About the National Science Foundation

- An independent Federal agency created by Congress in 1950 to “promote the progress of science; [and] to advance the national health, prosperity and welfare”.

- Responsible for the overall health of science and engineering across all disciplines. In contrast, other Federal agencies support research focused on specific missions such as health or defense.

- Committed to ensuring the nation’s supply of scientists, engineers, and science and engineering educators.

- Accounts for about one-fourth of Federal support to academic institutions for basic research.

- Receives over 50,000 proposals each year of which approximately 11,000 are funded.
NSF Directorates

- Mathematical and Physical Sciences
- Geosciences
- Computer and Information Science and Engineering
- Biological Sciences
- Social, Behavioral, and Economic Sciences
- Education and Human Resources
**NSF Core Strategies**


- Integration of research and education and broadening participation in NSF projects.

- Prepare a diverse workforce to advance the frontiers of science and participate in the US technology-based economy.

- Building the knowledge that informs improvements in STEM teaching and learning.

- Expanding participation of groups that are underrepresented in STEM disciplines.
NSF Proposal Types

- Research
- Rapid Response Research (RAPID)
- Early-concept Grants for Exploratory Research (EAGER)
- Research Advanced by Interdisciplinary Science and Engineering (RAISE)
- Grant Opportunities for Academic Liaison with Industry (GOALI)
- Ideas Lab
- Facilitation Awards for Scientists and Engineers with Disabilities (FASED)
- Conference
- Equipment
- Travel
- Center/Research Infrastructure
- Fellowship
Full Proposals

- Present the **Intellectual Merit** and **Broader Impacts** of the proposed project clearly with sufficient information to enable reviewers to evaluate the proposal in accordance with these two merit review criteria.

- Prepare with the care and thoroughness of a paper submitted for publication. Strictly adhere to the rules of proper scholarship and attribution **in all parts of the proposal**. Serious failure can result in findings of research misconduct.
Merit Review Principles

- All NSF projects should be of the highest quality and have the potential to advance, if not transform, the frontiers of knowledge.

- NSF projects, in the aggregate, should contribute more broadly to achieving societal goals through the research itself, through activities that are directly related to specific research projects, or through activities that are supported by, but are complementary to, the project.

- Meaningful assessment of NSF funded projects should be based on appropriate metrics. Projects should include clearly stated goals, specific descriptions of the intended activities, and a plan to document the outputs of those activities.
Merit Review Criteria

- Reviewers will be asked to consider what the proposers 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. These issues apply both to the technical aspects and the way in which the project may make broader contributions.

- **Intellectual Merit**: the potential to advance knowledge.

- **Broader Impacts**: the potential to benefit society and contribute to specific, desired societal outcomes.

- Both criteria are to be given full consideration during the review and decision-making processes; each criterion is necessary but neither, by itself, is sufficient.
Merit Review Elements

- What is the potential for the proposed activity to:
  Advance knowledge and understanding (Intellectual Merit); and
  Benefit society or advance desired societal outcomes (Broader Impacts)?

- 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? Does the plan incorporate a mechanism to assess success?

- How well qualified is the individual, team, or organization to conduct the proposed activities?

- Are there adequate resources available to the PI (either at the home organization or through collaborations) to carry out the proposed activities?
NSF Proposal Sections

- Project Summary
- Project Description
- References Cited
- Biographical Sketches
- Budget
- Budget Justification
- Current and Pending Support
- Facilities, Equipment, and Other Resources
- Postdoctoral Mentoring Plan (if applicable)
- Data Management Plan
- Letters of Collaboration (if applicable)
- Collaborators & Other Affiliations Information
NSF Proposal Blocks

Project Summary
Project Description
References Cited

Budget
Budget Justification
Subawards

Facilities, Equipment, and Other Resources
Letters of Collaboration
Data Management Plan
Postdoctoral Mentoring Plan

Biographical Sketches
Current and Pending Support
Collaborators & Other Affiliations Information
Results of Prior NSF Support
Project Summary

- **Overview:** Describe the activity that would result if the proposal were funded and a statement of objectives and methods to be employed.

- **Intellectual Merit:** Describe the potential of the proposed activity to advance knowledge.

- **Broader Impacts:** Describe the potential of the proposed activity to benefit society and contribute to the achievement of specific, desired societal outcomes.
Project Description

- Clear statement of the work to be undertaken.
- Objectives for the proposed work and expected significance.
- Relationship to the present state of knowledge in the field.
- General plan of work, including the broad design of activities to be undertaken, and a clear description of 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.
- These issues apply to both the technical aspects of the proposal and the way in which the project may make broader contributions.
Project Description (continued)

- **Required** separate section labeled “Broader Impacts”

Contribute to the achievement of societally relevant outcomes. Such as:

- Full participation of underrepresented groups in STEM
- Improved STEM education and educator development at any level
- Increased public scientific literacy and 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 US
- Enhanced infrastructure for research and education
Project Description (continued)

- **Required** separate section labeled “Intellectual Merit”
- **Required** separate section labeled “Results from Prior NSF Support” to assist reviewers in assessing the quality of prior work conducted with prior or current NSF funding, regardless of whether the support was directly related to the proposal or not.
Biographical Sketches

- Professional Preparation
- Appointments
- Products

- **Synergistic Activities:** Up to five examples that demonstrate the broader impact of the individual’s professional and scholarly activities that focuses on the integration and transfer of knowledge as well as its creation; such as: innovations in teaching and training; contributions to the science of learning; development and/or refinement of research tools; computation methodologies and algorithms for problem-solving; development of databases to support research and education; broadening the participation of groups underrepresented in STEM; and service to the scientific and engineering community outside of the individual’s immediate organization.
Budget

- Salaries and Wages
- Fringe Benefits
- Equipment
- Travel
- Participant Support
- Materials and Supplies
- Publication/Documentation/Dissemination
- Consultant Services
- Computer Services
- Subawards
- Indirect Costs
- Total Direct and Indirect Costs
Facilities, Equipment and Other Resources

- Address the adequacy of the resources available to perform the proposed effort.
- Describe only those resources that are directly applicable.
- Describe the internal and external resources (both physical and personnel) that will be provided to the project in this section, in lieu of other parts of the proposal.
Data Management Plan

- Types of data, samples, physical collections, software, curriculum materials, and other materials to be produced in the course of the project.
- Standards to be used for data and metadata format and content.
- Policies for access and sharing including provisions for 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.
- Plans for archiving data, samples, and other research products, and preserving access to them.
Dissemination and Sharing of Research Results

- Promptly prepare and submit for publication … all significant findings.
- 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.
- Share software and inventions created or otherwise make them or their products widely available and usable.
NSF Letters of Collaboration

- Should not contain endorsements or evaluation of the proposed project.
- Format:
  “If the proposal submitted by Dr.____ entitled ______ is selected for funding by NSF, it is my intent to collaborate and/or commit resources as detailed in the Project Description or the Facilities, Equipment and Other Resources section of the proposal.”
Collaborators & Other Affiliations Information

- **Required spreadsheet format**

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<thead>
<tr>
<th></th>
<th>Your Name</th>
<th>Organizational Affiliations, last 12 mos.</th>
<th>Last Active Date</th>
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<td>B</td>
<td>Phd Advisor/Phd Advisees</td>
<td>Organizational Affiliation</td>
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<td>C</td>
<td>Co-Author/Collaborators</td>
<td>Organizational Affiliation</td>
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Submission

- Principal Investigator account on *NSF Fastlane*
- Give G/CA access to proposal and permission to submit
- Administrative review
- Administrative submission
- Deadline
Resubmission

- A declined proposal may be resubmitted, but only after it has undergone substantial revision.
- A resubmitted proposal that has not clearly taken into account the major comments or concerns resulting from the prior NSF review may be returned without review.
- NSF will treat the revised proposal as a new proposal, subject to the standard review procedures.