What NSF Does

NSF Mission

- Promote the progress of science
- Advance the national health, prosperity, and welfare
- Secure the national defense; and for other purposes

*NSF will relocate to Alexandria, VA in 2018
# NSF by the Numbers

<table>
<thead>
<tr>
<th>Count</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,826</td>
<td>Colleges, universities, and other institutions NSF funded</td>
</tr>
<tr>
<td>11,000</td>
<td>Competitive awards NSF funded</td>
</tr>
<tr>
<td>49,800</td>
<td>Students supported by NSF Graduate Research Fellowships (since 1952)</td>
</tr>
<tr>
<td>48,000</td>
<td>Proposals evaluated through competitive merit review</td>
</tr>
<tr>
<td>226,000</td>
<td>Reviews conducted</td>
</tr>
<tr>
<td>321,000</td>
<td>Individuals NSF directly supported (researchers, postdocs, trainees, teachers, and students)</td>
</tr>
<tr>
<td>$6.9 billion</td>
<td>FY 2013 Budget Actuals</td>
</tr>
<tr>
<td>$7.1 billion</td>
<td>FY 2014 Budget Actuals</td>
</tr>
</tbody>
</table>

Figures represent FY 14 actuals
NSF Competitive Awards, Declines & Funding Rates

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>9,757</td>
<td>10,318</td>
<td>11,354</td>
<td>11,024</td>
<td>32,883</td>
<td>30,587</td>
<td>42,547</td>
<td>40,370</td>
<td>37,089</td>
<td>38,170</td>
</tr>
</tbody>
</table>

- **Awards**
- **Declines**
- **Funding Rate**
Society’s Changing Needs

- Natural hazards
- Climate change
- Energy
- Food and drug safety
- Cybersecurity
- Youth violence
Biological Sciences (BIO)

Priorities

• PI-driven projects in all areas of Biological Research

• Brain Research through Advancing Innovative Neurotechnologies (BRAIN)

• National Ecological Observatory Network (NEON)

• Plant Genome Research Program (PGRP)

• Dimensions of Biodiversity
Computer & Information Science & Engineering (CISE)

**Directorate Priorities**

- Core research programs across computer science
- Cross-CS and cross-NSF programs (e.g., BRAIN, SaTC, NRI)
- CS education (cyberlearning)
- Building cyber infrastructure
ENG Initiatives and Priorities Address National Interests

- INFEWS
- Risk and Resilience: CRISP
- Urban Science
- Clean Energy Technology*
- Cyber-Enabled Materials, Manufacturing, and Smart Systems - Advanced Manufacturing*

- Optics and Photonics
- Understanding the Brain
- Education and Broadening Participation: INCLUDES
- Innovation Corps
- Emerging Frontiers in Research and Innovation
- Research Centers
- National Nanotechnology Initiative*
- Communications and Cyberinfrastructure

* National Initiatives
Geosciences (GEO)

**Directorate Priorities**

- Support basic research in atmosphere, earth, ocean sciences, and polar studies
- Support research facilities and infrastructure (NCAR, research vessels, Antarctic base, Geochronology, EarthScope)
- Develop community-driven cyber-infrastructure
- Promote education and diversity in the geosciences
- Initiatives in hazards and resilience (PREevents, INFEWS)
Mathematical & Physical Sciences (MPS)

F. Fleming Crim, Assistant Director
Celeste Rohlffing, Deputy Assistant Director

Office of Multidisciplinary Activities (OMA)
Clark Cooper

Division of Astronomical Sciences (AST)
Jim Ulvestad, Division Director
Pat Knezek, Deputy Division Director

Division of Materials Research (DMR)
Mary Galvin, Division Director
Linda Sapochak, Deputy Division Director

Division of Physics (PHY)
Denise Caldwell, Division Director
Brad Keister, Deputy Division Director

Division of Chemistry (CHE)
David Berkowitz, Division Director
Carol Bessel, Deputy Division Director

Division of Mathematical Sciences (DMS)
Michael Vogelius, Division Director
Henry Warchall, Deputy Division Director
Mathematical & Physical Sciences (MPS)

**Emphasis Areas**

- Physical sciences at the nanoscale
- Advances in optics and photonics
- Materials by design
- Physics of the universe
- World-class, shared-use Facilities
- Quantum information science
- Complex systems (multi-scale, emergent phenomena)
- Innovations at the Nexus of Food, Energy and Water Systems
- Sustainability (energy, environment, climate)
- Interfaces between the mathematical, physical, & life sciences
Social, Behavioral & Economic Sciences

Fay Lomax Cook, Assistant Director
Clifford Gabriel, Acting Deputy Assistant Director

Behavioral and Cognitive Sciences (BCS)
Amber Story, Acting Division Director
TBD, Deputy Division Director

Social and Economic Sciences (SES)
Jeryl Mumpower, Division Director
Alan Tomkins, Deputy Division Director

National Center for Science and Engineering Statistics (NCSES)
John Gawalt, Division Director
Jeri Mulrow, Deputy Division Director

SBE Office of Multidisciplinary Activities (SMA)
SBE Focus

17 Standing Programs

2011 Report: REBUILDING THE MOSAIC

THEMES:

Social Networks
Population Change
Sources of Disparities
Technology and New Media
Communication, Language, and Linguistics
Navigating www.NSF.gov
Navigating www.NSF.gov

Awards Advanced Search

See What's New in the New Award Search

Award Information
- Principal Investigator First Name
- Principal Investigator Last Name
- Include Co-Principal Investigator in name search

Organization
- State
- Zip Code
- Country

Program Information
- NSF Organization
- Element Code
  - Any
  - All
- Reference Code
  - Any
  - All
- Program
- Program Officer

Additional Information
- Keyword
  - HINT: The Keyword field searches on the title and abstract only.
  - Search Award Title Only
- Award Number
  - Select one
  - From
  - To
- Award Amount
  - Select one
- Award Instrument
  - Select one

HINT: Data prior to 1976 may be less complete.
Grant Proposal Guide

- Provides guidance for preparation and submission of proposals to NSF
- Describes process – and criteria – by which proposals will be reviewed
- Outlines reasons why a proposal may not be accepted or may be returned without review
- Describes process for withdrawals, returns, and declinations
- Describes the NSF Reconsideration Process
NSF Proposal & Award Process Timeline

1. NSF Announces Opportunity
2. Research & Educational Communities
   - Submit
3. NSF Program Officer
   - Ad Hoc
   - Panel
   - Combination
   - Internal
4. Program Officer Analysis and Recommendations
5. DD Concur
6. Organization
7. Award by DGA
   - Via DGA
   - Decline

Timeline:
- Proposal Preparation: 90 Days
- Proposal Receipt to DD Concur: 6 Months
- Proposal Receipt to DD Concur of PO Recommendation: 30 Days
Types of Proposal Submissions

Submission Windows – Closing date converts to a deadline date

3. **Submission windows:** designated periods of time during which proposals will be accepted for review by NSF. It is NSF’s policy that the end date of a submission window converts to, and is subject to, the same policies as a deadline date.
Types of Proposal Submissions

Preliminary Proposals – Sometimes required, sometimes optional

2. Preliminary Proposal

Some NSF program solicitations require or request submission of a preliminary proposal in advance of submission of a full proposal. The two predominant reasons for requiring submission of a preliminary proposal are:

- reduce the proposers’ unnecessary effort in proposal preparation when the chance of success is very small. This is particularly true of exploratory initiatives where the community senses that a major new direction is being identified, or competitions that will result in a small number of actual awards; and

- increase the overall quality of the full submission.
Things to Consider Before Applying...
Five Key Elements

1. Great idea
2. Fit with current research expertise and career development plans
3. Ability to devise a strategy including benchmarks, timelines, and metrics
4. Adequate resources to accomplish your project
5. Assessment Plan
Developing your Proposal

Key Questions for Prospective Investigators

• What has already been done?
• What do you intend to do?
• Why is the work important?
• How is the work unique or cutting edge?
• How are you going to do the work?
• Do you have the right team?
Parts of a Proposal
Parts of an NSF Proposal

Cover Sheet
Many of the boxes on the cover sheet are electronically prefilled as part of the FastLane login process.
Parts of an NSF Proposal

**Project Summary Requirements:**
- Overview
- Statement on Intellectual Merit
- Statement of Broader Impacts

Special characters (e.g., formulas) may be uploaded as a PDF

**Project Description Addresses:**
- What you want to do
- Why you want to do it
- How you plan to do it
- How you measure success
- What are the benefits

A separate section, *Broader Impacts of the Proposal Work*, must be completed
Parts of an NSF Proposal

Results from Prior NSF Support

References Cited

Biographical Sketches

Budget
Budgetary Guidelines

Amounts should be:

• Realistic and reasonable
• Well-justified and should establish need
• Consistent w/program guidelines in solicitation, GPG, and in Award and Administration Guide (AAG)

Eligible costs consist of:

• Personnel
• Equipment
• Travel
• Participant support
• Other (e.g., subawards, consultant and computer services, publications costs)
• Indirect costs (as appropriate)
Sections of an NSF Proposal

Facilities, Equipment, and Other Resources
Used to assess the adequacy of the organizational resources available to perform the effort proposed. Should not contain quantifiable financial information.

Current and Pending Support
This section of the proposal requires reporting on all current and pending support for ongoing projects and proposals from any funding source.
Special Information and Supplementary Documentation

Letters of support versus letters of commitment

Postdoctoral mentoring plans

Data management plans

You should alert NSF officials to unusual circumstances that require special handling (i.e. proprietary information)

Solicitations may specify what is and is not allowed to be submitted
Mentoring for Postdoctoral Researchers

• Explicit description of the mentoring activities

• Must include a mentoring plan as a supplementary document (maximum one-page)

• For collaborative proposals, lead organization must submit a single mentoring plan for all postdoctoral researchers supported under the entire project.
Data Management Plan Requirements

Requirements by Directorate, Office, Division, Program, or other NSF Unit

Links to data management requirements and plans relevant to specific Directorates, Offices, Divisions, Programs, or other NSF units, are provided below. If guidance specific to the program is not provided, then the requirements established in Grant Proposal Guide, Chapter II.C.2.i apply.

Please note that if a specific program solicitation provides guidance on preparation of data management plans, such guidance must be followed.

- Engineering Directorate (ENG)
  - Directorate-wide Guidance

- Geological Sciences Directorate (GEO)
  - Division of Earth Sciences
  - Integrated Ocean Drilling Program
  - Division of Ocean Sciences

- Mathematical and Physical Sciences Directorate (MPS)
  - Division of Astronomical Sciences
  - Division of Chemistry
  - Division of Materials Research
  - Division of Mathematical Sciences
  - Division of Physics

- Social, Behavioral and Economic Sciences Directorate (SBE)
  - Directorate-wide Guidance

Data Management & Sharing Frequently Asked Questions (FAQs) - updated November 30, 2010

nsf.gov/bfa/dias/policy/dmp.jsp
The Merit Review Process
NSF’s Proposal & Award Process Timeline

Black Box?
When Preparing Proposals

• Read the funding opportunity; ask a Program Officer for clarifications if needed

• Address all the proposal review criteria

• Understand the NSF merit review process

• Avoid omissions and mistakes

• Check your proposal to verify that it is complete!

• Double Check that the proposal NSF receives is the one you intended to send
Review Format in FastLane

- Reviewers provide feedback to NSF based on the Review Criteria and the Review Elements

- Review Criteria and Elements are available as reviewers provide feedback
Over 2,000 proposals were RWR in FY 2014

6 most common reasons why

1. Not responsive to the GPG or program announcement/solicitation (960)

2. Does not meet an announced proposal deadline date and time (171)

3. It is inappropriate for NSF funding (74)

4. Duplicative or substantially similar to a proposal already under consideration (66)

5. Not substantively revised from a proposal that was previously reviewed and declined (37)

6. Duplicates another proposal that was already awarded (24)
Types of Reviews

• Ad Hoc
  – Proposals are sent out for review

• Panel
  – Face-to-Face sessions conducted with reviewers. Held at NSF, or virtually via assistive technologies such as WebEx or BlueJeans

• Combination
  – Some proposals may undergo supplemental ad hoc reviews before or after a panel review

• Internal
  – Reviewed by NSF Program Officers
How are Reviewers Selected?

• Three or more external reviewers per proposal are selected

• Types of Reviewers Recruited
  – Specific content expertise
  – General science or education expertise

• Sources of Reviewers
  – Former reviewers
  – Program Officer’s knowledge of the research area
  – References listed in proposal
  – Recent professional society programs
  – S&E journal articles related to the proposal
  – Reviewer recommendations included in proposal
What is the Role of the Reviewer?

• Review all proposal material and consider
  – The two NSF merit review criteria and any program specific criteria
  – Adequacy of the proposed project plan - including the budget, resources, and timeline
  – Priorities of the scientific field and of the NSF program
  – Potential risks and benefits of the project

• Make independent written comments on the quality of the proposal content
What is the Role of the Review Panel?

- Discuss the merits of the proposal with the other panelists
- Write a summary based on that discussion
- Provide some indication of the relative merits of different proposals considered
Proposal Review and Processing
Funding Decisions
Reviews are Advisory to NSF

• The merit review process provides:
  – Review of the proposal and a recommendation on funding.
  – Feedback (strengths and weaknesses) to the proposers.

• NSF Program Officers make funding recommendations guided by program goals and portfolio considerations.

• NSF Division Directors either concur or reject the Program Officers’ funding recommendations.
Feedback from Merit Review

- Reviewer ratings (such as: E, V, G, F, P)
- Analysis of how well proposal addresses both review criteria: Intellectual Merit and Broader Impacts
- Proposal strengths and weaknesses
- Reasons for decline (if applicable)
- If you have any questions, contact the cognizant Program Officer.
Documentation from Merit Review

- Verbatim copies of individual reviews, excluding reviewer identities

- Panel summary or summaries (if panel review was used)

- Context statement (usually)

- Program Officer to Principal Investigator comments (formal or informal, written, email or verbal) as necessary to explain a decision
Examples of Reasons for Declines

• Not considered competitive based on merit review criteria and program office concurrence

• Flaws or issues identified by the Program Officer

• Funds were not adequate to fund all competitive proposals
Revisions and Resubmissions

– Do the reviewers and the NSF Program Officer identify significant strengths in your proposal?
– Can you address the identified weaknesses?
– Can the proposal be significantly revised?
– Are there other ways your colleagues or you think a resubmission can be strengthened?

Questions?

Contact your cognizant Program Officer!
Possible Considerations for Funding a Competitive Proposal

- Addresses all review criteria
- Likely high impact
- Broadening participation
- Educational impact
- Impact on institution/state

- Special programmatic considerations (e.g. CAREER/RUI/EPSCoR)
- Other support for PI
- “Launching” versus “Maintaining”
- Portfolio balance
Proposal Review and Processing
Questions?