

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**

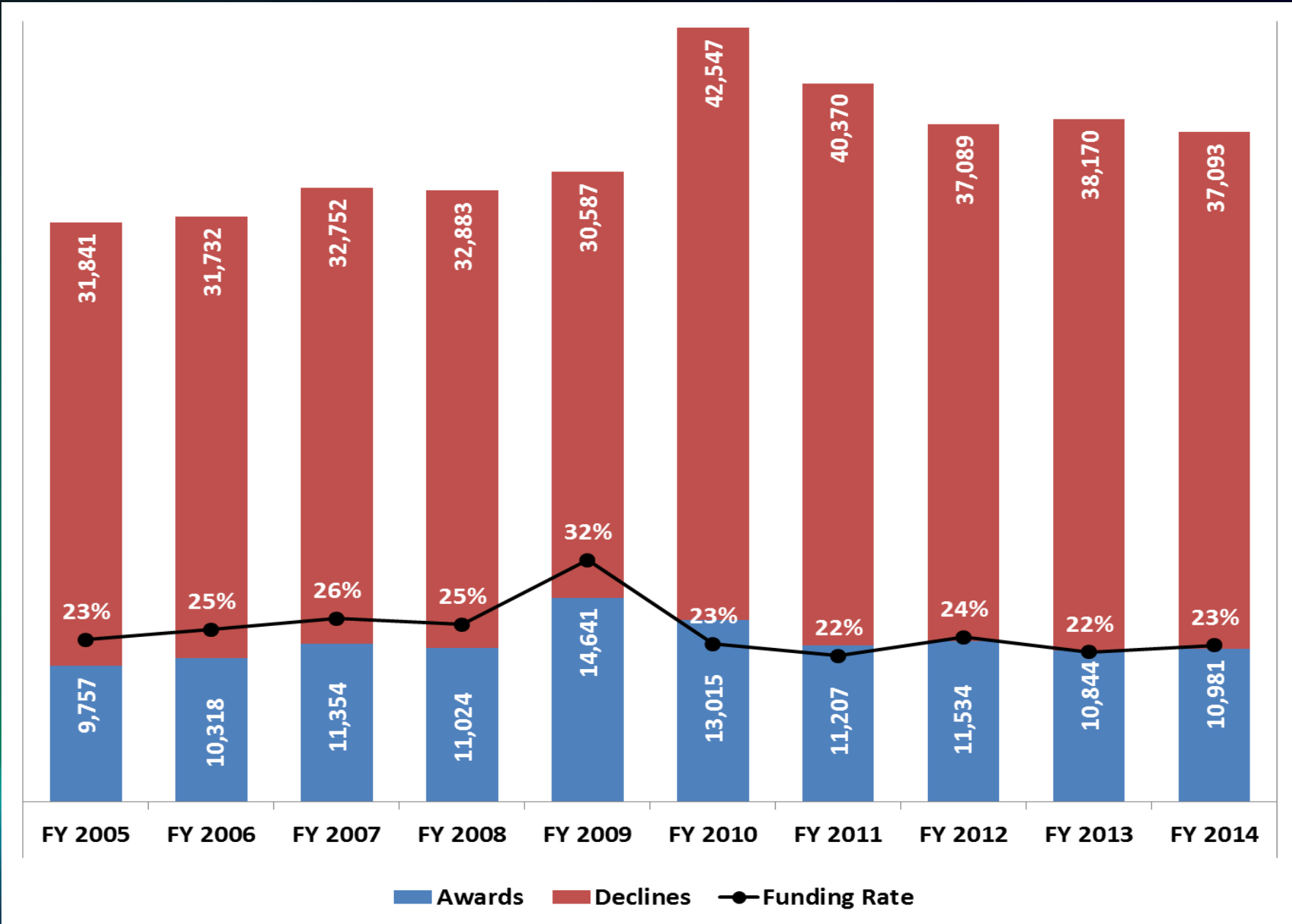
Our Organization



NSF by the Numbers

1,826	Colleges, universities, and other institutions NSF funded
11,000	Competitive awards NSF funded
49,800	Students supported by NSF Graduate Research Fellowships (since 1952)
48,000	Proposals evaluated through competitive merit review
226,000	Reviews conducted
321,000	Individuals NSF directly supported (researchers, postdocs, trainees, teachers, and students)
\$6.9 billion	FY 2013 Budget Actuals
\$7.1 billion	FY 2014 Budget Actuals
Figures represent FY 14 actuals	

NSF Competitive Awards, Declines & Funding Rates



Society's Changing Needs



Natural hazards



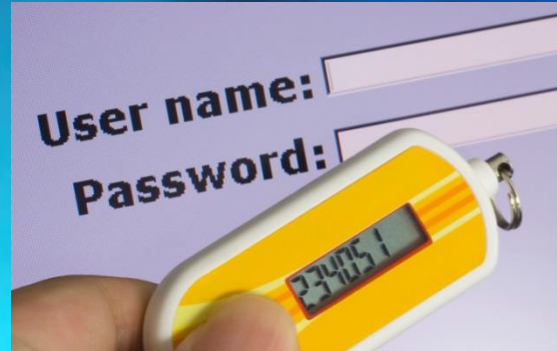
Climate change



Energy



Food and drug safety



Cybersecurity



Youth violence

Biological Sciences (BIO)

James Olds, Assistant Director
Jane Silverthorne, Deputy Assistant Director

**Emerging Frontiers
(EF)**

**Division of
Biological Infrastructure
(DBI)**

Scott Edwards, Division Director
James Deshler, Deputy Division Director

**Division of Molecular and Cellular
Biosciences
(MCB)**

Gregory Warr, Division Director
Theresa Good, Deputy Division Director

**Division of
Environmental Biology
(DEB)**

Alan Tessier, Acting Division Director
Maureen Kearney, Deputy Division Director

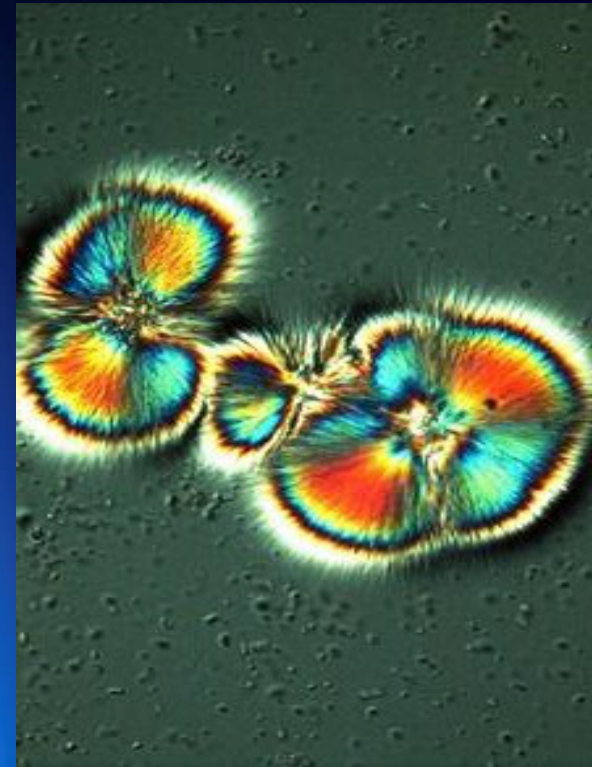
**Division of Integrative Organismal
Systems
(IOS)**

William Zamer, Acting Division Director
Michelle Elekonich, Acting Deputy Division
Director

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)

James F. Kurose, Assistant Director
Suzanne C. Iacono, Deputy Assistant Director

Division of Advanced Cyberinfrastructure (ACI)

Irene M. Qualters, Division Director
Mark Suskin,
Deputy Division Director

Division of Computer and Network Systems (CNS)

Keith Marzullo, Division Director
Erwin P. Gianchandani,
Deputy Division Director

Division of Information and Intelligent Systems (IIS)

Lynne Parker, Division Director
Deborah F. Lockhart,
Deputy Division Director

Division of Computing and Communication Foundations (CCF)

S, Rao Kosaraju, Division Director
James J. Donlon,
Deputy Division Director

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



Engineering (ENG)

Emerging Frontiers in Research and Innovation (EFRI)

Sohi Rastegar

Innovation Corps

Babu DasGupta

Pramod Khargonekar, Assistant Director
Grace Wang, Deputy Assistant Director

Senior Advisor for Nanotechnology

Mihail Roco

Program Director for Strategic Operations

Cheryl Albus

Program Director for Evaluation & Assessment

Alexandra Medina-Borja

Engineering Education and Centers (EEC)

Don Millard, Division Director (Acting)

Chemical, Bioengineering, Environmental, and Transport Systems (CBET)

JoAnn Lighty, Division Director

Civil, Mechanical, and Manufacturing Innovation (CMMI)

Deborah Goodings, Division Director

Electrical, Communications, and Cyber Systems (ECCS)

Barry Johnson, Division Director

Industrial Innovation and Partnerships (IIP)

Samir El-Ghazaly, Division Director

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

Geosciences (GEO)

Dr. Roger Wakimoto, Assistant Director
Deputy Assistant Director **Dr. Margaret Cavanaugh**,

**Division of Atmospheric and
Geospace Sciences (AGS)**

Division of Ocean Sciences (OCE)

Rick Murray, Division Director
Paul Shepson, Division Director

Division of Polar Programs (PLR)

Kelly Falkner, Division Director

Division of Earth Sciences (EAR)

Carol Frost, Division Director

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 Rohlifing, 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

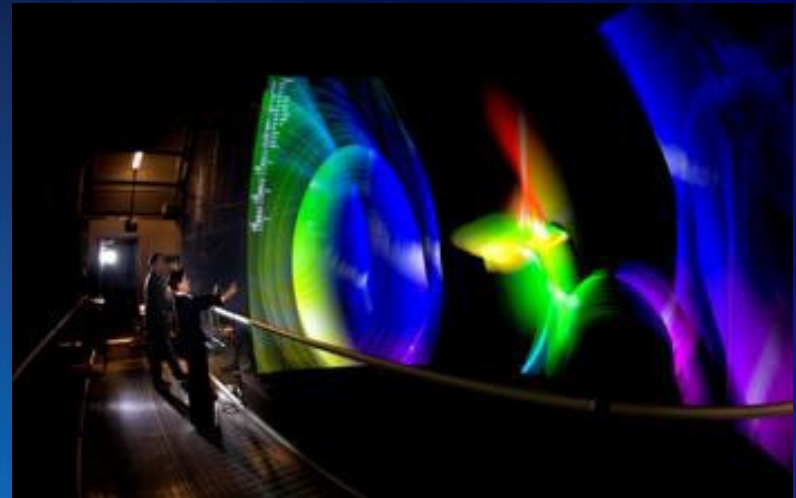
**Division of Mathematical Sciences
(DMS)**

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

SBE Office of
Multidisciplinary
Activities (SMA)

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 FOCUS

17 Standing Programs

2011 Report: REBUILDING THE MOSAIC

<http://www.nsf.gov/pubs/2011/nsf11086/nsf11086.pdf>

THEMES:



Social Networks

Population Change

Sources of Disparities

Technology and New Media

Communication, Language, and Linguistics

Navigating www.NSF.gov


The screenshot displays the NSF.gov homepage. At the top left is the NSF logo with the tagline "National Science Foundation WHERE DISCOVERIES BEGIN". To the right is a "QUICK LINKS" dropdown menu and a search bar. Below this is a navigation bar with links: HOME, FUNDING, AWARDS, DISCOVERIES, NEWS, PUBLICATIONS, STATISTICS, ABOUT NSF, and FASTLANE. A secondary navigation bar contains: Simple Search, Advanced Search, Popular Searches, Download Awards, Send Comments, and Award Search Help. The main content area is titled "Awards Simple Search" and features a "NEW" badge next to the link "See What's New in the New Award Search". Below this is a search form with the label "Search award for:", a text input field, and a "Search" button with a green arrow. A note below the input field reads: "Use double quotes for exact search. For example 'water vapor'." There are two checkboxes: "Active Awards" (checked) and "Expired Awards" (unchecked). At the bottom, there is another navigation bar with the same links as above, followed by a footer with various links: Research.gov, USA.gov, National Science Board, Recovery Act, Budget and Performance, A Web Policies and Important Links, Privacy, FOIA, NO FEAR Act, Inspector General, and Webmas. The NSF logo is centered at the bottom.

Navigating www.NSF.gov

HOME FUNDING AWARDS DISCOVERIES NEWS PUBLICATIONS STATISTICS ABOUT NSF FASTLANE

Simple Search | Advanced Search | Popular Searches | Download Awards | Send Comments | Award Search Help

Awards Advanced Search

 [See What's New in the New Award Search](#)

Awardee Information

Include Co-Principal Investigator in name search

Program Information

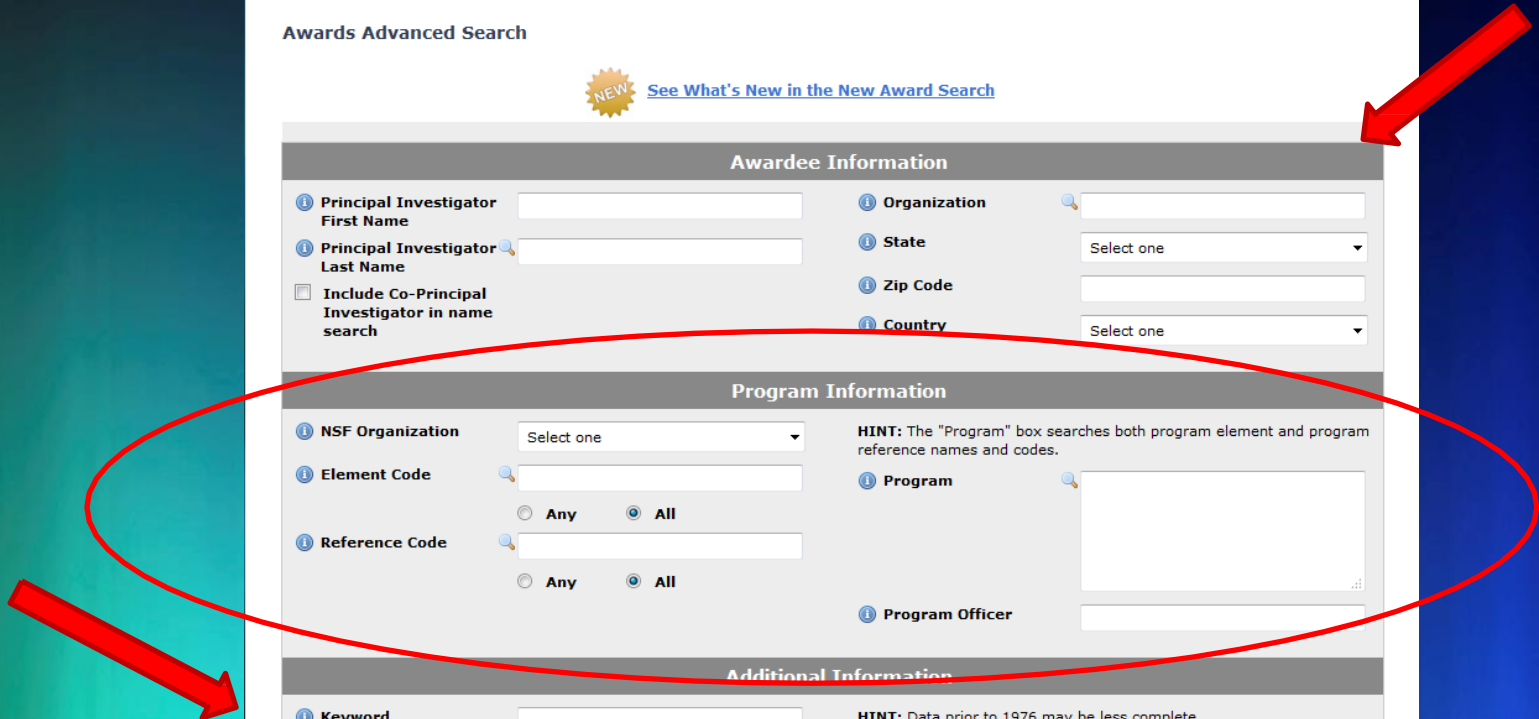
Any All

Any All

Additional Information

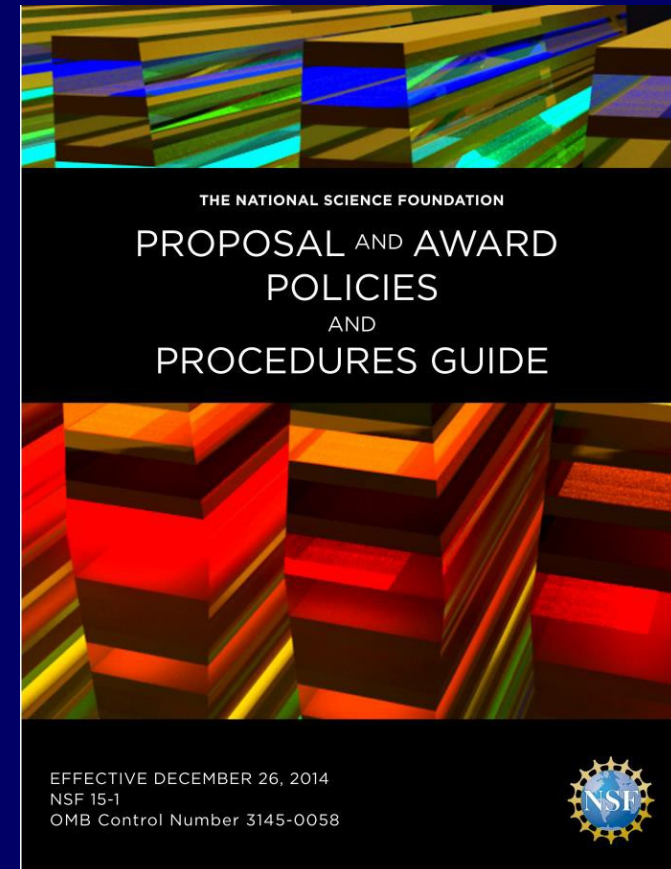
Search Award Title Only

Active Awards Expired Awards

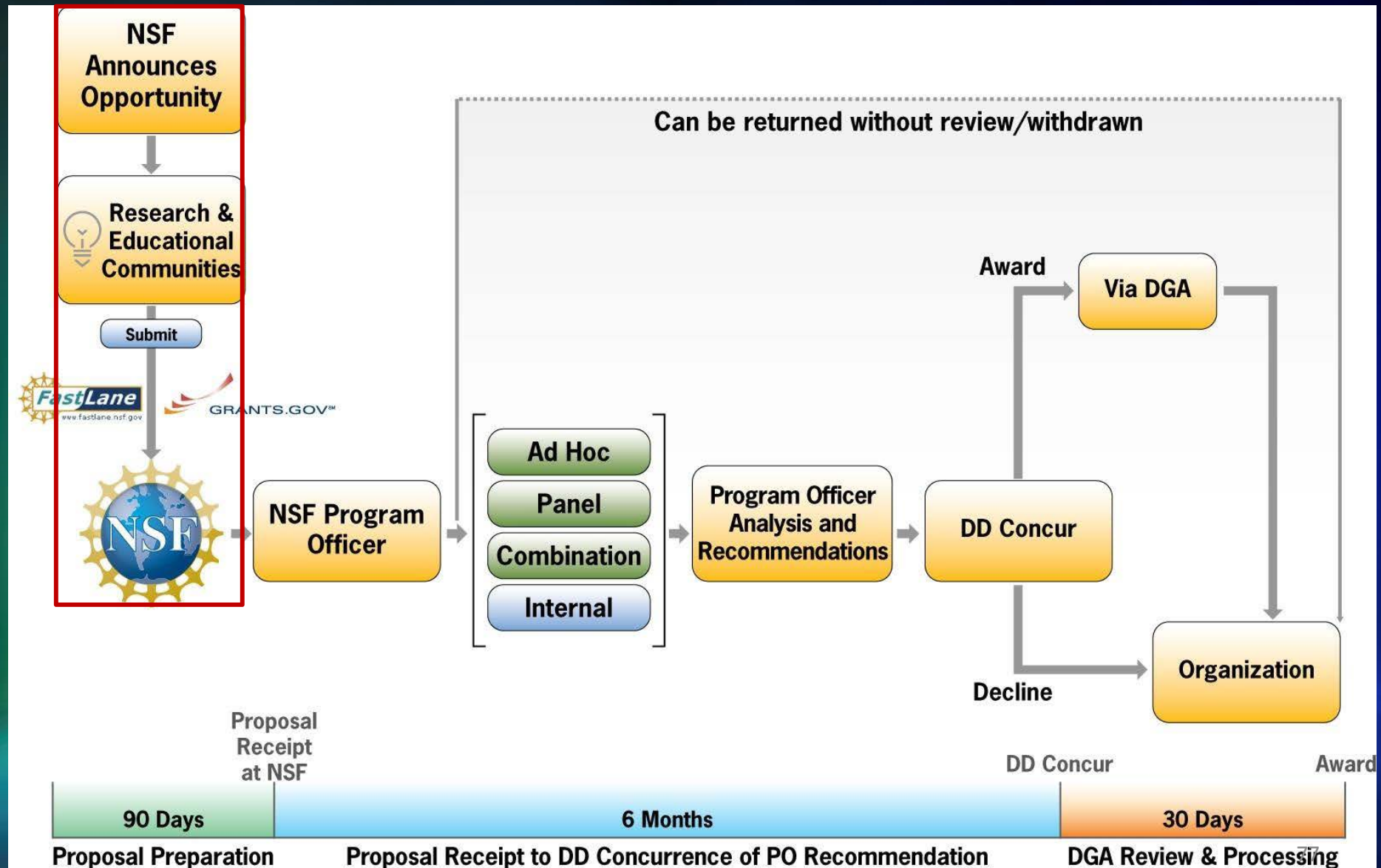


Grant Proposal Guide

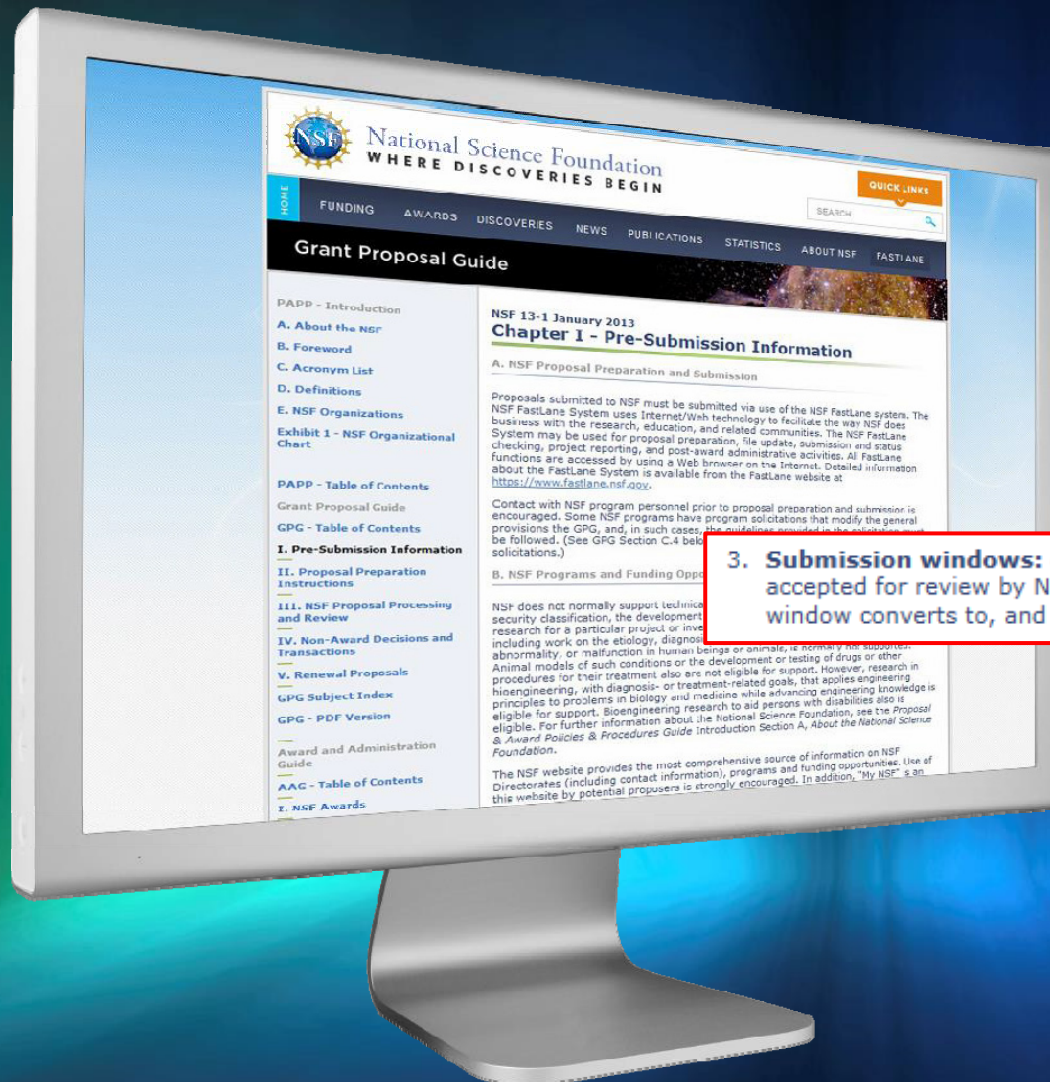
- Provides guidance for preparation and submission of proposals to NSF
- Describes process – and criteria – by which proposals will be reviewed
- Outlines reasons why a proposal may not be accepted or may be returned without review
- Describes process for withdrawals, returns, and declinations
- Describes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



NSF Proposal & Award Process Timeline



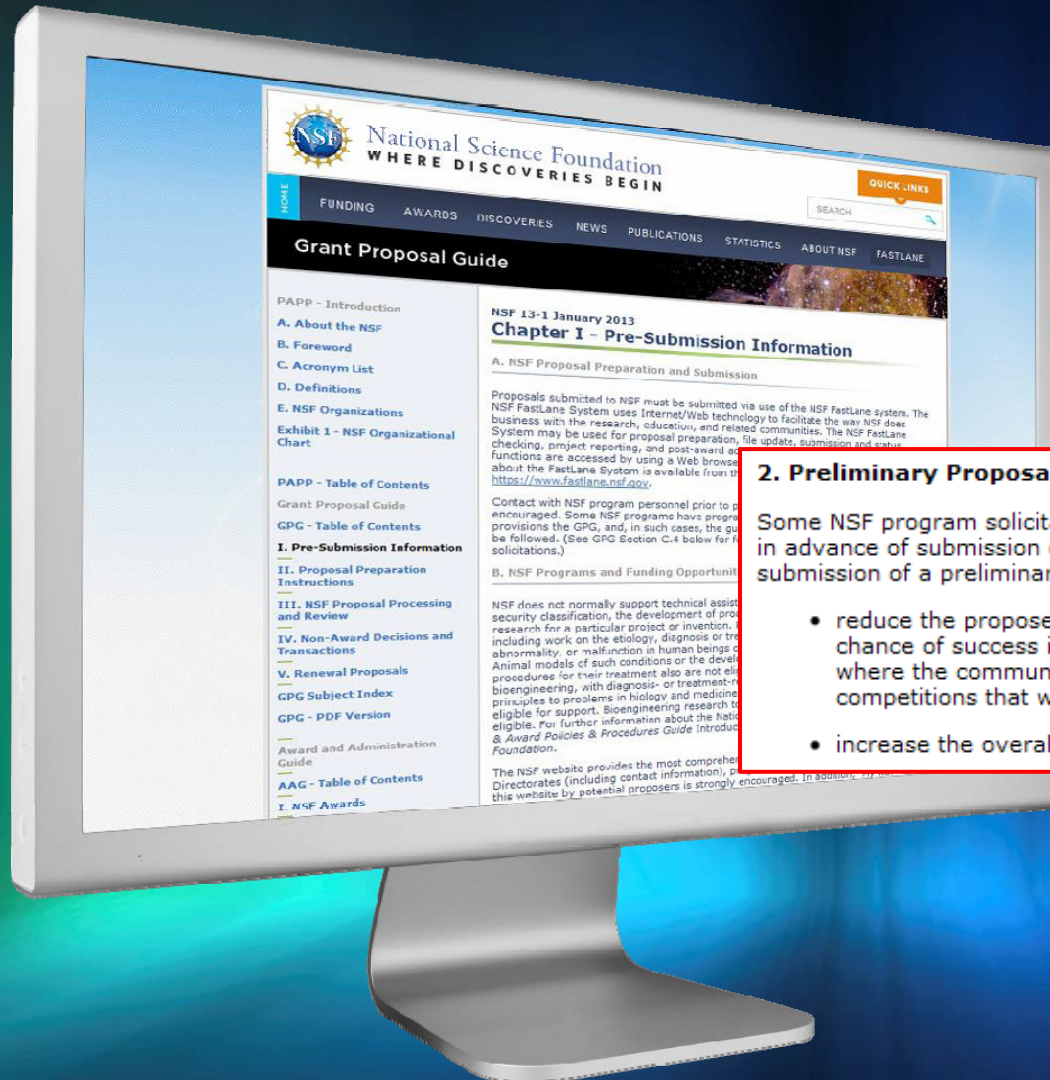
Types of Proposal Submissions



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 to:

- 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.

COVER SHEET FOR PROPOSAL TO THE NATIONAL SCIENCE FOUNDATION					
PROGRAM ANNOUNCEMENT/SOLICITATION NO./CLOSING DATE: If not in response to a program announcement/solicitation enter NSF 14-1					FOR NSF USE ONLY
NSF 14-1					NSF PROPOSAL NUMBER
FOR CONSIDERATION BY NSF ORGANIZATION UNIT(S) (Indicate the most specific unit known, i.e. program, division, etc.)					1509402
PHY - ASTROPHYSICS & COSMOLOGY THEOR					
DATE RECEIVED	NUMBER OF COPIES	DIVISION ASSIGNED	FUND CODE	DUNS# (Data Universal Numbering System)	FILE LOCATION
11/03/2014	1	03010000 PHY	1288	084184116521	11/03/2014 8:29pm
EMPLOYER IDENTIFICATION NUMBER (EIN) OR TAXPAYER IDENTIFICATION NUMBER (TIN)		SHOW PREVIOUS AWARD NO. IF THIS IS <input type="checkbox"/> A RENEWAL <input type="checkbox"/> AN ACCOMPLISHMENT-BASED RENEWAL		IS THIS PROPOSAL BEING SUBMITTED TO ANOTHER FEDERAL AGENCY? YES <input type="checkbox"/> NO <input checked="" type="checkbox"/> IF YES, LIST ACRONYM(S)	
NAME OF ORGANIZATION TO WHICH AWARD SHOULD BE MADE NSF			ADDRESS OF Awardee ORGANIZATION, INCLUDING 9 DIGIT ZIP CODE Arlington, VA 222000000 US		
AWARDEE ORGANIZATION CODE (IF KNOWN) 4102852000					
NAME OF PRIMARY PLACE OF PERF			ADDRESS OF PRIMARY PLACE OF PERF, INCLUDING 9 DIGIT ZIP CODE		
IS AWARDEE ORGANIZATION (Check All That Apply) (See GPG II.C For Definitions)					
<input type="checkbox"/> SMALL BUSINESS		<input type="checkbox"/> MINORITY BUSINESS		<input type="checkbox"/> IF THIS IS A PRELIMINARY PROPOSAL THEN CHECK HERE	
<input type="checkbox"/> FOR-PROFIT ORGANIZATION		<input type="checkbox"/> WOMAN-OWNED BUSINESS			
TITLE OF PROPOSED PROJECT International Conference Cosmical Magnetic Fields					
REQUESTED AMOUNT	PROPOSED DURATION (1-60 MONTHS)	REQUESTED STARTING DATE	SHOW RELATED PRELIMINARY PROPOSAL NO. IF APPLICABLE		
\$ 30,000	0 months				
THIS PROPOSAL INCLUDES ANY OF THE ITEMS LISTED BELOW					
<input type="checkbox"/> BEGINNING INVESTIGATOR (GPG I.G.2)			<input type="checkbox"/> HUMAN SUBJECTS (GPG II.D.7) Human Subjects Assurance Number _____		
<input type="checkbox"/> DISCLOSURE OF LOBBYING ACTIVITIES (GPG II.C.1.e)			Exemption Subsection _____ or IRB App. Date _____		
<input type="checkbox"/> PROPRIETARY & PRIVILEGED INFORMATION (GPG I.D, II.C.1.d)			<input type="checkbox"/> INTERNATIONAL ACTIVITIES: COUNTRY/COUNTRIES INVOLVED (GPG II.C.2.j)		
<input type="checkbox"/> HISTORIC PLACES (GPG II.C.2.j)					
<input type="checkbox"/> VERTEBRATE ANIMALS (GPG II.D.6) IACUC App. Date _____			<input checked="" type="checkbox"/> COLLABORATIVE STATUS		
<input type="checkbox"/> PHS Animal Welfare Assurance Number _____			Not a collaborative proposal		
<input checked="" type="checkbox"/> FUNDING MECHANISM Conference, Symposium, Workshop					
PI/PD DEPARTMENT Physics		PI/PD POSTAL ADDRESS 4201 WILSON BLVD			
PI/PD FAX NUMBER		ARLINGTON, VA 222300000			
		United States			
NAMES (TYPED)	High Degree	Yr of Degree	Telephone Number	Email Address	
PI/PD NAME Terry Demo	DSc	1999	703-292-9000	td@nsf.gov	
CO-PI/PD					
CO-PI/PD					
CO-PI/PD					
CO-PI/PD					

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.j](#) 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

Requirements
may vary by
Directorate or
Office

nsf.gov/bfa/dias/policy/dmp.jsp

The Merit Review Process



Video

http://www.nsf.gov/news/mmg/mmg_disp.jsp?med_id=76467

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**

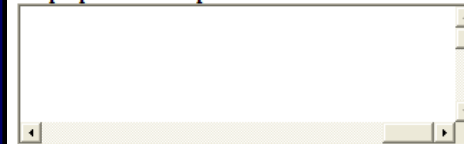
Review Format in FastLane

- Reviewers provide feedback to NSF based on the Review Criteria and the Review Elements
- Review Criteria and Elements are available as reviewers provide feedback

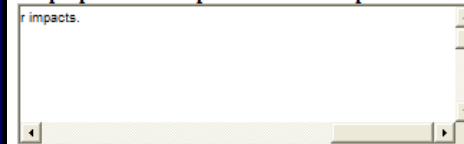
The following elements should be considered in the review for both criteria:

1. What is the potential for the proposed activity to
a. advance knowledge and understanding within its own field or across different fields (Intellectual Merit); and
b. benefit society or advance desired societal outcomes (Broader Impacts)?
2. To what extent do the proposed activities suggest and explore creative, original, or potentially transformative concepts?
3. Is the plan for carrying out the proposed activities well-reasoned, well-organized, and based on a sound rationale? Does the plan incorporate a mechanism to assess success?
4. How well qualified is the individual, team, or institution to conduct the proposed activities?
5. Are there adequate resources available to the PI (either at the home institution or through collaborations) to carry out the proposed activities?

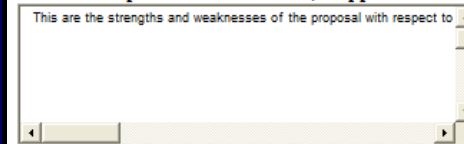
In the context of the five review elements, please evaluate the strengths and weaknesses of the proposal with respect to intellectual merit.



In the context of the five review elements, please evaluate the strengths and weaknesses of the proposal with respect to broader impacts.



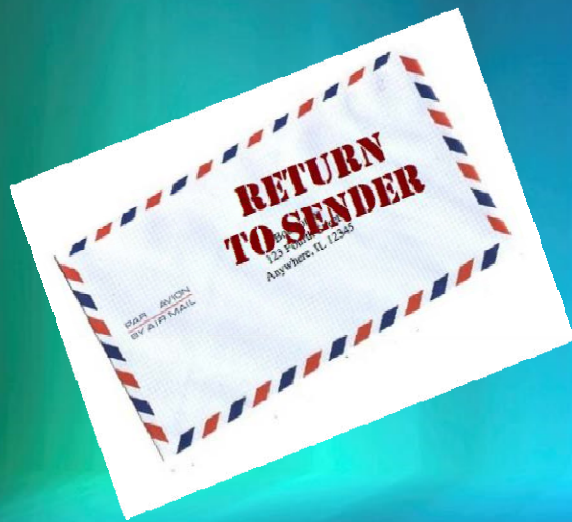
Please evaluate the strengths and weaknesses of the proposal with respect to any additional solicitation-specific review criteria, if applicable.



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



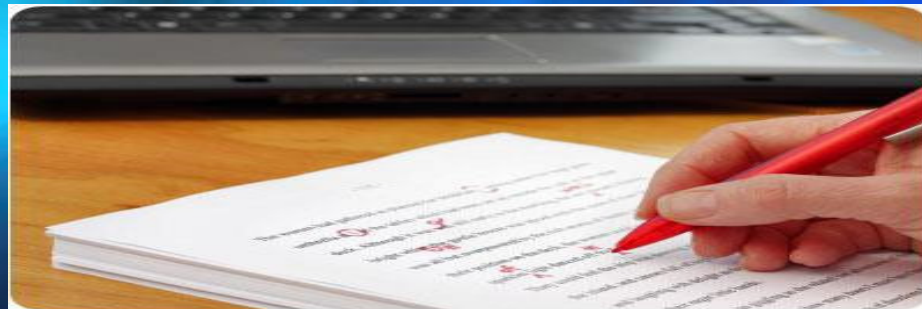
How are Reviewers Selected?

- **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**

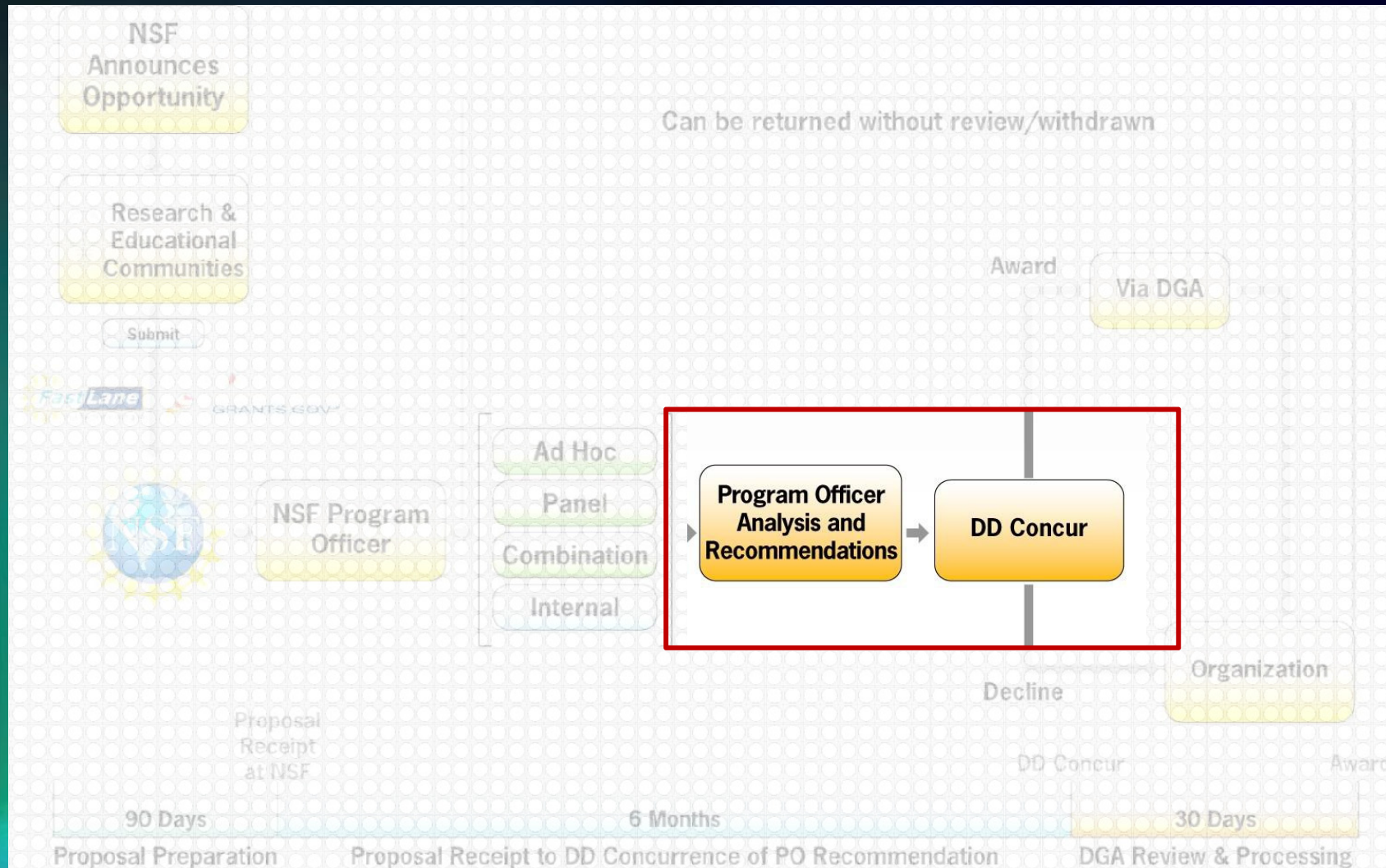


What is the Role of the Review Panel?

- Discuss the merits of the proposal with the other panelists 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.



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?

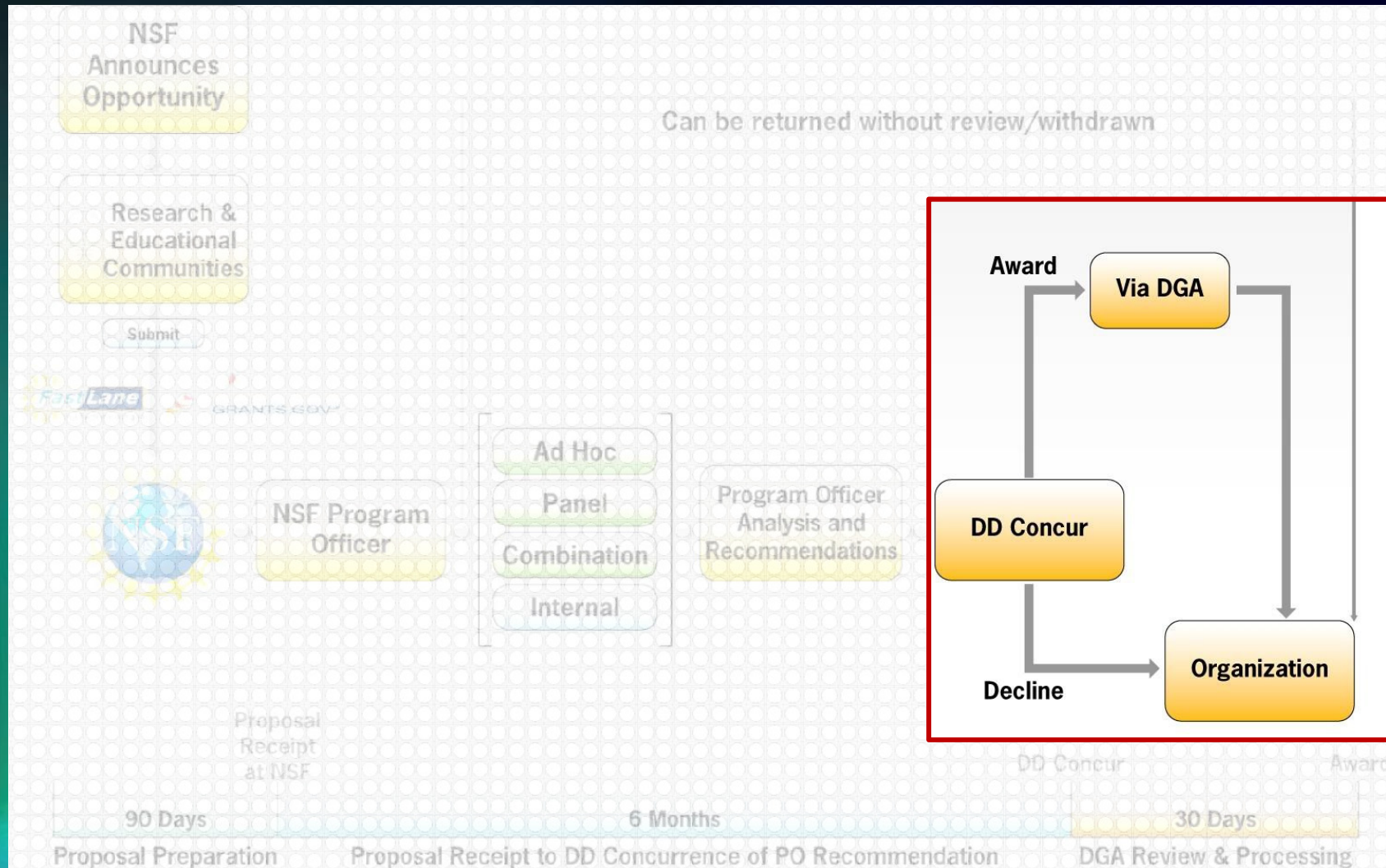
Contact your cognizant Program Officer!

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?

