



## NATIONAL SCIENCE FOUNDATION

### **Funding Highlights:**

- Provides \$7.3 billion for the National Science Foundation to expand the frontiers of knowledge and to lay the foundation for long-term economic growth by building an innovation economy and educating a globally competitive workforce. This includes:
  - Building an innovation economy through investments in a broad portfolio of fundamental research, as well as investments in strategic areas such as advanced manufacturing and clean energy; and
  - Preparing a globally competitive workforce by supporting advanced education in science, technology, engineering, and mathematics.

### **Opportunity, Growth, and Security Initiative:**

- Through the Opportunity, Growth, and Security Initiative, supports:
  - An additional 1,000 new research grants in areas such as neuroscience and materials science; and
  - Additional research traineeships to improve advanced education in high priority areas, impacting thousands of graduate students.

### **Reforms:**

- Increases the impact of the Agency's investments and operational efficiency by increasing public access to the results of research and reducing the cost of processing research grant proposals.

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. The Agency's mission is to promote the progress of science; to advance the national health, prosperity, and welfare; and

to secure the national defense. 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 Budget provides \$7.3 billion for NSF, one percent above the

2014 enacted level, including strong support for cross-cutting research priorities such as advanced manufacturing and clean energy. The Budget also supports efforts to increase the Agency's impact and improve its operations, for example, by increasing public access to the results of research and reducing the cost of processing research grant proposals.

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

**Supports the Fundamental Research that Underpins Progress in Science, Technology, and Innovation.** The Budget proposes \$5.8 billion for research and related activities at NSF and supports research activities at over 1,900 colleges and universities. The Budget will enable NSF to make about 7,900 research grant awards in 2015.

**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 bioeconomy, the Budget provides \$29 million for innovative proposals at the intersection of biology, mathematics, the physical sciences, and engineering. The Budget provides \$125 million for a cyber-infrastructure 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 provides \$151 million 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 \$213 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 \$29 million for NSF's contribution to the National Robotics Initiative, which will accelerate the development and use of robots in the United States. The Budget also provides \$22 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 provides \$362 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 Moving 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 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***

**Promotes Advanced Education for the Jobs of Tomorrow.** In line with the Federal plan for science, technology, engineering, and mathematics education, the Budget promotes graduate education for tomorrow's workforce. The Budget provides \$333 million to support thousands of outstanding graduate student researchers, who will become tomorrow's leaders in science and engineering research. The Budget also supports opportunities for graduate students to receive

training for the range of jobs needed in the future. In addition, the Budget provides \$7 million for a new program to spark innovation in graduate education by providing awards to universities to explore novel ideas in student training.

**Improves Undergraduate Education for Science and Engineering.** The Budget provides \$118 million for a consolidated program to implement evidence-based instructional practices, expand the evidence base, and support research on how new technologies can facilitate adoption and use of new approaches to instruction. The Budget also proposes \$75 million for NSF's Research Experiences for Undergraduates to provide early opportunities to conduct research, which can be especially influential in maintaining a student's interest in science, engineering, and mathematics.

***Accelerates Innovation Through the Opportunity, Growth, and Security Initiative***

**Deepens the Nation's Knowledge and Human Capital.** The Budget includes \$552 million for NSF in the Opportunity, Growth, and Security Initiative. This funding will increase research to expand knowledge across disciplines and accelerate innovation across industries. The Opportunity, Growth, and Security Initiative will support 1,000 additional research grants. It will also expand graduate research traineeships,

promoting improved advanced education in targeted, high-priority disciplines, impacting the training of thousands of graduate students.

***Improves Impact and Efficiency***

**Increases the Impact of the Agency's Investments.** NSF will increase the impact of its investments by making the results of the research it supports more accessible to the public. For example, NSF will develop a repository where the public can access articles by NSF-funded researchers. The Agency will also continue to strengthen its ability to evaluate its activities, making programs more effective at increasing scientific knowledge, supporting long-term economic growth, and laying the groundwork for the industries and jobs of the future.

**Increases the Efficiency of the Agency's Operations.** NSF will increase the efficiency of its operations by increasing the automation of research grant proposal processing and the use of virtual review panels. Increasing the automation of proposal processing will allow the Agency to reduce related personnel costs. Increasing the use of virtual review panels will reduce travel costs, as well as broaden the range of potential reviewers. 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.