



## NATIONAL SCIENCE FOUNDATION

### Funding Highlights:

- Provides \$7.6 billion for the National Science Foundation, an increase of \$593 million above the 2012 enacted level, to expand the frontiers of knowledge, lay the foundation for economic growth and job creation, and educate a globally competitive workforce.
- Maintains the President's commitment to increase funding for key basic research agencies, including a robust 8.4 percent increase over the 2012 enacted level for the National Science Foundation.
- Builds an innovation economy through investments in a broad portfolio of foundational research, as well as investments in strategic areas, such as cyberinfrastructure, advanced manufacturing, and clean energy.
- Transforms science, technology, engineering, and mathematics education by empowering the National Science Foundation to lead undergraduate and graduate education reform, as part of a bold plan to strengthen education investments across the Federal Government.
- Increases agency efficiency by constraining administrative costs and making operations in Antarctica more cost-effective.
- Invests \$6 million to strengthen the agency's capacity to evaluate the outcomes of its programs.

The National Science Foundation (NSF) is the key Federal grant-making agency responsible for supporting the full breadth of non-biomedical science and engineering research at the Nation's universities and colleges. NSF's research and high-tech workforce development programs help lay the foundation for economic growth by building an innovation economy and educating globally competitive American workers. To support this important mission, the President's 2014 Budget

provides \$7.6 billion for NSF, 8.4 percent above the 2012 enacted level, including strong support for cross-cutting research priorities such as advanced manufacturing and clean energy. The Budget also supports efforts to improve agency operations, for example, by strengthening the agency's ability to evaluate the effectiveness of its programs and by increasing the efficiency of Antarctic operations.

## ***Builds an Innovation Economy***

**Supports the Fundamental Research That Underpins Progress in Science, Technology, and Innovation.** The Budget proposes \$6.2 billion for research and related activities at NSF and includes \$63 million to continue an interdisciplinary research and education initiative that is changing the way the agency solicits and funds innovative cross-disciplinary proposals.

**Lays the Groundwork for the Industries and Jobs of the Future.** NSF links the results of fundamental research to societal needs, including building human capacity through educating tomorrow's technical workforce. To encourage interdisciplinary research for a future bio-economy, the Budget provides \$51 million for innovative proposals at the interface of biology, mathematics, the physical sciences, and engineering. The Budget proposes \$155 million, double the 2012 enacted level, for a cyberinfrastructure initiative that will accelerate the pace of discovery in all research disciplines by advancing high performance computing—increasingly essential to developments in fields such as climate science and clean energy—by creating new research networks and data repositories, and by developing new systems to visualize data.

**Invests in the Long-Term Competitiveness of American Manufacturing.** The Budget proposes \$160 million, an increase of \$49 million above the 2012 enacted level, for fundamental research on revolutionary new manufacturing technologies in partnership with other Federal agencies and the private sector. This advanced manufacturing research is part of a larger \$300 million NSF research initiative aimed at transforming static systems, processes, and infrastructure into adaptive, pervasive “smart” systems with embedded computational intelligence that can sense, adapt, and react. This larger research effort also provides \$32 million for NSF's contribution to the National Robotics Initiative, which will accelerate the development and use of robots in the United States. It also provides \$42 million for NSF's contribution to the Materials Genome Initiative, which is designed to discover,

manufacture, and deploy advanced materials twice as fast as the current state of the art, at a fraction of the cost.

**Supports the Long-Term Development of a Clean Energy Economy.** The Budget proposes \$372 million for fundamental research that is directly relevant to future clean energy technologies such as solar power generation and energy efficiency. In coordination with other Federal agencies, this clean energy research is a key component of an integrated approach to increasing U.S. energy independence, enhancing environmental stewardship, reducing energy and carbon intensity, and generating sustainable economic growth.

**Accelerates Innovations from the Laboratory to the Market.** While the knowledge gained from NSF-supported fundamental research frequently advances a particular field of science or engineering, some results also show immediate potential for broader applicability and impact in the business world. The Budget proposes \$25 million, an increase of \$17 million above the 2012 enacted level, for the public-private “Innovation Corps” program at NSF aimed at bringing together the technological, entrepreneurial, and business know-how necessary to bring discoveries ripe for innovation out of the university lab.

## ***Educates a Globally-Competitive American Workforce***

**Focuses Investments in Undergraduate Education to Increase Their Impact.** In line with the Administration's bold reorganization of science, technology, engineering, and mathematics (STEM) education programs to improve effectiveness of Federal investments, the Budget proposes consolidating disparate STEM undergraduate education activities across the Government into a new consolidated program at NSF. This reform will increase the efficiency and effectiveness of these streamlined investments by implementing evidence-based instructional practices and supporting an expanded evidence base.

It includes research on how new technologies can facilitate adoption and use of new approaches to instruction. The Budget provides \$123 million for this new program.

**Expands Research Opportunities for Early College Students.** The Administration has committed to increasing the number of college graduates with degrees in technical fields. Solving real-world research problems can help inspire students to pursue such degrees. The Budget proposes \$79 million, an increase of \$13 million above the 2012 enacted level, for NSF's Research Experiences for Undergraduates. Since early opportunities to conduct research can be especially influential in maintaining a student's interest in science, engineering, and mathematics, the program will increase its investment in research experiences for those in their first or second year of college.

**Consolidates an Array of Graduate Education Programs.** As part of the plan to reform STEM education, the Budget proposes consolidating an array of graduate fellowship programs, streamlining the application and award process, and reducing administrative costs. This consolidation will pave the way for a broad strategy to prepare young scientists and engineers for the high-tech jobs of the future, and will enable programmatic innovation and experimentation

in ways previously not possible. The Budget proposes \$325 million for the consolidated graduate research fellowship program.

***Improves Efficiency and Increases Use of Evidence***

**Increases Efficiency of Agency Operations.** NSF will improve the efficiency of its operations through an array of administrative savings initiatives, such as strategic sourcing of administrative support contracts and lowered printing costs. The agency will also increase the operational efficiency of U.S. activities in the Antarctic by implementing the highest-payoff recommendations of a blue ribbon panel of outside experts.

**Strengthens the Agency's Capacity to Evaluate Its Programs.** NSF must have the capacity to gauge the outcomes of its investments in both research and education in order to ensure that its investments have the desired near and long-term impacts and to enable the agency to operate from a basis of evidence in its policy decisions. To enable this strategic management, NSF will expand and coordinate program evaluation and the collection and use of programmatic data through new agency-wide mechanisms.