**READ THE RFP:** [**https://www.nsf.gov/pubs/2020/nsf20525/nsf20525.htm**](https://www.nsf.gov/pubs/2020/nsf20525/nsf20525.htm)

**MERIT REVIEW CRITERIA INFORMATION**

When evaluating NSF proposals, 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 of the proposal and the way in which the project may make broader contributions. To that end, reviewers will be asked to evaluate all proposals against two criteria:

* **Intellectual Merit:** The Intellectual Merit criterion encompasses the potential to advance knowledge; and
* **Broader Impacts:** The Broader Impacts criterion encompasses the potential to benefit society and contribute to the achievement of specific, desired societal outcomes.

The following elements should be considered in the review for both criteria:

1. What is the potential for the proposed activity to:
   1. Advance knowledge and understanding within its own field or across different fields (Intellectual Merit); and
   2. 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?

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 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 United States; and enhanced infrastructure for research and education.

**A. COVER SHEET**

**AUTOMATICALLY GENERATED IN FASTLANE**

**Proposal due date: July 27, 2020 for all directorates.**

**The Cover Sheet Requirements:**

* **Program Solicitation Number.** FastLane users: Select the CAREER program solicitation number shown at the beginning of this solicitation from the drop-down menu. Research.gov Users: Select the CAREER program solicitation number in Step 1 of the Prepare New Proposal Wizard (Funding Opportunity). Grants.gov users: The program solicitation will be pre-populated by Grants.gov on the NSF Grant Application Cover Page.
* **NSF Unit of Consideration.** Select at least one specific core program from the drop-down list in FastLane as the NSF program(s) to consider the proposal. Research.gov users: Select at least one specific core program in Step 2 of the Prepare New Proposal Wizard (Where to Apply). Grants.gov users should refer to Section VI.1.2. of the NSF Grants.gov Application Guide for specific instructions on how to designate the NSF Unit of Consideration. For assistance in determining which program(s) to choose, refer to the NSF [Guide to Programs](https://www.nsf.gov/funding/browse_all_funding.jsp), which provides descriptions of NSF research-supporting programs.
* **Project Title.** The project title must begin with "CAREER:" and follow with an informative title.
* **Co-PIs.** No co-PIs are permitted on the Cover Sheet.

To help determine the appropriateness of the project for NSF and identify the disciplinary program to which it should be submitted, proposers are urged to refer to the NSF [Guide to Programs](http://www.nsf.gov/funding/browse_all_funding.jsp). Program information can also be found on Directorate web pages, which can be accessed from the NSF home page (<http://www.nsf.gov/>). Proposers are also encouraged to contact the appropriate NSF Program Director before submitting the proposal.

**B. PROJECT SUMMARY (ONE PAGE LIMIT)**

The Project Summary should be written in the third person, 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.

**OVERVIEW**

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.

**INTELLECTUAL MERIT**

The statement on intellectual merit should describe the potential of the proposed activity to advance knowledge.

**BROADER IMPACTS**

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.

**C. TABLE OF CONTENTS**

**AUTOMATICALLY GENERATED IN FASTLANE**

**D. PROJECT DESCRIPTION (15 PAGE LIMIT)**

The Project Description section should contain a well-argued and specific proposal for activities that will, over a 5-year period, build a firm foundation for a lifetime of contributions to research and education in the context of the PI's organization. The proposed project should aim to advance the employee's career goals and job responsibilities as well as the mission of the department or organization.

The Project Description should include:

* a description of the proposed research project, including preliminary supporting data where appropriate, specific objectives, methods and procedures to be used, and expected significance of the results;
* a description of the proposed educational activities and their intended impact;
* a description of how the research and educational activities are integrated or synergistic;
* a description of other broader impacts, besides the education activities, that will accrue from the project; and
* results of prior NSF support, if applicable.

Successful applicants will propose creative, effective research and education plans, along with strategies for assessing these components. The proposed activities should help applicants develop in their careers as both outstanding researchers and educators. While excellence in both education and research is expected, activity of an intensity that leads to an unreasonable workload is not. The research and educational activities do not need to be addressed separately if the relationship between the two is such that the presentation of the integrated project is better served by interspersing the two throughout the Project Description.

**Education Activities** – The education component of the proposal may be in a broad range of areas and may be directed to any level: K-12 students, undergraduates, graduate students, and/or the general public, but should be related to the proposed research and consistent with the career goals of the PI. Some examples are: incorporating research activities into undergraduate courses; teaching a graduate seminar on the topic of the research; designing innovative courses or curricula; providing mentored international research experiences for U.S. students; linking education activities to industrial, international, or cross-disciplinary work; supporting teacher preparation and enhancement; conducting outreach and mentoring activities to enhance scientific literacy or involve students from groups that have been traditionally underrepresented in science; researching students' learning and conceptual development in the discipline; implementing innovative methods for evaluation and assessment; or creating cyberinfrastructure that facilitates involvement of the broad citizenry in the scientific enterprise. Education activities may also include designing new or adapting and implementing effective educational materials and practices. Such activities should be consistent with research and best practices in curriculum, pedagogy, and evaluation. Proposers may build on, or otherwise meaningfully participate in, existing NSF-supported activities or other educational projects ongoing on campus.

**Cross-Disciplinary Perspectives** – NSF recognizes that disciplinary boundaries evolve with time and that inter-, multi-, trans-disciplinary approaches are often needed to push the frontiers of research and education. We invite proposals from early-career investigators who wish to pursue research and education activities that cross disciplinary boundaries. Increasingly, CAREER proposals are co-reviewed by more than one program within a Division or a Directorate, or across Directorates/Offices. We encourage investigators to seek research and education collaborations with partners in other areas of academia as well as from other sectors (for example, partnerships with industry, national laboratories, schools and school districts, or museums). Investigators have the option of including the associated costs in the budget line items of the proposal, or in subawards to another institution for all necessary research and educational activities (for example, hiring an external evaluator, or securing time at a shared research facility). Because the CAREER program is designed to foster individual career development, partners or collaborators may not be listed as co-principal investigators on the cover page. If critical for a given project, support for collaborators may be requested in the senior personnel or consultant services budget line items of the proposal, or in subawards to another institution. However, while recognizing that projects may entail cross-disciplinary collaborations, it is expected that the primary support for a CAREER award will be for the PI and his/her research efforts, with support for other senior personnel commensurate with their limited role in the project. Proposals submitted with co-principal investigators will be returned without review. Ensuring that the CAREER program continues to focus on fostering individual career development of early-career scientists and engineers will be an integral part of the merit review of CAREER proposals.

**Cross-Sector Perspectives** – NSF recognizes that individual investigators may have disciplinary and career interests that enhance their research and education plans through an additional activity such as entrepreneurship, industry partnerships, or policy. We invite proposals from early-career investigators who wish to enhance their research and education activities along these lines. If critical for a given project, investigators have the option of including the associated costs in the budget line items of the proposal or in subawards to another institution.

**Scientific Software Development** – Proposed research activities may involve development of innovative scientific software, along with related studies of reproducibility, provenance, usability, security, adoption, and sustainability of the software, as well as its adaptability to emerging technologies and requirements. If software artifacts are anticipated in a given project, investigators should state and justify which software license(s) will be used for the released software.

**International/Global Dimensions** – NSF encourages CAREER Principal Investigators to include international/global dimensions in their projects. As appropriate, the CAREER proposal should delineate how its activities fit within the context of expertise, facilities, data, and other resources that are being applied globally in relevant areas of research and education, and how the CAREER award would position the Principal Investigator and his/her organization to take a leadership role. If applicable, the proposal should clearly state how the research and education activities will be enhanced by international engagements, and should describe the benefits to participants in the U.S. and abroad. If an international component is included, proposers are encouraged to contact the relevant country Program Officer in the Office of International Science and Engineering (OISE) listed in http://www.nsf.gov/od/iia/ise/country-list.jsp.

The Project Description should be developed in consultation with the department head or equivalent organizational official and should include the following sections (**in whatever order serves your narrative)**.

**OBJECTIVES**

Outline objectives for the period of the proposed work **and expected significance**; and relation to the present state of knowledge in the field, to work in progress by the PI under other support and to work in progress elsewhere.

**PRELIMINARY DATA (IF APPROPRIATE)**

Text goes here.

**PLAN OF WORK**

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.

**EDUCATION AND OUTREACH GOALS AND ACTIVITIES**

Include a description of how they are integrated and synergistic with the research goals.

**BROADER IMPACTS**

The Project Description must contain, as a separate section within the narrative, 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 United States; and enhanced infrastructure for research and education.

**RESULTS FROM PRIOR NSF SUPPORT (Limit 5 pages within the 15 pg limit)**

If the PI has received NSF funding (including any current funding) in the past five years, information on the award(s) is required, irrespective of whether the support was directly related to the proposal or not. Funding includes not just salary support, but any funding awarded by NSF. If the PI has received more than one award (excluding amendments), the PI must report on the award most closely related to the proposal. The following information must be provided:

|  |  |  |
| --- | --- | --- |
| NSF Award #: | Amount: | Period of Support: |
| Title of Project: | | |
| Results/Accomplishments:  Intellectual Merit:  Broader Impacts: | | |
| Publications Resulting from Award:  If none, state “No publications were produced under this award.” | | |
| 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 | | |
| Relation to Proposed Work:  If the proposal is for renewed support, a description of the relation of the completed work to the proposed  Work. | | |

**E. REFERENCES CITED (NO PAGE LIMIT)**

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. If the document is available electronically, the website address also should be identified. **Do not use et al. anywhere in the project description or the references.**

**F. BIOGRAPHICAL SKETCHES**

LIMITED TO TWO PAGES EACH. UPLOAD SEPARATELY. PLEASE BUILD YOUR CV IN SCIENCV. <https://www.ncbi.nlm.nih.gov/sciencv/>

The Biographical Sketch should include **both research and education activities and accomplishments**. The list of publications should include no more than ten publications, including up to five publications most closely related to the proposed research and educational activities and up to five other significant publications, whether or not they are related to the proposed project.

**Synergistic activities can only be ONE example of each activity.** For example, do not have one bullet that says “Journal Reviewer” and then list every journal you have reviewed for. Provide one example of each type of activity.

**G. BUDGET AND BUDGET JUSTIFICATION**

UPLOADED SEPARATELY.

The minimum CAREER award size is $400,000 for a five-year period for all directorates except for the Directorate of Biological Sciences (BIO) and Polar Programs (PLR). For proposals submitted to BIO and PLR, the minimum award size is $500,000 over five years.

Co-PIs are not allowed in CAREER proposals. Support for other senior personnel (i.e., in the Budget Category A) or consultants is permitted, but must be commensurate with their limited role in the project. In particular, while recognizing that projects may entail cross-disciplinary collaborations, it is expected that the primary support for a CAREER award will be for the PI and his/her research efforts. All other allowable costs, as described in the PAPPG, are permitted. Allowable costs include funds for postdoctoral fellows, graduate students, undergraduate students, PI salary, education or outreach activities, support for an evaluator, travel and subsistence expenses for the PI and U.S. participants when working abroad with foreign collaborators, and consultant expenses. In some cases, it may be appropriate to include academic year salary support for the PI on a CAREER budget (for example, PIs who have heavy teaching responsibilities or who must conduct field work during the academic year). Proposers should talk to the cognizant Program Officers about their individual cases.

**BUDGET JUSTIFICATION (LIMITED TO FIVE PAGES PER PROPOSAL)**

Collaborate with your department/college grant manager to develop this document.

**H. CURRENT AND PENDING SUPPORT**

Current and pending support information must be separately provided through use of an NSF-approved format, for each individual designated as senior personnel on the proposal**. Current and pending support includes all resources made available to an individual in support of and/or related to all of his/her research efforts, regardless of whether or not they have monetary value. Current and pending support also includes in-kind contributions (such as office/laboratory space, equipment, supplies, employees, students**). In-kind contributions not intended for use on the project/proposal being proposed also must be reported. Current and pending support information must be provided for this project, for ongoing projects, and for any proposals currently under consideration from whatever source28, irrespective of whether such support is provided through the proposing organization or is provided directly to the individual. The total award amount for the entire award period covered (including indirect costs) must be provided, as well as the number of person-months (or partial person-months) per year to be devoted to the project by the individual. Concurrent submission of a proposal to other organizations will not prejudice its review by NSF, if disclosed. If the project (or any part of the project) now being submitted has been funded previously by a source other than NSF, information must be provided regarding the last period of funding.

Ensure that the proposal being submitted is included on each current and pending support document.

Use Forms provided by your grant manager.

1. **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 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 § 200.99, 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.

**J. SPECIAL INFORMATION AND SUPPLEMENTARY DOCUMENTATION**

**POSTDOCTORAL RESEARCHER MENTORING PLAN (Limited to one page, upload under “Mentoring Plan” in the supplementary documentation section of FastLane)**

Each proposal that requests funding to support postdoctoral researchers must include, as a supplementary document, a description of the mentoring activities that will be provided for such individuals. If a Postdoctoral Researcher Mentoring Plan is required, FastLane will not permit submission of a proposal if the Plan is missing. The mentoring plan must describe the mentoring that will be provided to all postdoctoral researchers supported by the project, irrespective of whether they reside at the submitting organization, any subawardee organization, or at any organization participating in a simultaneously submitted collaborative project. 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; and training in responsible professional practices.

**DATA MANAGEMENT PLAN (limited to two pages)**

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. This supplement should describe how the proposal will conform to NSF policy on the dissemination and sharing of research results and may include:

1. the types of data, samples, physical collections, software, curriculum materials, and other materials to be produced in the course of the project;
2. 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);
3. policies for access and sharing including provisions for appropriate protection of privacy, confidentiality, security, intellectual property, or other rights or requirements
4. policies and provisions for re-use, re-distribution, and the production of derivatives; and
5. plans for archiving data, samples, and other research products, and for preservation of access to them.

**UNFUNDED COLLABORATORS AND LETTERS OF SUPPORT AND COMMITMENT**

*1. Departmental Letter* ***(a proposal submitted without this Letter will be returned without review)*** NSF encourages organizations to value and reward the integration of research and education and the effective mentoring of its early-career faculty in their department. This integration of research and education requires close collaboration between the CAREER Principal Investigator (PI) and his/her organization throughout the duration of the award. To demonstrate the department’s support of the career development plan of the PI, the proposal must include one (and only one) letter from the PI's department head (or equivalent organizational official). In cases of joint appointments, the letter should be signed by both department heads. The letter, which will be included as part of the consideration of the overall merits of the proposal, should demonstrate an understanding of, and a commitment to, the effective integration of research and education as a primary objective of the CAREER award.

The Departmental Letter should be no more than 2 pages in length and include the department head's name and title below the signature. The letter should contain the following elements:

* A statement to the effect that the PI is eligible for the CAREER program. For non-tenure-track faculty, the Departmental Letter must affirm that the investigator's appointment is at an early-career level equivalent to pre-tenure status, pursuant to the eligibility criteria specified above.
* An indication that the PI's proposed CAREER research and education activities are supported by and advance the educational and research goals of the department and the organization, and that the department is committed to the support and professional development of the PI; and
* A description of a) the relationship between the CAREER project, the PI's career goals and job responsibilities, and the mission of his/her department/organization, and b) the ways in which the department head (or equivalent) will ensure the appropriate mentoring of the PI, in the context of the PI's career development and his/her efforts to integrate research and education throughout the period of the award and beyond.

*2. Letters of Collaboration -* Letters of collaboration, limited to stating the intent to collaborate and not containing endorsements or evaluation of the proposed project, are allowed. Letters of collaboration should follow the 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 or the Facilities, Equipment or Other Resources section of the proposal.”**

Departure from this format may result in the proposal being returned without review. Specifics about the need for and nature of collaborations, such as intellectual contributions to the project, permission to access a site, an instrument, or a facility, offer of samples and materials for research, logistical support to the research and education program, or mentoring of U.S. students at a foreign site, should be detailed in the Project Description or the Facilities, Equipment, and other Resources section. Requests for letters of collaboration should be made by the PI well in advance of the proposal submission deadline, because they must be included at the time of submission. **Please note that letters of recommendation for the PI or other letters of support for the project are not permitted.**