



# Federal Funding Recommendations

## Fiscal Year 2022

### Overview

The FY22 funding recommendations outlined in this document were developed in consultation with the [Association of American Universities](#) (AAU) and [Association of Public Land-Grant Universities](#) (APLU). Stony Brook University (SBU) is a member of both AAU and APLU.

For research agencies and programs, SBU's funding recommendations draw from and align with: 1) agency or program authorization levels specified in law (example: Energy Act of 2020) or in recently introduced legislation (examples: the Secure American Leadership in Science and Technology Act and the America LEADS Act); and 2) recent analyses and reports and legislation, including: 2 • Second Place America: Increasing Challenges to U.S. Scientific Leadership (2019) • The Perils of Complacency: America at a Tipping Point in Science & Engineering (2020) • Science & Technology Action Plan (2021) • AAAS Analysis: The Budget Control Act May Have Cost Over \$200 Billion in Federal R&D (2021)

For student aid and other higher education programs, SBU's recommendations generally seek to restore programs to at least the highest funding level prior to sequestration cuts, or to increase funding in FY22 to meet students' needs and make up for inflation losses in recent years. The recommendations build on the SBU, AAU, and APLU's recommendations for FY21 and are also informed by: AAU's call to triple the maximum Pell Grant award by 2024; the Administration's proposal to double the Pell Grant maximum award; and AAU's call to double funding for the Federal Work-Study program by 2024.

### Department of Defense (DOD) Research and DARPA

**For FY22, SBU recommends \$2.831 billion overall for 6.1 basic research, \$3.712 billion for DARPA, and \$17.885 billion for Defense S&T. Defense S&T comprises 6.1 basic research, 6.2 applied research, and 6.3 advanced technology development programs.**

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 FY21 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.

Defense basic research contributes significantly to our nation's economic and national security. DOD relies on technological innovation as a force multiplier, and cutting-edge advances make our military the best-equipped and most effective in the world. Defense and other federally sponsored research at universities has led to technologies vital to our military, such as radar, lasers, precision-guided weapons, the Internet, body armor, GPS, and much more. Addressing complex military challenges requires innovative technologies. As the battlefronts and rivals' capabilities continue to evolve in the 21st century, new disruptive technologies are essential in quantum information sciences, artificial intelligence, advanced communications, robotics, and other areas that will enable our military to preserve a leading edge and avoid strategic surprise.

## **Department of Education**

### **Student Aid**

**For FY22, SBU urges Congress to support the doubling of the Pell Grant maximum award in FY22. Doubling the maximum Pell Grant to \$13,000 would serve as an important step in reclaiming much 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 access and afford college. According to Congressional Budget Office (CBO), the program provided more than 7 million students with grants last year. However, Pell Grants no longer cover the majority of costs for students attending a four-year institution, and therefore many low-income students must take on higher levels of debt that prevents them from fully contributing to the economy or earning advanced degrees. Most Pell recipients come from households that earn less than \$50,000 annually. This investment is necessary now more than ever as the COVID-19 pandemic has had a devastating impact on the finances of many students and families.

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 \$1.061 billion** and **Federal Work-Study to \$1.480 billion**, to restore the programs to their high-water marks, adjusted for inflation.

### **Graduate Education**

**For FY22, 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, should be achieved in future years. 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.

In addition, SBU urges Congress to expand the Graduate Assistance in Areas of National Need (GAANN) Program to include "Computer Science + X" (CS+X) programs (also referred to as Applied Computer Science and Data Literacy Programs), aimed at integrating the humanities and computer science, in order to provide technology-focused students in need with the broader skill set required for high tech jobs. In light of the growing use 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 U.S. technology experts must also be experts in linguistics to understand how human speech works. Furthermore, 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 aesthetically appearing the same as our natural limbs. This will require blending expert skills of computer science with behavioral science, art, and design.

### **Education Research**

**For FY22, SBU urges Congress to support at least \$700 million for the Institute of Education Sciences (IES) to advance rigorous education research.** IES supports high-quality education research that 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. Additionally, this funding would enable IES to continue this critical work and to evaluate the impact the COVID-19 pandemic has had on learning. It would also facilitate the adoption of evidence-based strategies to mitigate learning loss that has occurred due to the pandemic. Our education system will be stronger in the future if we provide meaningful, sustained support for rigorous education research and evaluation today. The Friends of IES coalition recommends this same funding level for FY22.

### **International Education**

**For FY22, SBU Congress to support \$151 million for the Department of Education's Title VI International Education and Foreign Language programs.** 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 \$7.7 billion for the Department of Energy's Office of Science for FY22, an increase of 9.6 percent above FY21.** 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. The Energy Sciences Coalition, a broad-based coalition of organizations representing scientists, engineers, and mathematicians in universities, industry, and national laboratories, also supports these levels of funding.

**For ARPA-E, SBU recommends at least \$500 million, consistent with the level authorize in the recently passed Energy Act of 2020.** 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.

**For the Office of Fusion Energy Sciences (FES), SBU recommends at least \$750 million, which is within the current authorization, in order to maintain ongoing foundational research while beginning the critical new programs necessary to put the U.S. on the path towards a cost-effective, electricity-producing fusion power plant.**

### **National Aeronautics and Space Administration (NASA)**

**SBU recommends \$9 billion for NASA's Science Mission Directorate (SMD) in FY22,** a 23 percent increase over FY21. This amount would continue funding for major SMD missions and support robust investments in improved data integration, analysis, and Global Climate Modeling capabilities that take advantage of new and existing space-based observations. It would support priorities of the National Academies' 2017 Earth Science and Applications from Space (ESAS 2017) Decadal Survey and other decadal surveys setting consensus priorities in Planetary sciences, Astrophysics, and Heliophysics. This amount would also allow robust funding for individual investigator grant programs, new competitive mission opportunities, and the development of anticipated new missions proposed.

**SBU recommends \$900 million for the Aeronautics Research Mission Directorate (ARMD) in FY22.** This reflects a 8.6 percent increase over FY21.

**SBU recommends \$1.5 billion for the Space Technology Mission Directorate (STMD) in FY22, which is a 36 percent increase over FY21.** This amount supports continued advancement in missions to the Moon and Mars.

**SBU recommends \$157 million for NASA’s Office of STEM Engagement and \$60 million for the National Space Grant College and Fellowship Program for FY22**, which is consistent with the Space Grant Coalition’s level of requested support for the program. These increases will support students in all 50 states and improve NASA’s engagement with underrepresented populations.

### **National Endowment for the Humanities (NEH)**

**SBU urges Congress to provide \$225 million for the NEH in FY22.** 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 \$225 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 grants programs. Our country’s long-term success in meeting economic, global, health, 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 FY22, SBU urges Congress to provide at least \$46.1 billion for NIH, a \$3.1 billion increase over FY21.** This increased investment would allow for the NIH’s base budget to keep pace with the biomedical research and development price index (BRDPI) and allow meaningful investment growth of 5 percent. This level of investment represents sustained, predictable growth and allows the United States to invest in scientific opportunities.

NIH-funded biomedical research performed at universities has been critical to combatting the COVID-19 pandemic through the development of diagnostics, treatments, vaccines. The current pandemic underscores the value of consistent investment in NIH-supported science. Robust NIH funding creates jobs, improves the lives—and quality of life—of millions of current and future patients, and support U.S. economic and national security. However, the U.S. 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).

Our nation’s biomedical research enterprise is also an economic powerhouse. About 83 percent of NIH funding puts more than 300,000 scientists to work at 2,500 institutions across the country. Research funded by the NIH saves lives, improves health and offers hope to people the world-over affected by disease. This research funding also has a positive economic impact across the United States. In fiscal year 2019, NIH research funding supported nearly 476,000 jobs and more than \$81 billion in economic activity, according to a recent report by United for Medical Research. The Ad Hoc Group for Medical Research Funding recommends the same funding level.

### **National Science Foundation (NSF)**

**For FY22, SBU recommends \$10 billion for the National Science Foundation (NSF) in FY22, which would provide \$1.5 billion more in funding over FY21.** This level of investment in FY22 would allow for much-needed infusion of funding to allow the U.S. to keep pace with investments other countries are making in R&D across the world. According to the National Science Board’s 2020 Science and Engineering Indicators, “where once the U.S. was the uncontested leader in science and engineering, we are now playing a less dominant role.” In the last decade, NSF has only received modest increases in funding, averaging about 2.3 percent a year. That rate of growth will not allow the U.S. to advance, especially in areas policymakers have identified as key to our economic and national security such as artificial intelligence, bioengineering, advanced manufacturing, and quantum science. NSF needs a significant funding increase in FY22 to jump start the agency and get it back on track to compete globally.

In addition to addressing global competition, there are other reasons to support the \$10 billion request, including to address unmet in high-quality proposals that are submitted each year but cannot be funded. Every year, NSF declines thousands of research ideas, and nearly \$3 billion worth of those proposals are rated very good but declined due to adequate resources.

Furthermore, the current Director of NSF has estimated that to truly maximize the value of existing NSF grants, the duration and size of each research project should be increased by 50 percent. 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 over 70 years, NSF-funded research has proven essential to national security, economy, and maintaining our global competitiveness. 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. It supports almost half of all the nonmedical basic research at colleges and universities across the nation and plays a key role in rebuilding our economy after the pandemic.

The Coalition for National Science Funding (CNSF), a group of more than 140 organizations, recommends the same funding level.

### **National Oceanic and Atmospheric Administration (NOAA)**

**For FY22, SBU urges Congress to provide at least \$640 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 Congress appropriate \$107.9 million in FY22 for the National Sea Grant College Program and \$15 million for Sea Grant Aquaculture.** The SBU recommendation of \$107.9 million for the NSGCP includes \$25 million for the Sea Grant Resilient Coasts Initiative.

In 2019 , the Sea Grant program helped generate an estimated \$412 million in economic benefits; created or supported 10,400 jobs; created or sustained 998 businesses; provided 34 state-level programs with funding that assisted 263 communities improve their resilience; helped nearly 13,000 people adopt safe and sustainable fishing practices; helped restore or protect an estimated

1.8 million acres of habitat; worked with over 1000 industry and private sector, local, state and regional partners; and supported the education and training of nearly 2000 undergraduate and graduate students.