Introduction to NSF Funding

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Objectives

• Provide an overview of the agency, its different funding mechanisms and types of awards.

• Guide how to find specific funding opportunities and determine which program to submit a proposal to.

• Review NSF Proposal Components & New Guidelines/Requirements for IRB, DMPs and Collaborators & Affiliations

• Explain NSF merit review criteria and how and when to communicate with program officers.

• Provide hands-on practice searching
Agency Mission

- To promote the progress of science;
- To advance the national health, prosperity, and welfare;
- To secure the national defense.

(NSF Act of 1950)

A nation that creates and exploits new concepts in science and engineering and provides global leadership in research and education.
NSF funds *Basic Science Research.*

1. Research questions grounded in a broad theoretical framework.
2. Scientifically sound methods
3. Results contribute to enhancement of broader theoretical knowledge.

NSF does not fund Clinical Research.
NSF does not fund Applied Research.
NSF DOES fund research using Qualitative Methods
An independent agency of the Executive Branch of the U.S. Government

President

Office of Management and Budget

Science Advisor: Office of Science and Technology Policy

Other Boards, Councils

Independent Agencies

NSF

NASA

EPA

Smithsonian Inst

Nuclear Reg Comm

Others
Directorates => Divisions => Programs, Sections or Clusters

Social, Behavioral and Economic Sciences

Behavioral and Cognitive Sciences
- Human-Environment and Geographic Science
- Anthropology Programs (3)
- Psychology (4) and Linguistics Programs (2)

Social and Economic Sciences
- Economics
- Decision, Risk, and Management Sciences
- Methodology, Measurement, and Statistics
- Sociology
- Accountable Institutions & Behavior/Security Preparedness
- Law & Science
- Science and Technology Studies

National Center for Science and Engineering Statistics

SBE Multidisciplinary Activities

=> Consult cognizant Program Officers for program specific information and READ Program Solicitations carefully!
Agency Organization & Function

- Core Programs - Disciplinary-based

- Cross-Directorate (interdisciplinary) Programs, e.g.:
  - Dynamics of Integrated Socio-Environmental Systems (CNH2)
  - Innovations at the Nexus of Food-Energy-Water (INFEWS)
  - Smart & Connected Communities (SCC)

- Special Initiatives (announced via Dear Colleague Letters):
  - Science of Broadening Participation
  - COVID RAPID funding

- International Initiatives:
  - SBE-RCUK Agreement (now SBE-UKRI)
  - Belmont Forum (e.g., Transdisciplinary Research for Ocean Sustainability)

- Rotating Program Officers (aka Director or Managers) & Merit Review Process
Funding Opportunities
Types of Proposals & Awards

- “Regular” or Standard Research
- Doctoral Dissertation Research (DDRI/DDRIG)
- New Investigators (CAREER)
- High Risk Awards (RAPID, EAGER)

- Research Community Building: Workshop, Conference, & Research Coordination Networks (RCNs)

- Training: Graduate Research Fellowships, Post-doctoral Fellowships, Research Experiences for Undergraduates (REU), International Research Experiences for Students (IRES), Research Traineeship (NRT)

- Equipment, Travel
- Facility, Center
NSF’s Big Ideas for Future Investments

• Future of Work at the Human-Technology Frontier
• Growing Convergence Research
• Harnessing the Data Revolution
• Navigating the New Arctic
• Understanding the Rules of Life
• Windows on the Universe
• Quantum Leap
• Mid-scale Research Infrastructure
• NSF INCLUDES
• NSF 2026

$30 million investment in each in 2019
What is “Convergence Science”?

- Research driven by a specific and compelling problem [“Wicked Problems”].
- Deep integration across disciplines.
- Increasingly mentioned in new cross-directorate initiatives
- May 6, 2019 Dear Colleague Letter: Request for Information on Future Topics for the NSF Convergence Accelerator (NSF 19-065)
How to Find Funding


“Research Areas”

“Funding”
- Key word search
- Browse A-Z index by title
- Browse by Research Area, Special Program
- Upcoming Due Dates
- Recent Funding
- Other

“Awards”

Sign up for alerts -  [https://service.govdelivery.com/accounts/USNSF/subscribe/new](https://service.govdelivery.com/accounts/USNSF/subscribe/new)
The NSF Proposal
Proposal Submission

• Unless otherwise specified, proposals are submitted by *Institutions* via Sponsored Research Offices (awards are made to institutions)

• Proposals may be submitted via FastLane.nsf.gov (recommended) or via Research.gov

• PIs must have a [FastLane](https://www.fastlane.nsf.gov) ID
Important NSF Resources

- **Proposal & Award Policies & Procedures Guide (PAPPG)**
  
  Current: NSF 20-01
  

- Specific Program Descriptions and Solicitations
- Agency Outreach Events – see: [NSFGrantsConferences.com](https://nsfgrantsconferences.com)
  
  => [https://nsfpolicyoutreach.com](https://nsfpolicyoutreach.com) and program websites
Parts of an NSF proposal

- Title (be succinct; avoid cute titles)
- Cover sheet (listing PI and co-PIs if any)
- Project Summary (1 page: Overview, Intellectual Merit & Broader Impacts)
- Table of Contents
- Project Description (15 pages for Regular and CAREER, see specific program solicitations for others; sections for IM and BI)
- References cited
- Biographical Sketches (PI and co-PI) – New template as of 10/20
- Budget
- Budget Justification
- Current and Pending Support (for PI, co-PIs, and other senior personnel) – New template as of 10/20
- Facilities, Equipment, and Other Resources
- Data Management Plan (Max. 2 pages)
- Special Information and Supplementary Documentation
- Collaborators and Other Affiliations
Data-Management Plan

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

- The **standards** to be used for data and metadata format and content (where existing standards are absent or deemed inadequate, this should be documented along with any proposed solutions or remedies);

- **Policies for access and sharing**, including provisions for appropriate protection of privacy, confidentiality, security, intellectual property, or other rights or requirements;

- Policies and provisions for **re-use, re-distribution**, and the production of derivatives; and

- Plans for **archiving data**, samples, and other research products, and for preservation of access to them.

PIs should make all other data, software, and other products of the research readily available to potential users **through institutionally based** archives, repositories, and/or distribution networks so that the **products may be easily accessed by others over long time periods**.
Other Things to Be Aware Of

- Collaborators & Other Affiliations
  - Excel template that must be used – see PAPPG
  - Purpose: to identify persons and institutions with whom PIs have *Conflicts of Interest*, so follow directions!

- IRB Human Subjects Approval
  - Required for issuance of an award (not proposal review). However, changes to the “Common Rule” (45 CFR 690) now allow provisional approval in some cases.

- Sexual Harassment Policy
  - Requires institutions/organizations receiving NSF awards to fully investigate complaints and comply with federal non-discrimination laws, regulations, and executive orders.
  - Will require awardee organizations to notify NSF of any findings/determinations of sexual harassment, other forms of harassment, or sexual assault regarding an NSF funded PI or co-PI.
NSR Merit Review Criteria
Intellectual Merit & Broader Impacts

- **Intellectual Merit**: Potential to advance knowledge
  - To what extent do the proposed activities suggest and explore creative, original, or *potentially transformative* concepts?
  - Is the plan for carrying out the proposed activities well-reasoned, well-organized, and based on a *sound rationale or methodology*?

- **Broader Impacts**: Potential to benefit society and contribute to the achievement of specific desired societal outcomes.

- Program-specific Special Review Criteria (READ the solicitation!!!)
Examples of Broader Impacts

• Improved STEM education and/or educator development
• Development of a diverse scientific workforce
• Enhanced infrastructure for research & education
• Increased public scientific literacy and/or public engagement with science and technology
• Knowledge, products, and other contributions of direct value to society
• Enhanced international scientific collaborations
• Contributions to public policy; national security; improved U.S. economic competitiveness
When and How to Communicate with a Program Officer
An institution with real people who welcome inquiries and communication

New Headquarters – 2415 Eisenhower Ave., Alexandria, VA
• Email first - DON’T cold call
• Send a 1-2 page project prospectus.
• Ask for feedback on relevance for program, not substance of project.
• Read all information available online first – DON’T ask questions for information that is readily available on the program or agency website.
• For co-review by 2 or more programs, contact all relevant POs in a single message.
QUESTIONS?
Why Proposals Are Declined

• Failure to establish a sound theoretical framework and/or poorly related to relevant literature.

• Flawed research design OR failure to specify research methods in sufficient detail. Often, plans for data analysis are insufficient.

• Sound theoretical framework, solid methodology, but they don’t align with each other.
Other Reasons

• Failure to respond to solicitation
• Failure to follow directions
• The project is too focused on a specific case
• Project is “too applied”
• Anticipated contribution incremental
• Bad Luck
General Tips

• Present a compelling problem and a detailed plan for investigating it.

• Convey enthusiasm and passion for the project, but don’t exaggerate.

• Include contingency plans.

• It’s not (about) You. It’s (about) the Science.