



MEMORANDUM

February 25, 2020

To: Council on Federal Relations

From: AAU Staff

Subject: AAU's FY21 Funding Recommendations and Guidance for Appropriations Programmatic Requests

Introduction

This document outlines AAU's FY21 funding recommendations for federal research and higher education agencies and programs for which the association advocates. It also provides information and guidance to CFR members to assist in communicating their institutions' programmatic funding requests to Members of Congress. Please note that the [House Appropriations Committee has set deadlines](#) for Members of Congress to submit their requests. The Senate Appropriations Committee has not yet released deadlines.

Background on FY21 Funding Recommendations

As discussed during the January and February CFR Meetings, the FY21 funding recommendations outlined in this memorandum were developed in consultation with the leaders of relevant CFR task forces, APLU, and funding coalitions in which AAU participates. AAU's FY21 funding recommendations are also informed by final FY20 funding levels, AAU's previous funding recommendations, and the Budget Control Act's FY21 discretionary spending caps.

For most of the research agencies and programs, AAU's recommendations also 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, AAU'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.

Appropriations Programmatic Requests

CFR members are encouraged to urge their congressional delegations to submit programmatic funding requests for federal research and higher education agencies and programs. The [House Appropriations Committee has set deadlines](#) for Members of Congress to submit their requests. The Senate Appropriations

Committee has not yet released deadlines. Individual Members of Congress usually set deadlines well ahead of those set by the Appropriations Committees. Some have already set deadlines for as early mid-February.

By way of background for new CFR members, Members' programmatic requests are an important part of the priority-setting process of the Appropriations Committees and their subcommittees. A large number of Member requests on behalf of a federal agency or program increases the likelihood that it will be considered a priority for federal spending.

Given the fact that FY21 discretionary spending caps are \$10 billion above the FY20 caps (excluding Overseas Contingency Operations), the funding recommendations outlined in this memo may seem unachievable to *some* Members of Congress. CFR members should consider this in crafting communications to their Congressional delegations, and, if appropriate, consider making alternative funding suggestions consistent with the priorities of their institution and specific Members of Congress.

In addition to the information in this memo, AAU's talking points on federal investments in scientific research, student aid, and the humanities offer messages that can be used in communicating programmatic requests to Congress. All of [AAU's talking points](#) can be accessed under the "[Advocacy](#)" tab in MyAAU (*log in required*).

AAU's FY21 Funding Recommendations

Please Note: [AAU's priorities funding table](#) includes a column with the Association's FY21 funding recommendations outlined below.

Agriculture and Food Research Initiative (AFRI)

AAU urges Congress to provide at least \$480 million for AFRI in FY21. Housed within the USDA's National Institute of Food and Agriculture, AFRI is the premier competitive grants program for fundamental and applied research, extension, and education in support of our nation's food and agricultural systems. This level of funding would allow AFRI to provide additional resources to high-priority research areas, including bioenergy, nutrition and health, global climate change, agricultural technology, rural communities, and food safety. Currently, 70 percent of recommended AFRI grants go unfunded. In addition to critical agricultural research, AFRI provides support for graduate and postdoctoral training to ensure that the next generation of agricultural scientists is prepared to address the public health and agricultural challenges of the future. We strongly believe that competitive, peer-reviewed agricultural research will provide the knowledge necessary to solve some of our nation's most pressing issues. A 2011 [study](#) demonstrated that for every federal dollar spent on publicly funded agricultural research, \$20 or more is generated in the U.S. economy.

Department of Defense (DOD) Research and DARPA

*For FY21, AAU recommends \$2.760 billion overall for **6.1 basic research**, \$3.665 billion for **DARPA**, and \$17.038 billion for **Defense S&T**.* Defense S&T comprises 6.1 basic research, 6.2 applied research, and 6.3 advanced technology development programs. Additionally, AAU recommends \$17 million for **Minerva Research Initiative**. For 6.1 basic research, AAU recommends the following levels of funding for specific program elements:

Program Element	Program Name	FY21 Recommendation
00601102A	Army Defense Research Sciences	\$375,749,000
00601103A	Army University Research Initiatives	\$93,129,000
00601104A	University and Industry Research Centers	\$134,794,000
00601103N	Navy University Research Initiatives	\$177,921,000
00601153N	Navy Defense Research Sciences	\$491,659,000
00601102F	Air Force Defense Research Sciences	\$377,473,000

00601103F	Air Force University Research Initiatives	\$189,591,000
00601108F	High Energy Laser Research Initiatives	\$15,683,000
00601000BR	DTRA Basic Research Initiatives	\$27,560,000
00601110D8Z	Defense-wide Basic Research Initiatives	\$75,126,000
00601120D8Z	National Defense Education Program	\$152,718,000

AAU’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.

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.

Defense 6.1 basic research programs support not only cutting-edge research, but also the next generation of U.S. scientists and engineers. The NDSEG Fellowship program helps attract and retain top U.S. citizens for study in fields vital to addressing national security challenges. It is imperative that the Defense Department, even in a constrained funding environment, invest in the foundational science and technologies to confront these challenges.

Department of Education
Student Aid

*AAU 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.

AAU urges Congress to increase support for other federal student aid programs that provide grants and work-study to low- and middle-income students. Specifically, AAU 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.

The SEOG provides targeted, need-based grant aid of up to \$4,000 per student to 1.6 million students. Participating colleges match federal dollars to make more than \$1 billion in grant aid available. Over 99 percent of all SEOG recipients are Pell Grant recipients, and SEOG recipients have higher need on average than students receiving only Pell Grants. Increasing funding to \$1.052 billion would restore the programs to pre-sequester levels, adjusted for inflation.

Work-Study has been shown to positively impact a student's ability to afford college and to improve their chances of graduating. Federal and institutional funding for Work-Study helps more than 600,000 students work part-time to help pay their college costs. Studies show that students who work on campus have higher graduation rates. Increasing funding to \$1.467 billion would restore the programs to pre-sequester levels, adjusted for inflation.

Graduate Education

For FY21, AAU 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.

Education Research

AAU 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 research grant proposals continue to go unfunded as only one of every ten 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

AAU urges 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

AAU 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 ARPA-E, AAU recommends **at least** \$450 million, 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.

National Aeronautics and Space Administration (NASA)

AAU 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. AAU 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.

AAU 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.

AAU 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.

AAU also supports funding for the **Office of STEM Engagement**, including for the **National Space Grant College and Fellowship Program**. AAU 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.

AAU's funding recommendations support the Administration's goals to return to the Moon and Mars, however, it does so with an expectation that consistent and robust support across all directorates of NASA is critical. Expedient return to the Moon and on to Mars will require advancements in technologies informed by research and development conducted by universities. Consequently, rapidly building up Exploration and Space Technology without providing concurrent increased to Science and Aeronautics funding will stymie successful and efficient mission success. Exploration goals can be achieved faster and more safely when informed by new innovations.

AAU's NASA funding recommendations are consistent with the CAS – a coalition of national associations, universities, scientific societies, and industry united in its advocacy for NASA.

National Endowment for the Humanities (NEH)

AAU 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. AAU 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, AAU 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.

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).

Our nation's biomedical research enterprise is not only the world's biggest and best, but it 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. In 2018 alone, NIH investments supported nearly \$74 billion in economic activity, with 20 states experiencing NIH supported economic activity of more than \$1 billion in biomedical research, 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 FY21, AAU 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.