of funding the program would provide support for additional students in disciplines critical to our nation's continuing security and prosperity. Additional increases towards $48 million, the pre-sequester high water mark for funding graduate education in the humanities, adjusted for inflation, can be achieved over time. The GAANN program helps ensure a strong pipeline of talented experts and educators who will help to meet the demands of our 21st century workforce. The current funding level does not allow the program to run a competition each year, stifling the country's ability to support graduate education in important areas of national need.

Additionally, **SBU urges Congress to add new funding awards for FY21 for the Graduate Assistance in Areas of National Need (GAANN) Program for "Computer Science + X" (CS+X) learning, aimed at integrating the humanities and computer science to provide technology-focused students a broader skill set required for today's high tech jobs.** For instance, in light of the growing popularity of products like Amazon Echo, Siri, and Voice Command, the importance of having software understand human speech, and thus, naturally communicate with people, means that technology experts must also be experts in linguistics to understand how human speech works. Additionally, the healthcare impact of CS+X learning is invaluable. For example, future prosthetic limbs will not only be controlled by a paralyzed patients' thoughts, but also be capable of sensing, feeling, and looking the same way our natural limbs do. This will require blending expert skills of computer science with behavioral science, art, and design.

Education Research

For FY21, SBU urges Congress to support $670 million for the Institute of Education Sciences (IES) to advance rigorous education research. This amount would restore the nearly ten percent decrease in purchasing power in real dollars that IES has experienced since FY11. Due to current funding limitations, many high scoring grants continue to go unfunded as only one of every ten grant proposals receive funding. IES supports high-quality education research. This research results in teaching and learning innovations that offer tremendous returns for our society. This level of funding would help build upon the essential research and data infrastructure on which state and local education leaders depend, restore cuts to critical programs, and increase funding for programs for which funding has stagnated. Our education system will be stronger in the future if we provide meaningful, sustained support for rigorous education research and evaluation today.

International Education

For FY21, SBU Congress to support $106 million for the Department of Education's Title VI International Education and Foreign Language programs in FY21. U.S. economic competitiveness and national security hinges in part on our ability to understand an increasingly globalized world and the geopolitical factors that affect it. Title VI programs play an integral role in developing the talent we need to compete on the global stage and protect our nation's security by creating deep expertise in world regions and languages of strategic interest to the U.S. Increased investments in Title VI would support a multi-year "Security Education Initiative" to meet growing national security demands for foreign language and area studies experts by supporting new centers (NRC, CIBER), making Foreign Language and Area Studies (FLAS) fellowship stipends equal to NSF graduate fellowship stipends, and increasing the number of FLAS fellowships. Our nation needs a steady supply of graduates with expertise in less commonly taught languages, world regions, and transnational trends.

Department of Energy (DOE) Research

SBU recommends $7.4 billion for the Department of Energy's Office of Science for FY21. This would provide an increase of four percent real growth over FY20. This level of funding is consistent with the federal research investment recommendation in the Innovation: An American Imperative call-to-action, which over 500 business leaders, national organizations, universities, and scientific societies have endorsed. The Office of Science is the nation's primary supporter of basic physical sciences research, providing approximately 47 percent of total federal funding for this research. In addition to the physical sciences, sustained and predictable funding for the Office of Science is critical to ensuring continued U.S. leadership in other fields of scientific research including the biological sciences, quantum information sciences, computing, artificial intelligence, and engineering. Funding at this level is important to enable the Office of Science to maintain its existing level of support for its core scientific research programs and scientific user facility operations.

For FY21, SBU recommends at least $450 million for Advanced Research Projects Agency-Energy (APRA-E), approximately four percent real growth over FY20 levels. Stable and sustainable funding for ARPA-E is essential for the advancement of high-risk, high-reward energy research that is unlikely to be supported by industry, such as the groundbreaking research performed at Brookhaven National Laboratory and Stony Brook University.

National Aeronautics and Space Administration (NASA)

SBU recommends $7.250 billion for NASA's Science Mission Directorate (SMD) in FY21. This amount would maintain funding for major SMD missions, including WFIRST, SOFIA, CLARREO and PACE, each of which are proposed for elimination in the Administration's FY21 budget. This amount would also support funding for individual investigator grant programs, new competitive mission opportunities, and the development of missions in their early stages. SBU and other members of the Coalition for Aerospace and Science (CAS) believe this amount of funding for science would also avoid proposed cuts to Heliophysics and research and analysis across SMD.

SBU recommends $819 million for Aeronautics Research Mission Directorate (ARMD) in FY21. This reflects a 4.5 percent increase over FY20 and is the amount requested by the Administration in its FY21 budget.

SBU recommends $1.578 billion for Space Technology Mission Directorate (STMD) in FY21, which is a 40- percent increase (adjusted for inflation) over FY20. This matches the Administration's FY21 budget request and supports missions to the Moon and Mars.

SBU also supports funding for the Office of STEM Engagement, including for the National Space Grant College and Fellowship Program. **SBU recommends $125 million for NASA's Office of STEM Engagement and no less than $52 million for the National Space Grant College and Fellowship Program for FY21**, which is consistent with the Space Grant Coalition's level of requested support for the program.

National Endowment for the Humanities (NEH)

SBU urges Congress to provide $170 million for the NEH in FY21. This level of funding is consistent with the request of the National Humanities Alliance (NHA), a nationwide coalition supporting the humanities on campus and in local communities. Funding the NEH at $170 million would allow the agency to continue to rebuild its capacity to support peer-reviewed humanities research, education, and community programs. SBU is particularly committed to restoring funding to the competitive grant programs. Our country's long-term success in meeting economic, global, and national security challenges depends on our ability not only to invent and develop innovative technologies, but to understand how these new innovations and discoveries impact our society and culture. Programs funded by the Endowment stimulate creativity and innovation while developing cultural competencies critical to global leadership and successful diplomacy.

National Institutes of Health (NIH)

For FY21, SBU urges Congress to provide at least $44.7 billion for NIH. This level of investment represents sustained, predictable growth and allows the United States to invest in scientific opportunities. It would create jobs, improve the lives—and quality of life—of millions of current and future patients, and support U.S. economic and national security.

This level of represents sustained, predictable growth and allows the United States to invest in scientific opportunities. It would create jobs, improve the lives—and quality of life—of millions of current and future patients, and support U.S. economic and national security. NIH-funded biomedical research performed at universities has led to U.S. leadership in the life sciences revolution of the 21st century. For example, NIH has made extraordinary progress in the development of a universal flu vaccine, which would provide long-term protection against multiple strains of influenza and eliminate the need for annual flu shots. This research underscores the promise of today's NIH-supported medical science. Unfortunately, after a decade of sub-inflationary increases leading to a more than 20 percent loss in purchasing power, as well as failure to fully recover the $1.6 billion lost to sequestration, the agency is struggling to fund meritorious scientific opportunities currently available. Our global leadership in the life sciences is increasingly under threat. If present trends continue, China's financial commitment to biomedical research will be twice that of the United States' in the next five years (and four times greater as a share of GDP).

National Science Foundation (NSF)

For FY21, SBU recommends at least $9 billion for the National Science Foundation (NSF), which would provide $721 million more in funding over FY20. This level of investment in FY21 would allow for much-needed growth to keep pace with global investments across the world. While the United States still leads the world in total research and development investments, the most recent data (2017) indicate that China may already have surpassed the U.S. According to the National Science Board's 2020 Science and Engineering Indicators, "...the United States is increasingly seen globally as an important leader rather than the uncontested leader." In addition to addressing global competition, there are many other reasons to support the $9 billion request, including: (1) to provide robust support for NSF's core and

interdisciplinary programs; (2) implement NSF 10 Big Ideas; (3) to support mid-scale and large research infrastructure projects; (4) to support national priorities including artificial intelligence, quantum information sciences, and advanced manufacturing; (5) to support NSF education and workforce development programs; and (6) to address unmet need represented by the more than $3 billion in high-quality proposals that are submitted each year but cannot be funded. As the only federal agency charged with the promotion of scientific progress across all scientific and engineering disciplines, NSF is the cornerstone of America's basic research enterprise. NSF is committed to the fundamental, interdisciplinary, and transformative research and education needed to ensure that the U.S. remains competitive in the decades ahead. For 70 years, NSF-funded research has proven essential to national security, economy, and maintaining our global competitiveness. The Coalition for National Science Funding (CNSF) recommends the same funding level.

National Oceanic and Atmospheric Administration (NOAA)

For FY21, SBU urges Congress to provide at least $592 million for NOAA. In the decades and century to come, we will experience extraordinary changes on our planet, with consequences that may dramatically change the way we live our lives. Reducing uncertainty, through the prediction of weather, climate and ecosystem change, requires NOAA funded scientific research to continuously improve our understanding of the Earth as an interdependent system of ocean, air, land and living world.

SBU recommends $82.9 million for FY21 for the National Sea Grant Program. A federal-state partnership program, Sea Grant's mission is to enhance the practical use and conservation of coastal, marine and Great Lakes resources in order to create a sustainable economy and environment. Through this program, Stony Brook's research is helping to develop sound, scientifically-based information about sustainable use of coastal resources and putting this information in the hands of coastal residents, officials, communities and businesses to inform their decision about coastal resources.

In 2018, the Sea Grant program:

- Created or supported 7,621 jobs
- Helped nearly 23,741 fishers adopt safe and sustainable fishing practices
- Helped restore an estimated 207,773 acres of coastal ecosystems; and
- Worked with about 1,300 industry and private sector, local, state and regional partners.