NSF CAREER OVERVIEW AND PROJECT AND PROPOSAL PLANNING GUIDE

INTRODUCTION

Securing funding from the National Science Foundation (NSF) is highly competitive and requires the development and submission of substantially rigorous and merited proposals. As with all NSF proposals, the key elements of successful CAREER requests is that they contain sufficiently technical descriptions of innovative science that shows promise for advancing your field(s), are responsive to the funding mechanism (*i.e.,* they are clearly organized and well written per the CAREER instructions), provide compelling responses to the two NSF-wide merit review criteria namely: (a) *Intellectual Merit* (*i.e.,* impact on field) and (b) *Broader Impacts* (*i.e.,* societal outcomes generated by both the research and implementation), and are responsive to the specific priorities of the funding directorate or division to which you are applying for CAREER support.

In an effort to facilitate orientation to the CAREER mechanism and tasks required to produce a competitive proposal, the following Guide provides the following:

(1) An overview of the CAREER mechanism,
(2) An overview of recommended tasks for CAREER project and proposal development,
(3) Suggested templates for developing a concept paper and the requisite Project Summary and Project Description, and
(4) Useful links for contact and planning purposes.

1. NSF CAREER MECHANISM

PROGRAM OVERVIEW

Overview. The Faculty Early Career Development (CAREER) Program is a Foundation-wide activity that offers NSF's most prestigious awards in support of junior faculty *who exemplify the role of teacher-scholars through outstanding research, excellent education, and the integration of education and research within the context of the mission of their organizations*. Such activities should build a firm foundation for a lifetime of leadership in integrating education and research. NSF encourages submission of CAREER proposals from junior faculty members at all CAREER-eligible organizations and especially encourages women, members of underrepresented minority groups, and persons with disabilities.

Program Description. The CAREER Program offers standard grant awards in support of junior faculty integrating education and research within the context of the mission of their organizations.[1] The program places importance on the early development of academic careers dedicated to stimulating the discovery process in which the excitement of research is enhanced by inspired teaching and enthusiastic learning. *The intent of the program is to provide stable support at a sufficient level and duration to enable awardees to develop careers as outstanding researchers and educators who effectively integrate teaching, learning, and discovery.*

Additionally, NSF annually selects from CAREER applicants up to 20 nominees for the Presidential Early Career Awards for Scientists and Engineers (PECASE). The PECASE award is an honorary award and does not provide additional funds.

Award Information. NSF anticipates the disbursement of roughly $220 million over ~600 awards per year to new and continuing CAREER awards. The minimum CAREER award, including indirect costs, should total $400,000 for the five-year duration with the following exception: proposers to the Directorate of Biological Sciences (BIO) or the Division of Polar Programs (PLR) must submit budget requests for a minimum of $500,000 over the five-year project duration. Applicants should review recent awards in their area to determine the average award size and consult with a Program Officer if an anticipated request is considerably larger than the average.

Eligibility Requirements. Academic institutions including universities and two- and four-year colleges may submit proposals on behalf of their faculty members. Non-profit, non-academic organizations associated with educational or research activities are also eligible.

A Principal Investigator (PI) may submit one CAREER proposal per year and may not participate in more than three CAREER competitions. CAREER applicants must meet the following eligibility requirements:

- Hold a doctoral degree by the Directorate's deadline date in a field supported by NSF;
- Be untenured until October 1 following the Directorate's deadline;
- Must not have previously received a CAREER award (prior or concurrent federal support for other types of awards or for non-duplicative research does not preclude eligibility); and
- By October 1st following the deadline for submission of CAREER proposals:
    - Be employed in a tenure-track or tenure-track-equivalent position[2] as an assistant professor or equivalent title at an accredited institution located in the U.S., its territories, or possessions, or the Commonwealth of Puerto Rico, that awards degrees in a field supported by NSF; or
    - Be employed in a tenure-track position (or tenure-track-equivalent position) as an assistant professor (or equivalent title) at an organization located in the U.S., its territories or possessions, or the Commonwealth of Puerto Rico, that is a non-profit, non-degree-granting organization such as a museum, observatory, or research lab.

[1] Please note that NSF technically offers several different grant types including new and continuing grants that, although rare, apply to the CAREER mechanism (see https://www.nsf.gov/pubs/manuals/gpm05_131/gpm2.jsp).
[2] For more information regarding tenure-track-equivalent positions, refer to the eligibility guidelines in the CAREER Program Solicitation.

Proposal Format. While NSF does not require a specific format for proposals, the NSF Proposal & Award Policies & Procedures Guide (PAPPG) provides specific guidance on what must be included in the one-page *Project Summary* – the most read and influential document in your proposal – and the 15-page *Project Description*, which is the primary scored element of the proposal. In addition to the PAPPG, the CAREER funding announcement contains instructions that take precedence for applications to this mechanism.

APPLICATION

Application Submission Options. The application can be submitted via the (1) Grants.gov; (2) NSF Fastlane system or (3) Research.gov. Note that there are significant functional benefits to using NSF's Fastlane and that *Hanover strongly recommends that all PIs and applicants submit using the Fastlane system*.[3]

NSF Fastlane. Proposals submitted via NSF Fastlane should be prepared in accordance to the detailed instructions on how to complete an application in the PAPPG. Applicants are encouraged to read review the guide prior to beginning an application. The PAPPG requires submission of:

- Project Summary
- Project Description[4]
- References Cited
- Biographical Sketch (limited to CAREER PI only)
- Budget
- Budget Justification
- Current and Pending Support
- Facilities, Equipment and other Resources
- Data Management Plan
- Postdoctoral Mentoring Plan, if applicable

Additional Instructions. Please note that the CAREER funding announcement provides additional instructions that supersede the guidelines in the NSF PAPPG.

- **Cover Sheet**: The cover sheet must include the selected program solicitation number (NSF 17-537), the unit of consideration,[5] an informative project title beginning with "CAREER:", as well as PI eligibility information. Eligibility should be confirmed with a Departmental Letter stating that the PI is eligible to participate, included as a supplementary document.

[3] Although submission via Grants.gov and Research.gov is allowed, we strongly recommend that CAREER applicants only use FastLane to avoid what some have perceived as reviewer bias displayed against non-Fastlane users in past competition cycles.

[4] Remember that the *Project Description* must contain, as a separate section within the narrative, a discussion of the Intellectual Merit and Broader Impacts of the proposed activities.

[5] Select at least one specific disciplinary program from the drop-down list in Fastlane as the unit of consideration. 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.

- **Project Summary**: Proposals must contain an overview of what will occur if the project is funded (~1/2 page) and separate statements on Intellectual Merit of the project (~1/4 page) and another on the Broader Impacts of the project (~1/4 page).
- **Project Description**: The 15-page *Project Description* should contain a specific proposal for activities that will, over a five-year period, build a firm foundation for a lifetime of contributions to research and education in the context of the PI's organization. The *Project Description* should be developed in consultation with the department head or equivalent organizational official and should include the following:
    - 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;
    - Description of the proposed educational activities, including plans to evaluate their impact on students and other participants;
    - Description of how the research and educational activities are integrated with one another; and
    - Results of prior NSF support, if applicable.
- **Assessment/Evaluation**: A CAREER proposal must indicate the goals and objectives of the proposed education activities, how it will be integrated with the research component, and the criteria for assessing how these goals will be met. PIs are encouraged to describe how the impact of the educational activities will be assessed or evaluated.
- **References Cited**: Applications must provide references in support of both research and education aspects of the CAREER proposal. *References Cited* should comply with the guidelines in the PAPPG. Note that publications resulting from *Prior NSF Support* should be earmarked within the *References Cited* with an asterisk or other symbol. The *References Cited* do not count against the 15-page *Project Description* limit.
- **Biographical Sketch of Principal Investigator**: The *Biographical Sketch* should be prepared following the instructions in the latest PAPPG and 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. The *Biographical Sketch* may not exceed two pages in length.
- **Supplementary Documentation**: Applicants must scan and upload the originals of the following documents as PDF files into the *Supplementary Documentation* section.
    - **Departmental Letter:** As stated in the Proposal Preparation Instructions, 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, and clearly and convincingly demonstrate how the faculty member's appointment satisfies all the above requirements of tenure-track equivalency.
    - **Letters of Collaboration:** Letters of Collaboration must 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." Letters of Collaboration cannot include any additional information beyond this

statement. Any description of the collaboration should be included in the *Project Description*.
- **Data Management Plan:** See instructions in the CAREER Program Solicitation.
- **Postdoctoral Researcher Mentoring Plan:** This is only applicable if the proposal requests postdoc funds.

APPLICATION REVIEW

Application Review. Applications are reviewed by an NSF Program Officer and usually three to 10 external *ad hoc* or panel reviewers through an NSF merit review process that incorporates consideration of both the technical aspects of a proposed project and its potential to contribute more broadly to advancing NSF's mission. [6]

Committee Types. There are three primary types of review groups for NSF proposals: *ad hoc*, dedicated panels, and combination (i.e., panels with mix of subject matter experts and those with broader scientific knowledge). Applicants should consider the type of review and reviewer their proposal will face, as it may help to shape how technical the proposal should be – the more specific the reviewers' expertise, the more technical detail you will need to provide to convince those reviewers of the scientific merits of the proposed research.

- ***Ad hoc*: Proposals sent out for review**
  - *Ad hoc* reviewers usually have specific expertise in a field related to the proposal.
  - Some proposals may undergo *ad hoc* review only.
  - *Ad hoc* panels are favored by GEO (AGS is *ad hoc* only), BIO, and SBE.

- **Dedicated Panel: Face-to-face sessions conducted by reviewers mainly at NSF, but also in other settings**
  - Panel reviewers usually have a broader scientific knowledge.
  - Some proposals may undergo only a panel review.
  - Some proposals may undergo reviews by multiple panels (especially for those proposals with cross-disciplinary or cross-sector perspectives).
    - *Increasingly, CAREER proposals are co-reviewed by more than one program within a Division or a Directorate, or across Directorates/Offices. NSF encourages investigators to seek research and education collaborations with partners in other areas of academia as well as from other sectors (e.g., industry, national laboratories, schools and school districts, or museums).*
  - Dedicated panels are favored by ENG, CISE, and HER.

- **Combination: Some proposals may undergo supplemental *ad hoc* reviews before or after a panel review**
  - Combination panel reviews tend to be favored by MPS.

[6] See the following link for a comprehensive description of the Foundation's merit review process.

NSF-Wide Merit Review Criteria. In addition to any program-specific criteria, reviewers will be asked to evaluate all proposals against two criteria:

- *Intellectual Merit* – encompasses the potential to advance knowledge
- *Broader Impacts* – encompasses the potential to benefit society and contribute to the achievement of specific, desired societal outcomes.

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.

Proposers are reminded that reviewers will also be asked to review and assess the *Data Management Plan* and the *Postdoctoral Researcher Mentoring Plan*, as appropriate.

2. RECOMMENDED TASKS FOR CAREER PROJECT AND PROPOSAL DEVELOPMENT

The following recommendations are provided to help you optimize your CAREER project design and proposal development work. They are offered to yield progressive insights regardless of where you are in the proposal development process.

a. Develop your long-term CAREER plans and five-year project. Putting your CAREER project request in the context of your long-term career (*i.e.,* research and teaching) goals is the key first step. *NSF Program Officers recommend thinking of a CAREER application as the first five years of a 10-year plan.* Thinking through and articulating your long-term plans, past and current activities, the specific research project for which you seek support, and the ways that it will enhance individual teaching/career and institutional capacity is essential to a successful project design. As with all NSF projects, this planning should culminate in a Project Summary that includes articulation of the core elements of the proposed project including the evidence base, preliminary data, goals, hypotheses, objectives, and impacts of the program on the field (*Intellectual Merit*) and society (*Broader Impacts*).

b. Write a Concept Paper. Recognizing that the requisite NSF Project Summary to be submitted as part of your application does not always deliver sufficient information to give colleagues or an NSF Program Officer a full sense of what the applicant wants to accomplish and how, and that the development of the succinct one-page Project Summary is more difficult to complete in advance of revising and finalizing the project and the Project Description, *Hanover recommends writing a brief one- to three-page Concept Paper to share with your colleagues, mentors, peers, and Program Officer*. The goal is to solicit feedback from stakeholders and Program Officer regarding fit and approach. It should be written in the first person (e.g., I, we, our) and explicitly related to the goals of the CAREER

mechanism and the NSF directorate and/or division to which you are applying. The Concept Paper should provide a concise summary of the key elements of a funding request. It should contextualize and detail the specific research questions, objectives, activities, and outreach in a manner that will allow a Program Officer to provide feedback – and for you the applicant to incorporate the feedback into the project design before developing the 15-page *Project Description*. As such, Hanover recommends the Concept Paper should be structured similar to the *Project Description* (see below) and approximately one to three pages in length.

c. Consult colleagues and collaborators to get critical feedback. This is a critical first step to developing your core project and feedback you want to get and incorporate before you contact a Program Officer. Once you have the Concept Paper, you are well positioned to request review and feedback from colleagues and mentors. The best practice is to *consult these experts for early, substantial, and critical feedback on the quality of the research and/or project design* that you can use to refine your research and educational goals, activities, and intended impacts. The goal is to get an early and frank assessment of the quality of your science and your plans for advancing your career within the institution and beyond and to use that information for developing your research and articulating it in the *Project Description*.

d. Contact and seek insights from the Program Officer. Once you revise the Concept Paper to address substantial feedback, the next step is to consult a Program Officer to gain insights into the responsiveness and competitiveness of your project in the context of the the directorate's goals and the funding mechanism.[7] Your primary contact is a Program Officer in a division or program that is closest to your area of research. Consult the Program Areas section of the NSF Find Funding web page and select the appropriate NSF Division/Office to review the associated divisions, programs, and program descriptions. The NSF staff directory provides contact information for program officers, by name and by organization. In addition, you can consult the list of CAREER Contacts. *NSF Program Officers tend to prefer succinct and direct emails that include insightful questions as well as a copy of the Concept Paper*; they often will read and respond to both. You can also request to set up a phone conversation to follow up or ask additional questions. Working to develop some rapport with Program Officer and to convey your enthusiasm and diligence can increase the likelihood of receiving helpful feedback.

e. Write the *Project Description*. Once you have consulted with a Program Officer and addressed his/her feedback, then the main task is to elucidate your research/project in the 15-page *Project Description*. Per the NSF PAPPG, 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 as well as the relationship of this work to the present state of knowledge in the field (and work in progress by the PI under other support). A responsive CAREER *Project Description* will 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. PIs should convey 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, and must be well

[7] Two articles that provide a good overview for talking with program officers are *Can We Talk? Contacting Grant Program Officers* and *What to Say-and Not Say-to Program Officers*.

justified in either case. The expectation for justification relates to both the technical aspects of the proposal and the way in which the project may make broader contributions. See more information and templates for the *Project Description* in Section 3 below.

f. Write the *Project Summary*. The one-page *Project Summary* is the most read and influential page in your application, and Hanover recommends that you make sure this document is a compelling reflection of your proposed work. An effective *Project Summary* will excite reviewers about the opportunity to invest NSF funding in the project and make them eager to thoroughly read the *Project Description*. The *Project Summary* must consist of three sections: (1) Overview, (2) Intellectual Merit, and (3) Broader Impacts. The Overview should include 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 scientifically or technically literate lay reader. It should not be an abstract of the proposal.

3. TEMPLATES: CONCEPT PAPER, PROJECT SUMMARY, PROJECT DESCRIPTION

CONCEPT PAPER

A Concept Paper provides a concise summary of the key elements of a funding request for the purpose of soliciting feedback and/or buy-in from colleagues and peers in your field, prospective funders, prospective partners and collaborators, and other potential stakeholders. It should be written in the first person (i.e. I/we/our), explicitly related to the goals of the CAREER mechanism and the NSF directorate and/or division to which you are applying, and approximately one to three pages in length.

For NSF CAREER, the Concept Paper should follow the outline of NSF's requirements for the 15-page *Project Description*, including the following components:

- Introduction
- Significance of the proposed project
- Preliminary data
- Research Plan
- Methods
- Timeline
- Expected Outcomes/Benefits (and often Evaluation)
- Budget/Needs and Requested Support
- Contact Information

PROJECT SUMMARY

The *Project Summary* must consist of three sections: (1) Overview, (2) Intellectual Merit, and (3) Broader Impacts. The Overview should include 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 scientifically or technically literate lay reader. It should not be an abstract of the proposal.
NSF asks for the following structure for the one-page NSF project summary:

1. Overview – This section, about 1/2 page in length, should include (a) a *description of the activity that would result if the proposal were funded* and (b) a *statement of the research and outreach objectives* (this is a common omission) and methods to be employed.

2. Intellectual Merit – The statement on Intellectual Merit should describe the potential of the proposed activity to advance knowledge in about 1/4 page.

3. Broader Impacts – The statement on Broader Impacts should describe, in roughly 1/4 page, the potential of the proposed activity to benefit society and contribute to the achievement of specific, desired societal outcomes. As noted previously, these outcomes should not be limited to the outreach components or involvement of underrepresented groups.

Applicants enter the *Project Summary* in Fastlane into three text boxes (one for each section) that must be completed prior to proposal submission. The total character count of the text boxes cannot exceed 4,600 (including spaces). The total number of lines entered for the three text boxes cannot exceed 51 (including blank lines between paragraphs). However, there is no limit on the characters that can be entered per box. The 4,600-character limit and 51-line limit for the *Project Summary* are to ensure that the document meets the one-page limit. If use of special characters is necessary, the proposer must check a box on the *Project Summary* page and upload the *Project Summary* as a Supplementary Document called Project Summary with Special Characters.

PROJECT DESCRIPTION

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 will accrue if the project is successful. The project activities may be based on previously established and/or innovative methods and approaches, and must be well justified in either case. This expectation for justification applies to both the technical aspects of the proposal and the way in which the project may make broader contributions.

Hanover recommends the following structure for the 15-page *Project Description*.

1. Introduction – In this section you should describe the purpose of the proposed project, including specific research questions within the larger context of your career. You should describe your background and contextualize the project including the setting for the research and education activities. You should summarize the proposed approach, the educational components, and both the Intellectual Merit and Broader Impacts

2. Significance of the Proposed Project – This section should include a brief but thorough explanation of how the project is grounded in the science and relevant literature, with specific attention to the knowledge gaps that your work will advance or resolve. You should differentiate your work from previous efforts in the field and NSF-funded projects. It can be helpful to use subheadings to assist reviewers who are working to identify key categories of information.

3. Preliminary Data (if available) – In this section you need to show how your work and data that you may have collected alone or in collaboration with others is both relevant and important to the proposed research. If you do not have preliminary data to share, you will need to ensure that the literature review, your background, and your proposed activities fill the gap. Make the links to the proposed research explicit by explaining what the data show, how those findings have informed your research questions or approach, and what questions remain to be answered. Provide sufficient experimental detail for reviewers to assess the value of the data and to demonstrate your experience with proposed methods.

4. Research Plan – For this section, begin with a clear numbered or bulleted statement of your goals, research questions, and objectives/hypotheses. Include a full methods section for each research question and for each research question, describe the rationale, activities/methods, and expected outcomes. Where appropriate, describe the planned analyses (including statistical approaches). Also include sample size calculations if needed. Consider the following general outline:

    A. Research Objectives
        A.1. Research Question 1:
            Hypothesis 1.1:
                Objective 1.1.1:
                Objective 1.1.2:
            Expected Outcomes…
        A.2. Research Question 2:

Hypothesis 2.1:
Objective 2.1.1:
Objective 2.1.2:
Expected Outcomes…

For each Research Objective, provide a description of the planned methods/approach plus a contingency plan in case of experimental challenges or unexpected results. These sub-sections may be called Potential Challenges and Alternative Approaches.

5. Educational / Outreach Plan – Describe planned outreach/educational activities that will flow from the project; identify any partners on whom you will rely and indicate their degree of commitment to the activity. As you develop the Outreach Plan, keep the expected or desired outcomes in mind, and build the outreach objectives and activities the same way you craft your Research Plan. You could theoretically build this into the research plan above, but Hanover recommends, even if you do that, to provide a summary section where you recap and discuss the Outreach Plan in general. It is imperative that you provide the rationale, target audience, expected outcomes, and relevance to the research for each activity in sufficient detail to convince reviewers that you can and will accomplish the proposed activities. Remember to not overcommit; leveraging existing institutional partnerships and resources are an excellent way to deliver a meaningful, compelling Outreach Plan without undue administrative burden. Also, describe any plans to pursue REU/RET supplements. Consider the following general outline:

    a. Goals
    b. Objectives
    c. Activities
    d. Expected Outcomes

6. Evaluation Plan – NSF requires rigorous evaluation. While NSF does not have a requirement for an external reviewer, the Evaluation Plan should include an external evaluator; the evaluator's background should be commensurate with the complexity of the outreach, the audience, and the assessment/analysis that is needed to track the expected outcomes. The evaluator does not need to be external to your institution. In fact, the most common approach in CAREER application is for the PI to conduct the evaluation, which requires that the PI become versed in NSF expectations for evaluation. This includes the need to pursue both a formative and summative evaluation approach that pertains to the project's specific research questions, data sources, measures, analyses, etc. You can include support for evaluation in your budget or show where you have institutional or other support. See link to NSF's 2010 User Friendly Handbook for Project Evaluation for more information.

7. Timeline – In this section, which we recommend including after evaluation, you want to help the reviewers "see" the project timeline. We recommend that you include a Gantt chart-type timeline with quarterly resolution across the five-year grant term. Include sections for research, education, and evaluation/dissemination goals and activities. In each section,

include a separate line for each activity. If you plan to apply for REU/RET supplements or other grants, include that in the timeline as well.

8. Intellectual Merit – This section should describe the potential of the proposed activity to advance knowledge, and the relationship of this work to the present state of knowledge in the field.

9. Broader Impacts - This section should provide a discussion of the societal impacts of the proposed activities. *Broader Impacts* may be generated by the research itself, through the activities that are directly related to specific research projects, or through activities that are supported by but 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 US; and enhanced infrastructure for research and education.

10. Results of Prior NSF Support – See the current NSF Grant Proposal Guide for required elements, as this report must contain *all* of them). If no prior support, has been received in the last five years, this section should state, "The PI has not received prior NSF support." This can be moved to replace the preliminary data section if it is relevant there.

4. PLANNING AND DEVELOPMENT RESOURCES

These links provide a wealth of information about CAREER from the perspective of past reviewers and Program Officers.

- **NSF CAREER Webinar Slides** (2018) – *deadlines are outdated*
  https://www.nsf.gov/mps/dms/career_and_pecase_information/career_webinar_slides_2018.pdf
- **NSF CAREER Frequently Asked Questions** (Submission in Years 2020-2025)
  https://www.nsf.gov/pubs/2017/nsf17050/nsf17050.pdf
- **NSF CAREER Proposal Writing Tips** (E-Book / Kansas State University)
  http://aries.imse.ksu.edu/nsf/NSF2014/subfolder/career.pdf
- **NSF CAREER Proposal: My Experience and Advice** (Slides / Kansas State University)
  http://aries.imse.ksu.edu/nsf/NSF2015/subfolder/Gurpreet%20Singh.pdf
- **Example Proposals with Reviewer Comments** (Webpage / 2013)
  https://thmatters.wordpress.com/funding-opportunities-and-tips/career-examples-proposalscomments/

5. CAREER DEVELOPMENT TIMELINE

The Gantt chart below provides a recommended timeline for developing a CAREER proposal. It also serves as an example of the kind of project timeline that you will want to include in the Project Description (where the activity lines correspond with the main research objectives and activities as well as the outreach/education and evaluation and dissemination activities.)

Activity	Feb	Mar	Apr	May	Jun	Jul
Concept paper development						
Program Officer discussions						
Proposal draft development						
Budgeting						
Grants Office review						
Submission						
Optional Hanover reviews						
Optional Hanover revision						