



# DEVELOPING AND WRITING EFFECTIVE PROPOSALS TO THE U.S. NATIONAL SCIENCE FOUNDATION (NSF)

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# OVERVIEW

- Brief overview of NSF
- Opportunity announcement types
- Standard NSF proposal requirements
- Preparing to write an NSF research grant proposal
- Strategies for writing the Project Description section

# NSF AT A GLANCE

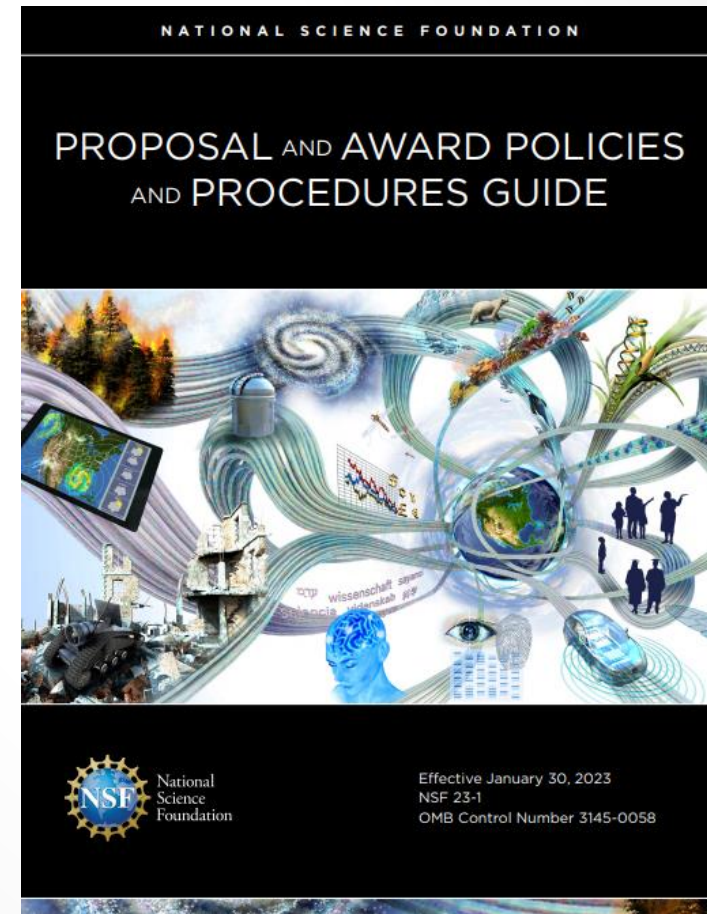
- Funds **basic research** in all fields of fundamental science and engineering, **except for medical sciences**
- Mission is to “promote the progress of science; to advance the national health, prosperity, and welfare; and to secure the national defense”
- FY 2023 budget is US\$9.87 billion, as approved by the U.S. Congress, and is funded by U.S. taxpayer dollars.
- Very high accountability for the PI and awardee institution
  - Bureaucracy = lots of rules and paperwork
- Website: [www.nsf.gov](https://www.nsf.gov)

# NSF DIRECTORATES

- Biological Sciences (BIO)
- Computer and Information Science and Engineering (CISE)
- Engineering (ENG)
- Geosciences (GEO)
- Mathematical and Physical Sciences (MPS)
- Social, Behavioral and Economic Sciences (SBE)
- STEM Education (EDU)
- Technology, Innovation and Partnerships (TIP)

# THE PROPOSAL & AWARD POLICIES & PROCEDURES GUIDE (PAPPG)

- 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 the customer community and NSF staff and consists of two parts:
  - Part I is NSF's proposal preparation and submission guidelines
  - Part II is NSF's award and administration guidelines





# OPPORTUNITY ANNOUNCEMENT TYPES

# OPPORTUNITY ANNOUNCEMENT TYPES

## Program Descriptions:

- Includes broad, general descriptions of programs and activities in NSF Directorates/Offices and Divisions. These proposals must follow the instructions in the PAPPG.

## Program Announcements:

- Refers to formal NSF publications that announce NSF programs. They use generic eligibility and proposal preparation guidelines in the PAPPG.

## Program Solicitations:

- Follow the instructions in the **Program Solicitation**. PAPPG is applicable unless otherwise stated in the solicitation.

## Broad Agency Announcements:

- Invites proposals for research and education across science and engineering. BAAs are broad in their scope, focusing on advancing science and increasing knowledge instead of the development of specific products. These proposals must follow the instructions in the BAA.

## Dear Colleague Letters:

- Notifications of opportunities or special competitions for supplements to existing NSF awards.



# NSF 21-035 – DEAR COLLEAGUE LETTER

## NSF 21-035 Dear Colleague Letter:

- Describes an MOU on Research Cooperation between the NSF Directorate for Computer and Information Science and Engineering (CISE) and the Academy of Finland (AoF)
- Is an International Collaboration arrangement for US researchers to receive funding from NSF and for Finnish researchers to receive funding from AoF
- Focuses on discoveries and innovations in the areas of artificial intelligence and wireless communication technologies
- Is through a 'lead agency model;' NSF and AoF allow proposers from both countries to collaborate and write a single proposal that will undergo a single review process at NSF
- Collaborative research proposals under this opportunity will be accepted to the **Small Project** class of the CISE Core Programs: [Computer and Information Science and Engineering : Core Programs | NSF - National Science Foundation](#)





# STANDARD NSF PROPOSAL REQUIREMENTS

# CAREFULLY REVIEW THE RFP

## **Contents will include:**

- List of NSF Directorates/Divisions funding the grant program
- Proposal deadlines
- Program description
- List of program officers and their contact information
- Award Information
- Eligibility Information: For the PI and for the applicant institution
- Proposal preparation instructions
- Research.gov submission requirements
- Proposal processing and review procedures

# NSF PROPOSAL SECTIONS

- [Cover Sheet](#)
- [Project Summary](#) (max. 1 page)
- [Project Description](#) (max. 15 pages)
- [References Cited](#)
- [Budget](#)
- [Budget Justification](#) (max. 5 pages)
- [Facilities, Equipment, and Other Resources](#)

# NSF PROPOSAL SECTIONS (CONT'D.)

- [Senior Personnel Documents:](#)
  - [Biosketch](#) (max. 3 pages each)
  - [Current and Pending \(Other\) Support](#)
  - [Collaborators and Other Affiliations Information](#)
- [Data Management Plan](#) (up to 2 pages)
- [Postdoctoral Mentoring Plan](#) (if applicable; up to 1 page)
- [Letters of Collaboration](#) (if applicable; typically optional)

***Proposals that do not contain these required sections/documents may not be accepted or may be returned without review.***

*\*Additional forms, disclosures, processes will go into effect on July 31, 2023 & October 23, 2023; revised PAPPG anticipated in Fall 2023/early 2024*

# COVER SHEET CHECKBOXES

- Beginning Investigator (BIO Directorate Only)
- Disclosure of Lobbying Activities
- Proprietary or Privileged Information
- Special Exceptions to the Deadline Date Policy
- Historic Place
- Live Vertebrate Animals
- Human Subjects

COVER SHEET FOR PROPOSAL TO THE NATIONAL SCIENCE FOUNDATION					
PROGRAM ANNOUNCEMENT/SOLICITATION NO./ISSUE DATE <b>NSF 22-1</b>			<input type="checkbox"/> Special Exception to Deadline Date Policy		
FOR CONSIDERATION BY NSF ORGANIZATION UNIT(S) <b>CHE - Software Institutes</b>			FOR NSF USE ONLY <b>NSF PROPOSAL NUMBER</b>		
DATE RECEIVED	NUMBER OF COPIES	DIVISION ASSIGNED	FUND CODE	UEI (Unique Entity Identifier)	FILE LOCATION
	<b>1</b>	<b>03090000 CHE</b>	<b>8004</b>	<b>GGFTK5B4JSL5</b>	
EMPLOYER IDENTIFICATION NUMBER (EIN) OR TAXPAYER IDENTIFICATION NUMBER (TIN) <b>530206152</b>		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 AGENCY(IES)	
NAME OF ORGANIZATION TO WHICH AWARD SHOULD BE MADE <b>NATIONAL SCIENCE FOUNDATION</b>			ADDRESS OF AWARDING ORGANIZATION, INCLUDING FIDRST ZIP CODE <b>2415 EISENHOWER AVE ALEXANDRIA, VA 22314-4684 US</b>		
AWARDING ORGANIZATION CODE (if known) <b>4102852000</b>			ADDRESS OF PRIMARY PLACE OF PERFORM. INCLUDING FIDRST ZIP CODE <b>2415 Eisenhower Avenue Alexandria, VA 22314-4684 US</b>		
NAME OF PRIMARY PLACE OF PERFORM. <b>National Science Foundation</b>					
IS AWARDING ORGANIZATION (Check All That Apply) <input type="checkbox"/> SMALL BUSINESS <input type="checkbox"/> FOR-PROFIT ORGANIZATION <input type="checkbox"/> MINORITY BUSINESS <input type="checkbox"/> NORMANLOWED BUSINESS			IF THIS IS A PRELIMINARY PROPOSAL, THEN CHECK HERE <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO		
TITLE OF PROPOSED PROJECT <b>Test Research</b>			SHOW LETTER OF INTENT TO IF APPLICABLE		
REQUESTED AMOUNT <b>\$ 0</b>	PROPOSED DURATION (in months) <b>36</b>	REQUESTED STARTING DATE <b>09/01/2022</b>	SHOW RELATED PRELIMINARY PROPOSAL NO. IF APPLICABLE		
THIS PROPOSAL INCLUDES ANY OF THE ITEMS LISTED BELOW <input type="checkbox"/> BEGINNING INVESTIGATOR <input type="checkbox"/> DISCLOSURE OF LOBBYING ACTIVITIES <input type="checkbox"/> PROPRIETARY & PRIVILEGED INFORMATION <input type="checkbox"/> HISTORIC PLACES <input type="checkbox"/> VERTEBRATE ANIMALS (ACDC App. Date _____ PHS Animal Welfare Assurance Number _____)			<input type="checkbox"/> HUMAN SUBJECTS Human Subjects Assurance Number _____ Exemption Subsection _____ or PHS App. Date _____ <input type="checkbox"/> FUNDING OF INTL. BRANCH CAMPUS OF U.S. FIRM <input type="checkbox"/> FUNDING OF FOREIGN ORGANIZATION OR FOREIGN INDIVIDUAL <input type="checkbox"/> INTERNATIONAL ACTIVITIES, COUNTRY/COUNTRIES INVOLVED _____		
TYPE OF PROPOSAL: <b>Research</b>			<input checked="" type="checkbox"/> COLLABORATIVE STATUS A collaborative proposal from one organization (PAPPG 18.B.3a)		
PI/PI COPIES			PI/PI COPIES		

# COVER SHEET CHECKBOXES (CONT'D.)

- Funding of an International Branch Campus of a US IHE
- Funding of a Foreign Organization or Foreign Individual
- International Activities
- Potential Life Sciences Dual Use Research of Concern
- Off-Campus or Off-Site Research

# PROJECT SUMMARY

- Text boxes must contain an Overview and Statements on Intellectual Merit and Broader Impacts. (Limited to 1 page)
- Proposals that do not separately address the Overview and both Merit Review criteria will not be accepted.

## **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 informative to other persons working in the same or related fields, and, insofar as possible, understandable to a broad audience within the scientific domain. It should not be an abstract of the proposal.



# PROJECT DESCRIPTION

- 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 Project Description must include Broader Impacts of the proposed activities.
- This document may not exceed 15 pages (including Results from Prior NSF Support).

## 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 the objectives for the period of the proposed work and expected significance; the relationship of this work to the present state of knowledge in the field, as well as to work in progress by the PI under other support.

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 also must contain, as a separate section within the narrative, a section labeled “Broader Impacts”.** This section should provide 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 U.S.; use of science and technology to inform public policy; and enhanced infrastructure for research and education. These examples of societally relevant outcomes should not be considered either comprehensive or prescriptive. Proposers may include appropriate outcomes not covered by these examples.

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 Chapter II.D.2.(ii) for additional instructions for preparation of this section).

For proposals that include funding to an International Branch Campus of a U.S. IHE or to a foreign organization or foreign individual (including through use of a subaward or consultant arrangement), the proposer must provide the requisite explanation/justification in the project description. See Chapter I.E for additional information on the content requirements.

### (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 must not be used because:** 1) the information could

# REFERENCES CITED

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

## **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. (See also Chapter II.D.2.d(iii)(d)) If the proposer has a website address readily available, that information should be included in the citation. It is not NSF's intent, however, to place an undue burden on proposers to search for the URL of every referenced publication. Therefore, inclusion of a website address is optional. A proposal that includes reference citation(s) that do not specify a URL is not considered to be in violation of NSF proposal preparation guidelines and the proposal will still be reviewed.

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.

# BUDGET & BUDGET JUSTIFICATION

- Each proposal must contain a budget for each year of support requested.
- The budget justification should be no more than five pages for all years of the project combined.
- Proposals containing subawards must include a separate budget justification of no more than five pages for each subaward.
- For collaborative proposals submitted by multiple organizations, each organization must include a separate budget justification of no more than five pages.

Proposals to NSF can typically include the following categories in their budget. For the full guidance on these categories, see [PAPPG II.D.2.f](#), or click on a particular category to learn more in the relevant section of the PAPPG:

1. **Salaries and wages.**
2. **Fringe benefits.**
3. **Equipment.**
4. **Travel.**
5. **Participant support.**
6. **Other direct costs**, including materials and supplies, publications, consultant services, computer services and subawards.
7. **Indirect costs.**

# FACILITIES, EQUIPMENT AND OTHER RESOURCES

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

## **g. Facilities, Equipment and Other Resources**

This section of the proposal is used to assess the adequacy of the resources available to perform the effort proposed to satisfy both the Intellectual Merit and Broader Impacts review criteria. Proposers should describe only those resources that are directly applicable. Proposers should include an aggregated description of the internal and external resources (both physical and personnel) that the organization and its collaborators, and subawardees will provide to the project, should it be funded. Such information must be provided in this section, in lieu of other parts of the proposal (e.g., Budget Justification, Project Description). The description should be narrative in nature and must not include any quantifiable financial information. Reviewers will evaluate the information during the merit review process and the cognizant NSF Program Officer will review it for programmatic and technical sufficiency.

Although these resources are not considered voluntary committed cost sharing as defined in 2 CFR §200.1, 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. Chapter VII.B.1 specifies procedures for use by the recipient when there are postaward changes to objectives, scope, or methods/procedures.

# BIOSKETCHES

- Biographical sketches are required for all senior project personnel and must not exceed three pages in length, per individual.
- The Biosketch is used to assess how well qualified the individual, team, or organization is to conduct the proposed activities.
- An NSF-approved format must be used for all senior project personnel.
- Effective **October 23, 2023**, use of [SciENCv](#) will be mandatory.

## **h. Senior Personnel Documents**

### **(i) Biographical Sketch(es)**

**Note:** The mandate to use SciENCv only for preparation of the biographical sketch will go into effect for new proposals submitted or due on or after October 23, 2023. In the interim, proposers may continue to prepare and submit this document via use of SciENCv or the NSF fillable PDF. NSF, however, encourages the community to use SciENCv prior to the October 2023 implementation.

#### **(a) Senior Personnel**

This section of the proposal is used to assess how well qualified the individual, team, or organization is to conduct the proposed activities. A Biographical Sketch (limited to three pages)



# CURRENT AND PENDING (OTHER) SUPPORT

- This section of the proposal calls for information on all current and pending (other) support for ongoing projects and proposals.
- NSF uses this information to assess the capacity of the individual to carry out the research as proposed as well as to help assess any potential overlap/duplication.
- Current and Pending (Other) Support must be provided through use of an NSF-approved format.
- Effective **October 23, 2023**, use of [SciENCv](#) will be mandatory.

## (ii) Current and Pending (Other) Support

**Note: The mandate to use SciENCv only for the preparation of Current and Pending (Other) Support information will go into effect for new proposals submitted or due on or after October 23, 2023. In the interim, proposers may continue to prepare and submit this document via use of SciENCv or the NSF fillable PDF. NSF, however, encourages the community to use SciENCv prior to the October 2023 implementation.**

(a) Current and Pending (Other) Support<sup>[30]</sup> information is used to assess the capacity of the individual to carry out the research as proposed and helps assess any potential scientific and budgetary overlap/duplication, as well as overcommitment with the project being proposed. Note that there is no page limitation for this section of the proposal, though some fields have character limitations for consistency and equity.

# COLLABORATORS AND OTHER AFFILIATIONS (COA) INFORMATION

- This section of the proposal must be provided separately for each individual identified as senior personnel on the project. The COA information must be provided through use of the COA template. This document contains a table with five categories of an individual's collaborators, such as their advisors, co-authors and students.
- NSF requires the use of the Collaborators and Other Affiliations Excel Template for identifying this information. NSF uses [Collaborators and Other Affiliations information](#) during the merit review process to help manage reviewer selection.

**Table 1:** List the individual's last name, first name, middle initial, and organizational affiliation in the last 12 months.

1	Your Name:	Your Organizational Affiliation(s), last 12 mo	Last Active Date
	Alphaman, Alan K	Test University XYZ	
		Test University ABC, Canada (adjunct)	1/1/2021
		Test University DEF, Chicago, IL (interviewed)	12/12/2016

**Table 2:** List names as last name, first name, middle initial, for whom a personal, family, or business relationship would otherwise preclude their service as a reviewer.  
Select "R:" for column A to designate relationships that would otherwise preclude their service as a reviewer.

*To disambiguate common names*

2	Name	Type of Relationship	Optional (email, Department)	Last Active
R:	Alphaman, Alexander M	Family		10/22/2020

NSF COA Template



# SUPPLEMENTARY DOCUMENTATION

- This section is used for the required Data Management Plan, Postdoctoral Mentoring Plan and other pertinent supplementary documentation, such as Letters of Collaboration. More information may be found in [PAPPG, Chapter II.D.2.i](#).
  - **[Data Management Plan](#)**: Proposals must include a document of no more than two pages uploaded under “Data Management Plan” in the supplementary documentation section of Research.gov. This supplementary document should describe how the proposal will conform to NSF policy on the dissemination and sharing of research results.
  - **[Postdoctoral Mentoring Plan](#)**: Each proposal that requests funding for postdoctoral researchers must upload a description of the mentoring activities that will take place for such individuals under “Mentoring Plan” in the supplementary documentation section of Research.gov. (Up to 1 page)
  - **[Letters of Collaboration](#)**: If included, Letters of Collaboration should be limited to stating the intent to collaborate and should not contain endorsements or evaluation of the proposed project. These are not Letters of Support.

# PREPARING TO APPLY

# START EARLY AND BE PROACTIVE!

- Writing a competitive NSF proposal can take several months or longer
- Read funding opportunities (RFPs) thoroughly and carefully
- Contact program officers to confirm international eligibility, relevance of research project, and alignment with program
- Review and follow the general guidelines contained in the *NSF Proposal and Award Policies and Procedures Guide* ([PAPPG](#))
- Think like a reviewer!
  - What would convince you that your project should be funded?

# NSF PROPOSAL REVIEW PROCESS

- Reviewed by an ad-hoc panel comprised of scientists and others with specific and broad understanding of topic
- Panel uses Merit Review Criteria
  - **Intellectual Merit:** What is the significance of work to your field?
  - **Broader Impacts:** How will the work benefit society?
- Proposals are scored as Excellent, Very Good, Good, Fair, or Poor
- Panel recommends proposals to be funded
- Program Officer makes the final funding decisions
- Review process takes about six months

# WHO ARE YOU WRITING TO?

- Review panel may or may not include experts in your field
  - Do not assume all reviewers will understand your field's specific jargon
  - Spell out abbreviations/acronyms
  - Define jargon/terminology
- Program Officer makes the final funding decisions
- **You need to convince the Panel and the Program Officer that your research/idea is worth NSF's investment!**
- How is your project going to “move the needle”?
  - **Why** this approach/methodology? **How** is it different than the current state?  
**Why/how** is it novel? **Why** are you the right PI? **What** could be gained from the work and **how** will it help solve the grand challenge?



# STRATEGIES FOR WRITING THE PROJECT NARRATIVE

# BASIC REQUIREMENTS

- Cannot exceed 15 pages (including graphics, figures, tables, captions) unless stated otherwise in the RFP
- Cannot include URLs or embedded videos
- Paper size: 8 ½ x 11 inches – NOT A4!
- 11pt font and single-spaced paragraphs
  - See PAPPG for specific [format, font, and line-spacing requirements](#)
- Must include a section titled “Broader Impacts” and “Results from Prior NSF Support”
- Non-compliance with these and other requirements may cause proposal to be [“returned without review”](#)
- See PAPPG for complete information



# BASIC OUTLINE:

## 1. INTRODUCTION

- Begin with a description of the problem, why it's a problem, and your approach to solving it
- Then, describe your proposed project (overview)
  - What are you going to do and why?
  - What is the hypothesis?
  - What are the goals and objectives? Where will the project take place?
- Then, describe the significance of the project
  - How does it differ from what is currently being done?
  - How will it advance knowledge in your field or across different fields?
  - How is your proposed work innovative or potentially transforming?
- About 1-2 pages in length

## 2. BACKGROUND

- Place your proposed project in the context of previous or current work
- This is the literature review!
  - Explains what's been done before
  - How your work differs
  - What theories are you applying or challenging?

### 3. PREVIOUS RESULTS [IF ANY]

- Describe previous results and/or preliminary data that demonstrate how/why the proposed project or approach is needed or will be successful
- For most NSF programs, preliminary data or results is expected to demonstrate feasibility of your project
  - Discuss with program officer if concerned

## 4. METHODOLOGY

- How do you plan to do the work?
- Describe the specific tasks and who will do them
  - Discuss the rationale for your choices
- Describe how you will know if you succeeded
  - Specific milestones
  - Evaluation plan

# 5. WORKPLAN

- Project Timeline
  - Describe the specific project milestones and how you will achieve them
  - Provide a timeline or time/task chart to illustrate what activities will take place and when
- Project Team
  - Briefly discuss the role of all senior personnel on the project and the specific tasks they will do
    - Avoid lengthy descriptions of each person's qualifications and experience
  - Briefly discuss the role of any graduate assistants, consultants, technicians, undergraduate students, etc.

# 6. BROADER IMPACTS (REQUIRED)

## *A. Benefits of Proposed Work to Society*

- What societal benefits might be possible as a result of the work?

Examples may include:

- Create jobs
- Decrease health care costs, production costs
- Increase efficiencies, save time and money
- Improve human health and safety
- Reduce reliance on natural resources
- Protect the environment
- Increase the number of students entering science, technology, engineering and math (STEM) fields/careers

# 6. BROADER IMPACTS (REQUIRED)

## *B. Benefits to Student Education*

- How will you integrate/implement the research project with your teaching?
  - Engage your students to help collect data or conduct experiments?
  - Develop new course materials?
  - If applicable, include the participation of U.S. students who are in populations that are underrepresented in STEM fields?
  - Creative uses of social media, hands-on activities, teaching methods?
- Estimate 1-2 pages for Broader Impacts section



# 7. RESULTS FROM PRIOR NSF SUPPORT (REQUIRED)

- **First, see the PAPPG for complete requirements**
- Must be completed if the PI and/or Co-PI(s) have received an NSF grant in the past five years
- If you and/or Co-PI(s) have no prior support, just write “None.”

# GOOD WRITING MATTERS

- Make sure your proposal is well-written
  - The importance/significance of your work is very clear
  - Your arguments are compelling and persuasive
  - You provided the rationale for your choices
  - You provided sufficient details for the reviewers to clearly understand what you will do and how you will do it
  - Your proposal is free of grammar errors, inconsistencies, and mathematical errors
    - Hire a scientific or technical editor or proofreader, if needed
    - If you need to cut the length of your proposal, do it by rephrasing or cutting unnecessary words – do not try any formatting “tricks”

# GET FEEDBACK ON YOUR DRAFTS

- Be open to receiving feedback
  - Difficult to be objective of our own writing!
- Ask your department chair, mentors, and other persons who are familiar with your field/research topic and have written successful grant proposals
- **Do not ask program officers** to review or comment on your drafts
- Most proposals don't get funded on the first try – don't give up!

# RESOURCES

- [NSF Proposal & Award Policies & Procedures Guide \(PAPPG\)](#)
- [NSF 21-035 – Dear Colleague Letter](#)
- [Computer and Information Science and Engineering \(CISE\): Core Programs](#) (**Small Project** class)
- [NSF Pre-award and Post-award Disclosures Relating to the Biographical Sketch and Current and Pending Support](#)
- [Biosketch](#)
- [Current and Pending \(Other\) Support](#)
- [Collaborators and Other Affiliations \(COA\)](#)
- [Merit Review | NSF - National Science Foundation](#)
- [Research.gov](#) (for NSF Proposal Preparation and Submission)
- [Resource Center – NSF Policy Office Outreach \(nsfpolicyoutreach.com\)](#)
- [SciENCv: Science Experts Network Curriculum Vitae \(nih.gov\)](#)
- [Using SciENCv Frequently Asked Questions \(research.gov\)](#)

# QUESTIONS?

**Anna Jackson**  
**Director, Pre-Award and Sponsored**  
**Development Services**  
**University Research Administration**  
**University of Chicago**  
**US**  
[annaj@uchicago.edu](mailto:annaj@uchicago.edu)

**Michelle M. Schoenecker, MA**  
**Senior Proposal Development Manager**  
**Office of Research**  
**University of Wisconsin-Milwaukee**  
**US**  
[schoene7@uwm.edu](mailto:schoene7@uwm.edu)

**NSF Proposal Checklist**  
**Michelle Schoenecker, M.A., University of Wisconsin-Milwaukee**  
**Anna Jackson, University of Chicago**  
**June 12, 2023**

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NSF Proposal and Award Policy & Procedure Guide (PAPPG) can be found here:  
<https://new.nsf.gov/policies/pappg/23-1/ch-2-proposal-preparation>

**GENERAL FORMAT FOR ALL PROPOSAL SECTIONS:**

- \_\_\_ One-inch margins on all sides (any less and your proposal will be returned without review).
- \_\_\_ Page number in bottom center of page (each section numbered individually).
- \_\_\_ Must use an approved typeface and font size (see PAPPG section "[Format of the Proposal](#)").  
(NOTE: Times New Roman 10pt is not allowed and proposal will be returned without review; Times New Roman 11pt is best.)  
May use smaller font size for mathematical formulas or equations, figures, table, or diagram captions and when using a Symbol font to insert Greek letters or special characters.
- \_\_\_ No more than 6 lines of text within a vertical space of one inch.  
(NOTE: Use of Ariel 10pt font often violates this rule; proposal at higher risk for return without review)

**ITEMS FOR UPLOAD TO RESEARCH.GOV:**

\_\_\_ **Project Summary – 1 page**

- One page maximum
- Summarizes project objectives, methodology, and significance.
- Separately addresses both the Intellectual Merit and Broader Impacts of the proposed work.

\_\_\_ **Project Description – 15 pages**

- Must provide a clear statement of the work to be undertaken and must include the objectives for the period of the proposed work and expected significance; the relationship of this work to the present state of knowledge in the field, as well as to work in progress by the PI under other support.
  - 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.
- Broader Impact Statement, which must be titled "Broader Impacts"
- Results of Prior NSF Support (if none, write "None")
- URLs are not allowed

\_\_\_ **References Cited – No page limit**

- Each reference should include the names of all authors, in the same sequence in which they appear in the publication.
- The use of "et al." is not allowed – include all names in each reference.

\_\_\_ **Biographical Sketch – Three pages**

- Should include BOTH research and educational activities and accomplishments.
- Complete your biosketch using the [NSF Filliable Biosketch PDF](#) or [SciEncv](#).
- List no more than 10 products:
  - Five products most closely related to the proposed research
  - Five other significant products
  - List no more than five discrete Synergistic Activities

\_\_\_ **Collaborators & Other Affiliations Information – Use Required Template**

- Complete the [required template](#) (see [NSF PAPPG](#) for additional instructions).

**NSF Proposal Checklist**  
**Michelle Schoenecker, M.A., University of Wisconsin-Milwaukee**  
**Anna Jackson, University of Chicago**  
**June 12, 2023**

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**Budget**

- May request up to two months of salary for senior personnel each year.
- Enter budget numbers into Research.gov.

**Budget Justification – Five pages**

- May request up to two months of salary for senior personnel each year.
- All travel must be specified, itemized, and justified by destination and cost.
- Each subawardee must provide their budget and budget justification (5 pages maximum for each subawardee).
- Upload Budget Justification(s) into Research.gov.

**Current and Pending Support – No page limit**

- Required for all senior personnel listed on the grant.
- Use the [NSF Fillable Current and Pending Support Form](#).
- List all current and pending grant proposals, including this proposal; include all internal and external grant support. Refer to the [NSF Pre-Award and Post-Award Disclosure List](#) to determine which items must be included.

**Facilities, Equipment, and Other Resources – No page limit**

- Description of all directly applicable, available resources.
- Aggregated description of the internal and external resources (both physical and personnel) that you and your collaborators' institutions will provide to the project.

**SUPPLEMENTAL DOCUMENTATION:**

**Data Management Plan –Two pages**

- Should describe how the proposal will conform to NSF policy on the dissemination and sharing of research results.
- Check requirements and plans specific to the Directorate, Office, Division, Program, or other NSF unit: <https://new.nsf.gov/funding/data-management-plan#directorate-and-or-division-guidance-6d6>.

**Postdoctoral Mentoring Plan - REQUIRED ONLY IF SUPPORTING POST-DOCS:**

- Must describe mentoring to be provided to post-docs supported by the project.
- One-page maximum.

**Letters of Collaboration OPTIONAL UNLESS REQUIRED BY RFP– One page**

- No personal endorsements.
- Must follow the required single-sentence format: "If the proposal submitted by Dr. [insert the full name of the Principal Investigator] entitled [insert the proposal title] is selected for funding by the NSF, it is my intent to collaborate and/or commit resources as detailed in the Project Description."
- Nature of the collaboration must be described in the Project Narrative, e.g., data, samples, space, access, time, students, logistical support to the research and educational program, etc.

**List of Suggested Reviewers – OPTIONAL, BUT HIGHLY RECOMMENDED**

- In Research.gov list the names, email addresses, and institutional affiliation of possible reviewers.
- May also list names of persons that should not be asked to review your proposal.



# NSF Resources for Developing Successful and Compliant Proposals

Michelle Schoenecker, M.A., University of Wisconsin-Milwaukee

Anna Jackson, University of Chicago

June 12, 2022

NSF RESOURCE	DESCRIPTION
<b><i>Policies and Guidance</i></b>	
<a href="#">Proposal &amp; Award. Policies &amp; Procedures Guide (PAPPG)</a>	Part I sets forth NSF's proposal preparation and submission guidelines. Part II sets forth NSF policies and procedures regarding the award, administration, and monitoring of grants and cooperative agreements.
<a href="#">NSF Resource Center</a>	Repository of previous NSF presentations, webcasts, and webinars on a variety of proposal development topics.
<b><i>Proposal Development</i></b>	
<a href="#">Pre-award and Post-award Disclosures Relating to the Biographical Sketch and Current and Pending Support</a>	Table indicating the specific types of activities to disclose in the following required proposal sections: Biosketch; Current & Pending Support; and Facilities, Equipment, and Other Resources.
<a href="#">NSF-Approved Formats for the Biosketch</a>	Describes how to use the NSF Fillable Form PDF or SciENCv to create your Biosketch. <i>NOTE: NSF requires the use of SciENCv for Biosketches beginning October 23, 2023.</i>
<a href="#">NSF-Approved Formats for Current and Pending Support</a>	Describes how to use the NSF Fillable Form PDF or SciENCv to create your Current & Pending Support list. <i>NOTE: NSF requires the use of SciENCv for Current &amp; Pending Support beginning October 23, 2023.</i>
<a href="#">Collaborators and Other Affiliations Information (COA)</a>	Describes the content requirements and provides the required template. NSF uses COA information during the merit review process to help manage reviewer selection.
<a href="#">Data Management Plan</a>	Provides links to data management requirements and plans relevant to specific NSF Directorates, Offices, Divisions, Programs, or other units.
<b><i>Proposal Processing and Review</i></b>	
<a href="#">Merit Review</a>	Website describing the NSF Merit Review process.
<a href="#">Merit Review Principles and Criteria</a>	Complete description as outlined in the PAPPG.
<a href="#">Selection of Reviewers</a>	Describes guidelines for the selection of reviewers.
<a href="#">Funding Recommendation</a>	Describes the funding selection process.