NSF Grant Proposal Formatting and Structure: Highlights from
[NSF Proposal & Award Policies & Procedures Guide](#) (PAPPG). Effective 1.28.19.

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NSF FORMATTING:

- Use standard US letter paper size (8 ½" x 11")*.*
- Margins, in all directions, must be at least one inch.
- Number the pages of each section individually (bottom centered).
- Use one of the following typefaces identified below:
  - Arial, Courier New, or Palatino Linotype (Microsoft), or Helvetica or Palatino (Macintosh) at a font size of 10 points or larger;
  - Times New Roman at a font size of 11 points or larger; or
  - Computer Modern family of fonts at a font size of 11 points or larger.
- A font size of less than 10 points may only be used for mathematical formulas or equations, figures, table or diagram captions, and when using a Symbol font to insert Greek letters or special characters. In all cases, the text must still be legible.
- No more than six lines of text within a vertical space of one inch.
  (In Word this means a *minimum* line spacing of 'exactly 12pt'. Make sure to check that ascenders and descenders don't run into each other (will depend on font and size). Consider using 13-14pt line spacing to improve readability.)

These requirements apply to all sections of a proposal, including supplementary documentation.

NSF recommends using a standard, single-column format for the text. (Two-column format can cause difficulties when reviewing the document electronically.)

Page limits must be followed.

Individual program solicitations may impose different page limits or other requirements for type size, margin or line spacing. In cases where there are discrepancies between the PAPPG or the advice presented here and the individual program solicitation, *always follow the requirements in the individual solicitation.*

Lack of compliance with these guidelines may cause NSF to return the proposal without review.

NSF PROPOSAL STRUCTURE

The sections described here represent the body of a research proposal that NSF reviewers see.

A. Cover Sheet (generated in FastLane)
A number of the boxes contained on the cover sheet are pre-filled as part of the FastLane login process. For a list of information required for the cover sheet, refer to the PAPPG Section II.C.2.a. Your RA can assist with the cover sheet.

B. Project Summary (max. 4600 characters total for 3 boxes [FastLane], or 1 page)
There is no character limit for each text box, but the aggregate of the three text boxes may not exceed 4,600 characters, including spaces.

The project summary has three sections:
  a. **Overview** (proposed activities, objectives and methods)
  b. **Intellectual merit** (potential to advance knowledge)
  c. **Broader Impacts** (potential to benefit society and contribute to 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 scientifically or technically literate lay reader. It should not be an abstract of the proposal.

C. Table of Contents (automatically generated by FastLane; cannot be edited by the proposer).

D. Project Description (max. 15 pages, except in cases where the solicitation specifies otherwise). *URLs are not allowed in the project description.*

<u>Requirements:</u>

- Include a separate section labeled "**Intellectual Merit**" in the main project description.
- Include a separate section labeled "**Broader Impacts**" in the main project description.
- Include a section labelled "**Results of Prior NSF Support**" following NSF's instructions:
  For each PI or co-PI, list NSF support (research, fellowship, Major Research Instrumentation, conference, travel, etc.); this includes *current support* or *support with an end date in the past 5 years*, whether or not the support is related to the current proposal. In cases where the PI or co-PI has received more than one award, list the *one* most closely related to the proposal. If you have no prior NSF support, insert "Not applicable" under this heading. Use this prescribed format:
  a) NSF award number, total amount, and period of support.
  b) Title of the project.
  c) A summary of the results of the completed work, including accomplishments supported by the award. The results must be described under two distinct headings: <u>Intellectual Merit</u> and <u>Broader Impacts</u>.
  d) A listing of publications resulting from the award. You must provide a complete bibliographic citation for each publication. This can be done either here or in Section E. References Cited.
  e) Evidence of research products and their availability, including, but not limited to: data, publications, samples, physical collections, software, and models, as described in any Data Management Plan; and
  f) Only required if the proposal is for renewed support: a description of the relationship of the completed work to the work now being proposed.

The above items are required. Other than these, you may structure your proposal in whatever way best represents your project, unless otherwise indicated in the specific solicitation. We provide a suggested outline in the box below.

Important:

▪ Address what you want to do, why, and how, as well as how you will know if you 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. (e.g. preliminary data).

▪ NSF's review policy calls for all five review elements below to be considered for *both* Intellectual Merit and Broader Impacts:

1. What is the potential for the proposed activity to: (a) Advance knowledge and understanding within its own field or across different fields (Intellectual Merit); and (b) Benefit society or advance desired societal outcomes (Broader Impacts)?

2. To what extent do the proposed activities suggest and explore creative, original, or potentially transformative concepts?

3. 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?

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

5. Are there adequate resources available to the PI (either at the home organization or through collaborations) to carry out the proposed activities?

Note: The solicitation may provide *additional solicitation specific review criteria* in addition to the five standard criteria listed above; it is critical that you adequately address these criteria in your proposal.

Suggested outline:

The following is a BRDO-recommended structure for the 15-page Project Description of a standard NSF proposal. Remember to add headings and/or subheadings to address any special requirements in the solicitation.

> Intellectual Merit *(required title)*
> - Overview and Objectives
> - Expected Significance
> - Relation to Other Work in Progress *(by PI and by others)*
>   - Background/Review of Relevant Literature
>   - Preliminary Studies
>
> Research Plan
> - Specific Objective 1 *(provide introduction and subheads for each objective)*
>   - Hypothesis and Rationale
>   - Experimental Plan
>   - Expected Outcomes
>   - Potential Pitfalls and Alternative Approaches
>
> Broader Impacts (*required title*)
> - Problem/Needs Statement and Objectives

> - Approach
>   - Hypothesis and Rationale
>   - Planned Activities
>   - Expected Outcomes
> - Evaluation/Measure of Success
>
> Recap/Timetable
>
> Results from Prior NSF Support (*required title; max 5 pages; place under/instead of preliminary data if directly relevant to proposed study*)

E. References Cited (no page limit)

- 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.C.2.d.(iii)(d)).
- If the document is available electronically, provide the website address (optional).

F. Biographical Sketch (max. 2 pages per person)

A biographical sketch is required for each individual identified as "Senior Personnel" (see PAPPG Exhibit II-7 for definition). Include only the required information listed below; inclusion of any other information may result in the proposal being returned without review. In FastLane, biographical sketches for "Senior Personnel" must be uploaded as a single PDF file in this section. "Other Personnel" (i.e., non-faculty) biographical information should be clearly identified and uploaded as a single PDF file in the Other Supplementary Documents section of the proposal (refer to PAPPG Section II.C.2.f.ii).

> **BIOSKETCH: Name and Affiliation** (no other personal information should be included)
>
> **(a) Professional Preparation (Education)**
>
> | | | | |
> |---|---|---|---|
> | Undergraduate Institution(s) | Location | Major | Degree & Year |
> | Graduate Institution(s) | Location | Major | Degree & Year |
> | Postdoctoral Institution(s) | Location | Area | Inclusive Dates (years) |
>
> **(b) Appointments** (Academic and professional; in reverse chronological order)
>
> **(c) Products** (publications, patents, etc.; max. 5+5)
>
> *If only publications are included, this section may be titled "Publications."*
>
>   **(i) Products most closely related to proposal** (up to 5)
>
>   **(ii) Other significant products** (up to 5)
>
> - Acceptable products must be citable and accessible, including but not limited to publications, data sets, software, patents, and copyrights.
> - Unacceptable products are unpublished documents not yet submitted for publication, invited lectures, and additional lists of products.
> - Each product must include full citation information including (where applicable and practicable) names of all authors, date of publication or release, title, title of enclosing work such as journal or book, volume, issue, pages, website and URL, or DOI.

(d) Synergistic Activities (max. 5)

- A list of up to five distinct 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. New: Examples with multiple components are not permitted (*per PAPPG NSF 19-1, effective Jan 28, 2019*).

- Examples should be specific and could include: innovations in teaching and training (e.g., development of curricula, pedagogical methods); contributions to the science of learning; development of research tools; computation methodologies or algorithms; 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 (e.g. reviewer, editor).

G. Budget (forms) and budget justification (max. 5 pages each for both prime and subcontract justifications)

Your RA can help with budget sheets, and justification of numbers for personnel, indirect costs, subcontracts, etc.

- A budget for each year of support requested, unless a particular program solicitation stipulates otherwise.

- Funds can be requested under any of the categories below, as long as the item and amount are necessary, reasonable, allocable, and allowable under the applicable cost principles, NSF policy, and/or the program solicitation. For more info, refer to the UCB Sponsored Projects Office (SPO) [Uniform Guidance](#) webpage.

- Budget Justification with a description and rationale for each applicable line item. *The letter preceding each of the following categories matches the lettering used in the NSF budget forms.*

   a. **Senior Personnel** (e.g., Principal Investigator; Co-Principal Investigator(s); Co-Investigator(s). List each by role and name, briefly describe responsibilities, and indicate effort to be devoted to the project in person-months. *As a general policy, NSF limits the salary compensation requested in the proposal budget for senior personnel to no more than two months of their regular salary in any one year*.

   b. **Other Personnel** (e.g., Postdoctoral Research Associate(s); Graduate Student Researcher(s); Undergraduate Researcher(s); and others by title. List each by role and name (or as TBD if specific individuals are not yet identified), provide a brief description of responsibilities, and indicate effort to be devoted to the project in person-months. *Consultants are not listed as Personnel; incorporate them under Other Direct Costs.*

   c. **Benefits.** Your RA can provide relevant information and calculations.

   d. **Equipment.** Items over $5,000. Include shipping, tax, installation, service costs.

   f. **Participant Support.** Trainee stipends and/or honoraria; trainee travel; and other items to be provided to trainees. *Do not include conference speaker fees, catering, room rental, supplies, or human subjects incentive payments in this category (put these under Other Direct Costs).*

   g. **Other Direct Costs**. Include anticipated direct costs not included under the headings above in this category, including materials and supplies, publication costs, computer services, consultant services, incentives to human subjects, and service charges.

h. **Indirect Costs.** Your RA can provide relevant language.

H. Current and Pending Support

Your RA can help with Current and Pending Support.

For each investigator and senior personnel, provide required information on all current and pending (not past) support for ongoing projects and proposals, **including this project**, and any subsequent funding in the case of continuing grants. List the following:

- Role
- Current / Pending / Submission in near future / Transfer of Support
- Project/Proposal Title
- Brief description (e.g. 2 sentences)
- Source of support, and award number if available
- Total award amount (for the entire award period covered, including indirect costs)
- Total award period covered
- Location of project (e.g. UC Berkeley)
- The number of person-months per year to be devoted to the project

▪ Include:

- All current project support from *any* source (e.g., Federal, state, local or foreign government agencies, public or private foundations, industrial or other commercial organizations).
- The proposed project and all other projects or activities requiring a portion of time of the PI and other senior personnel, even if they receive no salary support from the project(s).
- All proposals already submitted or submitted concurrently to other possible sponsors, including NSF.

Concurrent submission of a proposal to other organizations will not prejudice its review by NSF. The Biological Sciences Directorate exception is delineated in PAPPG Section II.D.2.

I. Facilities, Equipment and Other Resources (no page limit, *unless otherwise specified in the solicitation*)

This section of the proposal is used to assess the adequacy of the resources available to perform the effort proposed to satisfy both Intellectual Merit and Broader Impacts review criteria.

- ▪ The description should be narrative in nature. (URLs are not permitted).
- ▪ Do not include quantifiable financial information.
- ▪ Describe only resources that are directly applicable to the project
- ▪ Include a description of the internal and external resources (both physical and personnel) that the organization and its collaborators will provide to the project.
- ▪ Describe any substantial collaboration(s) with individuals for whom no budget support is requested.

J. Special Information and Supplementary Documentation

Except as listed below, any information that is relevant to determining the quality of the proposed work should be included in the Project Description (section D) and Budget Justification (section G). Information submitted as Special Information and Supplementary

Documentation is not considered part of the 15-page Project Description, nor is it considered an appendix. Requirements may vary by program or directorate.

❖ **Postdoctoral Mentoring Plan** (max. 1 page)
  ▪ If the proposal requests funding to support postdoc(s), you must describe the mentoring that they will receive.
  ▪ 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; training in responsible professional practices; and training in communicating scientific/technical content for a range of audiences, including the general public.

❖ **Data Management Plan** (max. 2 pages)
  ▪ Describe how the proposal will conform to NSF policy on the dissemination and sharing of research results (see PAPPG Section XI.D.4.)
  ▪ Examples include:
    • 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.
  ▪ Include only one supplemental combined Data Management Plan for collaborative proposals.
  ▪ A valid Data Management Plan may include only the statement that no detailed plan is needed, as long as the statement is accompanied by a clear justification.
  ▪ **Data management requirements and plans may vary by Directorate, Office, Division, Program, or other NSF unit.** The specific instructions are available at: http://www.nsf.gov/bfa/dias/policy/dmp.jsp.

Section J includes instructions for **other types of documentation** that may apply to your proposal. These include: documentation of collaborative arrangements (letters of collaboration); rationale for off-campus performance; environmental impact; work in foreign countries; technology utilization/transfer activities; and others (refer to PAPPG Section II.C.j.)

K. Appendices
Appendices are not allowed unless a deviation has been authorized by NSF, or unless specifically required by the program solicitation.
<u>Note:</u>
If the program solicitation does not require one of the above sections to be provided, the proposer should insert text or upload a document in that section that states "Not Applicable."

In addition to sections A to K above, there are a number of single-copy documents that are "For NSF Use Only," some of which are required, others optional. They include: Collaborators and other Affiliations information (required); suggested reviewers; proprietary or privileged information, and a variety of certifications (required). For a list of single copy documents, see PAPPG Section II.C.1. Your RA can help you assemble and upload single copy documents that are required by the solicitation.