

# Lewis-Burke Associates LLC

## National Science Foundation

The National Science Foundation (NSF) is an independent federal agency with the sole purpose to support extramural basic research. NSF is led by one Director and employs both permanent and “rotating” staff. Rotators are staff members who are “on loan” from a university or another research organization to work at NSF over a certain period of time, usually ranging from one to four years.

NSF is organized into seven research directorates: biological sciences; computer and information science and engineering; education and human resources; engineering; geosciences; mathematical and physical sciences; and social, behavioral, and economic sciences. These directorates are responsible for funding research through established core research programs or new initiatives launched by the Director or the directorates’ leadership. NSF also supports the building and management of major basic research facilities to be utilized by entire research communities as well as some support for instrumentation at research universities or other research organizations.

NSF has traditionally enjoyed strong bipartisan support in Congress and has been a favored agency in both Republican and Democratic Administrations. While funding increases for NSF have not been as large as its community would like, the agency has been resilient from major funding cuts proposed by Congress.

### *Research Scope & Objectives*

As mentioned above, NSF supports basic research in the areas relevant to its seven research directorates. NSF encourages research that is “high-risk, high-reward” and that can advance entire research fields. Despite supporting research in the biological sciences, NSF does not provide funding for biomedical research as the National Institutes of Health (NIH) covers that portfolio. The same is true when it comes to research related to energy and environment; anything that is perceived to be too applied or something the Department of Energy (DOE) or the National Oceanic and Atmospheric Administration (NOAA) should fund, NSF will typically not support.

### *Degree of Engagement*



Support for extramural research is the sole purpose of NSF. NSF staff and leadership are typically very accessible to researchers via email, phone calls, in-person meetings, webinars, or even visits to research institutions and universities.

### *Signature Programs*

The majority of NSF funding is funneled through core research programs in the seven research directorates: biological sciences; computer and information science and engineering; education and human resources; engineering; geosciences; mathematical and physical sciences; and social, behavioral, and economic sciences. These core programs reflect major areas of research within each directorate and proposal deadlines remain consistent from year to year. Information on all core programs are available on the directorate websites.

However, NSF also supports new research initiatives resulting from societal needs, Congressional input, or White House priorities. In recent years, NSF has supported new

programs related to sustainability, STEM education, manufacturing, cyberinfrastructure, and materials. These often span several if not all of NSF's research directorates.

Examples Include:

- **Cyberinfrastructure Framework for 21st Century Science and Engineering (CIF21)** – CIF21 is an agency-wide effort to develop comprehensive, integrated, sustainable, and secure cyberinfrastructure to accelerate research and education capabilities in computational and data-enabled science and engineering. *More information:* [http://www.nsf.gov/funding/pgm\\_summ.jsp?pims\\_id=504730](http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=504730).
- **NSF Innovation Corps (I-Corps)** – Through I-Corps, NSF seeks to catalyze technology transfer and entrepreneurship by identifying and fostering research capable of transitioning out of the laboratory and linking it into a broader network of entrepreneurs, investors, and industry experts. *More information:* [http://www.nsf.gov/news/special\\_reports/i-corps/](http://www.nsf.gov/news/special_reports/i-corps/).
- **Integrated NSF Support Promoting Interdisciplinary Research and Education (INSPIRE)** – The purpose of INSPIRE is to strengthen support for interdisciplinary research that addresses scientific problems at the interface of traditional disciplines, funding for INSPIRE comes from across the Foundation with funding decisions made by program officers. *More information:* [http://www.nsf.gov/about/budget/fy2013/pdf/40\\_fy2013.pdf](http://www.nsf.gov/about/budget/fy2013/pdf/40_fy2013.pdf).
- **Secure and Trustworthy Cyberspace (SaTC)** – SaTC aligns NSF's investments in cybersecurity to the thrust areas identified in the National Science and Technology Council report, *Trustworthy Cyberspace: Strategic Plan for the Federal Cybersecurity Research and Development Program*: inducing change, developing scientific foundations, maximizing research impact, and accelerating transition to practice<sup>1</sup>. SaTC supports research to protect America's information technology infrastructure from various threats. *More information:* [http://www.nsf.gov/funding/pgm\\_summ.jsp?pims\\_id=504709&org=CISE&from=home](http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=504709&org=CISE&from=home).
- **Science, Engineering, and Education for Sustainability (SEES)** – SEES engages NSF's seven research directorates and other Foundation offices to address interdisciplinary research and education needs as they relate to understanding the interactions between human and environmental systems. For the last few years, the initiative has provided funding for programs in energy and environment. In FY 2013, SEES would initiate five programs: Coastal SEES; Arctic SEES; Sustainable Chemistry, Engineering, and Materials (SusChEM); Creating a More Disaster-Resilient America (CaMRA); and the Role of Information Sciences and Engineering in SEES (RISES), which would support research to utilize advanced information technologies to decrease energy consumption and increase the use of renewable energy. *More information:* [http://www.nsf.gov/funding/pgm\\_summ.jsp?pims\\_id=504707](http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=504707).

#### **Additional Resources**

NSF website: <http://www.nsf.gov/index.jsp>

Directorates and Offices:

- Biological Sciences: <http://www.nsf.gov/dir/index.jsp?org=BIO>
- Computer and Information Science and Engineering:

<http://www.nsf.gov/dir/index.jsp?org=CISE>

- Education and Human Resources: <http://www.nsf.gov/dir/index.jsp?org=EHR>
- Engineering: <http://www.nsf.gov/dir/index.jsp?org=ENG>
- Geosciences: <http://www.nsf.gov/dir/index.jsp?org=GEO>
- Mathematical and Physical Sciences: <http://www.nsf.gov/dir/index.jsp?org=MPS>
- Social, Behavioral and Economic Sciences: <http://www.nsf.gov/dir/index.jsp?org=SBE>

Other Offices or Programs of Interest:

- Office of the Director: <http://www.nsf.gov/od/>
- Office of Cyberinfrastructure: <http://www.nsf.gov/dir/index.jsp?org=OCI>
- Office of Integrated Activities: <http://www.nsf.gov/dir/index.jsp?org=OIA>
- Environmental Research and Education: <http://www.nsf.gov/dir/index.jsp?org=ERE>
- Office of International Science and Engineering:  
<http://www.nsf.gov/div/index.jsp?div=OISE>

NSF Strategic Plan (FY 2011-2016):

[http://www.nsf.gov/news/strategicplan/nsfstrategicplan\\_2011\\_2016.pdf](http://www.nsf.gov/news/strategicplan/nsfstrategicplan_2011_2016.pdf)

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<sup>1</sup> [http://www.whitehouse.gov/sites/default/files/microsites/ostp/fed\\_cybersecurity\\_rd\\_strategic\\_plan\\_2011.pdf](http://www.whitehouse.gov/sites/default/files/microsites/ostp/fed_cybersecurity_rd_strategic_plan_2011.pdf)