



National Science Foundation Support (emphasis on the Social Sciences)

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NSF in a Nutshell

- Independent Agency
- Supports basic research & education
- Uses grant mechanism
- Low overhead; highly automated
- Discipline-based structure
- Cross-disciplinary mechanisms
- Use of Rotators/IPAs
- National Science Board

National Science Foundation Act of 1950

- "to promote the progress of science; [and] to advance the national health, prosperity, and welfare by supporting research and education in all fields of science and engineering."

Organization of NSF

Offices of:

Cyberinfrastructure

Equal Opportunity

General Counsel

Integrative Activities

Internat'l Sci & Eng

Legislative & Public

Polar Programs

**National
Science Board**

**Director &
Deputy Director**

**Office of the
Inspector
General (OIG)**

**Biological
Sciences
(BIO)**

**Computer &
Information Sci.
& Engineering
(CISE)**

**Engineering
(ENG)**

**Geosciences
(GEO)**

**Math &
Physical Sci.
(MPS)**

**Social,
Behavioral,
& Economic
Sciences
(SBE)**

**Education &
Human
Resources
(EHR)**

**Budget,
Finance,
Award Mgmt.
(BFA)**

**Information
& Resource
Mgmt. (IRM)**



Office of the Director

Directorate for Social,
Behavioral & Economic
Sciences

Behavioral & Cognitive
Sciences

Social & Economic
Sciences

National Center for
Science and
Engineering Statistics



Behavioral and Cognitive Sciences Division

...supports research to develop and advance scientific knowledge about humans spanning areas of inquiry including brain and behavior, language and culture, origins and evolution, and geography and the environment.



Social and Economic Sciences Division

...seeks to enhance our understanding of human, social and organizational behavior by building social science infrastructure, by developing social disciplinary and interdisciplinary research projects that advance knowledge in the social and economic sciences.

Behavioral & Cognitive Sciences

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graph TD; Root[Behavioral & Cognitive Sciences] --- L1[Cognitive Neuroscience]; Root --- L2[Developmental & Learning Sciences]; Root --- L3[Perception, Action & Cognition]; Root --- L4[Linguistics]; Root --- L5[Social Psychology]; Root --- R1[Documenting Endangered Languages]; Root --- R2[Archaeology]; Root --- R3[Cultural Anthropology]; Root --- R4[Physical Anthropology]; Root --- R5[Geography & Regional Science];
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Cognitive Neuroscience

Developmental &
Learning Sciences

Perception, Action &
Cognition

Linguistics

Social Psychology

Documenting
Endangered Languages

Archaeology

Cultural Anthropology

Physical Anthropology

Geography & Regional
Science

Social and Economic Sciences

Decision, Risk, &
Management Science

Economics

Innovation and
Organizational
Change

Law and Social
Sciences

Methodology,
Measurement &
Statistics

Political Science

Sociology

First task:

Identify what you want to apply to –
Which program do you want to
consider your proposal?

What NSF Supports

NSF supports basic research across all fields of science, including:

- Behavioral and Cognitive Sciences
- Social and Economic Sciences
- Geographic and Anthropological Sciences
- Chemical sciences
- Computer and information science
- Engineering
- Geosciences
- Biological sciences
- Mathematical sciences
- Physics and astronomy

NSF does not support applied research, such as:

- Clinical research
- Counseling
- Business
- Management
- Social work
- Planning
- Legal training
- Practice-oriented professional degree programs

Let's Try to Describe Basic Research...

- Basic scientific research is grounded in a broader theoretical framework.
 - It focuses on one or a few questions grounded in that broader framework.
 - It uses scientifically sound approaches to assess the viability of answers to those questions.
 - Its focused results also contribute to enhancement of broader theoretical knowledge.
- 

Basic "vs." Applied Research

- It's not "either/or."
- Basic research results often have direct and indirect utility and applicability.
- At its core, basic research is first and foremost about broader theoretical development, not the focused application of specific research results.
- Analysis and synthesis are favored over prescription.

Relationships between Programs and Directorates

- There are many opportunities for “co-review” between different programs
- Directorates will sometimes invest in interdisciplinary programs that cater to researchers outside their directorates

The Co-Review Process

- One proposal to multiple programs
- Will go to more than one review panel
- Both fund, neither fund, one funds
- Reviews from multiple perspectives (= better science)

Social Sciences Interdisciplinary Initiatives

Research in or relevant to the Arctic?

- ✓ Arctic Social Sciences Program (ASSP)

Research on science education & curricula?

- ✓ Education & Human Resources Directorate (EHR) –

esp. REESE & Informal Science Education (ISE)

Research on disasters?

- ✓ Infrastructure Management & Extreme Events (IMEE)

SEES: NSF-wide “investment area”

Science, Engineering, and Education for
Sustainability (~12 programs so far)

Example: “Hazards SEES”:
(Interdisciplinary Research in
Hazards & Disasters)



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My Computer

or ask your program off

Second task:

Be sure that program supports what
you want to do

Workshop?

Dissertation research?

A quick trip to a disaster site?

A basic research project?

Support for student research?

Paths to NSF Support

- Standing Program Proposals
- CAREER Proposals
- Student Support (DDRIGs, REUs)
- EAGERs
- RAPIDs

Paths to NSF Support, continued

- Mechanisms to find out:
 - Dear Colleague Letters (DCLs)
 - Special Solicitations (e.g. new IBSS solicitation)
 - Sign up for email alerts

Standing programs

- Review the disciplinary and interdisciplinary programs website
- Check for dates and special rules and criteria
- Some have regular ('senior') and DDRIG competitions, some do not
- Co-review is always a possibility



Paths to SBE Support

Standing Program Senior Research

Division for Social & Economic Sciences

FY10 Program Recommendations (millions of dollars)

we are under a continuing resolution

- Decision, Risk, & Management Sciences \$7.2
- Economics \$25.8
- Innovation and Organizational Sciences \$3.3
- Law and Social Science \$5.0
- Methodology, Measurement & Statistics \$3.9
- Political Science \$9.9
- Science, Technology and Society \$9.0
- Sociology \$9.5



Paths to SBE Support

Standing Program Senior Research

Division for Behavioral & Cognitive Sciences

FY10 Program Recommendations (millions of dollars)

we are under a continuing resolution

- Archaeology & Archaeometry \$6.9
- Cultural Anthropology \$3.7
- Cognitive Neuroscience \$7.6
- Developmental & Learning Sciences \$6.6
- Geography & Spatial Sciences \$7.0
- Linguistics \$5.9
- Documenting Endangered Languages \$2.1
- Perception, Action, & Cognition \$7.0
- Physical Anthropology \$4.1
- Social Psychology \$6.4



Paths to SBE Support

Standing Program Senior Research

Division Funding Rates (FY10)

Behavioral & Cognitive Sciences

Competitive Proposal Actions	Competitive Awards	Funding Rate
2,847	580	20%

Social & Economic Sciences

Competitive Proposal Actions	Competitive Awards	Funding Rate
2,501	556	22%

CAREER Proposals

CAREER Solicitation (NSF 11-690)

- Available in all NSF programs
- Untenured faculty (or comparable)
- Single scholar award
- \$400,000, 5-years minimum award
- Three CAREER proposals lifetime limit
- Mid to late July deadline (varies by discipline and year)
- High Prestige/High Expectations
- Presidential Early Career Awards for Scientists and Engineers (PECASE)

Funding for Student Research

- Doctoral Dissertation Improvement Grants (DDRIGs)
 - Some programs only (next slide)
- Research Experiences for Undergraduates (REU)
 - Available in all programs
 - Two types of awards
 - REU Supplements: Awards added onto senior awards to sponsor undergraduate student research
 - REU Sites: training programs, often in the summer months, for teaching research methods to undergrads
- Research Experiences for Teachers (RET)
 - Gives K – 12 teachers experience in research in coordination with REU projects



Paths to SBE Support

Student Support

Doctoral Dissertation Improvement Grants

- Available in some SBE programs
- Small grants to support (and extend) dissertation research

BCS

- Archaeology
- Cultural Anthropology
- Geography & Spatial Sciences
- Linguistics
- Physical Anthropology

SES

- Law and Social Science
- Decision, Risk, & Management Science
- Economics
- Law and Social Science
- Political Science
- Science, Technology & Society
- Sociology

SMA

- Science of Science & Innovation Policy

Early-concept Grants for Exploratory Research (EAGER)

- Exploratory work on untested, potentially transformative ideas
- High-risk, high-potential payoff
- \$300,000 maximum; 2 years
- Eight page description
- Internal review required; external optional
- Contact program officer first
- “Your eagerness to get NSF funding is not a good reason to request an EAGER award.”
- “Many programs prefer you to submit proposals that undergo merit evaluation by peers before you argue that your ideas are so innovative and unorthodox that they can’t be evaluated fairly through normal evaluation processes.”

Rapid Response Research (RAPID)

- Research when data are ephemeral
- \$200,000 maximum; 1 year
- 5 page project description
- Internal review required; external optional
- Available in all programs
- Contact program officer first
- “Wanting the money rapidly is not a good reason to request a RAPID award.”
- For proposals wishing to capture and analyze ephemeral data, urgency with regard to availability of, or access to data, facilities or specialized equipment, including quick-response research on natural or anthropogenic disasters and similar unanticipated events

Other Paths to Support

- Other directorates
 - E.g. EHR, ENG
 - Social scientists are needed on most interdisciplinary efforts at NSF
- Office of International Science and Engineering (OISE)
- Special solicitations, for example:
 - Coupled Natural and Human Systems (CNH)
 - Ecology of Infectious Disease (EID)
 - Collaborative Research in Computational Neuroscience (CRCNS)
 - Cyber-Enabled Discovery and Innovation (CDI)
 - Integrative Paleoanthropology Grants (IPG)

RUI (Research in Undergraduate Institutions)

- Facilitates research at institutions that are primarily focused on undergraduate instruction
 - Objective is to strengthen research environment in academic departments oriented to undergraduate instruction
 - Projects should promote integration of research and education
- 

RUI (Continued)

- Proposals contain RUI Impact Statement explaining how project will influence the research and educational environment at the institution.
- Can also support shared instrumentation and equipment requests (check to see if your direct has program to support multi-user instrumentation request).

Third task:

How do you apply?



NSF is different



- Your Research Office registers you in FastLane.
- You get access to the proposal modules.
- You write up the proposal sections.
- Give your research office access.
- Your institution reviews, signs, & submits it.
- NSF reviews the proposal.
- Awards are made to the institution for your research.

What is an NSF proposal?

- Cover page Form
- Project Summary (3 boxes, 1 page)
- Project Description (10 or 15 pages)
- References Cited (no limit)
- Biographical Sketches (2 pages each)
- Budget Form
- Budget Justification (3 pages)
- Facilities Form
- Current & Pending Support Form
- Data Management Plan

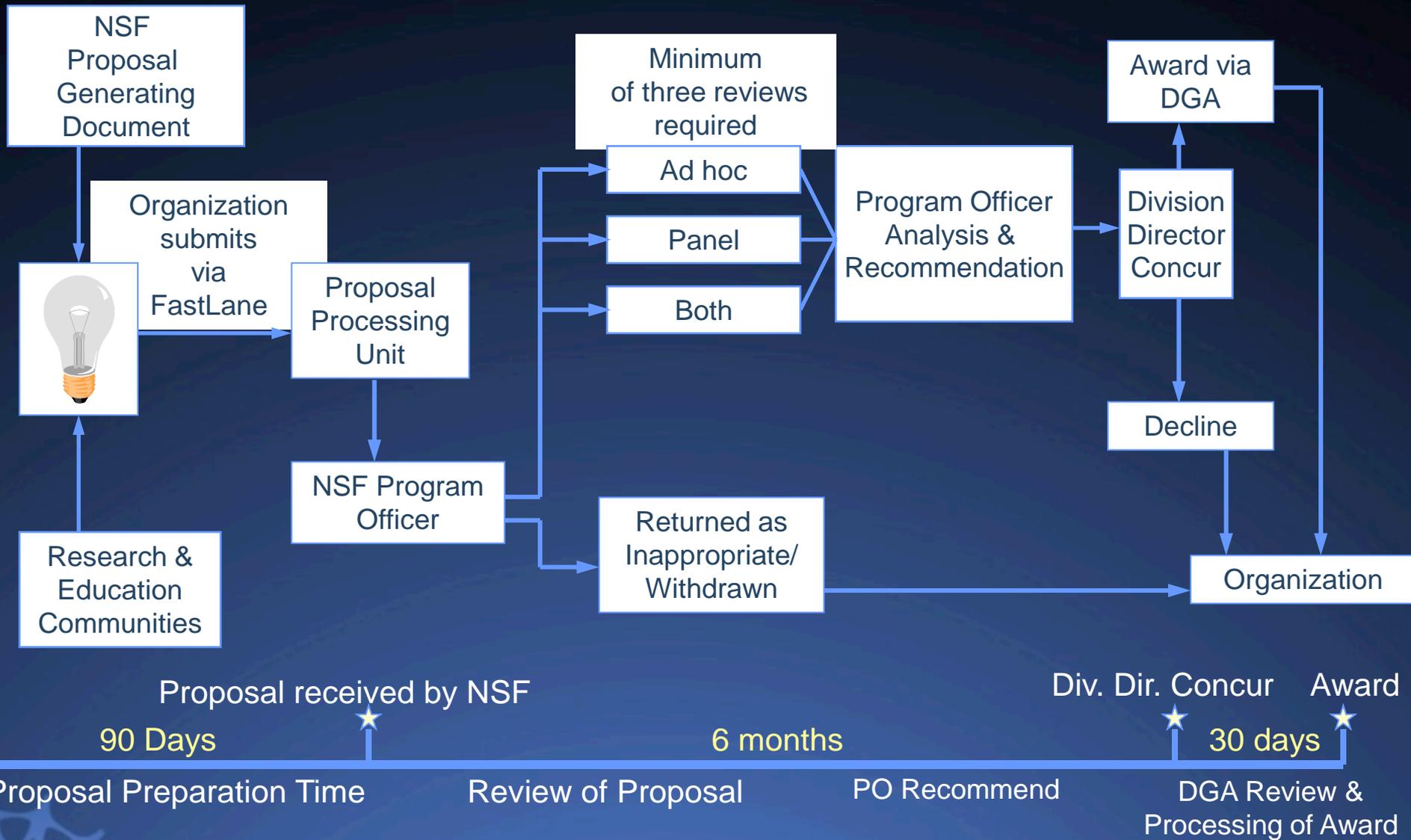
Grant Proposal Guide (GPG)

- Provides guidance for preparation and submission of proposals to NSF
- Describes process -- and criteria -- by which proposals will be reviewed

Also Consult Program Pages!

- How many pages does that program allow?
- How much money can you ask for?
- Do you need a department letter?
- When can you submit?
- Is it the right program? (Ask Program Officer)

Proposal Process & Timeline



Fourth task:

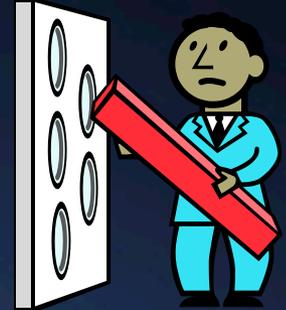
Write a competitive proposal



Program Announcements/ Program Solicitations

Read Carefully

- Program Goal(s)
- Eligibility Requirements
- Special Requirements
- Deadline/Target Date
- Cognizant Program Director
- Search previous award abstracts





Before Contacting your PO

Do your homework.

- Have a fairly clear notion of your research question, how you will propose to answer it, *and be able to describe it clearly and succinctly!*
- Know what has been done previously on the topic



Contacting your PO

Introduce yourself.

- What's your training, your expertise?
- What level of appointment do you have? Where?

Summarize your proposed research.

- What is your research question?
- How you will try to answer it?
- Why would anyone care about this question?
- Ask specific questions about program fit!!

Proposal Development

- What do you intend to do?
 - Testable and falsifiable hypotheses
 - Are the experiments proposed tied to the theory?
- Why is the work important?
 - Theoretical/scientific implications
 - Broader impact to education, society, public dissemination, data-sharing etc.
- What has already been done?
 - Targeted literature review
- How are you going to do the work?
 - Do the experiments related to the theoretical questions?
 - Are the facilities sufficient to do the work?
 - Is the level of effort/budget appropriate for the work proposed?
- Will the results tell us something important?



Official review criteria

“Merit Review Principles & Criteria”

Principles

- Support research of highest quality that will
- Advance, if not transform, the frontiers of knowledge
- Contribute to advancing societal goals
- Outcomes of projects should be assessed (not
Necessarily at level of individual project)

NSF has two review criteria: Both criteria matter!

I. Intellectual Merit:

- Importance
- Qualifications
- Creativity and originality
- Transformational
- Conception and organization
- Access to resources

II. Broader Impacts:

- Training
- Diversity
- Infrastructure
- Dissemination/
Public Awareness
- Societal Benefits

What Makes a Proposal Competitive?



- Original ideas
- Sound scientific rationale/theoretical basis
 - Critical approach
 - Likely high impact
- Succinct, focused project plan
- Experience in essential methodology
 - PILOT DATA ***
- Clarity concerning future direction
- Knowledge of subject area / relevant lit review
 - Realistic timeline



Common Criticisms

- No compelling rationale (no theoretical framework)
- No preliminary data (proof of concept)
 - Projects don't relate to the theory
- Results could have alternative explanations
 - Overly ambitious
 - Insufficient detail
- If the projects “work,” what will we really have learned?



Don't forget:

- Talk to your sponsored research office EARLY
(they submit parts or all of the grant proposal)
- IRB or IACUC approval not needed at the time of submission.
- Up-to-date approval **MUST BE IN PLACE** before any funds are awarded.

Budget Tips

- **Amounts**
 - Reasonable for work -- realistic
 - Well-justified
 - In-line with program guidelines
- **DDRIG limitations**
 - Extraordinary costs of research
 - Not everyday costs (not a fellowship)
 - Equipment
 - Travel (including living expenses)
- **Good to apply to multiple sources:** co-review @ NSF, & other agencies

More Tips

- Learn how proposals will be evaluated; think like those who will review and make decisions
- Volunteer to review proposals
- Provide suggested reviewers ('single copy documents')
- Monitor the progress of your proposal through NSF Fastlane – do not contact your Program Director

Data Management Plan

2 page, supplementary document

What kinds of data, software, and other materials will your research produce?

How will you manage it? (eg., metadata standards, standards for format, content, etc.)

How will you give others access to your data, preserving confidentiality, security, intellectual property, & other rights/requirements?

How will you archive data and preserve access?

Not “one size fits all”!



If You Have Been Declined ...

- ▶ You are in the majority.
 - Never enough money to fund all the good proposals.
 - The preparation, application, revision, and resubmission experience is a chance to learn.



If You Have Been Declined ... How to Gain from the Experience

You are given all Reviews and a Summary of the Panel Discussion. **ASK yourself and others:**

- Do the reviews give guidance for shaping the research in future proposals?
- Did the reviewers misunderstand your intentions?
- Was the proposal submitted to the wrong NSF program?
- The panel discussion is as important as single reviews.
- Your PO or faculty mentors can help you interpret the reviews.

Need help?

- Program officers (see web site)
- Your faculty & colleagues
- Your sponsored research office

Law and Social Sciences

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