



National Science Foundation  
WHERE DISCOVERIES BEGIN

# NSF Grants Conference Proposal Preparation

June 23-24, 2014

Hosted by Colorado State University, Denver, Colorado

Colorado  
State  
University



National Science Foundation  
WHERE DISCOVERIES BEGIN

# Panelists

## **Jean Feldman**

Head, Policy Office, Office of Budget, Finance & Award Management,  
Division of Institution & Award Support

## **George Hazelrigg**

Deputy Division Director, Directorate for Engineering, Division of Civil,  
Mechanical & Manufacturing Innovation

## **Sonia Esperança**

Program Director, Directorate for Geosciences, Division of Earth Sciences

## **Nigel Sharp**

Program Director, Directorate for Mathematical & Physical Sciences,  
Division of Astronomical Sciences



# Topics Covered

- **Find Funding Opportunities**
- **Proposal and Award Policies and Procedures Guide**
- **Types of Proposal Submissions**
- **Sections of an NSF Proposal**
- **Postdoctoral Mentoring Plans**
- **Data Management Plans**





# Find Funding Opportunities

The screenshot shows the NSF website interface. A red circle highlights the 'FUNDING' menu, which includes the following links:

- Search Funding Opportunities
- Browse Opportunities A-Z
- Recent Opportunities
- Due Dates
- Preparing Proposals
- Policies & Procedures
- Merit Review
- Interdisciplinary Research
- Transformative Research
- About Funding

The main banner features the title 'Understanding Bacterial Crowdsourcing' with a 'FULL STORY' button. Below the banner, there are three navigation tabs: 'Advancing the Sciences', 'Funding & Supporting', and 'Inspiring & Educating'. A 'HIDE' button is located to the right of these tabs.

Below the navigation tabs, there are three featured articles:

- VIMS Researchers Unravel Life Cycle of Blue-crab Parasite**  
October 4, 2012
- A Mammal Lung, In 3-D**  
October 2, 2012
- URI Scientists: Marine Plants Can Flee to Avoid Predators**  
October 1, 2012

At the bottom, there are two more article titles partially visible:

- Home-based Assessment Tool for Dementia Screening**  
October 2, 2012
- White Shark Diets Vary With Age and**

The page number '4' is visible in the bottom right corner.





# Find Funding Opportunities



Are squiggly lines the future of password security?  
June 2, 2014



New Understanding the Brain website features funding opportunities, research areas  
April 2, 2014

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## NSF Funding & Research Community

### SPECIAL NOTICES

NSF Strategic Plan for FY 2014-2018

New NSF Proposal & Award Policies and Procedures Guide Issued, Effective for Proposals Submitted or Due On or After February 24, 2014

NSF Information Related to the American Recovery and Reinvestment Act of 2009

### EVENT CALENDAR

17  
JUN

NSF ADVANCE Program New Solicitation Webinars  
WEBCAST

19  
JUN

CDL - The Future of Computing - Mediated Research and Innovation  
WEBCAST

19

The Future of Computing - Mediated Research and Innovation

#### FUNDING OPPORTUNITIES

Search Funding Opportunities

Enter search term

Search by Program Area

Select One

[VIEW ALL FUNDING OPPORTUNITIES](#)

[Proposal and Award Policies and Procedures Guide](#)

[Prepare a Proposal](#)

[Upcoming Due Dates](#)

[Submit Proposal to FastLane](#)



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# NSF Website Organization

The screenshot displays the NSF website's main navigation and content areas. The header includes the NSF logo and the text 'National Science Foundation' with a 'QUICK LINKS' button. The main content is organized into six columns: Research Areas, Funding & Awards, Contact Us, Learning Resources, News & Discoveries, and a large image of the NSF building. The 'Funding & Awards' section is highlighted with a red circle around the 'Search Awards' link.

**Research Areas**

- Biological Sciences
- Computer & Information Science & Engineering
- Cyberinfrastructure
- Education and Human Resources
- Engineering
- Environmental Research & Education
- Geosciences
- Integrative Activities
- International Science & Engineering
- Mathematical & Physical Sciences
- Polar Programs
- Social, Behavioral & Economic Sciences

**Funding & Awards**

**FUNDING INFO**

- Search Funding Opportunities
- Browse Funding Opportunities A-Z
- Recent Funding Opportunities
- How to Prepare a Funding Proposal
- Grant Proposal Guide
- Submit a Proposal to FastLane

**AWARD INFO**

- Managing Awards
- Award & Administration Guide
- Search Awards**
- Award Statistics (Budget Internet Info System)

**Contact Us**

- Staff Directory
- Organization List
- Visit NSF
- Work at NSF
- Do Business with NSF
- Press
- Inspector General Hotline
- How Do I ... ?

**The National Science Foundation**  
4201 Wilson Boulevard, Arlington,  
Virginia 22230, USA

Tel: (703) 292-5111  
FIRS: (800) 877-8339  
TDD: (800) 281-8749

**Learning Resources**

- Film, TV, Exhibits & More!
- Slideshows & Photo Galleries
- Classroom Resources
- Funding for Research on Learning in Formal & Informal Settings


**News & Discoveries**

- Recent News
- Recent Discoveries
- Multimedia Gallery
- Special Reports



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# NSF Award Search



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QUICK LINKS

SEARCH

HOME

FUNDING

AWARDS

DISCOVERIES

NEWS

PUBLICATIONS

STATISTICS

ABOUT NSF

FASTLANE

Simple Search

Advanced Search


Popular Searches

Download Awards


Send Comments

Award Search Help

## Awards Simple Search

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

Search award for:

Search 

Use double quotes for exact search. For example "water vapor".

☒ Active Awards

☐ Expired Awards

FUNDING

AWARDS

DISCOVERIES

NEWS


PUBLICATIONS

STATISTICS

ABOUT NSF

FASTLANE

[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](#) | [Webmas](#)







# Other Ways to Find Funding

Use Grants.gov's  
search feature

The screenshot shows the Grants.gov homepage. At the top, there's a navigation bar with links like CONTACT US, MANAGE SUBSCRIPTIONS, REGISTER, and LOGIN. Below this is a search bar with the text "SEARCH: Grant Opportunities" and a "GO" button. The main content area is divided into several sections. On the left, there's a "Find Grants" section with a red circle around the "Search Grant Opportunities" button. To the right of this is a "Find Open Grant Opportunities" section with tabs for "NEWEST OPPORTUNITIES", "BROWSE CATEGORIES", "BROWSE AGENCIES", and "BROWSE ELIGIBILITIES". Below these tabs is a table of funding opportunities. On the far right, there's a "Grants.gov Updates" section with a yellow alert box about a scheduled maintenance outage on June 21-23, 2014, and a "Did You Know?" section with two informational boxes.

**Find Grants**  
SEARCH Grants.gov for your federal grants by keywords or more specific criteria. All discretionary grants offered by the 26 federal grant-making agencies can be found on Grants.gov. You do not have to register with Grants.gov to find grant opportunities.

**Search Grant Opportunities »**

**Find Open Grant Opportunities**

NEWEST OPPORTUNITIES | BROWSE CATEGORIES | BROWSE AGENCIES | BROWSE ELIGIBILITIES

Funding Opportunity Number	Opportunity Title	Agency
RFA-263-14-000001	Local Scholarship Program	Egypt USAID-Cairo
NNH14ZDA001N-RST	ROSES 2014: Remote Sensing Theory for Earth Science	NASA Headquarters
CDC-RFA-DP14-1419PPHF14	PPHF 2014: Racial and Ethnic Approaches to Community Health (REACH) - financed in part by Prevention and Public Health Funding	Chronic Disease Prevention and Health Promotion
HHS-2014-ACL-CDAP-SO-0089	State Health Insurance Assistance Program Performance Improvement and Innovation Grant	Administration for Community Living
DARPA-BAA-14-46	DSO Office-Wide	DARPA - Defense Sciences

[View More »](#)

**Grants.gov Updates:**

Grants.gov Scheduled Maintenance Outage:  
June 21-23, 2014.

For more information on scheduled maintenance outages and status updates, please visit the following:  
[Grants.gov Calendar »](#)  
[Grants.gov Blog »](#)

**Did You Know?**

Did you know new features were recently added? For a full description of the new enhancements covered in the Applicant Release Notes, [click here »](#)

Did you know that Grants.gov must receive verification of registration from SAM electronically before AORs can submit applications on Grants.gov? Please allow 24-48 hours from the date of the SAM email notification to complete the electronic process. To quickly and easily verify Grants.gov AOR status, [click here »](#)

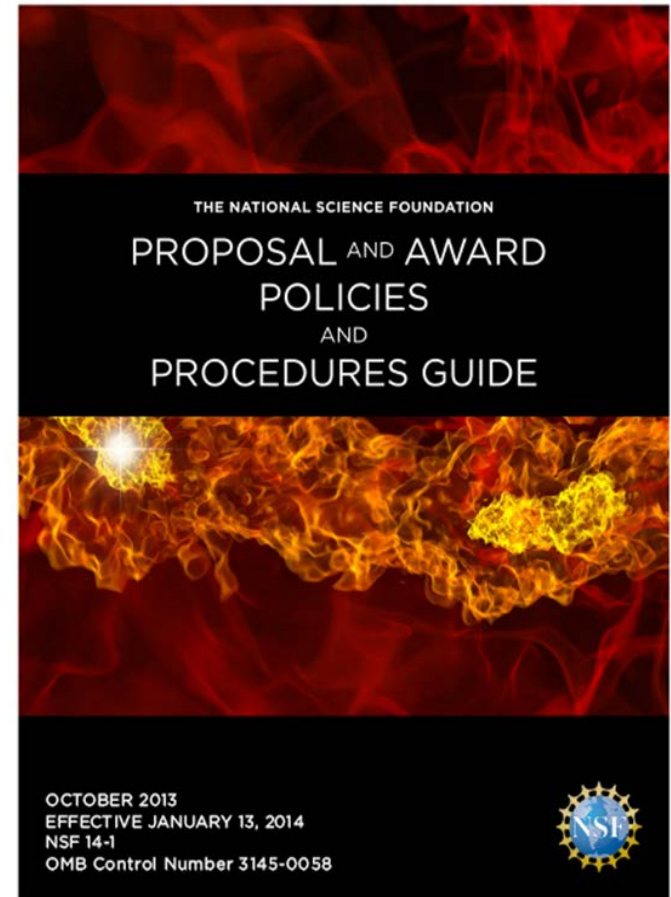




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# What is the Proposal & Award Policies & Procedures Guide?

**The Proposal & Award Policies & Procedures Guide (PAPPG) contains documents relating to NSF's proposal and award process. It has been designed for use by both our customer community and NSF staff and consists of two parts:**

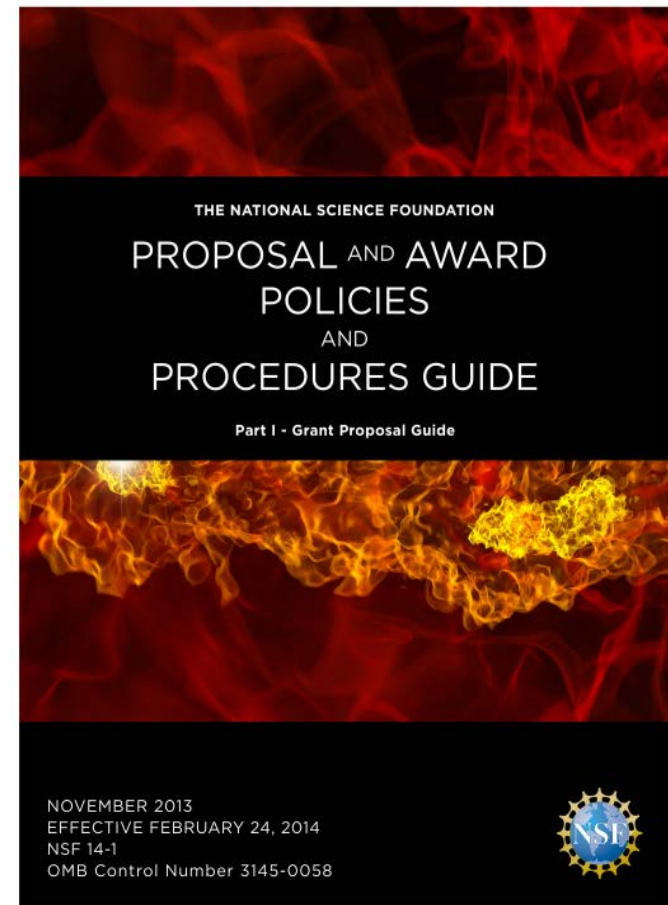




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# What is the Proposal & Award Policies & Procedures Guide?

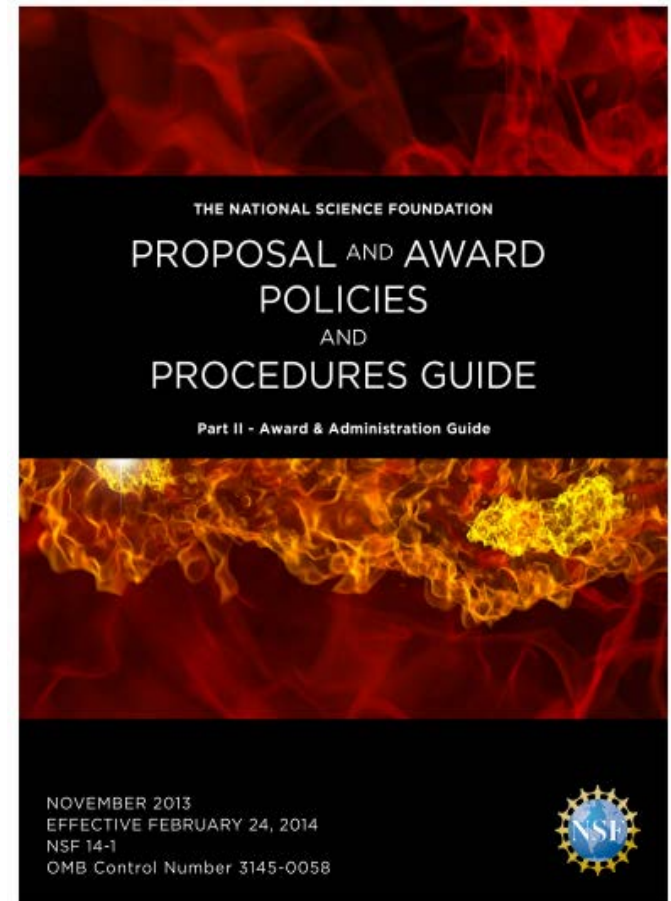
**Part I is NSF's proposal preparation and submission guidelines – the NSF Grant Proposal Guide (GPG) and the NSF Grants.gov Application Guide.**





# What is the Proposal & Award Policies & Procedures Guide?

**Part II is NSF's award and administration guidelines – the documents used to guide, manage, and monitor the award and administration of grants and cooperative agreements made by NSF.**

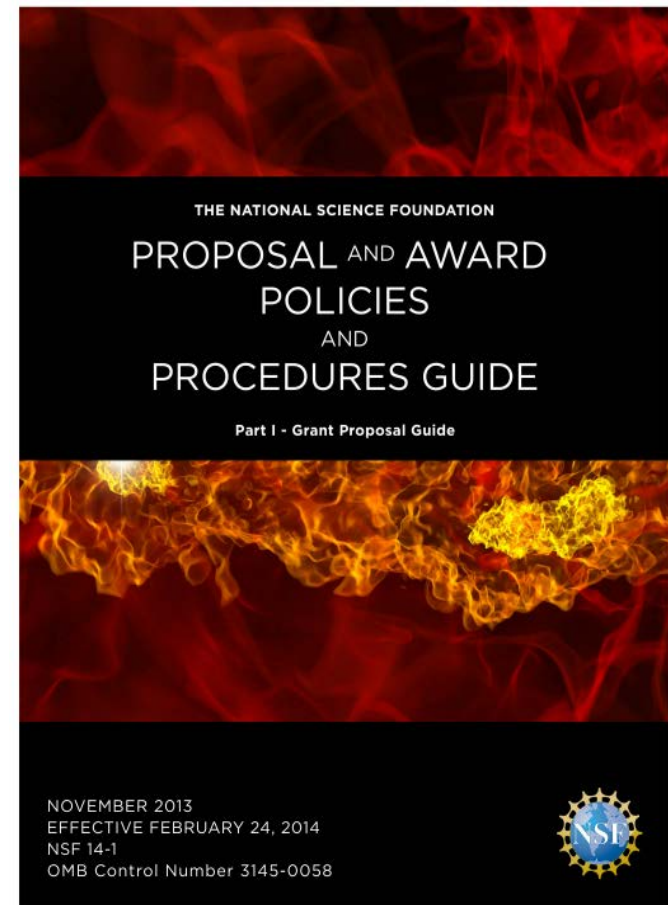






# Grant Proposal Guide

- 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 be returned without review
- Describes process for withdrawals, returns, and declinations





# Types of Funding Opportunities

## Program Descriptions

Proposals for a **Program Description** must follow the instructions in the GPG.

## Program Announcements

Proposals for a **Program Announcement** must follow the instructions in the GPG.

## Program Solicitations

Proposals must follow the instructions in the **Program Solicitation**; the instructions in the GPG apply unless otherwise stated in the solicitation.

## Dear Colleague Letters

**Dear Colleague Letters** are notifications of opportunities or special competitions for supplements to existing NSF awards.



# What to Look for in a Program Announcement or Solicitation

- **Goal of Program**
- **Eligibility**
- **Special proposal preparation and/or award requirements**





# Sample Cover Page of a Solicitation

## Louis Stokes Alliances for Minority Participation (LSAMP)

PROGRAM SOLICITATION  
NSF 12-564



REPLACES DOCUMENT(S):  
NSF 11-543



**National Science Foundation**

Directorate for Education & Human Resources  
Division of Human Resource Development



**Full Proposal Deadline(s)** (due by 5 p.m. proposer's local time):

August 28, 2012

Bridge to the Doctorate

October 05, 2012

First Friday in October, Annually Thereafter

Bridge to the Doctorate

**Program  
Solicitation  
Number**

**NSF  
Directorates  
and Offices  
providing  
funding for this  
opportunity**



# Sample Cover Page of a Solicitation

## Award Information

**Anticipated Type of Award:** Standard Grant or Continuing Grant or Cooperative Agreement

**Estimated Number of Awards:** 60

Up to 60 awards will be made across fiscal 2012 and 2013.

In FY 2012, up to 20 Bridge to the Doctorate (BD) grants will be made.

In FY2013, 20 Alliance grants (this includes 5 B2B), up to 15 Bridge to the Doctorate (BD) grants and up to 5 Broadening Participation Research (BPR) in STEM Education grants.

**Anticipated Funding Amount:** \$20,000,000

\$20,000,000 across fiscal years 2012 and 2013; Subject to the availability of funds.

**Number of  
awards funded  
by the program  
per year**

**Funds available  
to the program  
per year**



# Sample Cover Page of a Solicitation

## Eligibility Information

### Organization Limit:

Proposals may only be submitted by the following:

- Universities and Colleges - Universities and two- and four-year colleges (including community colleges) accredited in, and having a campus located in the US, acting on behalf of their faculty members. Such organizations also are referred to as academic institutions.

### PI Limit:

**Alliance (including the B2B) and BD:** To promote institutional commitments to increase the quality and quantity of under-represented minorities in STEM disciplines, the President or Provost of the lead institution should serve as the Principal Investigator. A full explanation should be provided for a PI designation in variance with this requirement. Co-principal investigators from partner institutions may be designated, as appropriate, for the project.

**Broadening Participation Research in STEM Education:** Eligible PI/co-PI(s) for proposals applying for educational research or evaluation support should be the individual conducting or responsible for the research or evaluation project. Other potential co-Principal Investigators include collaborators on the research project. At least one of the PI's must have experience in educational research.

### Limit on Number of Proposals per Organization:

**Alliances (including B2B) and BD:** 1

**Broadening Participation Research in STEM Education:** No limit.

### Limit on Number of Proposals per PI:

**Alliances (including B2B):** 1

**Bridge to the Doctorate:** 1

**Broadening Participation Research in STEM Education:** No limit

**Eligibility  
information for  
institutions/PIs  
submitting  
proposals**





# Types of Proposal Submissions

**No Deadlines –**  
Proposals may be  
submitted at any time



## F. When to Submit Proposals

Proposers should allow adequate time for NSF review and processing of proposals (see [GPG Chapter I.H](#) for further information). Many NSF programs accept proposals at any time. Other programs, however, establish due dates for submission of proposals. The following types of due dates are utilized by NSF:

1. **Target dates:** dates after which proposals will still be accepted, although they may miss a particular panel or committee meeting.
2. **Deadline dates:** dates after which proposals be returned without review by NSF. The deadline date will be waived only in extenuating circumstances. Such a deviation only may be authorized in accordance with [GPG Chapter II.A](#).



# Types of Proposal Submissions

**Target Dates –**  
Talk to the Program Office if you think you might miss the date



## F. When to Submit Proposals

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# Types of Proposal Submissions

**Deadline Dates –**  
Proposals will not be accepted after this date and time (5 p.m. submitter's local time)



## F. When to Submit Proposals

Proposers should allow adequate time for NSF review and processing of proposals (see [GPG Chapter I.H](#) for further information). Many NSF programs accept proposals at any time. Other programs, however, establish due dates for submission of proposals. The following types of due dates are utilized by NSF:

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# 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

**Letters of Intent –**  
Enables better management  
of reviewers and panelists



## 1. Letter of Intent

Some NSF program solicitations require or request submission of a letter of intent (LOI) in advance of submission of a full proposal. A LOI is not binding. The predominant reason for its use is to help NSF program staff to gauge the size and range of the competition, enabling earlier selection and better management of reviewers and panelists. In addition, the information contained in a LOI is used to help avoid potential conflicts of interest in the review process.

A LOI normally contains the PI's and co-PI's names, a proposed title, a list of possible participating organizations (if applicable), and a synopsis that describes the work in sufficient detail to permit an appropriate selection of reviewers. A LOI is not externally evaluated or used to decide on funding. The requirement to submit a LOI will be identified in the program solicitation, and such letters are submitted electronically via the NSF FastLane System.



# 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.





# Proposals Not Accepted

- **Proposals that do not contain the following required sections will not be accepted by FastLane:**
  - Project Summary
  - Project Description
  - References Cited
  - Biographical Sketch(es)
  - Budget
  - Budget Justification
  - Current and Pending Support
  - Facilities, Equipment and Other Resources
  - Data Management Plan
  - Postdoctoral Mentoring Plan (if applicable)
- **If submission instructions do not require one of the above sections to be provided, proposers must insert text or upload a document in that section of the proposal that states, “Not Applicable.”**



# Before You Begin to Write

- **Get to know yourself** - write a strategic plan for your life
- **A strategic plan is a roadmap**
  - Where are you?
  - Where do you want to go?
  - How can you get there?
- **Base your plan on actions over which you have control**
- **Fit your research into the context of your strategic plan**
- **Learn to say “no” where appropriate**



# Sections of an NSF Proposal

## Cover Sheet (Required)

Many of the boxes on the cover sheet are electronically prefilled as part of the FastLane login process.

### Example from FastLane

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 08-1)				FOR NSF USE ONLY	
NSF 98-164				NSF PROPOSAL NUMBER	
FOR CONSIDERATION BY NSF ORGANIZATION UNIT(S) (Indicate the most specific unit known, i.e. program, division, etc.)				0840812	
CNS - NETWORKING RESEARCH					
DATE RECEIVED	NUMBER OF COPIES	DIVISION ASSIGNED	FUND CODE	DUNS# (Data Universal Numbering System)	FILE LOCATION
08/03/2008	17	05050000 NCR	4097	0748118054568	02/10/2009 10:22am
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 222302000 US			
AWARDEE ORGANIZATION CODE (IF KNOWN) 4102852000					
NAME OF PERFORMING ORGANIZATION, IF DIFFERENT FROM ABOVE		ADDRESS OF PERFORMING ORGANIZATION, IF DIFFERENT, INCLUDING 9 DIGIT ZIP CODE			
PERFORMING ORGANIZATION CODE (IF KNOWN)					
IS Awardee ORGANIZATION (Check All That Apply) (See GPG II.C For Definitions)		<input type="checkbox"/> SMALL BUSINESS <input type="checkbox"/> FOR-PROFIT ORGANIZATION		<input type="checkbox"/> MINORITY BUSINESS <input type="checkbox"/> WOMAN-OWNED BUSINESS <input type="checkbox"/> IF THIS IS A PRELIMINARY PROPOSAL THEN CHECK HERE	
TITLE OF PROPOSED PROJECT Neural Network Research					
REQUESTED AMOUNT \$ 400,000		PROPOSED DURATION (1-60 MONTHS) 0 months		REQUESTED STARTING DATE	
SHOW RELATED PRELIMINARY PROPOSAL NO. IF APPLICABLE					
CHECK APPROPRIATE BOX(ES) IF THIS PROPOSAL INCLUDES ANY OF THE ITEMS LISTED BELOW					
<input type="checkbox"/> BEGINNING INVESTIGATOR (GPG I.G.2)					
<input type="checkbox"/> DISCLOSURE OF LOBBYING ACTIVITIES (GPG II.C)					
<input type="checkbox"/> PROPRIETARY & PRIVILEGED INFORMATION (GPG I.D, II.C.1.d)					
<input type="checkbox"/> HISTORIC PLACES (GPG II.C.2.j)					
<input type="checkbox"/> SMALL GRANT FOR EXPLOR. RESEARCH (SGER) (GPG II.D.1)					
<input type="checkbox"/> VERTEBRATE ANIMALS (GPG II.D.5) IACUC App. Date					
PHS Animal Welfare Assurance Number					
<input type="checkbox"/> HUMAN SUBJECTS (GPG II.D.6) Human Subjects Assurance Number					
Exemption Subsection or IRB App. Date					
<input type="checkbox"/> INTERNATIONAL COOPERATIVE ACTIVITIES: COUNTRY/COUNTRIES INVOLVED (GPG II.C.2.j)					
<input type="checkbox"/> HIGH RESOLUTION GRAPHICS/OTHER GRAPHICS WHERE EXACT COLOR REPRESENTATION IS REQUIRED FOR PROPER INTERPRETATION (GPG I.G.1)					
PI/PD DEPARTMENT Division of Information Systems		PI/PD POSTAL ADDRESS 4201 Wilson Boulevard			
PI/PD FAX NUMBER 703-292-3000		Arlington, VA 222301000 United States			
NAMES (TYPED)	High Degree	Yr of Degree	Telephone Number	Electronic Mail Address	
PI/PD NAME Terry Demo	PhD	2005	703-292-1000	td@nsf.gov	
CO-PI/PD					
CO-PI/PD					
CO-PI/PD					
CO-PI/PD					

Electronic Signature





# Sections of an NSF Proposal

## Project Summary (Required)

Text boxes must contain an Overview and Statements on Intellectual Merit and Broader Impacts.

Proposals that do not separately address the Overview and both merit review criteria in text boxes will not be accepted by FastLane.

Project summaries with special characters must be uploaded as a PDF document.

## *Text from the GPG*

- Beginning Investigator (See [GPG I.G.2](#))
- Disclosure of Lobbying Activities (See [GPG II.C.1.e](#))
- Proprietary or Privileged Information (See [GPG I.D.3](#) & [II.C.1.d](#))
- Historic Places (See [GPG II.C.2.i](#))
- Vertebrate Animals<sup>20</sup> (See [GPG II.D.6](#))
- Human Subjects<sup>21</sup> (See [GPG II.D.7](#))
- International Activities Country Name(s) (See [GPG II.C.2.i](#))

### **b. Project Summary**

Each proposal must contain a summary of the proposed project not more than one page in length. The Project Summary consists of an overview, a statement on the intellectual merit of the proposed activity, and a statement on the broader impacts of the proposed activity.

The overview includes a description of the activity that would result if the proposal were funded and a statement of objectives and methods to be employed. The statement on intellectual merit should describe the potential of the proposed activity to advance knowledge. The statement on broader impacts should describe the potential of the proposed activity to benefit society and contribute to the achievement of specific, desired societal outcomes.

The Project Summary should be written in the third person, informative to other persons working in the same or related fields, and, insofar as possible, understandable to a scientifically or technically literate lay reader. It should not be an abstract of the proposal.

**Proposals that do not contain the Project Summary, including an overview and separate statements on intellectual merit and broader impacts will not be accepted by FastLane or will be returned without review.**

If the Project Summary contains special characters it may be uploaded as a Supplementary Document. Project Summaries submitted as a PDF must be formatted with separate headings for the overview, statement on the intellectual merit of the proposed activity, and statement on the broader impacts of the proposed activity. Failure to include these headings may result in the proposal being returned without review.

Additional instructions for preparation of the Project Summary are available in FastLane.

### **c. Table of Contents**

A Table of Contents is automatically generated for the proposal by FastLane. The proposer cannot edit this form.

### **d. Project Description (including Results from Prior NSF Support)**

#### **(i) Content**

The Project Description should provide a clear statement of the work to be undertaken and must include: objectives for the period of the proposed work and expected significance; relation to longer-term goals of the PI's project; and relation to the present state of knowledge in the field, to work in progress by the PI under other support and to



# Project Summary Template

**Paragraph 1:** “The research objective of this proposal is... The approach will be...” (Focus – do not begin with a State-of-the-Union address)

**Paragraph 2:** Intellectual Merit – describe the contribution to the field of science or engineering. What new or additional research will the proposed work enable?

**Paragraph 3:** Broader Impact – describe the benefit to society or importance to the nation of the proposed work assuming success (this is not an imperative to teach quantum chromodynamics to a fourth grade class)

For CAREER proposals, be sure to include educational objectives and approach

***Do not include irrelevant materials***



# Sections of an NSF Proposal

## Project Description (Required)

Proposers should address what they want to do, why they want to do it, how they plan to do it, how they will know if they succeed, and what benefits could accrue if the project is successful.

A separate section within the narrative must include a discussion of the broader impacts of the proposed activities.

### *Text from the GPG*

#### **d. Project Description (including Results from Prior NSF Support)**

##### **(i) Content**

The Project Description should provide a clear statement of the work to be undertaken and must include: objectives for the period of the proposed work and expected significance; relation to longer-term goals of the PI's project; and relation to the present state of knowledge in the field, to work in progress by the PI under other support and to work in progress elsewhere.

The Project Description should outline the general plan of work, including the broad design of activities to be undertaken, and, where appropriate, provide a clear description of experimental methods and procedures. Proposers should address what they want to do, why they want to do it, how they plan to do it, how they will know if they succeed, and what benefits could accrue if the project is successful. The project activities may be based on previously established and/or innovative methods and approaches, but in either case must be well justified. These issues apply to both the technical aspects of the proposal and the way in which the project may make broader contributions.

The Project Description must contain, as a separate section within the narrative, a discussion of the broader impacts of the proposed activities. Broader impacts may be accomplished through the research itself, through the activities that are directly related to specific research projects, or through activities that are supported by, but are complementary to the project. NSF values the advancement of scientific knowledge and activities that contribute to the achievement of societally relevant outcomes. Such outcomes include, but are not limited to: full participation of women, persons with disabilities, and underrepresented minorities in science, technology, engineering, and mathematics (STEM); improved STEM education and educator development at any level; increased public scientific literacy and public engagement with science and technology; improved well-being of individuals in society; development of a diverse, globally competitive STEM workforce; increased partnerships between academia, industry, and others; improved national security; increased economic competitiveness of the United States; and enhanced infrastructure for research and education.

Plans for data management and sharing of the products of research, including preservation, documentation, and sharing of data, samples, physical collections, curriculum materials and other related research and education products should be described in the Special Information and Supplementary Documentation section of the proposal (see [GPG Chapter II.C.2.i](#) for additional instructions for preparation of this section).

##### **(ii) Page Limitations and Inclusion of Uniform Resource Locators (URLs) within the Project Description**

Brevity will assist reviewers and Foundation staff in dealing effectively with proposals. Therefore, the Project Description (including Results from Prior NSF Support, which is limited to five pages) **may not exceed 15 pages**. Visual materials, including charts, graphs, maps, photographs and other pictorial presentations are included in the 15-page limitation. PIs are cautioned that the Project Description must be self-contained and that URLs that provide information related to the proposal should not be used because 1) the information could circumvent page limitations, 2) the reviewers are under no obligation to view the sites, and 3) the sites could be altered or abolished between the time of





# NSF Funds Research and Education

**For a research proposal:** What is your research objective?

## What is research?

- *Research is the process of finding out something we (everyone) don't already know.*
- NSF funds scientific research:
  - Methodical
  - Repeatable
  - Verifiable
- If your research objective is about an artifact (a device, product, system, process), it's probably development.
- If your research objective is about knowledge, it's probably research.



# Four Ways to Frame a Research Objective

- The research objective of this proposal is to test the hypothesis  $H$ .
- The research objective of this proposal is to measure parameter  $P$  with accuracy  $A$ .
- The research objective of this proposal is to prove conjecture  $C$ .
- The research objective of this proposal is to apply method  $M$  from field  $Q$  to solve problem  $X$  in field  $R$ .



# The Research Plan

- A comprehensive plan to accomplish the stated objective, e.g., a plan to test an hypothesis
  - What are the key variables?
  - Over what range of variables will the hypothesis be tested?
  - How many tests are appropriate?
- Understand what comprises a valid scientific hypothesis—it must be testable and falsifiable
- Ref: Karl Popper





# A Word on Ethics

- Persons submitting proposals to the Federal government are held to high standards of conduct
- Inappropriate conduct: plagiarism, falsification, fabrication, double charging, release of confidential information
- Maximum penalty: \$250,000 fine and 5 years in prison (Grimes)
- Rules apply to annual/final reports
- Many PIs have ruined their careers through unethical conduct, don't be the next one



# Sections of an NSF Proposal

## References Cited (Required)

Reference information is required, and proposers must follow accepted scholarly practices in providing citations for source materials.

### *Text from the GPG*

limitations for the Project Description must request and receive a deviation in advance of proposal submission. ([GPG Chapter II.A](#) contains information on deviations.)

#### **(vi) Proposals for Renewed Support**

A proposal for renewed support may be either a "traditional" proposal in which the proposed work is documented and described as fully as though the proposer were applying for the first time; or, an "Accomplishment-Based Renewal" (ABR) proposal, in which the Project Description is replaced by copies of no more than six reprints of publications resulting from the research supported by NSF during the preceding three to five year period, plus a brief summary of plans for the proposed support period. (See [GPG Chapter V](#) for additional information on preparation of Renewal Proposals.)

#### **e. References Cited**

Reference information is required. Each reference must include the names of all authors (in the same sequence in which they appear in the publication), the article and journal title, book title, volume number, page numbers, and year of publication. If the document is available electronically, the website address also should be identified.<sup>22</sup> Proposers must be especially careful to follow accepted scholarly practices in providing citations for source materials relied upon when preparing any section of the proposal. While there is no established page limitation for the references, this section must include bibliographic citations only and must not be used to provide parenthetical information outside of the 15-page Project Description.

**If there are no references cited, insert text or upload a document in this section of the proposal that states, "Not Applicable."**

#### **f. Biographical Sketch(es)**

##### **(i) Senior Personnel**

A biographical sketch (limited to two pages) is required for each individual identified as senior project personnel. (See [GPG Exhibit II-7](#) for the definitions of Senior Personnel.) The following information must be provided in the order and format specified below. Inclusion of additional information beyond that specified below may result in the proposal being returned without review.

**Do not submit** personal information such as **home** address; **home** telephone, fax, or cell phone numbers; home e-mail address; date of birth; citizenship; drivers' license numbers; marital status; personal hobbies; and the like. Such personal information is irrelevant to the merits of the proposal. If such information is included, NSF will make every effort to prevent unauthorized access to such material, but the Foundation is not responsible or in any way liable for the release of such material. (See also [GPG Chapter III.G](#)).

If biographical sketch(es) are not required, insert text or upload a document in this section of the proposal that states, "Not Applicable." In FastLane, if biographical sketches for all senior personnel are uploaded in a single PDF file associated with the PI, insert text or upload a document that states, "Not Applicable" for all co-PI or Senior Person.

##### **(a) Professional Preparation**



# Sections of an NSF Proposal

## Biographical Sketches (Required)

Biographical sketches are required for all senior project personnel and must not exceed two pages in length, per individual.

### *Text from the GPG*

citations only and must not be used to provide parenthetical information outside of the 15-page Project Description.

**If there are no references cited, insert text or upload a document in this section of the proposal that states, "Not Applicable."**

#### **f. Biographical Sketch(es)**

##### **(i) Senior Personnel**

A biographical sketch (limited to two pages) is required for each individual identified as senior project personnel. (See [GPG Exhibit II-7](#) for the definitions of Senior Personnel.) The following information must be provided in the order and format specified below. Inclusion of additional information beyond that specified below may result in the proposal being returned without review.

**Do not submit** personal information such as **home** address; **home** telephone, fax, or cell phone numbers; home e-mail address; date of birth; citizenship; drivers' license numbers; marital status; personal hobbies; and the like. Such personal information is irrelevant to the merits of the proposal. If such information is included, NSF will make every effort to prevent unauthorized access to such material, but the Foundation is not responsible or in any way liable for the release of such material. (See also [GPG Chapter III.G](#)).

If biographical sketch(es) are not required, insert text or upload a document in this section of the proposal that states, "Not Applicable." In FastLane, if biographical sketches for all senior personnel are uploaded in a single PDF file associated with the PI, insert text or upload a document that states, "Not Applicable" for any co-PI or Senior Person.

##### **(a) Professional Preparation**

A list of the individual's undergraduate and graduate education and postdoctoral training as indicated below:

Undergraduate Institution(s)	Major	Degree & Year
Graduate Institution(s)	Major	Degree & Year
Postdoctoral Institution(s)	Area	Inclusive Dates (years)

##### **(b) Appointments**

A list, in reverse chronological order, of all the individual's academic/professional appointments beginning with the current appointment.

##### **(c) Products**

A list of: (i) up to five products most closely related to the proposed project; and (ii) up to five other significant products, whether or not related to the proposed project. Acceptable





# Sections of an NSF Proposal

## Budget (Required)

Each proposal must contain a budget for each year of support requested. The budget justification should be no more than three pages for all years of the project combined.

### *Example from FastLane*

SUMMARY PROPOSAL BUDGET				YEAR 1		FOR NSF USE ONLY		
ORGANIZATION				PROPOSAL NO.	DURATION (months)			
NSF					Proposed	Granted		
PRINCIPAL INVESTIGATOR / PROJECT DIRECTOR				AWARD NO.				
Terry Demo								
A. SENIOR PERSONNEL: P/PI/D, Co-PI's, Faculty and Other Senior Associates (List each separately with title, A.7. show number in brackets)				CAL	ACAD	SUMR	Funds Requested by proposer	Funds granted by NSF (if different)
1. Terry Demo - none				0.00	0.00	0.00	\$ 400,000	\$
2.								
3.								
4.								
5.								
6. ( 0 ) OTHERS (LIST INDIVIDUALLY ON BUDGET JUSTIFICATION PAGE)				0.00	0.00	0.00	0	
7. ( 1 ) TOTAL SENIOR PERSONNEL (1 - 6)				0.00	0.00	0.00	400,000	
B. OTHER PERSONNEL (SHOW NUMBERS IN BRACKETS)								
1. ( 0 ) POST DOCTORAL SCHOLARS				0.00	0.00	0.00	0	
2. ( 0 ) OTHER PROFESSIONALS (TECHNICIAN, PROGRAMMER, ETC.)				0.00	0.00	0.00	0	
3. ( 0 ) GRADUATE STUDENTS							0	
4. ( 0 ) UNDERGRADUATE STUDENTS							0	
5. ( 0 ) SECRETARIAL - CLERICAL (IF CHARGED DIRECTLY)							0	
6. ( 0 ) OTHER							0	
TOTAL SALARIES AND WAGES (A + B)							400,000	
C. FRINGE BENEFITS (IF CHARGED AS DIRECT COSTS)							0	
TOTAL SALARIES, WAGES AND FRINGE BENEFITS (A + B + C)							400,000	
D. EQUIPMENT (LIST ITEM AND DOLLAR AMOUNT FOR EACH ITEM EXCEEDING \$5,000.)								
TOTAL EQUIPMENT							0	
E. TRAVEL								
1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSESSIONS)							0	
2. FOREIGN							0	
F. PARTICIPANT SUPPORT COSTS								
1. STIPENDS \$ 0								
2. TRAVEL 0								
3. SUBSISTENCE 0								
4. OTHER 0								
TOTAL NUMBER OF PARTICIPANTS ( 0 )				TOTAL PARTICIPANT COSTS			0	
G. OTHER DIRECT COSTS								
1. MATERIALS AND SUPPLIES							0	
2. PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION							0	
3. CONSULTANT SERVICES							0	
4. COMPUTER SERVICES							0	
5. SUBAWARDS							0	
6. OTHER							0	
TOTAL OTHER DIRECT COSTS							0	
H. TOTAL DIRECT COSTS (A THROUGH G)							400,000	
I. INDIRECT COSTS (F&A)(SPECIFY RATE AND BASE) (Rate: , Base: )								
TOTAL INDIRECT COSTS (F&A)							0	
J. TOTAL DIRECT AND INDIRECT COSTS (H + I)							400,000	
K. RESIDUAL FUNDS							0	
L. AMOUNT OF THIS REQUEST (J) OR (J MINUS K)							\$ 400,000	\$
M. COST SHARING PROPOSED LEVEL \$ 0				AGREED LEVEL IF DIFFERENT \$				
PI/PI/D NAME				FOR NSF USE ONLY				
Terry Demo				INDIRECT COST RATE VERIFICATION				
ORG. REP. NAME*				Date Checked	Date Of Rate Sheet	Initials - ORG		
Terry Demo								

1 \*ELECT\* OF SIGNATURES REQUIRED FOR REVISED BUDGET



# Budgetary Guidelines

**Information regarding budgetary guidelines can be found in both the GPG and in the Award & Administration Guide (AAG), as well as NSF program solicitations.**

## **Amounts should be:**

- **Realistic and reasonable**
- **Well-justified and should establish need**
- **Consistent with program guidelines**

## **Eligible costs consist of:**

- **Personnel**
- **Equipment**
- **Travel**
- **Participant support**
- **Other direct costs**  
(e.g., subawards, consultant services, computer services, and publications costs)



# NSF Cost Sharing Policy

- **Inclusion of voluntary *committed* cost sharing is prohibited in solicited & unsolicited proposals.**
  - To be considered voluntary committed cost sharing, the cost sharing must meet all of the standards of [2 CFR § 215.23](#), to include identification of cost sharing on the NSF budget.
  - Line M will be “grayed out” in FastLane.
- **Organizations may, at their own discretion, continue to contribute any amount of voluntary uncommitted cost sharing to NSF-sponsored projects.**





# Sections of an NSF Proposal

## Facilities, Equipment, and Other Resources (Required)

This section of the proposal is used to assess the adequacy of the organizational resources available to perform the effort proposed.

### Facilities, Equipment, and Other Resources

**Instructions:** Upload an aggregated description of the internal and external resources (both physical and personnel) that the organization and its collaborators will provide to the project, should it be funded. Describe only those resources that are directly applicable. The description should be narrative in nature and must not include any quantifiable financial information. If there are no Facilities, Equipment, or Other Resources identified, a statement to that effect should be indicated in this section and uploaded into FastLane. See GPG II.C.2.i for more information.

Upload File



# Sections of an NSF Proposal

## Current and Pending Support (Required)

This section of the proposal calls for information on all current and pending support for ongoing projects and proposals.

*Example from FastLane*

Current and Pending Support (See GPG Section II.C.2.h for guidance on information to include on this form.)				
The following information should be provided for each investigator and other senior personnel. Failure to provide this information may delay consideration of this proposal.				
Investigator:		Other agencies (including NSF) to which this proposal has been/will be submitted:		
Support: <input type="checkbox"/> Current <input type="checkbox"/> Pending <input type="checkbox"/> Submission Planned in Near Future <input type="checkbox"/> *Transfer of Support				
Project/Proposal Title:				
Source of Support:				
Total Award Amount: \$		Total Award Period Covered:		
Location of Project:				
Person-Months Per Year Committed to the Project.		Cal:	Acad:	Sumr:
Support: <input type="checkbox"/> Current <input type="checkbox"/> Pending <input type="checkbox"/> Submission Planned in Near Future <input type="checkbox"/> *Transfer of Support				
Project/Proposal Title:				
Source of Support:				
Total Award Amount: \$		Total Award Period Covered:		
Location of Project:				
Person-Months Per Year Committed to the Project.		Cal:	Acad:	Sumr:
Support: <input type="checkbox"/> Current <input type="checkbox"/> Pending <input type="checkbox"/> Submission Planned in Near Future <input type="checkbox"/> *Transfer of Support				
Project/Proposal Title:				
Source of Support:				
Total Award Amount: \$		Total Award Period Covered:		
Location of Project:				
Person-Months Per Year Committed to the Project.		Cal:	Acad:	Sumr:
Support: <input type="checkbox"/> Current <input type="checkbox"/> Pending <input type="checkbox"/> Submission Planned in Near Future <input type="checkbox"/> *Transfer of Support				
Project/Proposal Title:				
Source of Support:				
Total Award Amount: \$		Total Award Period Covered:		
Location of Project:				
Person-Months Per Year Committed to the Project.		Cal:	Acad:	Sumr:
Support: <input type="checkbox"/> Current <input type="checkbox"/> Pending <input type="checkbox"/> Submission Planned in Near Future <input type="checkbox"/> *Transfer of Support				
Project/Proposal Title:				
Source of Support:				
Total Award Amount: \$		Total Award Period Covered:		
Location of Project:				
Person-Months Per Year Committed to the Project.		Cal:	Acad:	Sumr:

\*If this project has previously been funded by another agency, please list and furnish information for immediately preceding funding period.

Page G-0 USE ADDITIONAL SHEETS AS NECESSARY



# Sections of an NSF Proposal

## Special Information and Supplementary Documentation

This segment should alert NSF officials to unusual circumstances that require special handling; more information can be found in the GPG Chapter II.C.2.j.

### *Text from the GPG*

Although these resources are not considered cost sharing as defined in 2 CFR § 215.23 (OMB Circular A-110), the Foundation does expect that the resources identified in the Facilities, Equipment, and Other Resources section will be provided, or made available, should the proposal be funded. [AAG Chapter II.B.1](#) specifies procedures for use by the awardee when there are postaward changes to objective, scope or methodology.

**If there are no Facilities, Equipment and Other Resources to describe, insert text or upload a document in this section of the proposal that states, "Not Applicable."**

#### **j. Special Information and Supplementary Documentation**

Except as specified below, special information and supplementary documentation must be included as part of the Project Description (or part of the budget justification), if it is relevant to determining the quality of the proposed work. Information submitted in the following areas is not considered part of the 15-page Project Description limitation. This Special Information and Supplementary Documentation section also is not considered an appendix. Specific guidance on the need for additional documentation may be obtained from the organization's sponsored projects office or in the references cited below.

- Postdoctoral Researcher Mentoring Plan. Each proposal<sup>33</sup> that requests funding to support **postdoctoral researchers**<sup>34</sup> must include, as a supplementary document, a description of the mentoring activities that will be provided for such individuals. If a Postdoctoral Researcher Mentoring Plan is required, FastLane will not permit submission of a proposal if the Plan is missing. In no more than one page, the mentoring plan must describe the mentoring that will be provided to all postdoctoral researchers supported by the project, irrespective of whether they reside at the submitting organization, any subawardee organization, or at any organization participating in a simultaneously submitted collaborative project. Proposers are advised that the mentoring plan may not be used to circumvent the 15-page project description limitation. See [GPG Chapter II.D.4](#) for additional information on collaborative proposals. Mentoring activities provided to postdoctoral researchers supported on the project will be evaluated under the Broader Impacts review criterion.

Examples of mentoring activities include, but are not limited to: career counseling; training in preparation of grant proposals, publications and presentations; guidance on ways to improve teaching and mentoring skills; guidance on how to effectively collaborate with researchers from diverse backgrounds and disciplinary areas; and training in responsible professional practices.

- Plans for data management and sharing of the products of research. Proposals must include a supplementary document of no more than two pages labeled "Data Management Plan". This supplement should describe how the proposal will conform to NSF policy on the dissemination and sharing of research results (see [AAG Chapter VI.D.4](#)), and may include:

1. the types of data, samples, physical collections, software, curriculum materials, and other materials to be produced in the course of the project;





# **Special Information and Supplementary Documentation**

- **Letters of Support versus Letters of Commitment**
- **Postdoctoral Mentoring Plans**
- **Data Management Plans**



# Mentoring for Postdoctoral Researchers

- **Proposals that include funding to support postdoctoral researchers must include a description of the mentoring activities that will be provided for such individuals.**
- **Proposed mentoring activities will be evaluated as part of the merit review process, under NSF's Broader Impacts merit review criterion.**



# Mentoring for Postdoctoral Researchers

- **Mentoring activities may include:**
  - Providing career counseling, training in the preparation of grant proposals, or training in responsible professional practices
  - Developing publications and presentations
  - Offering guidance on techniques to improve teaching and mentoring skills
  - Providing counseling on how to effectively collaborate with researchers from diverse backgrounds and disciplinary areas





# Mentoring for Postdoctoral Researchers

- **Proposals that identify a postdoc on the budget but do not include a maximum one-page mentoring plan as a supplementary document will be prevented from submission in FastLane.**
- **For collaborative proposals, the lead organization must submit a mentoring plan for all postdoctoral researchers supported under the entire collaborative project.**



# Data Management Plan Requirements

- **All proposals are required to include, as a supplementary doc, a data management plan of up to two pages.**
- **Plan should describe how the proposal will conform to NSF policy on dissemination and sharing of research results.**
- **A valid Data Management Plan may include only the statement that no detailed plan is needed, as long a clear justification is provided.**
- **Plan will be reviewed as part of the Intellectual Merit and/or Broader Impacts of the proposal.**



# Data Management Plan Requirements

The screenshot shows the NSF website with the following content:

- Header:** NSF logo, "National Science Foundation WHERE DISCOVERIES BEGIN", and a search bar.
- Navigation Bar:** HOME | FUNDING | AWARDS | DISCOVERIES | NEWS | PUBLICATIONS | STATISTICS | ABOUT | FastLane
- Left Sidebar:**
  - Office of Budget, Finance and Award Management (BFA)**
  - DIAS Home**
  - CAAR Branch**
  - Policy Office**
  - Systems Office**
  - View DIAS Staff**
  - Search DIAS Staff**
  - BFA Organization**
    - Office of Budget, Finance, & Award Management
    - Budget Division
    - Division of Acquisition and Cooperative Support
    - Division of Financial Management
    - Division of Grants & Agreements
    - Division of Institution & Award Support
- Main Content Area:**
  - Dissemination and Sharing of Research Results**
  - NSF Data Sharing Policy**

Investigators are expected to share with other researchers, at no more than incremental cost and within a reasonable time, the primary data, samples, physical collections and other supporting materials created or gathered in the course of work under NSF grants. Grantees are expected to encourage and facilitate such sharing. See [Award & Administration Guide \(AAG\) Chapter VI.D.4](#).
  - NSF Data Management Plan Requirements**

Proposals submitted or due on or after January 18, 2011, must include a supplementary document of no more than two pages labeled "Data Management Plan". This supplementary document should describe how the proposal will conform to NSF policy on the dissemination and sharing of research results. See [Grant Proposal Guide \(GPG\) Chapter II.C.2.i](#) for full policy implementation.
  - 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](#)
  - Footer:** [Data Management & Sharing Frequently Asked Questions \(FAQs\)](#) - updated November 30, 2010

<http://www.nsf.gov/bfa/dias/policy/dmp.jsp>



**For More Information**

**Ask Early, Ask Often!**

**[nsf.gov/staff](https://www.nsf.gov/staff)**

**[nsf.gov/staff/orglist.jsp](https://www.nsf.gov/staff/orglist.jsp)**

**[nsf.gov/about/career\\_opps/rotators/index.jsp](https://www.nsf.gov/about/career_opps/rotators/index.jsp)**